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July 7, 2017

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Dear Ms. Lee and Ms. Wells:

SUBJECT: INSTALLATION RESTORATION (IR) SITE 28 AIR SAMPLING AND VAPOR INTRUSION TIER RESPONSE EVALUATION REPORT, FORMER NAVAL AIR STATION (NAS) MOFFETT FIELD, MOUNTAIN VIEW, CALIFORNIA

The *IR Site 28 Air Sampling and Vapor Intrusion Tier Response Evaluation Report* is enclosed. This document evaluates the results of air samples collected in January 2017 by the Navy.

Should you have questions or need additional information, please contact me at (619) 524-4048 or Mr. Wilson Doctor at (619) 524-5940.

Sincerely,

JAMES B. SULLIVAN
BRAC Environmental Coordinator
By direction of the Director

Enclosure: 1. *IR Site 28 Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station (NAS) Moffett Field Mountain View, California, July 2017*

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INSTALLATION RESTORATION (IR) SITE 28
AIR SAMPLING AND VAPOR INTRUSION TIER RESPONSE EVALUATION REPORT
FORMER NAVAL AIR STATION (NAS) MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

July 2017

Naval Facilities Engineering Command Southwest
Base Realignment and Closure
Program Management Office West
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CONTRACT No. N62473-16-C-2003

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INSTALLATION RESTORATION (IR) SITE 28
AIR SAMPLING AND VAPOR INTRUSION TIER RESPONSE EVALUATION REPORT
FORMER NAVAL AIR STATION (NAS) MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

July 2017

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EXECUTIVE SUMMARY

The United States Department of the Navy (Navy) Base Realignment and Closure Program Management Office West has prepared this *Installation Restoration Site 28 Air Sampling and Vapor Intrusion Tier Response Evaluation Report (report).* This report is part of implementation of the United States Environmental Protection Agency (EPA) *Record of Decision (ROD) Amendment for the Vapor Intrusion Pathway, Middle-Ellis-Whisman Superfund Study Area, Mountain View and Moffett Field, California* (EPA 2010). The ROD Amendment was issued by the EPA, Region 9, in August 2010. The Navy is responsible for implementing a remedy for volatile organic compounds (VOCs) vapors originating from possible Navy sources that intrude into buildings within the Navy vapor intrusion area of responsibility (AOR) at former Naval Air Station Moffett Field (Moffett Field [Figures 1 and 2]). The property in the Navy AOR is owned by the National Aeronautics and Space Administration Ames Research Center. The Navy AOR coincides with Installation Restoration Site 28, where the West-Side Aquifer Treatment System operates to remediate groundwater affected by possible Navy sources.

This Report documents air sampling events conducted during January 2017 and evaluates historical data using the ROD Amendment tiering system criteria pursuant to an agreement among the Navy, the EPA, and the California Regional Water Quality Control Board, San Francisco Bay Region for the Navy to implement the vapor intrusion remedy in the Navy AOR.

Background

Moffett Field is located at the northern end of the Santa Clara Valley Basin, approximately 1 mile south of San Francisco Bay (Figure 1). Moffett Field is a National Priorities List site (EPA ID CA2170090078). Groundwater at the Middle-Ellis-Whisman Superfund Study Area has been contaminated with VOCs, primarily trichloroethene (TCE). Under the ROD Amendment, the Navy is responsible for implementing a Comprehensive Environmental Response, Compensation, and Liability Act–mandated vapor intrusion remedy within the Navy AOR. As specified in the ROD Amendment, the Vapor Intrusion Study Area is defined as the area where TCE concentrations in shallow groundwater are greater than 5 micrograms per liter (Figures 2 and 3). A total of 23 buildings in the Navy AOR were identified for the vapor intrusion study. A list of the buildings that were sampled is provided in Table 1 and the building locations are shown on Figure 3.

The ROD Amendment provides a tiering system to determine the appropriate response action for each building/property within the Vapor Intrusion Study Area. The tiering system for existing buildings is based on indoor air sampling with or without engineering controls (ECs) in place, building surveys, walk-throughs, interviews, inspections, subsurface sampling and other lines of evidence. To determine the appropriate tier and corresponding response action for the occupied and partially occupied industrial/commercial buildings within the Navy AOR (there are no residential buildings present), plans were developed to conduct a vapor intrusion investigation consisting of indoor air and outdoor ambient air sampling with analysis for seven chemicals of

concern (COCs) by the EPA Method TO-15 SIM (selected ion monitoring). The seven COCs are TCE, tetrachloroethene (PCE), cis- and trans-1,2-dichloroethene, 1,1-dichloroethene, 1,1-dichloroethane, and vinyl chloride (VC). Dissolved concentrations of these COCs have been detected in shallow groundwater and vapor concentrations have been detected in indoor air samples collected in a number buildings overlying the shallow groundwater. Once a building has been assigned a tier, the selected response action for a building of that tier is implemented, including ECs and Institutional Controls (ICs). Additional lines of evidence may be collected and evaluated at any time to determine whether a move between tiers would be appropriate.

Once implemented, the response action is intended to protect the health of building occupants in the Vapor Intrusion Study Area from actual or threatened releases of Site-related hazardous substances into the environment via the subsurface vapor intrusion pathway. Indoor air cleanup levels have been established that are health protective and that can be achieved upon implementation of the remedy.

The following lines of evidence are used to evaluate whether the lines converge on a conclusion that vapor intrusion is or is not a concern for a specific building at the Middlefield-Ellis-Whisman Site: (1) the location of the building relative to known source areas and depth and concentrations of underlying shallow groundwater, (2) sub-slab soil gas concentrations; (3) indoor air concentrations; (4) lateral and vertical distribution of soil gas concentrations and proximity to building; and (5) building survey, chemical use, ventilation system operations, chemical ratios, among others. Because each building is unique, and screening criteria may be adjusted as more site-specific data are collected, these lines of evidence will be evaluated on a building-specific basis. Where converging lines of evidence indicate that there is no potential for vapor intrusion above indoor air cleanup levels, and following confirmation and appropriate documentation the building would be categorized as Tier 4, and no action would be required (EPA 2010).

Response Action Tiering System

Buildings are ranked as Tier 1, Tier 2, Tier 3A, Tier 3B, or Tier 4, based on the tiering descriptions in Tables 6A and 6B of the ROD Amendment (Table 2 of this report).

- Tier 1: Buildings are classified as Tier 1 if the indoor air concentrations for any of the seven COCs exceed the outdoor ambient air concentrations and the indoor air cleanup levels. Tier 1 buildings require an appropriate EC, and ICs.
- Tier 2: Buildings are classified as Tier 2 if indoor air concentrations are below indoor air cleanup levels with an EC in place or in operation. Long-term monitoring and ICs will be implemented.
- Tiers 3A and B: For a building without an effective EC in place or in operation, if the indoor air concentrations exceed the outdoor air concentrations for any of the seven COCs but are below the indoor air cleanup levels for all of the COCs, then the building is classified as Tier 3A. If the indoor air concentrations are at or below the approximate outdoor air concentrations or indoor air TCE concentrations are within the typical range of outdoor air concentrations given in ROD Amendment, then the building is classified

as Tier 3B. Tier 3A and 3B buildings do not need an engineered remedy. Long-term monitoring is required for Tier 3A, but not for Tier 3B. ICs will be implemented for both Tier 3A and 3B.

- Tier 4: Buildings are classified as Tier 4 when converging lines of evidence demonstrate that there is no longer the potential for COCs resulting from vapor intrusion to exceed the indoor air cleanup levels. For Tier 4 buildings, no action is required after the EPA approves confirmation sampling results and documentation that no action is necessary.

Building Surveys

Building surveys were conducted prior to the 2017 air sampling event to identify each building's structural condition; observe the ventilation system layout and use by the building occupants; gather information about building use schedules; gather information on basic heating, ventilation, and air conditioning (HVAC) systems; and chemical use and storage. During the building surveys, the field team screened work areas for VOCs using a hand-held photoionization detector. Detailed building survey forms, including photoionization detector readings for each building, are provided in Appendix A. A summary of noted building conditions are presented in Table A-1 (Appendix A). The building surveys and previous indoor air sampling results were used to select potential sampling locations within each building for the indoor air sampling activities.

Previous Air Sampling Results (2012, 2014, and 2016)

To determine the appropriate tier and corresponding response action for the industrial/commercial buildings within the Navy AOR, historical indoor air sampling data was evaluated along with 2017 air sampling data. Sections 2.6, 2.8, and 2.10 summarize indoor air sampling results for 2012, 2014, and 2016, respectively. Appendix A presents individual building figures with summary tables showing historical and 2017 air sampling results.

2017 Indoor Air Sampling Activities

A total of 211 air samples, including indoor and outdoor ambient air samples, were collected from January 9–19, 2017, from 23 industrial/commercial buildings at Moffett Field. A total of 182 indoor air samples (including duplicates) were collected from 97 locations within the 23 buildings. Sampling locations and number of samples collected for each building were selected using the results of the building surveys and historical indoor air sampling results. Samples were collected from the basement and in the breathing zone of first-floor work areas (office areas, meeting rooms, and high-traffic areas such as hallways), at potential vapor intrusion pathways (crawl spaces), and in outdoor ambient air. In buildings with HVAC systems, indoor air samples were collected during normal work hours with the HVAC system operating and at the end of a three-day holiday weekend after the HVAC system had been shut down for 36 to 48 hours. The sampling duration for the indoor air samples was 8, 10, or 24 hours, depending on the length of daily occupancy in each building. Indoor and outdoor ambient air samples were analyzed using the EPA Method TO-15 SIM for the COCs.

Air Sampling Results and Response Action Tiering System Evaluation

Using relevant historical data from 2012, 2014, 2016, and current (2017) indoor air sampling results, the buildings were tiered to determine the need for a response action in accordance with the Response Action Tiering System (Table 3). Table 4 provides a side-by-side comparison of historical and current 2017 tiering classification and Figure 4 illustrates the location of all indoor air samples, including 2017 TCE and PCE results at each location.

Of the 23 buildings evaluated, Buildings 10, 45, and 126 were classified as Tier 1. Buildings N239 and N239A were classified as Tier 2. The remaining 18 buildings were classified as Tier 3A or Tier 3B. Buildings classified as Tier 3A (Buildings 2, 3, 12, 14, 15, 16, 555, 567, N210, N243, and N243A) will require continued long-term monitoring per the ROD Amendment (EPA 2010). Buildings classified as Tier 3B (Buildings 13, 29, 67, 76, 107, 510, and 566) do not require long-term monitoring per the ROD Amendment (EPA 2010). A complete response action tiering system evaluation is presented in Section 7, including a comparison with previous tiering results.

Of the 23 buildings sampled during the 2017 air sampling event, five buildings (Buildings 10, 45, 126, N239, and N239A) discussed below had one or more indoor air sampling result with concentrations exceeding the industrial/commercial indoor air cleanup levels in the ROD Amendment (EPA 2010). In addition, Building 16, which did not exceed the indoor air cleanup level in 2017, is discussed below since it is scheduled for mitigation measures in 2017 based on exceeding the indoor air cleanup level for TCE in 2014. Specific details and design of mitigation measures are included in the *Draft Work plan for Vapor Intrusion Mitigation at Installation Restoration Site 28 (Buildings 10, 16, 126, N210, N239, and N239A)* (CES 2017).

Building 10 (Boiler Plant for National Aeronautics and Space Administration Research Park): During the 2017 air sampling event, TCE was detected at a concentration exceeding the industrial/commercial indoor air cleanup screening level of 5 micrograms per cubic meter ($\mu g/m^3$) in one indoor air sample and its associated duplicate sample at 11 $\mu g/m^3$ for both samples in Room 103. These results were higher than indoor air concentrations measured in Room 103 during the 2014 and 2016 events. Building 10 is no longer continuously occupied; the building is only intermittently occupied during the day. Building 10 does not have an HVAC system. The Navy has reclassified this building as Tier 1 from 3A in 2016 and will continue monitoring until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

Building 16 (Maintenance Contractor Office and Shops): All samples collected during the 2017 air sampling event had COC concentrations that were below the indoor air cleanup screening levels and maintained classification as Tier 3A. However, based on historical data from 2014, the building has been selected for future mitigation measures. Building 16 proposed vapor intrusion mitigation measures are planned for implementation in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

Building 45 (Storage Facility): During the 2017 air sampling event, PCE concentrations exceeded the industrial/commercial indoor air cleanup screening level of 2 $\mu g/m^3$ at two locations. Also, TCE exceeded the indoor air cleanup screening level at one sampling location.

Building 45 remains classified as Tier 1 based on 2016 and 2017 sampling results. Building 45 is only occupied for several days a week for periods of 2 to 4 hours. The Navy has not selected a remedial design for this building due to infrequency of use, but will continue monitoring indoor air.

Building 126 (Moffett Historical Society Museum): During the 2017 air sampling event, TCE, PCE, and VC were detected at concentrations exceeding the industrial/commercial indoor air cleanup screening levels. Eight of the 11 sampling locations exceeded the indoor air cleanup screening levels for TCE with concentrations ranging from 5.3 to 24 $\mu g/m^3$. As a result, Building 126 was temporarily unoccupied until an interim mitigation measure was put in place.

In summary, TCE concentrations ranged from 12 $\mu g/m^3$ to 19 $\mu g/m^3$, exceeding the screening level at three of the four sample locations with the HVAC system on. TCE concentrations, ranging from 5.3 $\mu g/m^3$ to 24 $\mu g/m^3$, exceeded the screening level at all four sample locations with the HVAC system off. PCE concentrations, ranging from 5.4 $\mu g/m^3$ to 41 $\mu g/m^3$, exceeded the screening level at four of the four sample locations with the HVAC system on. PCE concentrations, ranging from 11 $\mu g/m^3$ to 56 $\mu g/m^3$, exceeded the screening level at four of the four sample locations with the HVAC system off. VC concentrations, ranging from 2.1 $\mu g/m^3$ to 2.4 $\mu g/m^3$, exceeded the screening level of 2 $\mu g/m^3$, at two of the four sample locations with the HVAC system off. Concentrations of TCE, PCE and VC detected during the 2017 air sampling event are significantly higher than concentrations detected during the 2016, 2014, and 2012 events. The Navy will continue monitoring Building 126 until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated. Building 126 remains classified as Tier 1.

Building N239 (Life Sciences Building): During the 2017 air sampling event, TCE exceeded the industrial/commercial indoor air cleanup screening level in one sample, in Room B053A, with a concentration of 11 $\mu g/m^3$, with the HVAC system turned off. TCE was not detected above the screening level when the HVAC system was in operation. Building N239 was reclassified Tier 2 (from 3A in 2016) with the EC that the HVAC must remain on. The Navy will continue monitoring Building N239 until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

Building N239A (Offices and Centrifuges): During the 2017 air sampling event, TCE concentrations, ranging from 7.0 to 13 $\mu g/m^3$, exceeded the industrial/commercial indoor air cleanup screening level in three samples (one duplicate) in Rooms C102 and U101, with the HVAC system turned on. TCE was detected at a concentration exceeding the industrial/commercial indoor air cleanup screening level in one sample, Room 125, with a concentration of 10 $\mu g/m^3$, with the

HVAC system turned off. Room C102 is an entrance way and is not continuously occupied throughout the day. Room U101 is a utility room and is rarely occupied for only short durations by maintenance crews. Room 125 is the regularly occupied area that exceeded the indoor air cleanup level (with the HVAC off). Therefore, the Navy is reclassifying Building N239A as Tier 2 from 3A in 2016. The Navy will continue monitoring until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram(s) per liter
µg/m^3	microgram(s) per cubic meter
2016 Work Plan	IR Site 28 Vapor Intrusion Indoor Air Monitoring Work Plan
A/H	air handler
AC	air conditioning
AOR	area of responsibility
bgs	below ground surface
COC	chemical of concern
DCA	dichloroethane
DCE	dichloroethene
DoD	United States Department of Defense
EC	Engineering Control
ELAP	Environmental Laboratory Accreditation Program
EPA	United States Environmental Protection Agency
FSM	Facility Site Manager
HP	horsepower
HVAC	heating, ventilation, and air conditioning
IC	Institutional Control
IR	Installation Restoration
LCS	laboratory control sample
MEW Site	MEW Superfund Study Area
MEW	Middlefield-Ellis-Whisman
MRL	method reporting limits
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
Navy	United States Department of the Navy
NELAP	National Environmental Laboratory Accreditation Program
NOREAS	NOREAS, Inc.
PCE	tetrachloroethene
PID	photoionization detector
QA	quality assurance

ACRONYMS AND ABBREVIATIONS
(Continued)

QC	quality control
Report	Installation Restoration (IR) Site 28 2017 Air Sampling and Vapor Intrusion Tier Response Evaluation Report
ROD Amendment	Record of Decision Amendment for the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman Superfund Study Area
ROD	record of decision
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SF	square feet
SIM	selected ion monitoring
TCE	trichloroethene
VC	vinyl chloride
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board, San Francisco Bay Region
WATS	West-Side Aquifer Treatment System

1.0 INTRODUCTION

This *Installation Restoration (IR) Site 28 2017 Air Sampling and Vapor Intrusion Tier Response Evaluation Report* (Report) is prepared by NOREAS, Inc. (NOREAS) for Naval Facilities Engineering Command Southwest, under the Naval Facilities Engineering Command Southwest Contract No. N62473-16-C-2003. This Report summarizes building surveys, air sampling, and operation and maintenance of vapor intrusion mitigation measures at the former Naval Air Station Moffett Field, California (Figure 1).

This Report is prepared as part of implementation of the United States Environmental Protection Agency (EPA) Record of Decision (ROD) Amendment of the Vapor Intrusion Pathway, Middlefield-Ellis-Whisman (MEW) Superfund Study Area (MEW Site), Mountain View, California (ROD Amendment), issued by EPA, Region 9, in August 2010 (EPA 2010). The United States Department of the Navy (Navy) is responsible for implementing a remedy for vapors originating from possible Navy sources that intrude into commercial and industrial buildings within the Navy vapor intrusion area of responsibility (AOR) at the former Naval Air Station Moffett Field (Figure 1). The property of the Navy AOR (Figure 2) is owned by the National Aeronautics and Space Administration (NASA) Ames Research Center. The Navy AOR coincides with IR Site 28, where the West-Side Aquifer Treatment System (WATS) operates to remediate groundwater affected by possible Navy sources. The indoor air sampling within the Navy IR Site 28 AOR (site-wide) includes 23 industrial/commercial buildings (Table 1, Figure 3).

In June 1989, the EPA issued a ROD selecting the soil and groundwater cleanup remedy for the MEW Site (EPA 1989). The groundwater cleanup remedy that has been implemented in the Navy AOR includes extraction and treatment systems to clean up groundwater contamination. The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board) provides oversight of Navy activities for the State of California at Moffett Field.

In August 2010, the EPA (2010) amended the 1989 ROD to select a remedy for the vapor intrusion pathway to prevent subsurface contaminants from migrating into indoor air or accumulating in enclosed building spaces at concentrations exceeding indoor air cleanup criteria for long-term exposure (ROD Amendment). As specified in the ROD Amendment, the Vapor Intrusion Study Area is defined as the area where trichloroethene (TCE) concentrations in shallow groundwater are greater than five micrograms per liter (µg/L). The Navy is responsible for implementing the ROD Amendment within the Navy AOR.

This Report was prepared to document air sampling conducted in January 2017 during the performance of this task order and to evaluate the buildings using the ROD Amendment Response Action Tiering System, pursuant to an agreement among the Navy, the EPA, and Water Board, for the Navy to implement the vapor intrusion remedy in the Navy AOR.

1.1 REPORT ORGANIZATION

The Report is organized as follows:

- **Section 1.0 – Introduction:** Outlines the organization of the Report, project purpose, general scope of work, and project schedule.
- **Section 2.0 – Site Description and Background:** Provides a site description and information about previous investigations for the IR Site 28 Vapor Intrusion Indoor Air Monitoring area.
- **Section 3.0 – Response Action Tiering System:** Describes how buildings are classified based on the need for response action according to the detected concentrations of chemicals of concern (COCs) in indoor air.
- **Section 4.0 – Air Sampling Methodology:** Provides the procedures for collection of indoor and outdoor ambient air samples.
- **Section 5.0 – Air Sampling Results:** Provides the description of each building's condition, heating, ventilation and air conditioning (HVAC) system, existing mitigation measures, sampling locations and results, and analysis of the 211 indoor and outdoor ambient air samples in regards to the response action tier designation.
- **Section 6.0 – Quality Assurance (QA)/Quality Control (QC) and Data Validation:** Provides the QA/QC protocols applied to this investigation for data evaluation and usability.
- **Section 7.0 – Findings and Conclusions:** Summarizes the results and conclusions from analysis of the 211 total air samples collected to evaluate the occurrence of and pathways for vapor intrusion in 23 industrial/commercial buildings at Moffett Field.
- **Section 8.0 – Recommendations:** Provides a path forward for the indoor air of all buildings within the IR Site 28 Vapor Intrusion Indoor Air Monitoring area to meet indoor air cleanup levels.
- **Section 9.0 – References:** Presents the cited documents within the figures and text.
- **Appendix A – Building Survey Forms and Summary Table (CD only, not available to the public due to NASA security requirements)**
- **Appendix B – Sampling Location Maps (CD only, not available to the public due to NASA security requirements)**
- **Appendix C – Laboratory Analytical Reports (CD only)**
- **Appendix D – Data Validation Reports (CD only)**
- **Appendix E – Photographs of Sampling Locations (CD only, not available to the public due to NASA security requirements)**

1.2 PURPOSE

The purpose of this 2017 Air Sampling and Vapor Intrusion Tier Response Evaluation Report is to provide for collection of a fourth series of indoor and outdoor ambient air samples in January 2017 (winter). This consecutive winter sampling event, following the May/June 2012 (late spring), February 2014 (winter), and January 2016 (winter) air sampling events, allows for comparison

with outdoor ambient air quality and indoor air cleanup levels (as provided in the 2010 ROD Amendment) and provides details about potential seasonal differences impacting vapor intrusion. The combined air sampling results from 2012, 2014, 2016, and 2017, along with consideration of the soil gas and shallow groundwater investigation conducted in 2013 (Figures 5, 6, 7, and 8), are used to designate the response action tier classification for each building. The tier classification determines the response action required for each building. Buildings were ranked as Tier 1, Tier 2, Tier 3A, or Tier 3B, based on the tiering descriptions in Tables 6A and 6B of the ROD Amendment (Table 2). The tiering descriptions, the response actions, and the selected remedies provided in Table 6A and Table 6B of the ROD Amendment are compiled and presented in Table 3. A description of each tier classification is included in Section 3.

1.3 GENERAL SCOPE OF WORK

The air sampling program was conducted in accordance with the *IR Site 28, Vapor Intrusion Air Monitoring Work Plan* (2016 Work Plan; NOREAS 2016). The 2016 Work Plan provided for collection of a fourth series of indoor and outdoor ambient air samples as a follow-up to samples collected in 2012, 2014, and 2016. The air sampling results are used to evaluate seasonal differences in vapor intrusion and to qualify and evaluate the tier ranking of buildings in accordance with the ROD Amendment Vapor Intrusion Tier Response System (EPA 2010).

Indoor air samples were collected from all buildings sampled in 2012, 2014, and 2016. The indoor air samples were collected at most of the basement and first floor sampling locations identified in 2012, 2014, and 2016. For the 2017 sample event, locations were added or changed based on November – December 2016 building surveys and historical data, per the 2016 Work Plan (NOREAS 2016). A list of the buildings that were sampled is provided in Table 1 and the building locations are shown on Figure 3.

The scope of work for the indoor air sampling within the Navy IR Site 28 AOR industrial/commercial buildings consists of the following elements:

- On November 28 – December 1, 2016, the 23 industrial/commercial buildings to be sampled were inspected for any modifications in the layout and operations of the HVAC systems since the January 2016 sampling event. Information collected during the building surveys is summarized in Table A-1 of Appendix A.
- Logistics and schedules were coordinated with ALS Environmental in Simi Valley, California, to ensure timely delivery of the sampling equipment at Moffett Field and receipt and processing of the samples at the laboratory. ALS Environmental is certified by both the United States (U.S.) Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) and National Environmental Laboratory Accreditation Program (NELAP).
- Approximately one month before the air sampling events, plans for field activities were finalized and access was requested to the buildings at NASA Ames for collection of the air samples. The request and notification were made to the NASA Ames Environmental Management Division and the building-specific Facility Site Manager

(FSM). Formal notification of the upcoming sampling event was submitted to the EPA and the Navy Resident Officer in Charge of Construction.

- A mobile office and other equipment and supplies were mobilized to Moffett Field on December 16, 2016.
- Indoor air samples and outdoor ambient air samples were collected from January 9–18, 2017, for the 23 industrial/commercial buildings within the Navy AOR (Buildings 2, 3, 10, 12, 13, 14, 15, 16, 29, 45, 67, 76, 107, 126, N210, N239, N239A, N243, N243A, 510, 555, 566, and 567).
- Air samples were collected using 6-liter canisters, each equipped with a fixed-rate flow controller and a particulate filter. The sample canisters were placed 36 to 60 inches above the floor. A total of 182 indoor air samples (including duplicates) were collected from 97 locations within 23 buildings. A total of 29 outdoor ambient air samples were also collected to provide information on COC concentrations in outdoor ambient air (background) and air near outdoor air ventilation system intakes.
  - Buildings without an HVAC system were sampled for 8, 10, or 24 hours, depending on use and occupancy. Buildings with an HVAC system that supplies outdoor air to a portion or all of a building were sampled twice: once during work hours with the HVAC system operating and once 36 to 48 hours after the building ventilation system had been shut down (or converted to internal air circulation). The sampling duration was 8 or 10 hours for buildings that only operate between roughly 7:00 a.m. and 6:00 p.m. The sampling duration was 24 hours for buildings that are occupied or may be occupied 24 hours per day.
  - Select 24-hour outdoor ambient air samples were collected during each indoor air sampling date.
- The air samples were analyzed by the EPA Method TO-15 SIM (selected ion monitoring) for tetrachloroethene (PCE), TCE, cis- and trans-1,2-dichloroethene (DCE), 1,1-DCE, 1,1-dichloroethane (DCA), and vinyl chloride (VC). These are the COCs that are identified in the ROD Amendment.
- A third-party validation quality assurance review was conducted for the laboratory analytical results by Element Consulting Services, of San Diego, California.
- The analytical results were compared with the industrial/commercial indoor air cleanup levels that are presented in Table 2 of the ROD Amendment (EPA 2010) and with outdoor ambient air concentration ranges.
- The indoor air data were evaluated using the Response Action Tiering System criteria presented in Tables 6A and 6B (Table 3) of the ROD Amendment (EPA 2010). The tiering descriptions, response actions, and selected remedies provided in Tables 6A and 6B of the ROD Amendment are compiled and presented in Table 3. The location of all indoor air samples and exceedances of the indoor air TCE screening levels are shown in Figure 4.
- This Report was prepared to document sampling activities, provide sampling results, conduct the tiering system evaluation, and make recommendations based on the results of the tiering system evaluation and the available information on the HVAC systems for the Tier 1 buildings. This Report includes the following additional information:

- Building conditions, occupancy and use conditions, and a summary of building/property-specific data, including identification of potential pathways for subsurface vapor intrusion
- Evaluation of current indoor air ventilation system (e.g., HVAC) operations, and building and property surveys provided by NASA
- Description of any interim vapor intrusion mitigation measures taken at the building to date, and a description of the tasks being performed to monitor the ongoing effectiveness of the measures
- Description and summary of all lines of evidence and specific data collected to determine response action tier
- Map of building/property layout and actual sampling locations
- Photographs of the sampling locations
- Sampling and data collection results and summary of data
- Laboratory analytical data
- Proposed response action tier designation
- QA/QC data and activities
- Description of access requirements for the work to be performed, existing access conditions, and expected additional tasks necessary and scheduled to obtain access
- Description and schedule if an existing engineered vapor intrusion control system will be utilized that may not require a Building/Property-Specific Remedial Design
- Recommendations and proposed follow-up actions

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2.0 SITE DESCRIPTION AND BACKGROUND

The Navy AOR is within the Vapor Intrusion Study Area on Moffett Field (Figure 3). Moffett Field is a National Priorities List site (EPA ID CA2170090078). The EPA is the lead regulatory agency responsible for directing the cleanup process under the Comprehensive Environmental Response, Compensation, and Liability Act and per a Federal Facility Agreement. The Water Board is the state lead agency.

2.1 SITE HISTORY

Moffett Field is located at the northern end of the Santa Clara Valley Basin, approximately 1 mile south of San Francisco Bay (Figure 1). Groundwater at the MEW Site has been contaminated with volatile organic compounds (VOCs), primarily the solvent TCE (Figure 2). In June 1989, the EPA Region 9 (1989) issued a ROD under Comprehensive Environmental Response, Compensation, and Liability Act selecting the groundwater cleanup remedy for the MEW Site (EPA 1989). The Navy adopted the 1989 EPA ROD for Navy IR Site 28. In August 2010, the EPA (2010) amended the 1989 ROD to select a remedy for the vapor intrusion pathway to prevent subsurface contaminants from migrating into indoor air or accumulating in enclosed building spaces at concentrations exceeding their indoor air cleanup criteria for long-term exposure (ROD Amendment). As specified in the ROD Amendment, the Vapor Intrusion Study Area is defined as the area where TCE concentrations in shallow groundwater are greater than 5 µg/L. The Navy is responsible for implementing the vapor intrusion remedy in areas that are impacted by Navy sources (Navy AOR). The Navy AOR is shown on Figure 3.

The ROD Amendment provides a tiering system to determine the appropriate response action for each building/property within the Vapor Intrusion Study Area. The tiering system for existing buildings is based on indoor air sampling with or without engineering controls (ECs) in place and other lines of evidence. To determine the appropriate tier and corresponding response action for the industrial/commercial buildings within the Navy AOR (there are no residential buildings present), plans were developed to conduct a vapor intrusion investigation consisting of indoor air and outdoor ambient air sampling with analysis for the COCs by the EPA Method TO-15 SIM. The COCs are PCE, TCE, cis- and trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC. The vapor intrusion investigation activities and reporting for all the buildings in the Navy AOR are presented as follows, in their chronological order:

- The Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation, Former Naval Air Station Moffett Field, California (AM8AJV 2012) was issued in May 2012 to conduct a vapor intrusion investigation.
- Building surveys were conducted on November 14, 2011, April 24–25, 2012, and May 6–7, 2013, to identify each building's structural condition, ventilation system layout, and use; determine occupancy times; observe operational procedures in laboratory and

maintenance areas; and gather information on the use and storage of solvents, chemicals, and cleaners.

- Twenty-three industrial/commercial buildings in the Navy AOR were sampled from May 18–22, 2012 and on June 12, 2012, to identify indoor areas that have VOCs in air from vapor intrusion that exceed cleanup levels for COCs as listed in the ROD Amendment.
- Based on the results of the 2012 indoor air sampling, an interim mitigation measure was developed and implemented for Building 10 in July 2012, and quarterly indoor air monitoring was implemented. The primary source of COC vapor intrusion into Building 10 was determined to be the influx of COC-laden air from the utility tunnel that connects Building 10 and Hangar 1. The interim measure consisted of installation of a wall in the tunnel approximately 170 feet from Building 10 and installation of a blower to remove air within the tunnel near the Building 10 access, with discharge to an elevated, outside exhaust. During the fourth quarter of 2012, TCE concentrations in samples collected in Building 10 increased to levels above the indoor air cleanup goals. The increase was verified during the first quarter 2013 monitoring period. Based on the indoor air exceedances, modifications to the abatement system were completed from May 13–17, 2013. Modifications included installation of a wall at the Building 10 entrance to the tunnel and installation of an additional blower inside the Building 10 floor trench. The system has been operating continuously since it was restarted with modifications on May 17, 2013. Additional sampling was conducted in May, June, August, and November 2013, in February, May, and August 2014, in February, May, August, and November 2015, in February, May, August, and November 2016, and in January 2017 to determine whether TCE and PCE concentrations in work areas inside the building had decreased and remained below the ROD cleanup goals following the vapor intrusion system enhancements. The results showed that detected concentrations of TCE in work areas within the building were below the ROD Amendment cleanup goal of 5 micrograms per cubic meter ($\mu g/m^3$) in all samples collected in May, June, August, and November 2013; February, May, and August 2014; August 2015; and February, May, and November 2016. No other COC was detected at a concentration that exceeded its respective cleanup goal within work areas of the building.
- The Final Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field, Moffett Field, California (AM8AJV 2013a) was issued in April 2013, presenting the results of the May–June 2012 indoor air sampling. The report included tentative tier rankings for the buildings, identified potential indoor air issues, and recommended mitigation measures and tier response data gaps. A revision to the report was issued in January 2014 (AM8AJV 2014a) to correct tables and the Building 3 map for the location of samples collected in Room 130.
- The Draft Air and Soil Gas Sampling Work Plan Addendum for Soil Vapor Intrusion Tier Response Evaluation (AM8AJV 2013b) was issued in April 2013 to provide for implementing interim mitigation measures in selected buildings with indoor air samples to be collected before and after implementation of the mitigation measures. This work plan also proposed sampling of soil gas and a second indoor air sampling event to verify results of the May–June 2012 sampling event. The second sampling event was revised and postponed to winter 2014 at the request of the EPA. The soil gas

investigation was deferred to a separate work plan (see below) and groundwater sampling was added to the scope.

- The Soil Gas and Groundwater Sampling Work Plan to Support Vapor Intrusion Tier Response Evaluation, Former Naval Air Station Moffett Field, Moffett Field, California (AM8AJV 2013c) was prepared and issued in June 2013 to provide information on proposed mitigation measures and data gaps identified in the April 2013 air sampling report (for the May–June 2012 sampling event), investigate potential vapor intrusion pathways both upgradient and in the proximity of the buildings from dissolved VOCs in the shallow groundwater, and assess the feasibility of reclassifying selected buildings that are tentatively ranked as Tier 3B or Tier 4 (no further action).
- An investigation of the vapor and groundwater seepage pathways in the utility tunnel that connects with Building 10 and Hangar 1 was conducted on April 22, 2013. Seven air and seven water samples were collected and analyzed for the seven COCs. The investigation was part of an inspection and evaluation of the structural integrity of the tunnel and contaminant pathways to develop options for closure or sealing of the tunnel. The tunnel is a pathway for vapor intrusion into Building 10 and vapor migration to tunnel accesses in the area of Hangar 1. The results of this investigation are provided in the draft Technical Memorandum – Building 10 Utility Tunnel Closure/Sealing Evaluation, Former Naval Air Station Moffett Field, California (AM8AJV 2015b).
- Indoor air samples were collected from Buildings 2, 3, 12, and N239A for a vapor pathway investigation of utility floor conduits; soil gas and groundwater samples were collected from the vicinity of buildings in the Navy AOR between May 17 and July 2, 2013, during implementation of the April 2013 Work Plan (indoor air sampling and vapor pathway investigation) and the June 2013 Work Plan (soil gas and groundwater sampling) (AM8AJV 2013b, 2013c). The results of these investigations are presented in the Draft Vapor Pathway, Soil Gas and Groundwater Sampling Report to Support Vapor Intrusion Tier Response Evaluation, Former Naval Air Station Moffett Field, California (AM8AJV 2014c).
- The Final 2014 Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation, Former Naval Air Station Moffett Field, California (AM8AJV 2014b) was issued in February 2014 to conduct a winter vapor intrusion investigation.
- Building surveys were conducted on January 22, 2014, to identify each building's structural condition, ventilation system layout, and use; determine occupancy times; observe operational procedures in laboratory and maintenance areas; and gather information on the use and storage of solvents, chemicals, and cleaners.
- A total of 23 industrial/commercial buildings in the Navy AOR were sampled from February 11–19, 2014, in the second indoor and outdoor air sampling event. During the 2013 event, confirmation air samples were only collected from Buildings 2, 3, 12, and N239A after sealing conduits around utility lines that penetrate foundations and floors in Buildings 2, 3, and 12. The 2014 sampling event is the second event in which all 23 buildings were sampled. Every building from the 2012 event was sampled, but the total number of samples was reduced from 287 to 203.
- The results of the 2014 sampling are presented in the Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field, Moffett

Field, California (AM8AJV 2015a). The report included tentative tier rankings for the buildings, identified potential indoor air issues, and recommended mitigation measures and tier response data gaps.

- Building surveys were conducted on July 7–9, 2015, to identify each building's structural condition; observe the ventilation system layout and use by the building occupants; and gather information about building use schedules. Prior to conducting the surveys, information on basic HVAC systems and chemical use and storage was collected from NASA Facilities Division.
- The 2015 Work Plan for Installation Restoration Site 28 Vapor Intrusion Indoor Air Monitoring for Former Naval Air Station Moffett Field, California (MMEC 2016) was issued in October 2015 to conduct a winter vapor intrusion investigation.
- Twenty-three industrial/commercial buildings in the Navy AOR were sampled from January 11–20, 2016, in the third indoor and outdoor sampling event. Every building from the 2012 and 2014 events was sampled but the total number of samples was reduced from 203, in the 2014 event, to 200.
- The 2016 Final Vapor Intrusion Air Monitoring Work Plan, IR Site 28, Former Naval Air Station Moffett Field, California (NOREAS 2016) was issued in September 2016 to conduct a winter vapor intrusion investigation.
- Building surveys were conducted from November 28 – December 1, 2016, to identify each building's structural condition; observe the ventilation system layout and use by the building occupants; and gather information about building use schedules (Appendix A). While conducting the surveys, information on basic HVAC systems and chemical use and storage was collected from NASA Facilities Division.
- Twenty-three industrial/commercial buildings in the Navy AOR were sampled from January 9–18, 2017, in the fourth indoor and outdoor sampling event. Every building from the 2012, 2014, and 2016 air sampling events was sampled. The total number of samples were updated to reflect recent building surveys and previous sampling results. A total of 211 indoor and outdoor ambient air samples were collected. The 23 buildings that were sampled during the 2017 vapor intrusion study are listed in Table 1 and identified on Figure 3. The results of the 2017 sampling event are presented in this Report.

2.2 SITE CONDITIONS

The Navy AOR is within the Vapor Intrusion Study Area on Moffett Field. The Vapor Intrusion Study Area is generally defined as the area of Navy IR Site 28 where TCE concentrations in shallow groundwater are greater than 5 µg/L, or parts per billion. The estimated extent of TCE in shallow groundwater at the Vapor Intrusion Study Area is shown on Figure 2. Shallow groundwater beneath Moffett Field is approximately 5 to 10 feet below ground surface (bgs) and generally flows in a northerly direction (EPA 2010).

Based on the results of groundwater and air sampling results collected between 2002 and 2010 for both commercial and residential areas at the MEW Site (provided in Tables 1 and 2 of the ROD

Amendment), TCE is the primary COC for the vapor intrusion pathway, along with PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC.

Groundwater aquifers beneath the Vapor Intrusion Study Area consist of shallow and deep aquifer systems, separated by a laterally extensive aquitard approximately 40 feet thick (Table 5). The shallow aquifer system is generally less than 160 feet bgs. Subdivisions within the shallow aquifer are designated as the upper A (also known as A), lower A (also known as B1), B2, and B3 Aquifers. The regional aquitard that underlies the B Aquifers is designated as the B/C Aquitard. The zones below the B/C Aquitard are termed the C Aquifer and the Deep Aquifers. Groundwater flow in the shallow aquifer zone is generally to the north, while flows in the C and Deep Aquifers are generally to the northeast. The shallow and deep aquifer systems in the Moffett Field and MEW Site are not used for drinking water (Haley & Aldrich 2011).

In the Navy AOR, the seasonal variations in water elevations may range from 0.5 to 4.4 feet but more typically range from 0.8 to 1.0 foot, with higher levels in the spring and lower levels in the autumn. The hydraulic gradient is 0.005 to 0.007 foot per foot to the north (ERS Joint Venture and Brown and Caldwell 2011).

2.3 CONCEPTUAL SITE MODEL FOR VAPOR INTRUSION

The vapor intrusion pathway refers to the migration of volatile chemicals (i.e., chemicals that easily evaporate) from the subsurface soils and groundwater upward as vapors, through conduits and preferential pathways, and into overlying buildings. These vapors can then accumulate inside the buildings and affect indoor air quality (Figure 9). A conceptual model was developed to help evaluate the vapor intrusion pathway by identifying the potential sources of VOCs in indoor air, site COCs, and potential pathways and receptors (EPA 2015).

Indoor exposure to VOCs can result from one or more of the following potential sources:

- Volatilization from subsurface shallow soil or groundwater contamination into a building structure (vapor intrusion).
- Occupational, household, or consumer product use or storage inside or outside of the building/workplace.
- Contribution from outdoor air moving into a building through opened doors or windows or from air intakes of HVAC systems. This outdoor air can include contributions from offsite background concentrations, nearby industrial emissions, and volatilization from the subsurface to outdoor air near the building.

Pathways: Chemicals may volatilize from the groundwater and soil, migrate upward and enter buildings through voids and cracks in the floors, dry conduits, or subsurface structures (e.g., basements and other subsurface structures), and then enter buildings. For buildings with basements, VOCs may volatilize from groundwater directly through the basement floor and walls; receptors inside the buildings could inhale these vapors.

Potential Receptors: Potential receptors are persons in current and future buildings in the Vapor Intrusion Study Area. While there are no immediate or short-term health or ecological concerns, the response action in the ROD Amendment (EPA 2010) ensures that building occupants are protected from potential long-term inhalation exposure to COCs.

Site Conceptual Model: Volatilization of VOC contamination in shallow groundwater is the primary source of vapors that may migrate into buildings in the Navy AOR. Releases of chlorinated solvents from onsite and offsite sources have impacted the shallow groundwater beneath Moffett Field, primarily with TCE and PCE. The groundwater table beneath Moffett Field is approximately 4 to 10 feet bgs, with shallow groundwater generally flowing from south of the Navy AOR to the north-northeast, primarily through relict sandy stream channel deposits (AM8AJV 2014c; SES-Tech 2008). The COCs dissolved in shallow groundwater volatilize to the vapor phase in the unsaturated soil until they equilibrate with groundwater concentrations. Also, the COCs will attenuate through sorption onto soils resulting in a three-way partition – onto soil, dissolved in groundwater, and in soil vapor. However, the partition across site media is complicated by variations in temperature and the percent moisture in soils, particularly at the capillary fringe, which is the partially saturated contact of the water table with the unsaturated soil.

Studies have shown that the effects of variations in temperature and moisture content have a major impact on how organic compounds partition between soil, groundwater, and soil gas (Washington 1996; Davis et al. 2001). With groundwater occurring at shallow depths of 4 to 10 feet bgs in the Navy AOR, the large paved areas and buried utility conduits (e.g., concrete steam line tunnels) serve as heat conduits for relatively rapid daily temperature variations, and the heterogeneities of soil types (meandering sand channel deposits, silt and clay flood deposits, discontinuous lenticular sand lenses, bay mud, fill areas for building and utility construction) affect the shallow groundwater and soil gas flow paths and flow rates. These factors make it difficult to predict the partitioning of COCs and therefore complicate the task of valuating the risk of vapor intrusion into individual buildings based on the concentrations of COCs in shallow groundwater and the integrity of building foundations.

Comparison of soil gas data collected during the 2013 investigation with shallow groundwater data shows limited correlation between high concentrations of TCE in shallow groundwater and concentrations of TCE in soil gas (Figures 6 and 8). TCE in soil vapor is widely spread across the Navy AOR, whereas elevated concentrations in groundwater are more localized (AM8AJV 2014c). This observation likely results from the following:

- Soil gas migrates through porous media because of differences in air pressure, chemical gradients, soil permeability, and soil moisture, with the soil vapors migrating away from or spreading beyond the source area of volatilization, creating a large, spread-out area with vapors in the soil vadose zone.
- Limited COC concentration data for all site media have been collected at specific locations – ideally all site media (soil, groundwater, soil vapor, and indoor air) would be sampled at each location.

TCE vapors in soil gas are more widely distributed than areas of elevated concentrations of TCE in groundwater, likely due to dispersion and spreading of the soil vapors throughout the soil vadose zone, while contaminated groundwater migrates primarily through sandy stream deposits that are surrounded by finer-grained interchannel sediments (AM8AJV 2014c; SES-Tech 2008). Site data for indoor air, soil gas, and groundwater collected within the Navy AOR show the potential for vapor intrusion into buildings in areas where elevated concentrations of TCE or PCE have been detected in soil gas and/or groundwater. Buildings that currently have or have had COCs detected at concentrations above the ROD Amendment indoor air cleanup levels frequently have at least a portion of the building over areas with high concentrations of COCs in groundwater.

Factors affecting the vapor intrusion pathway into and within buildings include vapor pressure differences inside the building and below the foundation subslab, the presence of cracks and breaks in the foundation, utility conduits and drain lines that penetrate the foundation, existence of subfloor crawl spaces where vapors can accumulate, negative and positive pressure differences from operation of an HVAC system, fans and powered vents (such as in laboratories, kitchens, break rooms, and restrooms), temperature gradients within the building, and ventilation pathways from open windows, wall cracks, siding separation, and open vertical conduits such as stairwells, elevator and ventilation shafts, and multi-floor utility conduits.

Utility Tunnel Vapor Pathway: In the utility tunnel that connects Building 10 and Hangar 1, elevated concentrations of COCs, including TCE and PCE, were reported in the tunnel air and in standing water samples. Concentrations of TCE and PCE in the tunnel air exceed the ROD Amendment industrial/commercial indoor air cleanup levels; however, the utility tunnel is not considered a work area and, therefore, the ROD Amendment indoor air cleanup levels do not apply. The utility tunnel is a pathway for the migration of organic vapors from soil gas and contaminated groundwater. Groundwater enters the tunnel through cracks and breaks in the tunnel's concrete floor and walls, with the water in the tunnel sumps coming from groundwater seepage. Once inside the tunnel, the COCs volatilize to the vapor phase. Also, soil vapors in the unsaturated soil will enter the tunnel through the cracks and breaks that occur above the water table. The vapors migrate because of vapor pressure gradients into Building 10 and to the area of Hangar 1 (AM8AJV 2015b). Interim mitigation measures have been installed at Building 10. As a result, there is currently no direct exposure pathway from vapors accumulating within the utility tunnel to workers at Building 10 or personnel engaged in periodic VI sampling at and in the vicinity of the building. Potential access to the tunnel in the future would require health and safety measures, including a confined space work permit and implementation of a health and safety plan that requires air monitoring and contingencies for required use of respirators and/or supplied air.

2.4 VAPOR INTRUSION ROD AMENDMENT

In August 2010, the EPA (2010) amended the MEW Site 1989 ROD to select a remedy for the vapor intrusion pathway to prevent subsurface volatile contaminants in groundwater from migrating into indoor air or accumulating in enclosed building spaces at levels exceeding indoor air cleanup criteria for long-term exposure for residential and commercial buildings. The ROD

Amendment provides a tiering system to determine the appropriate response action for each building/property within the Vapor Intrusion Study Area (Table 3). The tiering system for existing buildings is based on indoor air sampling with or without ECs in place and other lines of evidence. The corresponding response action may include both engineering controls and institutional controls (ICs) (EPA 2010). A summary of the ROD Amendment tiering descriptions and response actions for existing commercial buildings is provided in Table 2.

2.5 BUILDING SURVEYS

Building surveys were conducted prior to the 2017 air sampling event to identify each building's structural condition; observe the ventilation system layout and use by the building occupants; gather information about building use schedules; gather information on basic HVAC systems; and chemical use and storage. During the building surveys, the field team screened work areas for VOCs using a hand-held photoionization detector (PID). Detailed building survey forms including PID readings for each building are provided in Appendix A. A summary of noted building conditions are presented in Table A-1 (Appendix A). The building surveys and previous indoor air sampling results were used to select potential sampling locations within each building for the indoor air sampling activities.

2.6 2012 INDOOR AIR SAMPLING

A vapor intrusion investigation was conducted that consisted of indoor air sampling and outdoor ambient air sampling to determine the appropriate tier and corresponding response action for the industrial/commercial buildings within the Navy AOR.

The initial indoor air investigation was conducted from May 18–28, 2012 and on June 12, 2012. The work involved collecting indoor air samples from 23 buildings, as identified in Table 1, and outdoor ambient air samples at Moffett Field per the 2012 Work Plan (AM8AJV 2012). The 23 buildings were included in the 2012 study on the basis of occupancy and ventilation criteria for the building use and construction. A total of 287 air samples, including 258 indoor and 29 outdoor ambient air samples, were collected to evaluate the vapor intrusion pathways in the 23 fully or partially occupied buildings at Moffett Field, where partially occupied implies that only a part of a building is occupied or utilized. Indoor and outdoor ambient air samples were analyzed by an analytical laboratory using the EPA Method TO-15 SIM for the COCs (PCE, TCE, cis- and trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC). Results were reported in $\mu g/m^3$.

Using the indoor air sampling results and the 2010 ROD Amendment Vapor Intrusion Tiering System, the buildings were preliminarily tiered to determine the need for a response action in accordance with the EPA's Response Action Tiering System. The air sampling results and the preliminary tier evaluation for the 23 buildings were presented in the *Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field, California, Revision 1* (AM8AJV 2014a). Indoor air quality was compared with the ROD Amendment commercial indoor air cleanup levels for COCs, which are provided in Table 6, and with outdoor

ambient air concentrations, with consideration of whether or not an air quality EC was in place and operating correctly.

Of the 23 buildings evaluated during the 2012 study, only two buildings (Buildings 10 and 126) were classified as Tier 1 (AM8AJV 2014a), which mandates that an appropriate EC be implemented as a remedy to meet indoor air cleanup levels. Building N210 was classified as Tier 2 because it has a required EC. The majority of the buildings are classified as Tier 3A (Buildings 2, 3, 13, 14, 15, 16, 29, 45, 107, N210, N239, N239A, N243, N243A, 510, 555, and 567) because indoor air concentrations met indoor air cleanup levels in work areas without an EC in place or operating; however, one or more samples from each building had one or more COCs at concentrations that exceeded the outdoor ambient air concentration. The response action for buildings classified as Tier 3A requires the development and implementation of long-term monitoring per the ROD Amendment. Three of the buildings (Buildings 67, 76, and 566) were classified as Tier 3B and do not require ECs or long-term monitoring.

Based on 2012 indoor air sampling results, recommendations were made to collect follow-up samples at various buildings to evaluate the tier classification and vapor intrusion pathways and to implement interim mitigation measures, including sealing cracks and conduits that penetrate foundations and floors; refurbishing, retrofitting, and/or installing passive or active ventilation systems; and installing air purification systems.

2.7 2013 INVESTIGATION

As a follow-on investigation to the 2012 air sampling, a total of 32 indoor air samples were collected in May and June 2013 to determine the source of TCE detected in an air sample collected in a hallway in Building N239A and to evaluate the effectiveness of a potential interim measure to reduce or mitigate vapor intrusion detected in Buildings 2, 3, and 12. Also, a total of 56 soil gas and 20 groundwater samples were collected from the perimeters of buildings to better understand the potential for vapor intrusion from volatilization of organic compounds dissolved in the shallow groundwater and to assess the feasibility of reclassifying selected buildings that were tentatively ranked as Tier 3B to Tier 4 (no further action) under the ROD Amendment Response Action Tiering System.

2.7.1 Vapor Pathway Investigation

Indoor air samples were collected in May–June 2013 to investigate vapor pathways in Buildings 2, 3, 12, and N239A. These buildings had isolated non-work areas (e.g., crawl spaces and pipeline conduits in utility closets) with COC concentrations that exceeded the indoor air cleanup levels and/or outdoor ambient air concentration ranges in 2012.

During the 2012 sampling, TCE was detected at a concentration of 6.8 $\mu g/m^3$, which is above the indoor air cleanup level, in Hallway C102 in Building N239A. The short hallway connects a building entry with Room 120 and has access points to two utility rooms, U101 and U102. The hallway and the two utility rooms were sampled in May 2013 to determine whether the source of

TCE was the utility rooms. The results for the 2013 sampling showed that Room U102 had elevated TCE concentrations (9.7 and 10 $\mu g/m^3$) with the HVAC system operating, and low TCE concentrations (0.6 and 1.5 $\mu g/m^3$) with the HVAC system off. Room U102 has utility floor trenches and 3-inch-diameter holes near the floor in the eastern wall that connect to the basement area. TCE levels were low in Room U101 (AM8AJV 2014c).

In May–June 2012, TCE vapors were detected in indoor air at isolated areas in Buildings 2, 3, and 12 at concentrations that exceeded either the industrial/commercial indoor air cleanup level or the outdoor ambient air concentration range (AM8AJV 2014a). These detections were generally in non-work areas (e.g., near pipe conduits in utility closets and in crawl spaces). Interim mitigation measures, consisting of sealing conduits around utility lines that penetrate foundations and floors, were performed at selected locations in these three buildings on May 17, 2013. Grab air samples were collected from the crawl spaces through the conduits prior to sealing them.

After placing the seals, follow-up indoor air and outdoor ambient air samples were collected from May 23–24, 2013 and May 27–28, 2013, to confirm the effectiveness of the mitigation measures and to characterize the nearby areas to confirm the tier classification. The results indicated that placing the seals in Building 2 helped to control vapor migration; Building 2 does not have a HVAC system. However, in Buildings 3 and 12, which have HVAC systems, the results indicated that the seals had little effect on controlling vapors, which suggested more complex or widespread flow pathways (AM8AJV 2014c).

2.7.2 Soil Gas Investigation

In June and July of 2013, a total of 56 soil gas samples (including five duplicates) were collected from 48 locations around the perimeter of the 23 buildings and along the utility tunnel connecting Building 10 to Hangar 1 in the Navy AOR to identify potential vapor intrusion pathways in the proximity of the buildings (Figures 5 and 6).

A direct-push rig was used to install each soil gas probe at locations near the perimeters of the buildings to sample vapors in soil gas near the outer edge of the foundation. The soil gas samples were collected at depths ranging from 4 to 7.2 feet bgs, at an approximate depth of two feet above the water table. The probes were allowed to equilibrate for a minimum of 48 hours prior to sampling (AM8AJV 2014c).

The probes were used to collect samples in accordance with *Advisory: Active Soil Gas Investigations* published jointly by the California Department of Toxic Substances Control and the California Regional Water Quality Control Board, Los Angeles and San Francisco Bay Regions (DTSC/Water Boards 2012). The probes were purged prior to collection of the sample. The soil gas samples were collected using a 1-milliliter syringe. Details on soil gas probe installation and sampling protocols are provided in the *Draft Vapor Pathway, Soil Gas and Groundwater Sampling Report* (AM8AJV 2014c). The probes were removed after collecting the soil gas samples, with the boreholes backfilled with bentonite chips and hydrated, and the boring patched with concrete. All

samples were analyzed for PCE, TCE, cis- and trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC by the EPA Method TO-15 SIM at an onsite mobile laboratory. The results are provided in Table 7.

TCE vapors in soil gas are distributed across the Navy AOR because of the dispersion/spreading of the vapors that volatize from groundwater that is contaminated with TCE. PCE vapors are principally concentrated in a short band in the southwestern area of IR Site 28 from contaminated groundwater and across the southeastern area of IR Site 28 from release areas south of Building 6 and southeast of Building 126. Figures 5 and 6 show the distribution of PCE and TCE in soil gas in the Navy AOR (AM8AJV 2014c).

The EPA (2012) has conducted a statistical evaluation of the occurrence of TCE and PCE in subslab soil gas and concentrations of the compounds in indoor air from vapor intrusion using 1,582 data pairs from 913 buildings at 41 sites in 15 states and has determined an attenuation factor of 0.03 at a 95th percentile value. Because the ROD Amendment indoor air cleanup levels do not apply to soil gas, soil gas screening levels were derived by applying the 0.03 attenuation factor as a weighting multiplier with the indoor air cleanup levels (AM8AJV 2014c). Soil gas screening values, provided in Table 7, are not soil gas cleanup goals, but rather are proposed for use in consideration of potential risk posed by volatile COCs in soil gas.

2.7.3 Shallow Groundwater Investigation

A total of 20 groundwater samples (including two duplicates) were collected from 18 locations around the perimeter of the buildings and along the utility tunnel connecting Building 10 to Hangar 1 to identify potential vapor sources upgradient and in the proximity of the buildings. All samples were analyzed for the seven COCs. Samples were collected using temporary wells and dedicated/disposable bailers. Each borehole was advanced using a direct-push rig, and the temporary well was placed to collect the groundwater sample (AM8AJV 2014c).

The depth to groundwater in the Navy AOR ranges from approximately 4 to 11 feet bgs. Groundwater samples were collected from the upper two feet of groundwater. The groundwater sample was collected from the well/sampler using a bailer and transferred to a volatile organic analysis vial. The samples were not filtered, although many of the groundwater samples were turbid. The analytical results for the groundwater samples may be elevated by VOCs adsorbed on the sediment.

Elevated concentrations of PCE, relative to the rest of the AOR, were only detected in shallow groundwater in the southeastern site area, near Building 126 and Hangar 1. TCE was detected in shallow groundwater at concentrations exceeding 100 µg/L in a band through the central area of the site extending from Building 16 to Building N210, parallel to the north to north-northeast groundwater flow direction. In the southeastern area of the site, the extent of TCE mimics the distribution of PCE near Building 126 and Hangar 1 (AM8AJV 2014c).

2.7.4 Utility Tunnel Investigation

An investigation of the vapor and groundwater seepage pathways in the utility tunnel that connects with Building 10 and Hangar 1 was conducted on April 22, 2013. Seven air samples and seven water samples were collected and analyzed for the seven chlorinated COCs. The investigation was part of an inspection and evaluation of the structural integrity of the tunnel and contaminant pathways to develop vapor intrusion mitigation options. The tunnel is a pathway for vapor intrusion into Building 10 and vapor migration to tunnel accesses in the area of Hangar 1 (AM8AJV 2015b).

In the utility tunnel that connects Building 10 and Hangar 1, elevated concentrations of COCs, including TCE and PCE, were reported in the tunnel air and in standing water samples (AM8AJV 2014c). Concentrations of TCE and PCE in the tunnel air exceeded the ROD Amendment industrial/commercial indoor air cleanup levels; however, the utility tunnel is not considered a work area and therefore, the ROD Amendment indoor air cleanup levels do not apply.

The tunnel water sampling locations and results are shown on Figures 7 and 8, which show the PCE and TCE distribution in shallow groundwater. The water in the utility tunnel accumulates from groundwater that enters the tunnel through cracks in the tunnel walls and flows or ponds within the tunnel; therefore, the COC concentrations in the tunnel water represent a mixture of groundwater from the immediate area, rather than the results for discrete groundwater samples collected from the temporary wells, as discussed in Section 2.7.3.

2.8 2014 INDOOR AIR SAMPLING

A total of 203 air samples, including indoor and outdoor ambient air samples, were collected from February 11–19, 2014, to evaluate the occurrence of and pathways for vapor intrusion in 23 industrial/commercial buildings at Moffett Field. A total of 172 indoor air samples (including duplicates) were collected from 93 locations within the 23 buildings, and a total of 27 outdoor ambient air samples were collected outside four buildings. Sampling locations and numbers of samples collected for each building were selected using the results of the building surveys, the 2012 indoor air sampling locations, and the 2012 sampling results. Samples were collected from the basement and in the breathing zone of first-floor work areas (office areas, meeting rooms, and high-traffic areas such as hallways), at potential vapor intrusion pathways (foundation cracks, expansion joints, crawl spaces, drains, and pipe inlets), and in outdoor air. In buildings with HVAC systems, indoor air samples were collected during normal work hours with the HVAC system operating and at the end of a three-day holiday weekend after the HVAC system had been shut down for 36 to 48 hours. The sampling duration for the indoor air samples was 8, 10, or 24 hours, depending on the length of daily occupancy in each building.

Indoor air and outdoor ambient air samples were collected using 6-liter canisters, each equipped with a fixed-rate flow controller and a particulate filter. The number of samples per building varied from one in Building 76 to 21 in Building 239. Outdoor ambient air samples were collected outside the building, including near the air ventilation system air intake, for comparison to indoor air to

evaluate the potential contribution of VOCs from outdoor air to indoor air. Indoor and outdoor ambient air samples were analyzed by an analytical laboratory certified by the U.S. DoD ELAP and NELAP using the EPA Method TO-15 SIM for the COCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC).

The results of the 2014 sampling are presented in the Final Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field, Moffett Field, California (AM8AJV 2015a) issued in June 2015. The report included tentative tier rankings for the buildings, identified potential indoor air issues, and recommended mitigation measures and tier response data gaps. Of the 23 buildings evaluated during the 2014 study, only Building 126 was classified as Tier 1 (AM8AJV 2015a). Buildings 10 and N210 were ranked as Tier 2 based on historical results and the use of interim measures/ECs to maintain air quality below indoor air cleanup levels. Buildings 16 and N239 were also ranked as Tier 2 based on a single work-area sample location exceeding the indoor air cleanup level for TCE in 2014. All other buildings were classified as either Tier 3A or Tier 3B.

2.9 2015 GROUNDWATER INVESTIGATION

In 2013 and 2014, the Navy installed 24 additional monitoring wells to further delineate Navy sources near the Former Building 88 Area and the Traffic Island Area. Seven of these wells were installed in the upper portion of the A Aquifer.

In 2015, 50 groundwater samples were collected from IR Site 28 monitoring wells in the upper portion of the A Aquifer. These groundwater samples indicate that the regional TCE and cis-1,2-DCE plumes extend downgradient (north) from south of U.S. Highway 101. These regional plumes have an axis that generally trends south to north. The plumes are similar in shape and extent to the TCE and cis-1,2-DCE plumes shown on maps prepared since 2003. However, data from monitoring wells added to the Navy, NASA, and MEW sampling programs since 2008 have allowed better definition, and suggest a separate plume downgradient of the WATS capture area. The eastern groundwater plume periphery has higher TCE and cis-1,2-DCE concentrations than the western periphery. TCE and cis-1,2-DCE concentrations from 2015 sampling suggest that the detached southern portions of the plume remains separate from the main body of the WATS plume. The PCE plume in the upper portion of the A Aquifer is located southwest of Hangar 1 and is limited in extent compared to the other groundwater VOC plumes. The PCE plume in the upper portion of the A Aquifer trends in a north south direction and is similar to the 2014 PCE plume. The 2013 depiction of the PCE plume shows one continuous plume next to the southwest corner of Hangar 1, but the 2014 and 2015 depictions of the PCE plume show two smaller PCE plume areas, both within the footprint of the 2013 PCE plume. Figures 7 and 8 show the distribution of PCE and TCE in the shallow groundwater in the Navy AOR (SES-TECH 2016). The results of the shallow groundwater samples are provided in Table 8.

2.10 2016 INDOOR AIR SAMPLING

A total of 200 air samples, including indoor and outdoor ambient air samples, were collected from January 11–20, 2016, to evaluate the occurrence of and pathways for vapor intrusion in 23 industrial/commercial buildings at Moffett Field. A total of 172 indoor air samples (including duplicates) were collected from 93 locations within the 23 buildings. Sampling locations and numbers of samples collected for each building were selected using the results of the building surveys, the 2012 and 2014 indoor air sampling locations, and the 2012 and 2014 sampling results. Samples were collected from the basement and in the breathing zone of first-floor work areas (office areas, meeting rooms, and high-traffic areas such as hallways), at potential vapor intrusion pathways (foundation cracks, expansion joints, crawl spaces, drains, and pipe inlets), and in outdoor ambient air. In buildings with HVAC systems, indoor air samples were collected during normal work hours with the HVAC system operating and at the end of a three-day holiday weekend after the HVAC system had been shut down for 36 to 48 hours. The sampling duration for the indoor air samples was 8, 10, or 24 hours, depending on the length of daily occupancy in each building.

Indoor air and outdoor ambient air samples were collected using 6-liter canisters, each equipped with a fixed-rate flow controller and a particulate filter. The number of samples per building varied from one in Building 76 to 21 in Building N239. Outdoor ambient air samples were collected outside the building, including near the air ventilation system air intake, for comparison to indoor air to evaluate the potential contribution of VOCs from outdoor air to indoor air. Indoor and outdoor ambient air samples were analyzed by an analytical laboratory certified by the U.S. DoD ELAP and NELAP using the EPA Method TO-15 SIM for the COCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC).

Using the relevant historical data, 2012, 2013, 2014, and 2016 indoor air sampling results, and Tables 6A and 6B of the ROD Amendment (EPA 2010), the buildings were tiered to determine the need for a response action in accordance with the Response Action Tiering System. Indoor air quality results for COCs were compared with the ROD Amendment commercial indoor air cleanup levels and with outdoor ambient air concentration ranges, with consideration of whether or not an air quality EC is in place. Of the 23 buildings evaluated, Buildings 45, 126, 567, and N239A were classified as Tier 1. The remaining 19 buildings were classified as Tier 3A because indoor air concentrations meet indoor air cleanup levels. No buildings were categorized as Tier 2, Tier 3B or Tier 4 (MMEC 2016).

3.0 RESPONSE ACTION TIERING SYSTEM

The Response Action Tiering System in the ROD Amendment (EPA 2010) classifies buildings by the need for response action according to the detected concentrations of COCs in indoor air, as specified in Tables 6A and 6B (Table 3) of the ROD Amendment. Table 6A is for existing commercial and residential buildings with passive or active ECs in place. Table 6B is for existing commercial and residential buildings with no ECs in place. Table 8 of the ROD Amendment provides the EPA's selected vapor intrusion remedy for existing and future buildings in the Vapor Intrusion Study Area. The tiering descriptions, response actions, and selected remedies provided are compiled and presented in Table 3 of this Report.

Using the indoor air sampling results and Table 3, the buildings were tiered in accordance with the Response Action Tiering System provided in the ROD Amendment (see Sections 5 and 7). Recommendations for buildings within the Navy AOR were prepared on the basis of the selected vapor intrusion remedy for existing and future buildings of the ROD Amendment (Table 3, EPA 2010). If the data were inconclusive, then additional lines of evidence were considered and/or additional sampling efforts were recommended (see Section 8).

3.1 TIER 1

Buildings are classified as Tier 1 if the indoor air concentrations for any of the seven COCs exceed the outdoor air concentrations and the indoor air cleanup levels. Tier 1 buildings need an appropriate EC implemented as a remedy to meet indoor air cleanup levels. Governmental, proprietary, and informational ICs will be implemented as needed.

3.2 TIER 2

Buildings are classified as Tier 2 if indoor air concentrations are below indoor air cleanup levels with an EC in place or in operation. For Tier 2, operation and maintenance of active ventilation systems will be continued or other selected engineered remedies will be implemented to meet remedial action objectives. Long-term monitoring and governmental, proprietary, and informational ICs will be implemented. If the remedy is achieved through operation of an active ventilation system, then agreement of the property owner must be contained in a recorded agreement.

3.3 TIERS 3A AND 3B

For a building without an effective EC in place or in operation, if the indoor air concentrations exceed the outdoor air concentrations for any of the seven COCs but are below the indoor air cleanup levels for all of the COCs, then the building is classified as Tier 3A. If the indoor air concentrations are at or below the approximate outdoor air concentrations or indoor air TCE concentrations are within the typical range of outdoor air concentrations given in ROD Amendment Tables 6A and 6B (Table 2), then the building is classified as Tier 3B. Tier 3A and

3B buildings do not need an engineered remedy. Long-term monitoring is required for Tier 3A, but not for Tier 3B. Governmental ICs will be implemented for both Tier 3A and 3B.

3.4 TIER 4

Buildings are classified as Tier 4 when converging lines of evidence demonstrate that there is no longer the potential for COCs resulting from vapor intrusion to exceed the indoor air cleanup levels. For Tier 4 buildings, no action is required after the EPA approves confirmation sampling results and documentation that no action is necessary.

4.0 AIR SAMPLING METHODOLOGY

Indoor air sampling was conducted in January of 2017 at all buildings within the Navy AOR that are currently in use or will be used in the future. The buildings that were sampled are listed in Table 1 and shown on Figure 3.

4.1 SAMPLING PROGRAM

To support selection of the appropriate tier and corresponding response action for the industrial/commercial buildings within the Navy AOR, a vapor intrusion investigation was conducted that consisted of indoor and ambient air sampling and analysis of COCs by the EPA Method TO-15 SIM. This sampling provides air quality results for the winter season, which will be used with the late spring 2012 and 2013 and winter 2014 and 2016 sampling results to conduct the tier response evaluation. The 23 industrial/commercial buildings within the Navy AOR that were sampled in May 2012, February 2014, and January 2016 (Figure 3) were resampled during this investigation.

Indoor air samples were collected only in the basement and first floor of the 23 buildings, based on the 2012, 2014, and 2016 results. There were three types of areas sampled: work areas, vapor pathways, and ambient (outdoor and ventilation intake). Samples were collected in the breathing zone of work areas (offices areas, meeting rooms, and high-traffic areas such as hallways), at vapor intrusion pathways (crawl spaces, drains, pipe inlets, and the utility floor trench in Building 10), and in ambient air. Grab samples were collected in or near elevator shafts (ventilation pathways between floors) in Buildings N210 and N239.

In buildings with HVAC systems, indoor air samples were collected during normal work hours with the HVAC system operating and at the end of a three-day holiday weekend after the HVAC system had been shut down for 36 to 48 hours. The sampling duration was 8 or 10 hours for buildings that operate between roughly 7:00 a.m. and 6:00 p.m., depending on the length of a regular work day for the employees in the building. The sampling duration was 24 hours for buildings that were occupied irregularly 24 hours per day, 7 days per week, or outside of daytime work hours. Buildings that have consecutive 8-hour shifts throughout the 24-hour day (such as Building 15 – Security) were sampled for 24 hours. The number of samples collected per building is provided in Table 9. Table 10 lists the planned sample names, locations, durations, types, and rationales from the 2016 Work Plan. Table 11 lists the deviations in sampling from the 2016 Work Plan.

Ambient air samples were also collected to establish background or ambient air concentrations at the time of sampling. The duration of sampling for all the ambient air samples was 24 hours.

All sampling activities were conducted from January 9–18, 2017. The work involved collecting indoor air samples from 23 buildings and ambient air samples at Moffett Field per the 2016 Work Plan.

Indoor and ambient air samples were analyzed by a DoD ELAP- and NELAP-certified analytical laboratory using the EPA Method TO-15 SIM for the COCs and results were reported in $\mu g/m^3$. The samples were analyzed with a standard turnaround time of 10 business days for the initial data report. The Level D report was provided within 21 days of receipt of the samples. A QA/QC evaluation of the data was performed upon receipt of the analytical results.

Each sample collected was assigned a unique sample identification number to record and report the results. Each sample was identified on the sample label by the building, sampling location code (where the sample was collected), a sequential two-digit sample ID code as a reference, and an EC (HVAC) operation code at each location as described below.

A 3-digit building number beginning with a 3 (300 series) was used to indicate a duplicate sample. A floor level of "A" indicates an ambient air sample. A floor level of "B" indicates a basement sample. The HVAC operation code was identified for each building sample as follows:

- N – EC (HVAC) is on or operation
- F – EC (HVAC) is off or shut down, or
- [none] – the building is without an operation EC (e.g., HVAC system)

17N210 (Year + Building Number)	1 (Floor Level)	01 (Sampling Location ID)	N (HVAC Operation Code)

4.2 INDOOR AIR SAMPLES

Sampling locations and number of samples collected for each building were selected using the results of the building surveys (by avoiding areas of solvent use and storage), the 2013 soil gas and ground water sampling results, and the 2012, 2014, and 2016 indoor air sampling locations and results. A total of 182 indoor air samples (including duplicates) were collected from 97 locations within the 23 buildings. The number of samples per building varied from one in Building 76 to 21 in Building N239. The number of samples for individual buildings and planned sampling locations are provided in Tables 8 and 9, respectively. Table 10 lists the deviations in sampling from the 2016 Work Plan. The sampling location maps for each building are provided in Appendix B. Indoor air samples were collected only from the basement and ground floor of the buildings. The inlet of the indoor air sampling devices was placed within the breathing zone. Duplicate samples were collected at a rate of 10 percent for a total of 21.

Indoor air samples were collected using 6-liter canisters, each equipped with a fixed-rate flow controller and a particulate filter. Prior to use of the canisters, the analytical laboratory cleaned and

individually certified the canisters and flow controllers to be used for indoor air analysis. The indoor air vapor intrusion investigation included the following types of samples: indoor air (work area), ambient air (background), and pathway air (including crawl spaces). For work area samples, the sample canisters were placed 36 to 60 inches above the floor in occupied or potentially occupied areas. Pathway samples were collected in areas where potential conduits (such as penetrations through the slab, drains, utility lines, or vaults) into the building were observed that might provide a direct route for VOC vapor migration into the building. For vapor pathway samples, the tubing attached to the canisters was placed within crawl spaces, and grab samples were collected from within the elevator shaft by feeding a tube down the shaft while the elevator doors were held open. After collection of the air samples, the sample canisters were collected, packed, and labeled in the field and then submitted to the analytical laboratory under chain of custody in accordance with the 2016 Work Plan.

Buildings sampled in the Vapor Intrusion Study Area were tiered on the basis of whether the building was sampled with or without an operating EC:

- Group 1: Buildings sampled with an operating EC (e.g., HVAC system)
- Group 2: Buildings sampled without an operating EC or with the EC turned off

4.2.1 Group 1: Buildings Sampled with Engineering Control (HVAC System) Operating

Buildings with an EC (e.g., HVAC system) were sampled while the EC (HVAC system) was in operation during normal working hours and at the end of the weekend after the HVAC system was shut down for 36 to 48 hours. The exception to this procedure was at Buildings N210 and N243, where it was not possible to turn off the HVAC system because of potential overheating at computer server rooms. This exception is explained further in Section 4.5.

Time-integrated 8-, 10-, or 24-hour air samples were collected for the ventilation system operation samples to coincide with building-specific, normal workday occupancy. The sampling period for the EC (HVAC) shutdown samples matched the duration of sampling for the EC (HVAC) operation samples.

Information regarding EC (HVAC) operations was verified with NASA to provide a basis for proper shutdown and sampling duration criteria. The available shutdown and sampling period was limited to weekend hours. The EC (HVAC) shutdown air samples were collected at the same locations as the EC (HVAC) operating samples. Air samples were collected using 6-liter canisters to provide consistent data collection methods during both sampling events. Pathway samples from the elevator shafts were collected as grab samples.

4.2.2 Group 2: Buildings Sample Without Engineering Control Systems

Air samples were collected during normal occupancy hours using 6-liter canisters, with the building windows shut to the extent possible. Time-integrated 8-, 10-, or 24-hour air samples were collected to coincide with building-specific, normal workday occupancy.

4.3 AMBIENT AIR SAMPLES

A total of 29 ambient air samples were collected to provide information on COC concentrations in ambient air and air near ambient air ventilation system intakes. Ambient air samples were collected outside the buildings, including near ventilation system air intakes, for comparison with indoor air to evaluate the potential contribution of VOCs from ambient air to indoor air. A map showing the ambient air sampling locations is provided in Appendix B. The ambient air samples were collected concurrently with the indoor air samples, except the sampling duration for the ambient air samples was 24 hours.

Ambient air samples were collected using the same sampling methodology used for the indoor air samples (e.g., a 6-liter canister equipped with individually certified, fixed-rate flow controller and a particulate filter). Ambient air samples were analyzed and reported in $\mu g/m^3$ by a DoD ELAP- and NELAP-certified analytical laboratory using the EPA Method TO-15 SIM for the COCs.

4.4 ACCESS REQUIREMENTS

Access to each of the 23 buildings was arranged through the FSMs of each building prior to finalizing the sampling schedule. Access was required to set up the sampling equipment, check samples following setup, and remove sampling equipment after sampling. The FSMs or tenants of each building provided access to the buildings for collection of samples during standard work hours (buildings with HVAC on, or buildings without HVAC systems). Access during the Martin Luther King Jr. Day weekend was provided by NASA security personnel, with the exception of Building 14, which required the presence of the FSM for security and access to portions of the building controlled by tenants of NASA.

Availability of FSMs or tenants and access restrictions such as locked rooms or buildings required changes to the sampling activities. Section 4.5 discusses the deviations in sampling locations and schedule.

4.5 DEVIATIONS FROM THE SAMPLING PLAN

This section summarizes the deviations from the sampling activities specified in the 2016 Work Plan. Table 11 presents detailed sampling deviations.

At Building N210, at the request of the FSM, the building was sampled while the HVAC system was in operation, and no sampling was performed in the high bay area of the building. Building N210 has several servers that require continuous cooling to prevent overheating. The FSM requested that the HVAC remain on for the duration of the sampling to prevent any damage to the servers. As an alternative to turning off the HVAC system, the air intake was restricted with plastic sheeting to limit the amount of ambient air entering the building. Before sampling, access arrangements were made with the building tenants who occupy the high bay area of N210. However, on the day of the sample deployment, the high bay area of Building N210 was locked

and NASA security did not have access, so samples 17N210-1-09-F and 17N210-1-05-F were not collected during the 2017 sampling event.

At Building N243, at the request of the FSM, the building was sampled while the HVAC system was in operation. Building N243 has several servers that require continuous cooling to prevent overheating. The FSM requested that the HVAC remain on for the duration of the sampling to prevent any damage to the servers. As an alternative to turning off the HVAC system, the air intake was restricted with plastic sheeting to limit the amount of ambient air entering the building.

At Building 3, Room 108 was under construction during the time the building was scheduled to be sampled with the HVAC in operation. To avoid interrupting construction activities and cross contamination from construction material, samples 17M003-1-07-N and 17M303-1-07-N were relocated from Room 108 to Room 101B, as shown in Appendix B.

At Building 3, the FSM was not able to provide roof access for the ambient sample location. Ambient samples 17M003-A-01-F and 17M003-A-01-N were moved from the roof of Building 3 to the southwest side of Building 3, outside Room 117.

At Building 555, the duplicate sample was moved from the previously assigned location. The duplicate sample, originally identified as 17M355-1-03-N, to be paired with 17M555-1-03-N, was placed with 17M555-1-01-N. The sample name was updated to 17M355-1-01-N to correspond with the sample it was now proximal to.

Sample 17M416-1-02-N was renamed 17M316-1-02-N to reflect the correct duplicate sample nomenclature. A 3-digit building number beginning with a 3 (300 series) was used to indicate a duplicate sample, the original sample name had a 4.

Sample 17M326-1-02-F was collected with the HVAC system in operation, so was renamed 17M326-1-02-N to reflect the "HVAC on" sample nomenclature. The "-N" means that the HVAC system is in operation; the original sample name had an F indicating HVAC off. The sample was taken with the HVAC in operation.

Three duplicate samples were added at the request of the Project Chemist to ensure that the sampling event's requirement of 10 percent duplicate samples was met. Duplicates 17M313-1-02, 17M314-1-05-N, and 17M302-1-03 were added to Buildings 13, 14, and 2 respectively.

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5.0 AIR SAMPLING RESULTS

Indoor and ambient air samples were analyzed by a DoD ELAP- and NELAP-certified analytical laboratory using the EPA Method TO-15 SIM for the COCs (PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC). This method provides detection limits below the cleanup levels and typical background ambient air concentrations.

The sampled buildings and the 2017 sampling results are listed in Table 12. The laboratory analytical reports are provided in Appendix C. A QA/QC evaluation and data validation of the analytical data were performed upon receipt of the laboratory results (see Section 6 and Appendix D). The combined results from the 2012, 2013, 2014, 2016, and 2017 sampling investigations are provided in Table 13. Sections 5.1 through 5.24 provide the building details and the air sampling results.

5.1 AMBIENT AIR SAMPLES

A total of 29 ambient air samples were collected from January 9–18, 2017, to provide information on COC concentrations in ambient air and air near ambient air ventilation system intakes at the time of indoor air sampling. Ambient air samples were collected immediately outside the buildings, including near an air ventilation system air intake, for comparison with indoor air values to evaluate the potential contribution of VOCs from ambient air to indoor air. A map showing the ambient air sampling locations is provided in Appendix B.

Based on the validated results for ambient air samples collected from January 9–18, 2017, ambient concentrations of TCE and PCE ranged from 0.021J to 1.3 $\mu g/m^3$ and 0.03J to 2.7 $\mu g/m^3$, respectively. Results followed by a J qualifier are estimated values. Table 14 provides the ambient air concentration ranges for all COCs based on the 2017 sampling event. For buildings where ambient air sampling was conducted in January 2017, indoor air sampling results were compared to the range of building-specific ambient air sampling results (Table 14) and historically, indoor air sampling results for buildings where ambient air sampling was not conducted were compared to the overall ambient air concentration ranges. Indoor air samples in buildings where ambient air sampling was not conducted were compared to ambient air samples of adjacent or nearby buildings where ambient air samples were collected which can be seen in Figure A-1 (Appendix A). Additionally, buildings with indoor air concentrations within the range of outdoor ambient air concentrations were also compared to the TCE range of ND to 0.4 $\mu g/m^3$, given in Tables 6A and 6B of the 2010 ROD (EPA 2010).

5.2 BUILDING 2

A walk-through inspection of Building 2 was conducted on November 28, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any

modifications from later inspections for Building 2 are included in Appendix A. The indoor air samples at Building 2 were collected on January 17, 2017.

5.2.1 Building Condition

Building 2 is an approximately 17,000-square-foot (SF), two-story structure. The building's basketball court, bathrooms, locker rooms, and showers are intermittently used. Building 2 has a raised wooden floor in the basketball court (main gym floor) and tiled floors in bathrooms and locker rooms. There are no visible breaks in the wooden or tile floors. Electrical conduits penetrating the floor slab are present in the eastern corner of Room 100. Sewer and plumbing conduits penetrating the floor slab are also present in Rooms 103 and 111A. Building 2 was unoccupied during the 2012 and 2014 sampling events, but occupied during the 2015 and 2016 sampling events.

5.2.2 HVAC System

Building 2 does not have a central HVAC system. However, the building does have ventilation systems such as open windows, restroom fans, large industrial fans in room 100, and an air conditioning (AC) unit in Room 110. A steam heating system is used in the building. Fans are used for cooling and air circulation.

5.2.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 2.

5.2.4 Sampling Locations and Results

5.2.4.1 Previous Sampling Results

2012: A total of four indoor air samples were collected in Building 2 on May 18, 2012. One pathway sample, collected beneath the raised floor in Room 104, detected TCE at a concentration that exceeded the outdoor air concentration range; however, all COC detections were lower than indoor air cleanup levels and within outdoor air concentration ranges for samples collected in work areas (AM8AJV 2014a).

2013: One grab pathway sample was collected from the crawl space beneath the raised floor in Room 104 prior to implementing the interim measure in May 2013. After implementing the interim mitigation measures, two samples (including one duplicate) were collected in work areas of Room 104 from May 23–24, 2013, to confirm the effectiveness of the interim mitigation measures for Building 2. TCE was detected at a concentration of 11 $\mu g/m^3$, exceeding the indoor air cleanup level of 5 $\mu g/m^3$, in the grab sample collected in the crawl space beneath Room 104 prior to implementing the interim measure. COCs (PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC) were detected in confirmation samples collected after installing the interim mitigation measure at concentrations below the EPA's indoor air cleanup levels (AM8AJV 2014c).

2014: A total of four indoor air samples were collected in Building 2 on February 11, 2014: one each from two rooms (Rooms 107 and 109) where potential future occupancy was expected and two pathway samples (including one duplicate) in the Boiler Room (Room 104). No outdoor samples associated with Building 2 were collected. All sampling results for Building 2 were below the EPA's indoor air cleanup levels. Indoor air sampling results were compared with the outdoor air concentration range. Pathway samples (including one duplicate), collected beneath the raised floor in Room 104, and the sample collected in Room 109, had concentrations of TCE that exceeded the outdoor air concentration range, all other COC detections were within outdoor air concentration ranges for all the samples. TCE and PCE were measured in indoor air at concentrations ranging from 0.010 to 0.69 $\mu g/m^3$ and 0.046 to 0.067 $\mu g/m^3$, respectively.

2016: A total of four indoor air samples were collected in Building 2 on January 12, 2016: one from Room 109, which is an intermittently occupied office used by the building manager; two pathway samples (including one duplicate) in the Boiler Room (Room 104); and one pathway sample from Room 107, which is currently used to store gym equipment. No outdoor samples associated with Building 2 were collected. All sampling results for Building 2 were below the EPA's indoor cleanup levels. Indoor air sampling results were also compared with the overall outdoor air concentration range. Pathway samples (including one duplicate), collected in Room 104, had COC concentrations that were below outdoor air concentrations. The sample collected in Room 109 had concentrations that exceeded the outdoor air concentration ranges for TCE, cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCE. TCE and PCE were measured in indoor air at concentrations ranging from 0.13 to 1.0 $\mu g/m^3$ and 0.061 to 0.086 $\mu g/m^3$, respectively (MMEC 2016).

5.2.4.2 Current (2017) Sampling Results

Five indoor air samples were collected in Building 2 on January 17, 2017, two from Room 109 (including one duplicate), which is an intermittently occupied office used by the building manager; two pathway samples (including one duplicate) in the Boiler Room (Room 104); and one pathway sample from Room 107, which is currently used to store gym equipment. The sampling location details are provided in Table 10. An indoor air sampling location map for Building 2 is provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. COCs in indoor air were compared to Building 29 ambient air concentration levels, as Building 29 is the closest building with an ambient air sample. Indoor air concentrations exceeding the ambient air concentration level at Building 29 included TCE (4 of 5 samples), PCE (4 of 5 samples) cis-1,2-DCE (2 of 5 samples), trans-1,2-DCE (5 of 5 samples), 1,1-DCA (3 of 5 samples), 1,1-DCE (2 of 5 samples), and VC (2 of 5 samples). TCE and PCE were measured in indoor air at concentrations ranging from 0.063J to 0.72 $\mu g/m^3$ and 0.016J to 0.23 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.2.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. Indoor air sampling results were compared with Building 29 ambient air concentration levels, as Building 29 is the closest building with an ambient air sample. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples collected in Building 2 were above the ambient air concentration levels at Building 29. All samples collected had COC concentrations that were below the indoor air cleanup levels. The Navy is classifying Building 2 as Tier 3A because all COC results in work area samples were lower than the indoor air cleanup levels.

5.3 BUILDING 3

A walk-through inspection of Building 3 was conducted on November 28, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 3 are included in Appendix A. The indoor air samples at Building 3 were collected with the HVAC system running on January 10, 2017, and were sampled again with the HVAC system shut off on January 16, 2017.

5.3.1 Building Condition

Building 3 is an approximately 25,000-SF, one-story structure and is used as a conference center and cafeteria. The cafeteria operates Monday through Friday for breakfast and lunch. The facility intermittently hosts various meetings and functions. The offices operate Monday through Friday 8:00 a.m. to 6:00 p.m. There is one occupied floor and an unoccupied partial basement housing utilities. The basement consists of a partial crawl space approximately 3 feet bgs with a raised wooden floor above the crawl space. The basement walls are constructed of wood and the floor is constructed of concrete with visible cracks and seams. The crawl space is present beneath Rooms 124, C110, and 110 to the northeastern end of the building.

Floor drains are present in Rooms 126, 110 (kitchen), restrooms, and janitor closets. Electrical conduits are present in the northeastern corner of Room 110 and in Room 112. Phone line conduits penetrating the floor are present in Room 130 (communication room).

5.3.2 HVAC System

Building 3 has an HVAC system (zoned heating/cooling). Air intakes and all HVAC equipment are mounted on the roof. Exhaust fans in the two kitchen areas are 3 to 5 horsepower (HP); all other fans are 1 HP. The exhaust fans are located in Rooms 102 (1 fan), 103 (1), 104 (2), 105 (1), 110 (5), 113 (1), 116 (2), 122 (1), 124 (1), 127 (2), and 128 (2). Nine AC units are located on the roof with capacity from 5 to 20 tons.

A building-specific heating system is used in the building. Fans are used for cooling and air circulation.

5.3.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 3.

5.3.4 Sampling Locations and Results

5.3.4.1 Previous Sampling Results

2008: Four indoor air samples were collected in February 2008 from Building 3. TCE was measured at concentrations ranging from 0.212 to 2.683 µg/m^3 (Neptune 2008).

2012: A total of 20 indoor air samples were collected in May 2012 at Building 3 with the HVAC system operating and with the HVAC system off. All sampling results for Building 3 were below indoor air cleanup levels except one pathway sample collected near the conduits penetrating the floor in Room 130 (sample M003-1-06-N), where TCE was detected at a concentration of 7.9 µg/µg/m^3 exceeding the indoor air cleanup level of 5 µg/m^3 (AM8AJV 2014a).

Interim Mitigation Measures and Confirmation Sampling (2013): Interim mitigation measures, including sealing conduits around utility lines that penetrate foundations and floors, were implemented in Rooms 130 and 105 of Building 3. All results for confirmation samples collected after implementing the mitigation measures in 2013 in Rooms 130 and 105 with both the HVAC system on and off were reported below indoor air cleanup levels. Also, results for all grab samples from the crawl spaces were below the indoor air cleanup levels. However, for all samples, the outdoor air concentration ranges were exceeded for most of the COCs (AM8AJV 2014c).

2014: A total of 17 indoor air samples (including two duplicates) were collected at Building 3 with the HVAC system operating and with the HVAC system off. Two outdoor air samples of 24 hour duration were collected on the roof of Building 3. Indoor air samples were collected on February 12, 2014, with the HVAC system operating and on February 16, 2014, with the HVAC system off. All COC detections for indoor air samples collected at Building 3 were lower than the EPA's indoor air cleanup levels. Detected COC concentrations exceeding the outdoor air concentration ranges included PCE (6 of 17 samples – only samples with HVAC system on), TCE (10 of 17), trans-1,2-DCE (2 of 17), 1,1-DCE (1 of 17 – sample with HVAC system off), 1,1-DCA (2 of 17 – only samples with HVAC system off), and VC (12 of 17). TCE and PCE were measured in indoor air at concentrations ranging from 0.21 to 4.5 µg/m^3 and 0.025J to 0.95 µg/m^3, respectively, for all samples collected in Building 3.

2016: A total of 17 indoor air samples (including two duplicates) were collected at Building 3 with the HVAC system operating and with the HVAC system off. Two outdoor air samples of 24-hour duration were collected on the roof of Building 3. Indoor air samples were collected on January, 12, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. TCE was detected at concentrations exceeding the EPA's indoor air cleanup level in one pathway sample from Room 130 (16M003-1-06-F) and the associated duplicate sample (16M303-1-06-F) when the HVAC system was off. Room 130 is a small utility room with no regular occupancy that

has multiple conduits that penetrate the floor. All other COC detections for indoor air samples collected at Building 3 were lower than the EPA's indoor air cleanup levels. Detected COC concentrations exceeding the outdoor air concentration ranges included TCE (17 of 17 – 9 samples with HVAC off, 8 samples with HVAC on), PCE (10 of 17 samples – 2 samples with HVAC system off, 8 samples with the HVAC on), trans-1,2-DCE (9 of 17 – 1 samples with the HVAC off, 8 with the HVAC on), 1,1-DCE (4 of 17 – all samples with HVAC system off), 1,1-DCA (15 of 17 – 8 samples with HVAC system off, 7 samples with HVAC on), cis-1,2-DCE (11 of 17 – 3 samples with the HVAC system off, 8 samples with the HVAC on), and VC (12 of 17 – 7 samples with the HVAC off, 5 with the HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.14 to 6.8 $\mu g/m^3$ and 0.034J to 0.13 $\mu g/m^3$, respectively, for all samples collected at Building 3 (MMEC 2016).

5.3.4.2 Current (2017) Sampling Results

Seventeen indoor air samples (including two duplicates) were collected at Building 3 with the HVAC system operating (eight samples) and with the HVAC system off (nine samples). Two ambient air samples of 24-hour duration were collected in the south east corner outside Building 3. Indoor air samples were collected on January, 10, 2017, with the HVAC system operating and on January 16, 2017, with the HVAC system off. The sampling location details are provided in Table 10. Indoor and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration ranges included TCE (17 of 17– 9 samples with HVAC off, 8 samples with HVAC on), PCE (8 of 17 samples – 7 samples with HVAC system off, 1 samples with the HVAC on), trans-1,2-DCE (7 of 17 – all samples with the HVAC system off), 1,1-DCE (8 of 17 – 7 samples with the HVAC off, 1 with the HVAC on), 1,1-DCA (11 of 17 – 9 samples with HVAC system off, 2 samples with HVAC on), cis-1,2-DCE (11 of 17 – 9 samples with the HVAC system off, 2 samples with the HVAC on), and VC (16 of 17 – 9 samples with the HVAC off, 7 with the HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.096 to 4.5 $\mu g/m^3$ and 0.046 to 0.11 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.3.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels with both the HVAC system off and on. All of the COCs were detected at concentrations exceeding the ambient air concentration range in all the samples at Building 3. The Navy is classifying Building 3 as Tier 3A because all COC results in work area samples were lower than the indoor air cleanup levels.

5.4 BUILDING 10

A walk-through inspection of Building 10 was conducted on November 28, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 10 are included in Appendix A. The indoor air samples at Building 10 were collected on January 12, 2017.

5.4.1 Building Condition

Building 10 is an approximately 12,000-SF, one-story structure that formerly housed the boiler plant for the steam lines at NASA Ames. The boiler was taken out of service by February 2014 and removed during March–April 2014. The facility formerly operated Monday through Friday for 8 hours per day with no weekend use. With removal of the boiler, Building 10 was evacuated and is no longer occupied. It has one floor with a maintenance shop, the former boiler room, two offices, and a break room. There is a utility corridor tunnel that runs from Building 10 to Hangar 1 that contained the helium supply lines to the dirigibles in Hangar 1 and steam lines for heating. The helium plant was formerly in Building 10. The steam lines ran through floor trenches into the tunnel and then connected with shallow trenches for distribution of steam to the other buildings at NASA Ames. The tunnel access is via two stairwells to an 8-foot-deep floor trench in the eastern end of Room 101. The tunnel ranges from 7 to 8 feet high and approximately 5 feet wide. The walls and floor of the tunnel are constructed of concrete. The tunnel access and the concrete trenches in the floor of Building 10 are covered by metal plates. Building 10 has a concrete slab floor with some visible cracks and seams.

There is a sump in Room N104 and a sump in the tunnel access trench in Room 101. Floor drains are present in Rooms 101 (three drains) and R106. Electrical conduits penetrating the floor slab are present in Rooms 107 and N104. Toilet conduits penetrating the floor are present in Room R106.

5.4.2 HVAC System

Building 10 does not have an HVAC system. The building does have ventilation systems such as open windows, restroom fans (not in use), and two AC units (not in use).

5.4.3 Existing Mitigation Measures

The Navy installed a cutoff wall and a blower in the tunnel at a vault access point located approximately 170 feet east of Building 10 from July 11–12, 2012, as part of an interim action to remove vapors from the tunnel and control COC concentrations in Building 10 based on 2012 indoor air sampling results. The blower discharges to an elevated, outside exhaust. Quarterly indoor air monitoring was implemented at Building 10, including in the tunnel access area, to monitor the effectiveness of the interim measure. During the fourth quarter of 2012, TCE concentrations in samples collected in Building 10 increased to levels above the indoor air cleanup goals. The increase was verified during the first quarter 2013 monitoring period. Based on the indoor air exceedances, modifications to the abatement system were completed from May 13–17,

2013. Modifications included installation of a wall at the Building 10 entrance to the tunnel and installation of an additional blower inside the Building 10 floor trench. The system has been operating continuously since it was restarted with modifications on May 17, 2013.

Additional sampling was conducted in May, June, August, and November 2013, in February, May, and August 2014, in February, May, August, and November 2015, in February, May, August, and November 2016, and in January 2017 to determine whether TCE and PCE concentrations in work areas inside the building had decreased and remained below the ROD cleanup goals following the vapor intrusion system enhancements. The results showed that detected concentrations of TCE in work areas within the building were below the ROD Amendment cleanup goal of 5 $\mu g/m^3$ in all samples collected in May, June, August, and November 2013; February, May, and August 2014; August 2015; and February, May, and November 2016. No other COC was detected at a concentration that exceeded its respective cleanup goal within work areas of the building. The Navy is maintaining the interim measure until a final remedy is implemented for Building 10. The Navy will monitor indoor air at Building 10 as long as the current interim measure is in place. A reduction in monitoring frequency and number of samples will be recommended if quarterly monitoring results are consistently below indoor air cleanup levels. A final remedial mitigation approach is being evaluated for future implementation (AM8AJV 2015b).

5.4.4 Sampling Locations and Results

5.4.4.1 Previous Sampling Results

2012: A total of seven indoor air samples (including one duplicate) were collected from Building 10 on May 18, 2012, from the main work area, the boiler room, and near the tunnel access area, including one pathway sample from within the tunnel access. TCE and PCE were detected at concentrations exceeding the EPA's indoor air cleanup levels in all the samples except one (M010-1-06 from Room N104). 1,1-DCA and cis-1,2-DCE (along with TCE and PCE) were detected at concentrations exceeding the EPA's indoor air cleanup levels for only one pathway sample (M010-T-04), which was collected in the tunnel access area (AM8AJV 2014a).

The results for samples collected on July 18 and August 9, 2012, as a follow-up to the interim action vapor control on July 11, 2012, reported TCE detections in indoor air at concentrations ranging from 0.89 to 1.1 $\mu g/m^3$ for all work area samples collected in Building 10. The VOC results for samples collected at the tunnel access were reduced considerably in comparison with the May 2012 sampling results (AM8AJV 2014a).

2014: A total of nine indoor air samples (including one duplicate) were collected from Building 10 on February 11, 2014, from the main work area, the boiler room, and near the tunnel access area, including three pathway samples from within the floor trench and the tunnel access. One outside air sample (24-hour duration) was collected immediately outside Building 10, along with indoor air samples. TCE was detected at concentrations exceeding the EPA's indoor air cleanup level in the three pathway samples collected from the tunnel and floor trenches. COC (PCE, cis-

1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) detections in all work area samples for Building 10 were significantly lower than the EPA's indoor air cleanup levels, but were still above the outdoor air concentrations for TCE. TCE and PCE were measured in indoor air at concentrations ranging from 0.66 to 3.7 $\mu g/m^3$ and 0.063 to 0.79 $\mu g/m^3$, respectively, for all work area samples collected at Building 10. The maximum TCE concentration (73 $\mu g/m^3$) was detected in a sample collected in a floor trench (14M010-T-04) in Building 10.

2016: A total of six indoor air samples (including one duplicate) were collected from Building 10 on January 12, 2016, from the main work area, the boiler room, and near the tunnel access area, including a pathway sample (and duplicate) from within the floor trench and the tunnel access. One outside air sample of 24-hour duration was collected immediately outside Building 10, along with indoor air samples. All sampling results were below indoor air cleanup levels for all COCs. Detected COC concentrations that exceeded the outdoor air concentration ranges include PCE (six of six samples), TCE (six of six samples), trans-1,2-DCE (six of six samples), cis-1,2-DCE (five of six samples), 1,1-DCA (six of six samples), and 1,1-DCE (six of six samples). TCE and PCE were measured in indoor air at concentrations ranging from 0.86 to 1.3 $\mu g/m^3$ and 0.11 to 0.14 $\mu g/m^3$, respectively, for all samples collected at Building 10 (MMEC 2016).

5.4.4.2 Current (2017) Sampling Results

Eight indoor air samples (including two duplicates) were collected from Building 10 on January 12, 2017, from the main work area, the boiler room, near the tunnel access area, Room 103 (duplicate), and the Room 102 office (duplicate). One outdoor air sample at the tunnel exhaust vent was collected. One ambient air sample of 24-hour duration was collected immediately outside Building 10, along with indoor air samples. The sampling location details are provided in Table 10. Indoor and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

TCE was detected at concentrations exceeding the EPA's indoor air cleanup level in one work area sample from Room 103 (17M010-1-10) and the associated duplicate sample (17M310-1-10). Room 103 is a former storage area with a sump that penetrates the floor slab. All other COC detections for work area samples collected at Building 10 were lower than the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration levels included TCE (8 of 8 samples), PCE (7 of 8 samples), cis-1,2-DCE (8 of 8 samples), 1,1-DCA (7 of 8 samples), and 1,1-DCE (7 of 8 samples). All indoor air concentrations of trans-1,2-DCE were below the ambient air concentration level. There were no detections of VC in indoor or ambient air samples. All COCs detected in the outdoor tunnel exhaust vent location were below the ambient air concentration level. TCE and PCE were measured in indoor air at concentrations ranging from 0.65 to 11 $\mu g/m^3$ and 0.056 to 0.1 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.4.5 Response Action Tier Designation

TCE was detected at concentrations above the indoor air cleanup level at one work area sample and its associated duplicate. COCs were detected at concentrations that exceeded the ambient air concentration level for TCE, PCE, cis-1,2-DCE, 1,1-DCA, and 1,1-DCE. Because TCE concentrations exceeded the indoor air cleanup levels, the Navy is reclassifying Building 10 as Tier 1 from Tier 3A.

5.5 BUILDING 12

A walk-through inspection of Building 12 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 12 are included in Appendix A. The indoor air samples at Building 12 were collected with the HVAC system running on January 10, 2017, and were sampled again with the HVAC system shut off on January 15, 2017.

5.5.1 Building Condition

Building 12 is an approximately 59,000-SF, two-story structure that is used as a military commissary and warehouse. Building 12 is open 24 hours per day, except from 9:00 p.m. Sunday to 5:00 a.m. Monday. The commissary operates Monday through Saturday generally from 9:00 a.m. to 6:00 p.m.

Building 12 has a raised floor throughout and a crawl space under the raised floor. The floor is carpeted or tiled except in Room 101. Room 101 is used as a warehouse and has a concrete floor. The floor condition of the tiled and carpeted areas is unknown. There are cracks and seams in the concrete floor of Room 101. New tile has been installed within Room 109C and the room has been repainted. Floor drains are present in Rooms 118 and 117 (meat kitchen), 113, and 104C, and 105D (bathrooms). Sumps are present in rooms 118 (meat kitchen) and 105 (produce). Electrical conduits penetrate the floor slab in Rooms 110 and 117, along with other utility conduits in Room 110. Elevator shafts are present in rooms 112 and 109A/B.

5.5.2 HVAC System

Building 12 has an HVAC system (zoned heating/cooling). There are nine old 3-ton AC units (one or two in use) and a new 10-ton unit mounted on the roof with an air intake. There are six exhaust fans located on the roof. Other ventilation systems in the building include open windows, mechanical fans, and restroom fans. A natural-gas, building-specific heating system is used in the building.

5.5.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 12.

5.5.4 Sampling Locations and Results

5.5.4.1 Previous Sampling Results

2008: Two indoor air samples were collected in February 2008 from Building 12. TCE was measured at concentrations ranging from 0.345 to 0.447 µg/m^3 (Neptune 2008).

2012: A total of 13 indoor air samples (including one duplicate) were collected in May 2012 from two floors, including the crawl space beneath the raised floor of Building 12, with both the HVAC system operating and the HVAC system off. All sampling results were below indoor air cleanup levels except one pathway sample (M012-C-05-N) collected in the crawl space beneath Room 110, where TCE was detected at a concentration of 6.1 µg/m^3, exceeding the cleanup level of 5 µg/m^3 (AM8AJV 2014a).

Interim Mitigation Measures and Confirmation Sampling (2013): Interim mitigation measures were implemented at Building 12, which consisted of sealing conduits penetrating the floor slab above the crawl space in Room 110 and allowing passive venting of the crawl space. Follow-up confirmation air samples were collected in Room 110 and Hallway C102 with the HVAC system both on and off to evaluate the effectiveness of the interim mitigation measures. All results for samples collected near the conduits penetrating the floor in Room 110 and Hallway C102 in Building 12 with the HVAC system both on and off were reported below indoor air cleanup levels. However, all samples had concentrations of TCE that exceeded the outdoor air concentration range for TCE.

2014: Nine indoor air samples (including one duplicate) were collected from Building 12, including from the crawl space beneath the raised floor, with the HVAC system operating and off. Two outside air samples (24-hour duration) were collected near Building 12. Indoor air and outdoor air samples were collected on February 13, 2014, with the HVAC system operating and on February 18, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels except for those of pathway samples (14M012-C-05-F, 14M012-C-05-N, and 14M312-C-05-F) collected in the crawl space beneath Room 110, where TCE was detected at concentrations of 6.1, 6.0, and 5.2 µg/m^3, respectively, exceeding the cleanup level of 5 µg/m^3. All other detected COC (PCE, cis-1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were lower than the EPA's indoor air cleanup levels. PCE was detected at concentrations within the outdoor air concentration range for all samples except one (14M012-1-01-F) with the HVAC system off. 1,1-DCA (three of three pathway samples), 1,1 DCE (two of three pathway samples), and trans-1,2-DCE (three of three pathway samples) were detected at concentrations above the outdoor air concentration ranges. All COCs were within outdoor air concentration ranges for all work area samples except TCE for one sample (14M012-1-01-F at 0.46 µg/m^3 with HVAC off).

2016: Eight indoor air samples (including one duplicate) were collected from Building 12, including from the crawl space beneath the raised floor, with the HVAC system operating and off.

Four samples were collected with the HVAC system running and four samples were collected with the HVAC system off. Two outside air samples (24-hour duration) were collected near Building 12. Indoor air and outdoor air samples were collected on January 13, 2016, with the HVAC system operating and on January 18, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels except for those from one pathway sampling location (16M012-C-05-F and 16M312-C-05-F) collected in the crawl space beneath Room 110, where TCE was detected at concentrations of 7.1 and 7.2 $\mu g/m^3$, respectively, exceeding the cleanup level of 5 $\mu g/m^3$. Samples from the crawl space were the only samples with concentrations that exceeded the indoor air cleanup levels. All other detected COC (PCE, cis-1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were lower than the EPA's indoor air cleanup levels. PCE was detected at concentrations above the outdoor air concentration range for every sample collected with the HVAC system on (ranging from 0.047 to 0.079 $\mu g/m^3$); however, only one sample had a PCE concentration above the outdoor air concentration range (16M012-1-01-F) with the HVAC system off. With the HVAC system off, the following COCs were detected in work area samples at concentrations above the outdoor air concentration ranges: TCE (two of two samples), PCE (one of two samples), cis-1,2-DCE (one of two samples), and 1,1-DCE (one of two samples). With the HVAC system on, the following COCs were detected in work area samples at concentrations above the outdoor air concentration ranges: TCE (two of three samples) and trans-1,2-DCE (three of three samples) (MMEC 2016).

5.5.4.2 Current (2017) Sampling Results

Nine indoor air samples (including one duplicate) were collected from Building 12, including from the crawl space beneath the raised floor, with the HVAC system operating (four samples) and off (five samples). Two ambient air samples (24-hour duration) were collected near Building 12. Indoor air and ambient air samples were collected on January 10, 2017, with the HVAC system operating and on January 15, 2017, with the HVAC system off. The sampling location details are provided in Table 10. Indoor and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration ranges included TCE (6 of 9 – 3 samples with HVAC off, 3 samples with HVAC on), PCE (5 of 9 – 4 samples with HVAC system off, 1 sample with the HVAC on), cis-1,2-DCE (5 of 9 – 4 samples with the HVAC system off, 1 sample with the HVAC on), trans-1,2-DCE (3 of 9 – 3 samples with the HVAC system off), 1,1-DCA (2 of 9 – 1 sample with HVAC system off, 1 sample with the HVAC on), 1,1-DCE (2 of 9 – 1 sample with the HVAC off, 1 sample with the HVAC on), and VC (2 of 9 – 1 sample with the HVAC off, 1 sample with the HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.060 to 1.8 $\mu g/m^3$ and 0.030J to 0.14 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.5.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration range for Building 12. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building 12 as Tier 3A.

5.6 BUILDING 13

A walk-through inspection of Building 13 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 13 are included in Appendix A. The indoor air samples at Building 13 were collected on January 18, 2017.

5.6.1 Building Condition

Building 13 is an approximately 16,000-SF, one-story structure that is used as a food storage warehouse to support the Building 12 commissary. Building 13 is open 24 hours per day, except from 9:00 p.m. Sunday to 5:00 a.m. Monday.

There is a concrete slab floor (with cracks and seams) in Room 103 and a raised floor in Room 102. No floor drains or sumps are present. Electrical conduits penetrate the concrete floor slab in the northern side of Room 102 and Room 103. A water pipe line penetrates the concrete floor slab in Room 103.

5.6.2 HVAC System

Building 13 does not have an HVAC system. Building 13 has open air ventilation and open windows.

5.6.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 13.

5.6.4 Sampling Location and Results

5.6.4.1 Previous Sampling Results

2012: A total of three indoor air samples (including one duplicate) were collected at Building 13 in May 2012. All sampling results were below indoor air cleanup levels for all COCs. Only TCE was detected at a concentration slightly above the outdoor air concentration range for one sample (M013-1-02); all other sampling results were within the outdoor air concentration ranges for all COCs (AM8AJV 2014a).

2014: Two indoor air samples were collected in Building 13. Indoor air samples were collected on February 18, 2014. All sampling results were below indoor air cleanup levels for all COCs. Only TCE was detected at a concentration slightly above the outdoor air concentration range for one

sample (14M013-1-01); all other sampling results were within the outdoor air concentration ranges for all COCs. TCE was measured in indoor air at concentrations ranging from 0.19 to 0.39 μg/m^3 in Building 13.

2016: Two indoor air samples were collected in Building 13. Indoor air samples were collected on January 13, 2016. All sampling results were below indoor air cleanup levels for all COCs. The following COCs were detected in work area samples at concentrations above the outdoor air concentration ranges: TCE (two of two samples), PCE (two of two samples), cis-1,2-DCE (two of two samples),1,1-DCA (one of two samples), and trans-1,2-DCE (two of two samples) (MMEC 2016).

5.6.4.2 Current (2017) Sampling Results

Three indoor air samples (including one duplicate) were collected in Building 13. One ambient air sample (24-hour duration) was collected near Building 13. Indoor and ambient air samples were collected on January 18, 2017. The sampling location details are provided in Table 10. Indoor and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration levels included TCE (1 of 3 samples), PCE (3 of 3 samples), cis-1,2-DCE (2 of 3 samples),1,1-DCA (1 of 3 samples), and trans-1,2-DCE (1 of 3 samples). No other COCs were detected at concentrations above the ambient air concentration level. TCE and PCE were measured in indoor air at concentrations ranging from 0.038 to 0.049 μg/m^3 and 0.032J to 0.037 μg/m^3, respectively, at Building 13. TCE and PCE were measured in ambient air at concentrations of 0.043 and 0.030J μg/m^3, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.6.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air sample concentration levels for Building 13. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 μg/m^3. The Navy is reclassifying Building 13 as Tier 3B from Tier 3A.

5.7 BUILDING 14

A walk-through inspection of Building 14 was conducted on November 29, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 14 are included in Appendix A. The indoor air samples at Building 14 were collected on January 16, 2017 and January 17, 2017.

5.7.1 Building Condition

Building 14 is an approximately 15,000-SF, one-story structure. The western portion of the building is occupied by SkyTran, an alternative transportation firm, as a demonstration facility. Two tran lines are installed in the building. The slab of the floor is approximately 12 inches thick, based on the installation of the tran line. The building is typically operated 5 to 6 hours a month as a demonstration facility. The eastern portion of the building is being occupied by Virgin America as an emergency backup facility. The Virgin America portion is rarely occupied.

The concrete floor in the building is covered with carpet or linoleum tile throughout most of the facility. Seams are visible in the uncovered portions of the concrete floor. There is a crawl space located under most of the building except under the northern storage room. No floor drains/sumps are present. Communications and electrical conduits that penetrate the slab are located in a closet near the demonstration room and the abandoned storage room at the northern end of the building.

5.7.2 HVAC System

An HVAC System was installed in Building 14 between the 2014 and 2016 sampling events.

5.7.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 14.

5.7.4 Sampling Locations and Results

5.7.4.1 Previous Sampling Results

2012: Eight indoor air samples (including one duplicate) were collected in Building 14 on June 12, 2012, of which two samples were collected in the crawl space beneath the raised floor. All sampling results were below indoor air cleanup levels for all COCs. Only TCE (five of eight samples) and trans-1,2-DCE (three of eight samples) were detected at concentrations exceeding outdoor air concentration ranges (AM8AJV 2014a).

2014: Six indoor air samples (including one duplicate) were collected in Building 14 on February 12, 2014, of which two samples were collected in the crawl space beneath the raised floor. Sampling results were below indoor air cleanup levels for all COCs. Only TCE (both pathway samples) and 1,1-DCA (one of two pathway samples) were detected at concentrations exceeding the outdoor air concentration ranges for the samples collected in the crawl space beneath the raised floor. TCE and 1,1-DCA were measured in indoor air at concentrations ranging from 0.05 to 4.5 $\mu g/m^3$ and 0.020J to 0.066 $\mu g/m^3$, respectively, at Building 14. All other detected COC (PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were within the outdoor air concentration ranges.

2016: A total of 11 indoor air samples (including one duplicate) were collected in Building 14 from offices with the HVAC system operating (four samples) and off (three samples), and from the crawl space beneath the raised floor (four samples). Indoor air samples were collected on

January 13 and 17, 2016. All work area sampling results were below indoor air cleanup levels for all COCs. Only TCE (three of four samples) was detected at concentrations exceeding the indoor air cleanup level for the samples collected in the crawl space beneath the raised floor (ranging from 5.5 to 7.0 $\mu g/m^3$). With the HVAC system off, TCE was detected in one work area sample at a concentration above the overall outdoor air concentration range. No other COCs were detected at concentrations above the overall outdoor air concentration ranges in work areas with the HVAC system in operation and off (MMEC 2016).

5.7.4.2 Current (2017) Sampling Results

Eleven indoor air samples (including one duplicate) were collected in Building 14, including from the crawl space beneath the raised floor, with the HVAC system operating (six samples) and off (five samples). Indoor air samples were collected on January 16, 2017 with the HVAC system off and January 17, 2017 with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. COCs in indoor air were compared to Building 67 ambient air concentration levels, as Building 67 is the closest building with an ambient air sample. Indoor air and pathway sample concentrations exceeding the ambient air concentration level at Building 67 included TCE (9 of 11 – 5 samples with HVAC off, 4 sample with HVAC on), PCE (11 of 11 – 5 samples with HVAC off, 6 samples with HVAC on), cis-1,2-DCE (9 of 11 – 5 samples with HVAC off, 4 samples with HVAC on), trans-1,2,-DCE (11 of 11– 5 samples with HVAC off, 6 samples with HVAC on) 1,1-DCA (6 of 11 – 4 samples with HVAC off, 2 samples with HVAC on), 1,1-DCE (4 of 11 – 2 samples with HVAC off, 2 samples with HVAC on), and VC (4 of 11 – 2 samples with HVAC off, 2 samples with HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.078 to 4.6 $\mu g/m^3$ and 0.086 to 0.23 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.7.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 67 ambient air concentration levels, as Building 67 is the closest building with an ambient air sample. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples collected in Building 14 were above the ambient air concentration level at Building 67. Because indoor air COC results are above Building 67 ambient air concentration levels, the Navy is classifying Building 14 as Tier 3A.

5.8 BUILDING 15

A walk-through inspection of Building 15 was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 15 are included in Appendix A. The indoor air

samples at Building 15 were collected with the HVAC system running on January 10, 2017, and were sampled again with the HVAC system shut off on January 15, 2017.

5.8.1 Building Condition

Building 15 is an approximately 17,000-SF, one-story structure that is used by NASA security. The majority of offices operate 8 hours per day, 5 days a week, with infrequent weekend use; however, the Lieutenant office (Room 135D) is staffed 24 hours per day, 7 days per week.

The building has a concrete slab floor (with cracks and seams). Floor drains are present in Rooms 101, R102W, R104M, 146, and 150. Conduits penetrating the floor slab are present in Rooms 117A (janitor closet), R113, R115, R102W, and R104M (toilet conduits).

5.8.2 HVAC System

Building 15 has a chiller in Room 118 and two air handlers (A/H): A/H-1 is in Room 163 in the southwestern corner of the building, and A/H-2 is in Room 108 in the eastern side of the building. The air intake source is outside of the mechanical rooms at approximately 8 feet above ground surface.

The building has five exhaust fans, three in the east wing (one at the northeastern corner, two in the central area of the eastern wing) and two in the western wing (one at the northwestern corner and one at the southwestern corner).

Open windows, fans, and a window-mounted AC unit in Room 111 are used for cooling and air circulation. Heating is provided by a building-specific boiler system that runs on natural gas.

5.8.3 Existing Mitigation Measures

NASA adjusted the HVAC system in 2004 to increase the makeup air supplied into the building after indoor air sampling results ranged from 0.23 to 7.22 $\mu g/m^3$ for TCE (Haley & Aldrich 2009; NASA 2012).

5.8.4 Sampling Locations and Results

5.8.4.1 Previous Sampling Results

2003–2009: Indoor air samples were collected from six locations in Building 15 between 2003 and 2009. Prior to September 2003, TCE concentrations were between 0.3 and 2.0 $\mu g/m^3$. Between mid-September 2003 and mid-February 2004, TCE concentrations generally doubled, with concentrations exceeding 5 $\mu g/m^3$ in three events. After the makeup air supply was adjusted, TCE concentrations were reduced to less than 1.0 $\mu g/m^3$ by early May 2004 (Neptune 2005). Five indoor air samples were collected in March 2009. TCE was measured at concentrations ranging from 0.047 to 0.135 $\mu g/m^3$ (NASA 2012).

2012: A total of 13 indoor air samples (including one duplicate) were collected at six sampling locations with the HVAC system operating and off at Building 15 in May 2012. All sampling results were below indoor air cleanup levels. Only TCE (six of six samples) and PCE (one of six samples) were detected at concentrations exceeding their outdoor air concentration ranges in the samples collected with the HVAC system off. PCE was also detected at a concentration exceeding the outdoor air concentration range in one sample collected with the HVAC system on (AM8AJV 2014a).

2014: Nine indoor air samples (including one duplicate) were collected at four sampling locations with the HVAC system operating and off at Building 15. Two outside air samples (24-hour duration) were collected immediately outside Building 15. Indoor air samples were collected on February 13, 2014, with the HVAC system operating and on February 17, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels. Only TCE (four of nine samples) and PCE (one of nine samples) were detected at concentrations exceeding their outdoor air concentration ranges in the samples collected with the HVAC system off. TCE and PCE were measured in indoor air at concentrations ranging from 0.060 to 1.8 $\mu g/m^3$ and 0.034 to 0.12 $\mu g/m^3$, respectively, at Building 15. All other COC (cis-1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were within their outdoor air concentration ranges.

2016: Nine indoor air samples (including one duplicate) were collected at four sampling locations with the HVAC system operating and off at Building 15. Two outside air samples (24-hour duration) were collected immediately outside Building 15. Indoor air samples were collected on January 13, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels. PCE (four of four samples), TCE (two of four samples), cis-1,2-DCE (one of four samples), trans-1,2-DCE (four of four samples), and 1,1-DCA (one of four samples) were detected at concentrations exceeding their outdoor air concentration ranges in the samples collected with the HVAC system on. With the HVAC system off, the following COCs were found at concentrations above the outdoor air concentrations (including results from one duplicate sample): PCE (five of five samples), TCE (five of five samples), cis-1,2-DCE (five of five samples), trans-1,2-DCE (one of five samples), 1,1-DCE (one of five samples), and VC (three of five samples) (MMEC 2016).

5.8.4.2 Current (2017) Sampling Results

Nine indoor air samples (including one duplicate) were collected in Building 15, with the HVAC system operating (four samples) and off (five samples). Two ambient air samples (24-hour duration) were collected near Building 15. Indoor air and ambient air samples were collected on January 10, 2017 with the HVAC system on and January 15, 2017 with the HVAC system off. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (6 of 9 – 5 samples with HVAC off, 1 sample with HVAC on), PCE (3 of 9 – 3 samples with HVAC off), cis-1,2-DCE (1 of 9 – 1 sample with HVAC off), 1,1-DCA (6 of 9 – 4 samples with HVAC off, 2 samples with HVAC on), and 1,1-DCE (1 of 11 – 1 sample with HVAC off). No other COCs were detected at concentrations above the ambient air concentration ranges. TCE and PCE were measured in indoor air at concentrations ranging from 0.028J to 3.3 $\mu g/m^3$ and 0.030J to 0.12 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.8.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, 1,1-DCA, and 1,1-DCE concentrations in indoor air samples were detected above the ambient air concentration range for Building 15. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building 15 as Tier 3A.

5.9 BUILDING 16

A walk-through inspection of Building 16 was conducted on November 29, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 16 are included in Appendix A. The indoor air samples at Building 16 were collected with the HVAC system running on January 18, 2017, and were sampled again with the HVAC system shut off on January 16, 2017.

5.9.1 Building Condition

Building 16 is a single-story building with a second story annex on a slab-on-grade foundation. The building consists of offices, a wood shop, and a machine shop. Building 16 is an approximately 15,000-SF structure that is currently occupied by a maintenance contractor (IAP World Services) operating Monday through Friday from 8:00 a.m. to 6:00 p.m.

The building has a concrete slab floor with visible cracks and seams. Floor drains are present in Rooms 111, and Rooms R101 and R102 (bathrooms). Electrical conduits penetrate the concrete floor slab in Room 118. Sink drain and toilet plumbing conduits are present in Rooms R101 and R102 (bathrooms).

5.9.2 HVAC System

Building 16 has an HVAC system (zoned heating/cooling). It also has an A/H in Room 111 and a small exhaust fan in Room 106. Open windows, restroom fans, and a window-mounted AC unit in Room 110A provide cooling and air circulation. A building-specific boiler heating system that runs on natural gas is used in the building.

5.9.3 Existing Mitigation Measures

NASA adjusted the HVAC system in 2004 to increase the makeup air supplied into the building to maintain positive pressure after indoor air sampling results for TCE ranged from 0.21 to 15.11 $\mu g/m^3$ (NASA 2012).

5.9.4 Sampling Locations and Results

5.9.4.1 Previous Sampling Results

2003–2009: Indoor air samples have been collected at two locations in Building 16 (Neptune 2009; NASA 2012). TCE concentrations were between 0.6 and 15.1 $\mu g/m^3$ between December 2003 and April 2004. After adjusting the makeup air supply, TCE concentrations were reduced to less than 1.0 $\mu g/m^3$ by mid-May 2004 (Neptune 2005). Samples collected on February 28, 2007, reported TCE at concentrations of 1.334 and 3.667 $\mu g/m^3$. However, in samples collected in 2008 and 2009, TCE concentrations were less than 1.0 $\mu g/m^3$ (Neptune 2009; NASA 2012).

2012: A total of 12 indoor air samples (including two duplicates) were collected with the HVAC system operating and with the HVAC system off at Building 16 in May 2012. All sampling results were below indoor air cleanup levels with the HVAC system both operating and shut down. Only TCE was detected at a concentration exceeding the outdoor air concentration range in all the samples collected with the HVAC system off. All of the COC results were within their respective outdoor air concentration ranges with the HVAC system on (AM8AJV 2014a).

2014: A total of 12 indoor air samples (including 2 duplicates) and 2 outdoor air samples were collected with the HVAC system operating and off at Building 16. Indoor air samples were collected on February 12, 2014, with the HVAC system operating and on February 16, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels with the HVAC system both operating and shut down, except for one sample (14M016-1-05-F from Room 103), where TCE was detected at a concentration of 6.6 $\mu g/m^3$ with the HVAC off. TCE was detected at concentrations exceeding the outdoor air concentration range in all of the samples collected with the HVAC system off and in two samples (14M016-1-02-N and 14M016-1-04-N) with the HVAC system operating. PCE was detected at concentrations exceeding the outdoor air concentration range in all of the samples with the HVAC system operating and in all three samples (14M016-1-01-F, 14M016-1-01-N, and 14M016-1-05-N) with the HVAC system off. 1,1-DCE and 1,1-DCA were also detected at concentrations exceeding their outdoor air concentration ranges in sample 14M016-1-05-F (the same sample where the TCE concentration exceeded the indoor air cleanup level for TCE). All other COC results were within their outdoor air concentration ranges with the HVAC system on and off.

2016: A total of 12 indoor air samples (including 2 duplicates) and 2 outdoor air samples were collected with the HVAC system operating and off at Building 16. Indoor air samples were collected on January 13, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels with the HVAC

system both operating and shut down. With the HVAC system on, the following COCs were detected at concentrations above the outdoor air concentration ranges (including results from one duplicate sample): PCE (five of six samples), TCE (four of six samples), trans-1,2-DCE (three of six samples), and VC (one of six samples). With the HVAC system off, the following COCs were detected at concentrations above the outdoor air concentration ranges (including results from one duplicate sample): PCE (three of six samples), TCE (six of six samples), cis-1,2-DCE (five of six samples), trans-1,2-DCE (five of six samples), 1,1-DCE (five of six samples), 1,1-DCA (five of six samples), and VC (five of six samples) (MMEC 2016).

5.9.4.2 Current (2017) Sampling Results

Fourteen indoor air samples (including two duplicates) were collected in Building 16, with the HVAC system operating (seven samples) and off (seven samples). Two ambient air samples (24-hour duration) were collected near Building 16. Indoor air samples were collected on January 16, 2017 with the HVAC system off and January 18, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (11 of 14 – 7 samples with HVAC off, 4 sample with HVAC on), PCE (11 of 14 – 7 samples with HVAC off, 4 samples with HVAC on), cis-1,2-DCE (8 of 14 – 7 samples with HVAC off, 1 sample with HVAC on), trans-1,2-DCE (2 of 14 – 1 sample with HVAC off, 1 sample with HVAC on), 1,1-DCA (6 of 14 – 4 samples with HVAC off, 2 samples with HVAC on), 1,1-DCE (11 of 14 – 7 samples with HVAC off, 4 samples with HVAC on), and VC (2 of 14 – 1 sample with HVAC off, 1 sample with HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.20 to 0.92 $\mu g/m^3$ and 0.055 to 1.5 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.9.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration range for Building 16. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building 16 as Tier 3A.

5.10 BUILDING 29

A walk-through inspection of Building 29 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 29 are included in Appendix A. The indoor air samples at Building 29 were collected on January 9, 2017.

5.10.1 Building Condition

Building 29 is an approximately 1,400-SF, one-story structure with a basement that is currently used as bicycle repair shop. Building operating hours are intermittent, buy typically the building is occupied 2-4 hours a day.

The building has a half basement under Room 106. The basement is used for storage and utilities. Building 29 has a concrete slab floor (with cracks and seams), tile floor, and raised wood floor in Room 106. Drains are present in the basement below Room 106 and in Room 102 (bathroom). Unknown conduits penetrate the floor slab in the basement and Room 103. Bathroom utilities penetrate the floor in Room 102.

5.10.2 HVAC System

Building 29 does not have an HVAC system. Ventilation systems such as open windows and restroom fans are present.

5.10.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 29.

5.10.4 Sampling Locations and Results

5.10.4.1 Previous Sampling Results

2012: Two indoor air samples (including one in the basement) were collected in Building 29 in May 2012. All sampling results were below indoor air cleanup levels for all COCs. Only one sample contained PCE (0.23 $\mu g/m^3$) at a concentration that exceeded the outdoor air concentration range (AM8AJV 2014a).

2014: Two indoor air samples were collected in Building 29. One outdoor air sample was collected just outside Building 29. Indoor and outdoor air samples were collected on February 11, 2014. All sampling results were below indoor air cleanup levels and outdoor air concentration ranges for all COCs. TCE and PCE were measured in indoor air at concentrations ranging from 0.04 to 0.069 $\mu g/m^3$ and 0.049 to 0.061 $\mu g/m^3$, respectively.

2016: Two indoor air samples were collected in Building 29. One outdoor air sample was collected just outside Building 29. Indoor air and outdoor air samples were collected on January 12, 2016. All sampling results were significantly below indoor air cleanup levels. TCE (two of two samples), trans-1,2-DCE (two of two samples), and 1,1-DCA (one of two samples) were detected at concentrations above outdoor air concentration ranges. TCE was measured in indoor air at concentrations ranging from 0.15 to 0.17 $\mu g/m^3$, and PCE was detected at concentrations of 0.091 to 0.093 $\mu g/m^3$ (MMEC 2016).

5.10.4.2 Current (2017) Sampling Results

Two indoor air samples were collected in Building 29. One ambient air sample (24-hour duration) was collected near Building 29. Indoor and ambient air samples were collected on January 9, 2017. The sampling location details are provided in Table 10. Indoor and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration ranges included TCE (two of two samples), PCE (two of two samples), cis-1,2-DCE (two of two samples), 1,1-DCA (two of two samples), and VC (two of two samples). No other COCs were detected at concentrations above the ambient air concertation levels. TCE and PCE were measured in indoor air at concentrations ranging from 0.35 to 0.39 $\mu g/m^3$ and 0.26 to 0.29 $\mu g/m^3$, respectively. TCE and PCE were measured in ambient air at concentrations of 0.037 and 0.070 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.10.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air concentration levels for Building 29. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$. The Navy is reclassifying Building 29 as Tier 3B from Tier 3A.

5.11 BUILDING 45

A walk-through inspection of Building 45 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 45 are included in Appendix A. The indoor air samples at Building 45 were collected on January 17, 2017.

5.11.1 Building Condition

Building 45 is an approximately 9,000-SF, one-story structure formerly now used as a drone testing facility with a paint and welding shop. Building 45 is used several days per month for a short duration of time (2 to 4 hours).

Building 45 has a concrete slab floor with visible cracks and seams. There is a sump approximately 6 feet deep in Room 107A. Electrical conduits and a utility corridor trench are present in Room 101S and 101A. The corridor trench traverses the building from east to west at an unknown depth. Building 45 was modified between the 2016 and 2017 air sampling events, the walls separating Rooms 101, 102, and 102A from Room 101A have been removed.

5.11.2 HVAC System

Building 45 does not have an HVAC system. There are several exhaust vents, but the fans may not be operational. Ventilation systems such as open windows and restroom fans are present.

5.11.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 45.

5.11.4 Sampling Locations and Results

5.11.4.1 Previous Sampling Results

2012: Three indoor air samples (including one duplicate) were collected at Building 45 in May 2012. Sampling results were below indoor air cleanup levels for all COCs. Only TCE was detected at a concentration exceeding the outdoor air concentration range (AM8AJV 2014a).

2014: Two indoor air samples were collected in Building 45. Indoor air samples were collected on February 12, 2014. Sampling results were below indoor air cleanup levels for all COCs. TCE and PCE were detected at concentrations that exceeded the outdoor air concentration ranges for both of the indoor air samples at Building 45. TCE and PCE were measured in indoor air at concentrations ranging from 0.62 to 0.80 $\mu g/m^3$ and 0.12 to 0.26 $\mu g/m^3$, respectively.

2016: Two indoor air samples were collected from Building 45. One outside air sample (24-hour duration) was collected immediately outside Building 45. All samples were collected on January 12, 2016. PCE and TCE concentrations exceeded indoor air cleanup levels for sample 16M045-1-01, and PCE concentrations exceeded indoor air cleanup levels for sample 16M045-1-02. For sample 16M045-1-01, which was located in Room 101, PCE and TCE were measured at concentrations of 5.0 and 7.0 $\mu g/m^3$, respectively. For sample 16M045-1-02, which was located in Room 102, PCE was detected at a concentration of 2.6 $\mu g/m^3$. Both of the indoor air samples had results that exceeded the outdoor air concentration ranges for all of the COCs (MMEC 2016).

5.11.4.2 Current (2017) Sampling Results

Two indoor air samples were collected from Building 45. One outside air sample (24-hour duration) was collected near Building 45. All samples were collected on January 17, 2017. The sampling location details are provided in Table 10. Indoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

PCE concentrations exceeded indoor air cleanup levels for samples 17M045-1-01 and 17M045-1-02, from Room 101 and the former location of Room 102, respectively. Rooms 101 and former 102 are main work areas in the building with floor trenches in the area. Both of the indoor air samples had results that exceeded the ambient air concentration level for all of the COCs. TCE and PCE were measured in indoor air at concentrations ranging from 4.7 to 4.8 $\mu g/m^3$ for TCE and at 2.6 $\mu g/m^3$ for both PCE samples. Table 12 provides the indoor air and ambient air sampling results.

5.11.5 Response Action Tier Designation

PCE was detected at concentrations above the indoor air cleanup levels in 2017. TCE was not detected at concentrations exceeding the indoor air cleanup level in 2017. TCE and PCE were detected at concentrations above the indoor air cleanup levels in 2016. All COCs were detected at concentrations that exceeded their ambient air concentration level in 2017. Because PCE concentrations exceeded the indoor air cleanup levels, the Navy is classifying Building 45 as Tier 1.

5.12 BUILDING 67

A walk-through inspection of Building 67 was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 67 are included in Appendix A. The indoor air sample at Building 67 were collected on January 17, 2017.

5.12.1 Building Construction

Building 67 is an approximately 2,000-SF, one-story structure that is occupied by the United States Post Office, which operates Monday through Friday, 7:00 a.m. to 4:00 p.m., with no weekend use. The building has a concrete slab floor with visible seams and a break between the slab on the southwestern portion of the building. There are no drains/sumps present in the building. Toilet conduits penetrate the slab floor in Rooms 101 and 102.

5.12.2 HVAC System

Building 67 has a single window-mounted AC unit. Open windows and fans are used for ventilation and air circulation. A building-specific heating system that runs on natural gas is used in the building.

5.12.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 67.

5.12.4 Sampling Locations and Results

5.12.4.1 Previous Sampling Results

2012: Three indoor air samples (including one duplicate) were collected in Building 45 in May 2012. All sampling results were below indoor air cleanup levels and within the outdoor air concentration range for all COCs (AM8AJV 2014a).

2013: Soil gas and groundwater samples collected in areas adjacent to Building 67 during 2013 did not indicate any significant potential for vapor intrusion to exceed the indoor air cleanup levels. Soil gas and groundwater sampling in areas adjacent to Building 67 provided additional lines of evidence to evaluate the feasibility of a Tier 4 (no further action) ranking, as indoor air sampling

results for the May and June 2012 events were below indoor air cleanup levels and within outdoor air concentration ranges (AM8AJV 2014c).

2014: One indoor air sample and one outdoor air sample were collected at Building 67 on February 12, 2014. All COC results were below indoor air cleanup levels and within the outdoor air concentration ranges. TCE and PCE were measured in indoor air at concentrations of 0.086 and 0.042 $\mu g/m^3$, respectively.

2016: One indoor air sample and one outdoor air sample were collected at Building 67 on January 12, 2016. All COC results were below indoor air cleanup levels; however, PCE, TCE, and trans-1,2-DCE concentrations exceeded their outdoor air concentration ranges. PCE and TCE were measured in indoor air at concentrations of 0.068 and 0.18 $\mu g/m^3$, respectively (MMEC 2016).

5.12.4.2 Current (2017) Sampling Results

One indoor air sample was collected at Building 67. One ambient air sample (24-hour duration) was collected near Building 67. Indoor and ambient air samples were collected on January 17, 2017. The sampling location details are provided in Table 10. Indoor air and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration level included TCE, PCE, and trans-1,2-DCE. TCE and PCE were measured in indoor air at concentrations of 0.34 and 0.072 $\mu g/m^3$, respectively. TCE and PCE were measured in ambient air at concentrations of 0.14 and 0.069 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.12.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air concentration levels for Building 67. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$. The Navy is reclassifying Building 67 as Tier 3B from Tier 3A.

5.13 BUILDING 76

A walk-through inspection of Building 76 was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 76 are included in Appendix A. The indoor air sample at Building 76 was collected on January 17, 2017.

5.13.1 Building Condition

Building 76 is an approximately 400-SF, one-story structure that is used as a locksmith shop. The shop operates Monday through Friday, 8:00 a.m. to 4:00 p.m. The building has a concrete slab

floor and carpeting. Slab conditions are unknown since the floor is covered. Toilet (sewer and water) conduits penetrate the slab floor in Room R102.

5.13.2 HVAC System

Building 76 does not have an HVAC system. There is a single window-mounted AC unit located in Room 101. Open windows and restroom fans provide ventilation and air circulation.

5.13.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 76.

5.13.4 Sampling Locations and Results

5.13.4.1 Previous Sampling Results

2008: One indoor air sample was collected in February 2008 in Building 76. TCE was measured at a concentration of 0.233 $\mu g/m^3$ (Neptune 2008).

2012: Two indoor air samples were collected in May 2012 in Building 76 with the window-mounted AC off and on. All sampling results were below indoor air cleanup levels and within the outdoor air concentration ranges for all COCs. TCE was measured in indoor air at concentrations ranging from 0.12 to 0.15 $\mu g/m^3$ (AM8AJV 2014a).

2014: One indoor air sample was collected in Building 76 on February 11, 2014, with the window-mounted AC off. All COC results were below indoor air cleanup levels and within the outdoor air concentration ranges. TCE and PCE were measured in indoor air at concentrations of 0.14 and 0.060 $\mu g/m^3$, respectively.

2016: One indoor air sample was collected in Building 76 on January 12, 2016, with the window-mounted AC off. All COC results were below indoor air cleanup levels; however, the one indoor air sample had concentrations that slightly exceeded the outdoor air concentration ranges for TCE and trans-1,2-DCE (MMEC 2016).

5.13.4.2 Current (2017) Sampling Results

One indoor air sample was collected at Building 76. The indoor sample was collected on January 17, 2017, with the window mounted AC off. The sampling location details are provided in Table 10. Indoor air and ambient air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. COCs in indoor air were compared to the Building 16 ambient air concentration range, as Building 16 is the closest building with ambient air samples. PCE and 1,1-DCA concentrations in indoor air samples were detected above the ambient air concentration range for Building 16. TCE and PCE were measured in indoor air at concentrations of 0.27 and 0.067 $\mu g/m^3$, respectively. TCE

and PCE were measured in indoor air in Building 16 at concentrations ranging from 0.17 to 0.27 $\mu g/m^3$ and 0.030J to 0.059 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.13.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 16 ambient air concentration ranges, as Building 16 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 16. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$. The Navy is reclassifying Building 76 as Tier 3B from Tier 3A.

5.14 BUILDING 107

A walk-through inspection of Building 107 was conducted on November 28, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 107 are included in Appendix A. The indoor air samples at Building 107 were collected with the HVAC system running on January 17, 2017, and were sampled with the HVAC system shut off on January 16, 2017.

5.14.1 Building Condition

Building 107 is an approximately 1,800-SF, one-story structure that is used as the Navy Resident Officer in Charge of Construction management office, which operates on weekdays. The building has a concrete slab floor and carpeting. Slab conditions are unknown. Toilet (sewer and water) conduits penetrate the slab floor in Room R101. Electrical and communication conduits are present in the eastern corner of Room 107.

5.14.2 HVAC System

Building 107 has an HVAC system (zoned heating/cooling) with the intake on the roof. The building has open windows for ventilation purposes. Natural gas is used in the building for heating purposes.

5.14.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 107.

5.14.4 Sampling Locations and Results

5.14.4.1 Previous Sampling Results

2008–2009: Indoor air samples were collected in February and May 2008 in Building 107. In May 2008, TCE and PCE were measured in indoor air at concentrations ranging from 2.553 to 2.825 $\mu g/m^3$ and 1.122 to 1.539 $\mu g/m^3$, respectively (Neptune 2009). February 2008 sampling results for

TCE and PCE were higher than the May 2008 sampling results, possibly due to open windows during the warmer May 2008 event, which provided better ventilation and may have decreased or eliminated the negative pressure in the building, resulting in decreased vapor intrusion (Neptune 2009). Five indoor air samples were collected in March 2009 in Building 107. TCE was measured at concentrations ranging from 0.433 to 1.9 $\mu g/m^3$ (NASA 2012).

2012: Four indoor air samples were collected in May 2012 at two sampling locations with the HVAC system operating and with the HVAC system off in Building 107. All sampling results were significantly below indoor air cleanup levels and within the outdoor air concentration ranges for all COCs. TCE was measured in indoor air at concentrations ranging from 0.043 to 0.11 $\mu g/m^3$ (AM8AJV 2014a).

2014: Four indoor air samples were collected at two sampling locations with the HVAC system operating and off at Building 107. Indoor air samples were collected on February 11, 2014, with the HVAC system operating and on February 16, 2014, with the HVAC system off. All sampling results were significantly below indoor air cleanup levels. PCE was detected at a concentration slightly exceeding the outdoor air concentration range at one location (Room 106) with both the HVAC system on and off. All other sampling results were within the outdoor air concentration ranges for all COCs. PCE and TCE were measured in indoor air at concentrations ranging from 0.073 to 0.12 $\mu g/m^3$ and 0.027J to 0.13 $\mu g/m^3$, respectively.

2016: Four indoor air samples were collected at two sampling locations with the HVAC system operating and off at Building 107. Indoor air samples were collected on January 12, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were significantly below indoor air cleanup levels. With the HVAC system operating, trans-1,2-DCE was detected at concentrations slightly exceeding the outdoor air concentration range at both sampling locations. With the HVAC system off, the following COCs were detected at concentrations exceeding their outdoor air concentration ranges: cis-1,2-DCE (one of two samples), 1,1-DCA (one of two samples), and VC (two of two samples). All other sampling results were within the outdoor air concentration ranges (MMEC 2016).

5.14.4.2 Current (2017) Sampling Results

Four indoor air samples (including two duplicates) were collected in Building 107, with the HVAC system operating (two samples) and off (two samples). Indoor air samples were collected on January 16, 2017 with the HVAC system off and January 17, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. COCs in indoor air were compared to Building 555 ambient air concentration range, as Building 555 is the closest building with ambient air samples. Indoor air concentrations exceeding

the ambient air concentration level at Building 555 included PCE (3 of 4 – 1 sample with HVAC off, 2 samples with HVAC on), trans-1,2-DCE (3 of 4 – 1 sample with HVAC off, 2 samples with HVAC on), and 1,1-DCA (2 of 4 – 2 samples with HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.058 to 0.082 $\mu g/m^3$ and 0.048 to 0.11 $\mu g/m^3$, respectively. TCE and PCE were measured in ambient air at Building 555 at concentrations ranging from 0.063 to 0.23 $\mu g/m^3$ and 0.032J to 0.057 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.14.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 555 ambient air concentration ranges, as Building 555 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 555. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$. The Navy is reclassifying Building 107 as Tier 3B from Tier 3A.

5.15 BUILDING 126

A walk-through inspection of Building 126 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 126 are included in Appendix A. The indoor air samples at Building 126 were collected with the HVAC system running on January 11, 2017, and were sampled again with the HVAC system shut off on January 16, 2017.

5.15.1 Building Condition

Building 126 is an approximately 13,000-SF, one-story structure that is occupied by the Moffett Historical Society Museum, which operates Wednesday through Saturday, 10:00 a.m. to 2:00 p.m. The building has a concrete slab floor and carpeting, with visible seams on the floor slab. Floor drains are present in Rooms 104 and 106A, and there is a sink drain in Room 105. Sewer conduits penetrate the slab floor in Rooms 104 and 106A.

5.15.2 HVAC System

In spring 2012, a new HVAC system was installed in Building 126. A radiant heat system is used in the building for heating purposes with a mechanical dispersion system.

5.15.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 126.

5.15.4 Sampling Locations and Results

5.15.4.1 Previous Sampling Results

2008–2009: Five indoor air samples were collected in March 2009 in Building 126. TCE was measured at concentrations ranging from 2.869 to 5.729 $\mu g/m^3$ (NASA 2012). Indoor air samples were also collected in February and May 2008 in Building 126 (Neptune 2008, 2009). In May 2008, TCE and PCE were reported in indoor air samples at concentrations ranging from 4.606 to 6.647 $\mu g/m^3$ and 3.645 to 4.898 $\mu g/m^3$, respectively (Neptune 2009). February 2008 sampling results for TCE and PCE were higher than May 2008 sampling results possibly due to open windows and doors providing better ventilation during the warmer May 2008 event (Neptune 2009).

2012: A total of 11 indoor air samples (including one duplicate) were collected in May 2012 from five sampling locations with the HVAC system operating and with the HVAC system off in Building 126. Only PCE was detected at a concentration exceeding its indoor air cleanup level at four locations (out of five) with both the HVAC system operating and shut down. All other detected COC (TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, and VC) concentrations were significantly lower than the EPA's indoor air cleanup levels. Detected COC concentrations exceeding the outdoor air concentration ranges included TCE (11 of 11 samples), cis-1,2-DCE (two of 11 samples), trans-1,2-DCE (5 of 11 – only samples with HVAC system off), 1,1-DCA (three of 11 samples), and VC (one of 11 samples) (AM8AJV 2014a).

2014: Nine indoor air samples (including one duplicate) were collected from four sampling locations with the HVAC system operating and with the HVAC system off in Building 126. Two outdoor air samples were also collected just outside Building 126. Indoor air samples were collected on February 12, 2014, with the HVAC system operating and on February 18, 2014, with the HVAC system off. PCE was detected at concentrations exceeding its indoor air cleanup level for samples at three of four locations with both the HVAC system operating and off. TCE was detected at a concentration slightly exceeding its indoor air cleanup level for only one sample (14M126-1-05-N) with the HVAC system operating. All other detected COC (cis-1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were significantly lower than the EPA's indoor air cleanup levels. TCE concentrations exceeded the TCE outdoor air concentration range for all the samples with the HVAC system operating and shut down. Detected COC concentrations exceeding the outdoor air concentration ranges also included trans-1,2-DCE (one of nine samples – with HVAC system operating), 1,1-DCA (four of nine samples), and VC (five of nine samples). PCE and TCE were measured in indoor air at concentrations ranging from 1.7 to 6.5 $\mu g/m^3$ and 1.3 to 5.8 $\mu g/m^3$, respectively, in Building 126.

2016: Nine indoor air samples (including one duplicate) were collected from four sampling locations with the HVAC system operating and with the HVAC system off in Building 126. Two outdoor air samples were also collected just outside Building 126. Indoor air samples were collected on January 13, 2016, with the HVAC system operating and on January 19, 2016, with

the HVAC system off. PCE concentrations exceeded the indoor air cleanup levels for six of nine samples (HVAC both on and off). With the HVAC shut down, PCE concentrations ranged from 4.9 to 8.9 μg/m^3. With the HVAC system on, PCE concentrations ranged from 1.4 to 9.7 μg/m^3. VC concentrations exceeded the indoor air cleanup level for one of nine samples (collected with the HVAC off). The rest of the COC concentrations were below their respective indoor air cleanup levels. With the HVAC system in operation, the following COCs were detected at concentrations above their outdoor air concentrations: PCE (four of four samples), TCE (four of four samples), cis-1,2-DCE (four of four samples), trans-1,2-DCE (three of four samples), 1,1-DCE (two of four samples), 1,1-DCA (four of four samples), and VC (four of four samples). With the HVAC system shut off, all COCs were detected at concentrations above their outdoor air concentration ranges for all five samples (including one duplicate sample) (MMEC 2016).

5.15.4.2 Current (2017) Sampling Results

Nine indoor air samples (including one duplicate) were collected in Building 126, with the HVAC system operating (five samples) and off (four samples). Two ambient air samples (24-hour duration) were collected near Building 16. Indoor air samples were collected on January 17, 2017 with the HVAC system off and January 11, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

TCE concentrations exceeded the indoor air cleanup levels for eight of nine samples (4 samples with HVAC off, 4 samples with HVAC on). With the HVAC shut down, TCE concentrations ranged from 5.3 to 24 μg/m^3. With the HVAC system on, TCE concentrations ranged from 2.6 to 19 μg/m^3. PCE concentrations exceeded the indoor air cleanup levels for nine of nine samples. With the HVAC shut down, PCE concentrations ranged from 11 to 56 μg/m^3. With the HVAC system on, PCE concentrations ranged from 5.4 to 41 μg/m^3. VC concentrations exceeded the indoor air cleanup level for two of nine samples (2 samples with HVAC off). With the HVAC shut down, VC concentrations ranged from 0.45 to 2.4 μg/m^3. With the HVAC system on, VC concentrations ranged from 0.20 to 1.3 μg/m^3. The rest of the COC concentrations were below their respective indoor air cleanup levels. All COCs were detected at concentrations above their ambient air concentrations levels with the HVAC on and the HVAC off. Table 12 provides the indoor air and ambient air sampling results.

5.15.5 Response Action Tier Designation

PCE (9 of 9 samples), TCE (8 of 9 samples), and VC (2 of 9 samples) exceeded the indoor air cleanup levels. Because TCE, PCE, and VC concentrations exceeded the indoor air cleanup levels, the Navy is classifying Building 126 as Tier 1.

5.16 BUILDING 510

A walk-through inspection of Building 510 was conducted on November 28, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 510 are included in Appendix A. The indoor air samples at Building 510 were collected with the HVAC system running on January 18, 2017, and were sampled with the HVAC system shut off on January 15, 2017.

5.16.1 Building Condition

Building 510 is an approximately 5,000-SF, one-story structure. The building is used as an administration building by a maintenance contractor. The office workers occupy the building Monday through Friday, 8:00 a.m. to 5:00 p.m. The facility communications room (Room 108A) in the building is occupied 24 hours per day, 7 days per week, 365 days per year.

The building has a concrete slab, carpeting, and a tile floor. The condition of the slab is unknown. There are floor drains in Rooms R101, R103, and J102. Sink drain conduits penetrate the slab floor in Room 105.

5.16.2 HVAC System

The Building 510 HVAC system consists of two roof-mounted AC units, one for the eastern side of the building and one for the western side of the building. The building has exhaust fans in the two bathrooms for ventilation. The building has a natural gas heating system.

5.16.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building 510.

5.16.4 Sampling Locations and Results

5.16.4.1 Previous Sampling Results

2008: One indoor air sample was collected in February 2008 at Building 510. TCE was measured at a concentration below the detection limit, and PCE was detected at a concentration of 0.264 $\mu g/m^3$ (Neptune 2008).

2012: Seven indoor air samples (including one duplicate) were collected in May 2012 from Building 510 with the HVAC system operating and shut down. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. The PCE concentration exceeded the outdoor air concentration range for only one sample (0.52 $\mu g/m^3$) collected with the HVAC system operating. None of the other COCs were detected at concentrations exceeding their outdoor air concentration ranges at Building 510.

2014: Two indoor air samples were collected in Building 510 on February 13, 2014, with the HVAC system operating, and two indoor air samples were collected on February 17, 2014, with the HVAC system off. Two outdoor air samples were collected outside Building 510 in the same

24-hour period as the indoor air samples. All sampling results were below indoor air cleanup levels and were within the outdoor concentration ranges with both the HVAC system operating and off. TCE and PCE were measured in indoor air at concentrations ranging from 0.10 to 0.19 $\mu g/m^3$ and 0.055 to 0.075 $\mu g/m^3$, respectively.

2016: Two indoor air samples were collected in Building 510 on January 13, 2016, with the HVAC system operating, and two indoor air samples were collected on January 17, 2016, with the HVAC system off. Two outdoor air samples were collected outside Building 510 in the same 24 hour period as the indoor air samples. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. TCE and PCE were measured in indoor air at concentrations ranging from 0.084 to 0.1 $\mu g/m^3$ and 0.031J to 0.088 $\mu g/m^3$, respectively. TCE concentrations exceeded the outdoor air concentration range with the HVAC in operation and off (four of four samples). PCE concentrations exceeded the outdoor air concentration range with the HVAC system off (one of two samples). The only other detected COC concentration that exceeded its outdoor air concentration range was trans-1,2-DCE when the HVAC system was on (two of two samples) (MMEC 2016).

5.16.4.2 Current (2017) Sampling Results

Four indoor air samples were collected in Building 510, with the HVAC system operating (two samples) and off (two samples). Two ambient air samples (24-hour duration) were collected near Building 510. Indoor air samples were collected on January 18, 2017 with the HVAC system off and January 15, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (2 of 4 – both samples with HVAC off) and trans-1,2-DCE (1 of 4 – both samples with HVAC off). TCE and PCE were measured in indoor air at concentrations ranging from 0.060 to 0.19 $\mu g/m^3$ and 0.053 to 0.060 $\mu g/m^3$, respectively. TCE and PCE were measured in ambient air at concentrations ranging from 0.037 to 0.12 $\mu g/m^3$ and 0.052 to 0.061 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.16.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air sample concentration range for Building 510. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$.The Navy is reclassifying Building 510 as Tier 3B from Tier 3A.

5.17 BUILDING 555

A walk-through inspection of Building 555 was conducted on November 29, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 555 are included in Appendix A. The indoor air samples at Building 555 were collected with the HVAC system running on January 18, 2017, and were sampled with the HVAC system shut off on January 16, 2017.

5.17.1 Building Condition

Building 555 is an approximately 5,000-SF, one-story structure. The building is used as an office by multiple tenants. The office workers occupy the building Monday through Friday, 8:00 a.m. to 5:00 p.m. The building has a concrete slab and tile floors. The condition of the slab is unknown as it is covered by carpet. Floor drains are present in Room R112B. There are sink drain conduits penetrating the slab floor in Room 108A, R111 and R110. Conduits for communication lines penetrate the slab floor in Room 107B.

Roofing activities at Building 555 were under way during the November – December 2016 building survey. Roofing activities are likely the cause of elevated RAE screening levels during the building survey (Appendix A). Roofing was completed before the 2017 sampling event.

5.17.2 HVAC System

Building 555 has an HVAC system (zoned heating/cooling) with three roof-mounted AC units, one each on the western, southern, and the northeastern sides of the building. The building has exhaust fans in two bathrooms for ventilation. The heating system uses natural gas.

5.17.3 Existing Mitigation Measures

No mitigation measures are in place for Building 555.

5.17.4 Sampling Locations and Results

5.17.4.1 Previous Sampling Results

2012: Six indoor air samples were collected in May 2012 from Building 555 with the HVAC system operating and off. All sampling results were below the indoor air cleanup levels. TCE and VC concentrations exceeded the outdoor air concentration ranges for samples collected with the HVAC system off. TCE was detected in indoor air at concentrations ranging from 0.17 to 1.3 $\mu g/m^3$.

2014: Three indoor air samples (including one duplicate) were collected from Building 555 with the HVAC system operating, and two samples were collected with the HVAC system off. Two outdoor air samples were collected during each indoor air sampling event. Indoor and outdoor air samples were collected on February 12, 2014, with the HVAC system operating and on February 16, 2014, with the HVAC system off. All sampling results were below the indoor air cleanup levels. Only TCE concentrations exceeded the outdoor air concentration ranges for two samples

collected with the HVAC system off. None of the other COCs were detected at concentrations exceeding their outdoor air concentration ranges at Building 555. TCE was detected in indoor air at concentrations ranging from 0.13 to 0.46 µg/m^3.

2016: Three indoor air samples (including one duplicate) were collected from Building 555 with the HVAC system operating, and two samples were collected with the HVAC system off. One outdoor air sample was collected during each indoor air sampling event, for a total of two outdoor air samples. Indoor and outdoor air samples were collected on January 13, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below the indoor air cleanup levels. With the HVAC system operating, the following COCs were found at concentrations above their outdoor air concentrations: TCE (two of three samples) and 1,1-DCA (two of three samples). With the HVAC system off, the following COCs were found at concentrations above their outdoor air concentrations: TCE (two of two samples) and 1,1-DCA (one of two samples). TCE and PCE were detected in indoor air at concentrations ranging from 0.56 to 0.14 µg/m^3 and 0.024J to 0.31J µg/m^3, respectively, in Building 555 (MMEC 2016).

5.17.4.2 Current (2017) Sampling Results

Five indoor air samples (including one duplicate) were collected in Building 555, with the HVAC system operating (three samples) and off (two samples). Two ambient air samples (24-hour duration) were collected near Building 555. Indoor air and ambient air samples were collected on January 16, 2017 with the HVAC system off and January 18, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (2 of 5 – 2 samples with HVAC off), PCE (4 of 5 – 2 samples with HVAC off, 2 samples with HVAC on), cis-1,2-DCE (4 of 5 – 2 samples with HVAC off, 2 samples with HVAC on), trans-1,2-DCE (2 of 5 – 2 samples with HVAC off), 1,1-DCE (1 of 5 – 1 sample with HVAC off), 1,1-DCA (4 of 5 – 2 samples with HVAC off, 2 samples with HVAC on), and VC (2 of 5 – 2 samples with HVAC off). TCE and PCE were measured in indoor air at concentrations ranging from 0.16J to 0.86 µg/m^3 and 0.059 to 0.13 µg/m^3, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.17.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration range for Building 555. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building 555 as Tier 3A.

5.18 BUILDING 566

A walk-through inspection of Building 566 was conducted on November 29, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 566 are included in Appendix A. The indoor air samples at Building 566 were collected with the HVAC system running on January 9, 2017, and were sampled with the HVAC system shut off on January 16, 2017.

5.18.1 Building Condition

Building 566 is an approximately 6,000-SF, one-story structure. The building is used as an office by multiple tenants. Rooms 111, 112, and 113 are occupied seasonally in the summer, Monday through Friday, 7:00 a.m. to 3:00 p.m., with occasional weekend use. Rooms 100, 101, 102, 106C, 106E, 107, 109, and 110 are occupied year round, Monday through Friday, 8:00 a.m. to 5:00 p.m. Only part of the building is occupied or utilized.

The building has a concrete slab and tile floors. The condition of the slab is unknown as it is covered by carpet. Floor drains are present in Rooms R101 and R102. Electrical conduits penetrate the slab floor in Room U101. There are electrical outlets located in the floor of Rooms C103, 106, and 103. Sink conduits are present in Room J103 and C104.

5.18.2 HVAC System

Building 566 has an HVAC system (zoned heating/cooling), with one AC unit mounted in the center of the roof. A direct-expansion AC unit is mounted on the ground at the northwestern corner of the building. There are fans in the restrooms that provide ventilation. The building has a natural gas heating system.

5.18.3 Existing Mitigation Measures

No mitigation measures are in place at Building 566.

5.18.4 Sampling Locations and Results

5.18.4.1 Previous Sampling Results

2009: Five indoor air samples were collected during the air sampling event conducted in March 2009 in Building 566. TCE was measured at concentrations ranging from 0.0335 to 1.15 $\mu g/m^3$ (NASA 2012).

2012: Three indoor air samples were collected in May 2012 from Building 566 with the HVAC system operating, and three samples were collected with the HVAC system off. All sampling results were below indoor air cleanup levels and were within the outdoor air concentration ranges with both the HVAC system operating and off. TCE was detected in indoor air at concentrations ranging from 0.012 to 0.097 $\mu g/m^3$ in Building 566.

2013: Soil gas and groundwater samples collected in 2013 to support vapor intrusion tier response evaluation in areas adjacent to Building 566 did not indicate any potential for COC concentrations resulting from vapor intrusion to exceed the indoor air cleanup levels in Building 566 (AM8AJV 2014c). Soil gas and groundwater sampling in areas adjacent to Building 566 provided additional lines of evidence to evaluate the feasibility of a Tier 4 (no further action) ranking, because indoor air sampling results from 2012 were significantly below indoor air cleanup levels and within outdoor air concentration ranges at Building 566.

2014: Two indoor air samples were collected from Building 566 with the HVAC system operating, and two samples were collected with the HVAC system off. No outdoor air samples were collected outside Building 566. Indoor air samples were collected on February 11, 2014, with the HVAC system operating and on February 16, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels and were within outdoor air concentration ranges with both the HVAC system operating and off. None of the COCs were detected at concentrations exceeding their outdoor air concentration ranges at Building 566. TCE was detected in indoor air at concentrations ranging from 0.043 to 0.16 $\mu g/m^3$ in Building 566.

2016: Two indoor air samples were collected from Building 566 with the HVAC system operating, and two samples were collected with the HVAC system off. No outdoor air samples were collected outside Building 566. Indoor air samples were collected on January 12, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were significantly below indoor air cleanup levels. The only COC detected at concentrations exceeding its overall outdoor air concentration range was trans-1,2-DCE, which was detected at 0.06 and 0.067 $\mu g/m^3$ when the HVAC system was operating. No other COCs were detected at concentrations exceeding the overall outdoor air concentration ranges at Building 566 (MMEC 2016).

5.18.4.2 Current (2017) Sampling Results

Four indoor air samples were collected in Building 566, with the HVAC system operating (two samples) and off (two samples). Indoor air samples were collected on January 16, 2017 with the HVAC system off and January 9, 2017 and with the HVAC system on. The sampling location details are provided in Table 10. Indoor and pathway air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. COCs in indoor air were compared to Building 29 ambient air concentration levels, as Building 29 is the closest building with an ambient air sample. All COCs in indoor air were below the ambient air concentration range for Building 29. TCE and PCE were measured in indoor air at concentrations ranging from 0.14 to 0.17 $\mu g/m^3$ and 0.039 to 0.047 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.18.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 16 ambient air concentration ranges, as Building 16 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 16. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD Amendment of below laboratory analytical detection limits to 0.4 $\mu g/m^3$. The Navy is reclassifying Building 566 as Tier 3B from Tier 3A.

5.19 BUILDING 567

A walk-through inspection of Building 567 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building 567 are included in Appendix A. The indoor air samples at Building 567 were collected on January 11, 2017.

5.19.1 Building Condition

Building 567 is an approximately 9,000-SF, one-story structure. The building is used as a warehouse and operates Monday through Friday, 7:00 a.m. to 4:00 p.m. The building has concrete slab floors with visible cracks and seams in the slab. Floor drains are present in Room R101. Holes for former bollard locations exist near the bay doors and extend to a depth of approximately 2.5 feet below the floor. Communications conduits penetrate the slab floor in Room 105.

5.19.2 HVAC System

Building 567 does not have an HVAC system. There is a window-mounted AC unit in an enclosed office located in Room 102. Open windows and fans are used for ventilation and air circulation. A radiant heat system is used in the building with a mechanical dispersion system.

5.19.3 Existing Mitigation Measures

No mitigation measures are place in Building 567.

5.19.4 Sampling Location and Results

5.19.4.1 Previous Sampling Results

2012: Three indoor air samples were collected in Building 567 on May 21, 2012. All sampling results were below indoor air cleanup levels for all COCs. TCE and PCE were detected at concentrations exceeding their respective outdoor air concentration ranges in all samples, and 1,1-DCA was detected at a concentration exceeding its outdoor air concentration range in one sample. TCE and PCE were measured in indoor air at concentrations ranging from 1.2 to 3.9 $\mu g/m^3$ and 0.22 to 0.75 $\mu g/m^3$, respectively, in Building 567.

2014: Four indoor air samples (including one duplicate) were collected in Building 567 on February 18, 2014. One outdoor air sample was collected outside Building 567. All sampling results were below indoor air cleanup levels for all COCs. TCE and 1,1-DCA were detected at concentrations exceeding their respective outdoor air concentration ranges in all of the samples. TCE and PCE were measured in indoor air at concentrations ranging from 1.8 to 3.6 $\mu g/m^3$ and 0.053 to 0.064 $\mu g/m^3$, respectively, in Building 567.

2016: Three indoor air samples were collected in Building 567 on January 12, 2016. One outdoor air sample was collected outside Building 567. TCE was detected in one sample from Room 102 (16M567-1-02) at a concentration exceeding the indoor air cleanup level. No other COC exceeded the indoor air cleanup levels. PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE and 1,1-DCA were detected at concentrations exceeding their respective outdoor air concentration ranges for all samples. TCE and PCE were measured in indoor air at concentrations ranging from 3.0 to 5.3 $\mu g/m^3$ and 0.1 to 0.12 $\mu g/m^3$, respectively, in Building 567 (MMEC 2016).

5.19.4.2 Current (2017) Sampling Results

Three indoor air samples were collected at Building 567. One ambient air sample (24-hour duration) was collected near Building 567. Indoor and ambient air samples were collected on January 11, 2017. The sampling location details are provided in Table 10. Indoor air and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration level included TCE (three of three samples), PCE (three of three samples), cis-1,2-DCE (three of three samples), trans-1,2-DCE (two of three samples), 1,1-DCA (three of three samples), and 1,1-DCE (three of three samples). VC was not detected at concentrations exceeding the ambient air concentration level at Building 567. TCE and PCE were measured in indoor air at concentrations ranging from 1.4 to 2.7 $\mu g/m^3$ and 0.066 to 0.075 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.19.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, and 1,1-DCE concentrations in indoor air samples were detected above the ambient air concentration levels for Building 567. Because indoor air COC results are above the ambient air concentration levels but all samples collected had COC concentrations that were below the indoor air cleanup levels, the Navy is reclassifying Building 567 as Tier 3A from Tier 1.

5.20 BUILDING N210

A walk-through inspection of Building N210 was conducted on November 30, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building N210 are included in Appendix A. The indoor air samples at Building N210 were collected with the HVAC system off on January 16, 2017.

5.20.1 Building Condition

Building N210 is an approximately 95,000-SF, three-story structure that was formerly used as an aircraft hangar and later converted to office space. It operates Monday through Friday, 8:00 a.m. to 5:00 p.m. The building has a concrete slab floor and carpet, tile, and raised flooring over the slab. Cracks and seams are visible on the slab floor.

Floor drains are present in Rooms 259B, 255B, 256A and 256B, R249, and R250. A sump is present in the former hangar high-bay area basement. There are two elevators in the building. Electrical conduits penetrate the slab floor in server room, Room 240.

5.20.2 HVAC System

Building N210 has a zoned heating/cooling system with two separate HVAC systems. The first and second floors have a chiller and hot water boiler providing heating and cooling to these levels. There are also three A/Hs providing a continuous supply of fresh air to both of these levels of the building (with no recirculated air). Outside air is collected from intakes on the roof. There is an A/H on the eastern roof with a 5-HP roof fan. There are two A/Hs in the attic above Room 257 that separately supply the eastern and western sides of the first and second floors; each has a 40-HP motor and runs off a variable frequency drive.

The other, separate HVAC system is a self-contained air heating and cooling unit that uses recycled air and services only the "penthouse" (a third floor addition to this building); there is no makeup air: the air supply is through the stairwell. There is an alarm to notify of shutdown; the alarm system operates 24 hours per day.

There are eight exhaust fans on the roof; seven are in service. Two of the exhaust fans are for Room 134 (the main chiller room); one is for Room 131; and three are for restrooms.

Ventilation systems such as open windows and restroom fans are present in the building. The building has a heating system that runs on natural gas.

5.20.3 Existing Mitigation Measures

The original HVAC system supplied air through ducts in the subfloor with floor grates, which enhanced vapor migration into the building. TCE concentrations in indoor air ranged from 0.22 to 176 $\mu g/m^3$ (Haley & Aldrich 2009). The HVAC system was adjusted in 2005 to supply air through a duct system through the ceiling and to run at a high-capacity flow rate to maintain positive

pressure in the building. The air intake, which was originally at ground level, was relocated to the roof to prevent intake of air impacted by vapor intrusion. The original subfloor system was modified under Rooms 143, 145, and L139 on the first floor to capture the vapors beneath the raised floor area with the system exhaust on the roof (Haley & Aldrich 2009). The adjustments in operation of the HVAC system successfully lowered COC concentrations to below indoor air cleanup levels presented in the ROD Amendment (EPA 2010). The HVAC system has difficulty maintaining temperatures at the high-capacity flow rate. Also, the building occupants have noted odors inside the building when aircraft are taking off from the runway at Moffett Field.

5.20.4 Sampling Locations and Results

5.20.4.1 Previous Sampling Results

2009: In 40 indoor air samples collected in March 2009 at Building N210, TCE was measured at concentrations ranging from 0.034 to 0.505 $\mu g/m^3$ (NASA 2012).

2012: A total of 18 indoor air samples (including three duplicates and four pathway samples) were collected with the HVAC system off, from two floors, including the crawl space beneath the raised floor, at Building N210. All sampling results were below indoor air cleanup levels except for results of one pathway sample (N210-1-11-F) collected from the space beneath the raised floor in the work area of Room 145 near cubicles 019 and 021, where TCE was detected at a concentration of 17 $\mu g/m^3$. TCE was detected in indoor air for work area samples at concentrations ranging from 0.14 to 1.7 $\mu g/m^3$ at Building N210 (AM8AJV 2014a).

2014: A total of 12 indoor air samples (including 1 duplicate and 3 pathway samples) were collected with the HVAC system off on February 16, 2014. Samples were collected from the first floor, including the crawl space beneath the raised floor. One outdoor air sample (14M210-A-01-F) was collected immediately outside Building N210.

All sampling results were below indoor air cleanup levels except for results of one pathway sample (14N210-C-11-F) collected from the crawl space beneath the raised floor in the work area of Room 145 near the vapor extraction system location with the HVAC system off. In this sample, TCE was detected at a concentration of 40 $\mu g/m^3$. A vapor extraction system is used to capture the vapors beneath the raised floor area under normal building operations; the vapor extraction system was turned off for at least 24 hours prior to collection of the samples. All other detected COC (PCE, cis-1,2-DCE, 1,1-DCA, trans-1,2-DCE, 1,1-DCE, and VC) concentrations were significantly lower than the EPA's indoor air cleanup levels. All work area sampling results were below indoor air cleanup levels. TCE was detected in indoor air for work area samples at concentrations ranging from 0.38 to 1.2 $\mu g/m^3$ in Building N210. PCE (two of 12 samples), TCE (11 of 12 samples), cis-1,2-DCE (one of 12 samples), trans-1,2-DCE (one of 12 samples), 1,1-DCE (one of 12 samples), and 1,1-DCA (one of 12 samples) were detected at concentrations slightly above their respective outdoor air concentration ranges.

2016: A total of 11 indoor air samples (including one duplicate and three pathway samples, one of which was a grab sample) were collected from the first floor, including the crawl space beneath the raised floor, with the HVAC system off. One outdoor air sample (16N210-A-01-F) was collected immediately outside Building N210. Samples were not collected with the HVAC system operating. All sampling results were below indoor air cleanup levels except for results of one pathway sample (16N210-C-11-F) collected from the crawl space beneath the raised floor in the work area of Room 145 near the vapor extraction system location with the HVAC system off. In this sample, TCE was detected at a concentration of 9.7 $\mu g/m^3$. A vapor extraction system is used to capture the vapors beneath the raised floor area under normal building operations; the vapor extraction system was turned off for at least 24 hours prior to collection of the samples. All other detected COC concentrations were significantly lower than the EPA's indoor air cleanup levels. All work area sampling results were below indoor air cleanup levels. TCE was detected in indoor air for work area samples at concentrations ranging from 1.0 to 2.5 $\mu g/m^3$ in Building N210. At work area and pathway sampling locations, the following COCs were detected at concentrations above their respective outdoor air concentrations: PCE (10 of 11 samples), TCE (11 of 11 samples), cis-1,2-DCE (10 of 11 samples), trans-1,2-DCE (two of 11 samples), and 1,1-DCE (nine of 11 samples) (MMEC 2016).

5.20.4.2 Current (2017) Sampling Results

Ten indoor air samples (including one duplicate and two pathway samples, one of which was a grab sample) were collected at Building N210 with the HVAC system off. One ambient air samples of 24-hour duration was collected near Building N210. Indoor and outdoor air samples were collected on January, 16, 2017. The sampling location details are provided in Table 10. Indoor and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. One pathway sample (17N210-C-11-F) collected from the crawl space beneath the raised floor in the work area of Room 145, near the vapor extraction system, exceeded the EPA's indoor air cleanup level at a concentration of 95 $\mu g/m^3$. Historically, this concentration has ranged from 9.7 $\mu g/m^3$ during the 2016 event to 40 $\mu g/m^3$ during the 2014 air sampling event. A vapor extraction system is used to capture the vapors beneath the raised floor area under normal building operations; the vapor extraction system was turned off for at least 24 hours prior to collection of the samples. All other samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration levels included TCE (10 of 10 samples), PCE (three of 10 samples), cis-1,2-DCE (nine of 10 samples), trans-1,2-DCE (two of 10 samples), 1,1-DCE (three of 10 samples), 1,1-DCA (six of 10 samples), and VC (two of 10 samples). TCE and PCE were measured in indoor air at concentrations ranging from 0.29 to 1.3 $\mu g/m^3$ and 0.041J to 0.85 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.20.5 Response Action Tier Designation

All indoor air samples collected had COC concentrations that were below the indoor air cleanup levels. One pathway sample (17N210-C-11-F) collected from the crawl space beneath the raised floor in the work area of Room 145 near the vapor extraction system, exceeded the EPA's indoor air cleanup level. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration levels for Building N210. Because indoor air COC results are above the ambient air concentration range and no indoor air work area samples exceed the EPA's indoor air cleanup level, the Navy is classifying Building N210 as Tier 3A.

5.21 BUILDING N239

A walk-through inspection of Building N239 was conducted on November 29, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building N239 are included in Appendix A. The indoor air samples at Building N239 were collected with the HVAC system running on January 12, 2017, and were sampled with the HVAC system shut off on January 15, 2017.

5.21.1 Building Condition

Building N239 is an approximately 150,000-SF, four-story structure with a basement. The building is occupied by NASA's Life Sciences Department, which operates Monday through Friday, 9:00 a.m. to 7:00 p.m. The building is always open, with sporadic weekend and afterhours use by researchers and lab technicians.

Building N239 has a full basement that is used for office space, library, storage, and utilities. The basement floor and walls are constructed of concrete. Moisture conditions are dry in the basement.

The building has a concrete slab, carpet, and tile floors. Cracks and seams are visible on the slab floor. There are two sumps in the building: one in Room B11 with depth to water approximately 3 feet below the floor and another one in Room N074 with depth to water approximately 4 to 5 feet below the floor. Floor drains are present in Rooms N067 (three drains), N076A (three drains), and all bathrooms throughout the building.

There is a freight elevator (V002) at the northeastern side of the building and a service elevator (V001) at the southwestern side of the building. PID readings at both elevators were non-detect.

Utility conduits that penetrate the floor and walls are present in Rooms N076B, N076A, N076, and E075. Sewer conduits penetrate the floor in all the bathrooms throughout the building. All utilities (HVAC, water, electricity) are routed through the floors via utility corridors (Rooms U101, U102, U201, U202, etc.). A slight vacuum (1 Pascal) was observed at Room U102. Room B053A is adjacent to a sump that is due to be modified with a one way valve as an EC, as noted during the November – December 2016 building survey (Appendix A).

Solvents are used in the laboratories throughout the building. Chlorinated solvents are used in laboratories in Rooms 128, 234, 347, 364, and 432. PID detections were observed in association with solvents and chemicals, with high VOC concentrations found in many laboratories in the building. The chemicals were typically stored in the flammable materials cabinets within the laboratories. The laboratories have hooded vents in work areas.

5.21.2 HVAC System

Building N239 has an HVAC system (zoned heating/cooling). There are two 60-HP A/Hs (intake) in the basement and an intake on the outside northern corner of the first floor of the building at ground level. There are 35 exhaust fans and 52 fume hoods. The flume hoods and their exhausts operate separately from the HVAC system. Makeup air for the HVAC system is 100 percent intake, with no recycling of air.

The building has other ventilation systems such as mechanical fans, restroom fans, and chemical fume hoods. The building has natural gas and steam heating systems. The steam is dispersed using a mechanical fan and no outside air is used.

5.21.3 Existing Mitigation Measures

Currently, no mitigation measures are in place at Building N239.

5.21.4 Sampling Locations and Results

5.21.4.1 Previous Sampling Results

2012: A total of 47 indoor air samples (including 3 duplicates) were collected in May 2012 from the four floors and basement of Building N239 with the HVAC system operating and off. Two outdoor air samples (24-hour duration) were collected immediately outside Building N239. All sampling results were below indoor air cleanup levels with both the HVAC system operating and shut down. TCE and PCE were measured in indoor air at concentrations ranging from 0.0077 to 3.8 $\mu g/m^3$ and 0.021 to 0.94 $\mu g/m^3$, respectively, for work area samples at Building N239. TCE was detected at concentrations exceeding the outdoor air concentration range for five samples collected in the basement and one sample each collected on the second and third floors with the HVAC system off. TCE was not detected at concentrations exceeding the outdoor air concentration range in any samples collected with the HVAC system operating. PCE was detected at concentrations exceeding the outdoor air concentration range for four samples (two samples from one basement location with the HVAC system both on and off, and one sample each collected on the first and third floors with the HVAC system shut down).

2014: A total of 21 indoor air samples (including two duplicates and one grab pathway sample) were collected from the first floor and basement of Building N239 with the HVAC system operating and off. Two outdoor air samples (24-hour duration) were collected immediately outside Building N239. Indoor air and outdoor air samples were collected on February 14, 2014, with the HVAC system operating and on February 17, 2014, with the HVAC system off. One grab pathway

sample was collected on February 16, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off, except for one basement sample (14239-B-01-F) where the TCE concentration (5.8 µg/m^3) slightly exceeded its indoor air cleanup level. The concentration of TCE in the sample from this location with the HVAC system on was well below the indoor air cleanup level. TCE was detected at concentrations exceeding the outdoor air concentration range for four samples collected in the basement with the HVAC system off. TCE was not detected at concentrations exceeding the outdoor air concentration range in any of the samples collected with the HVAC system operating. PCE was detected at concentrations exceeding the outdoor air concentration range in three samples collected in the basement with the HVAC system off. All other detected COC (cis-1,2-DCE, trans-1,2-DCE, VC, 1,1-DCA, and 1,1-DCE) concentrations exceeded their outdoor air concentration ranges for only one sample (14239-B-01-F) collected in the basement. TCE and PCE were measured in indoor air at concentrations ranging from 0.029J to 0.26 µg/m^3 and 0.027J to 0.063 µg/m^3, respectively, for work area samples in Building N239. TCE and PCE were detected in basement samples at concentrations ranging from 0.025J to 5.8 µg/m_3 and 0.025J to 0.33 µg/m^3, respectively, in Building N239.

2016: A total of 21 indoor air samples (including two duplicates and one grab pathway sample) were collected from the first floor and basement of Building N239 with the HVAC system operating and off. Two outdoor air samples (24-hour duration) were collected immediately outside Building N239. Indoor air and outdoor air samples were collected on January 14, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. One grab pathway sample was collected on January 17, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. With the HVAC system in operation the following COCs were found at concentrations above their outdoor air concentration ranges: PCE (three of 10 samples), TCE (nine of 10 samples), cis-1,2-DCE (10 of 10 samples), 1,1-DCA (one of 10 samples), and trans-1,2-DCE (seven of 10 samples). With the HVAC system off, the following COCs were detected at concentrations above their outdoor air concentration ranges: PCE (three of 11 samples), TCE (11 of 11 samples), cis-1,2-DCE (10 of 11 samples), trans-1,2-DCE (seven of 11 samples), 1,1-DCE (two of 11 samples), 1,1-DCA (eight of 11 samples), and VC (two of 11 samples). TCE and PCE were detected in indoor air at concentrations ranging from 0.092 to 2.1 µg/m^3 and 0.026J to 0.15 µg/m^3, respectively, for samples in Building N239.

5.21.4.2 Current (2017) Sampling Results

Twenty-one indoor air samples (including two duplicate and one grab pathway samples) were collected at Building N239 with the HVAC system operating (ten samples) and with the HVAC system off (eleven samples). Two ambient air samples of 24-hour duration were collected outside Building N239. Indoor air samples were collected on January, 12, 2017, with the HVAC system operating and on January 15, 2017, with the HVAC system off. The sampling location details are

provided in Table 10. Indoor and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels, except for one basement sample (17N239-B-01-F) where the TCE concentration (11 $\mu g/m^3$) exceeded its EPA's indoor air cleanup level with the HVAC system off. The concentration of TCE in the sample from this location with the HVAC system on (17N239-B-01-N) was below the indoor air cleanup level (0.14 $\mu g/m^3$). Indoor air concentrations exceeding the ambient air concentration ranges included TCE (20 of 21 – 9 samples with HVAC off, 11 samples with HVAC on), PCE (13 of 21 – 11 samples with HVAC off, 2 samples with HVAC on), cis-1,2-DCE (20 of 21 – 11 samples with HVAC off, 9 samples with HVAC on), trans-1,2-DCE (9 of 21 – 9 samples with HVAC off), 1,1-DCE (8 of 21 – 8 samples with HVAC off), 1,1-DCA (12 of 21– 9 samples with HVAC off, 3 samples with HVAC on), and VC (8 of 21 – 8 samples with HVAC off). TCE and PCE were measured in indoor air at concentrations ranging from 0.032 to 11 $\mu g/m^3$ and 0.052 to 0.37 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.21.5 Response Action Tier Designation

TCE was detected at a concentration exceeding the indoor air cleanup level for one basement work area sample during both the 2014 and 2017 sampling events with the HVAC System off. All other basement and work area indoor air sampling results were below indoor air cleanup levels for all COCs with the HVAC off. All basement and work area indoor air sampling results were below indoor air cleanup levels for all COCs with the HVAC on. The operation of the HVAC system is considered to be an EC. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration range for Building N239. Because TCE concentrations exceeded the indoor air cleanup levels with the EC not in place but were below indoor air cleanup level with the EC in place, the Navy classified Building N239 as Tier 2.

5.22 BUILDING N239A

A walk-through inspection of Building N239A was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building N239A are included in Appendix A. The indoor air samples at Building N239A were collected with the HVAC system running on January 10, 2017, and were sampled with the HVAC system shut off on January 15, 2017.

5.22.1 Building Condition

Building N239A is an approximately 34,000-SF, two-story structure with a basement. The building is currently used for offices and centrifuge operations. Two offices on the second floor operate Monday through Friday, 9:00 a.m. to 5:00 p.m., with possible weekend use. Centrifuge testing areas have not been used regularly.

Building N239A has a basement consisting of two large open vaults located in a high bay (Room 120), which is used for storage and a bio-dome station. The high bay area has frequent activities with possible weekend use. The basement floor and walls are constructed of concrete. Moisture conditions are dry in the basement. There are electrical conduits present in the high bay area. Unknown conduits penetrate the wall of the bio-dome vault area at an elevation that is below grade.

The building has a concrete slab and tile floors. Cracks and seams are visible on the slab floor. Floor drains are present in all bathrooms. A sump is located in Room 144. There is an elevator located near Room 160. The PID reading was non-detect in the elevator.

5.22.2 HVAC System

Building N239A has an HVAC system (zoned heating/cooling). No information has been provided about the HVAC system. There was limited access within the building during the building survey, and the building point of contact did not have knowledge about the HVAC system. Aerial photos available from Google indicate three possible intake A/Hs on the northern end of the building. The building also contains one intake on the southern end and 12 possible vent locations. The large handler and supply and return vents are located in the northern end of the building.

Ventilation systems such as restroom fans and fume hoods are present in the building. The building has natural gas and steam heating systems. The steam is dispersed using a mechanical fan and no outside air is used.

5.22.3 Existing Mitigation Measures

No mitigation measures are in place at Building N239A.

5.22.4 Sampling Locations and Results

5.22.4.1 Previous Sampling Results

2005: Nine samples were collected from Building N239A during the air sampling event conducted in July 2005. TCE was detected at low concentrations (less than 1.0 $\mu g/m^3$) in all samples (Neptune 2006).

2012: A total of 21 indoor air samples (including two duplicates) were collected in May 2012 from the two floors and the basement of Building N239A with the HVAC system operating and off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off, except for results of one sample (N239A-1-06-F) collected in Hallway C102 with the HVAC system off, where TCE was detected at a concentration of 6.8 $\mu g/m^3$. TCE was measured in indoor air at concentrations ranging from 0.025 to 6.8 $\mu g/m^3$ in Building N239A (AM8AJV 2014a).

2013: A total of 12 indoor air samples (including two duplicates) were collected from Hallway C102 and Utility Rooms U101 and U102 with the HVAC system on and off. These samples were collected to evaluate whether the detection of VOCs in Hallway C102 during the May-June 2012

sampling was due to vapors from floor-level utility conduits in adjacent Rooms U101 and U102. Grab air samples were collected with the HVAC on and off from a floor drain in Room U101 on the same day as the 24-hour samples. TCE was detected at a concentration exceeding the indoor air cleanup level for the grab sample collected in Room U101 and the indoor air sample collected in Room U102 with the HVAC system on. TCE was measured at maximum concentrations of 6.33 and 10 $\mu g/m^3$ in Rooms U101 and U102, respectively.

For samples collected in Hallway C102 in May 2013, with both the HVAC system on and off, all results were below indoor air cleanup levels (in the 2012 sampling event, TCE was detected at concentrations exceeding the indoor air cleanup level) (AM8AJV 2014c).

2014: A total of 16 indoor air samples (including two duplicates and two pathway samples) were collected from the first floor and the basement of Building N239A with the HVAC system operating and off. Indoor air samples were collected on February 14, 2014, with the HVAC system operating and on February 17, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off, except for two samples (14N239A-1-10-N and 14N339A-1-10-N) collected in Utility Room U101, and one sample (14N239A-1-06-N) collected in Hallway C102 with the HVAC system operating. In these samples, TCE was detected at concentrations of 40, 39, and 5.6 $\mu g/m^3$, respectively. The results for the samples collected from these locations with the HVAC system off were below the TCE indoor air cleanup level. Hallway C102 is adjacent to Rooms U101 and U102 and a door to exit the building. All COCs except PCE were detected at concentrations exceeding their respective outdoor air concentration ranges at this location.

TCE was detected at concentrations exceeding the outdoor air concentration range for 12 samples (out of 18) collected in the building with the HVAC system operating and shut down. PCE was detected at concentrations exceeding the outdoor air concentration range for nine samples (out of 18) collected with the HVAC system off. TCE and PCE were measured in indoor air at concentrations ranging from 0.10 to 40 $\mu g/m^3$ and 0.027J to 0.19 $\mu g/m^3$, respectively, in Building N239A.

2016: A total of 18 indoor air samples (including two duplicates and two pathway samples) were collected from the first floor and the basement of Building N239A with the HVAC system operating and off. Indoor air samples were collected on January 14, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off, except two samples (16N239A-1-10-N and its duplicate 16M339A-1-10-N) collected in Utility Room U101, and one sample (16N239A-1-09-N) collected in Room 144 with the HVAC system operating. In these samples, TCE was detected at concentrations of 14, 12, and 8.7 $\mu g/m^3$, respectively. TCE was measured in indoor work areas at concentrations ranging from 0.35 to 8.7 $\mu g/m^3$ in Building N239A. With the HVAC system operating, the following COCs were found at concentrations above the overall outdoor air concentrations: TCE (eight of eight samples), cis-1,2-DCE (eight of

eight samples), trans-1,2-DCE (four of eight samples), 1,1-DCE (seven of eight samples), 1,1-DCA (three of eight samples), and VC (three of eight samples). With the HVAC system off, the following COCs were found at concentrations above the overall outdoor air concentrations: TCE (seven of eight samples), cis-1,2-DCE (seven of eight samples), trans-1,2-DCE (two of eight samples), and 1,1-DCE (five of eight samples) (MMEC 2016).

5.22.4.2 Current (2017) Sampling Results

Eighteen indoor air samples (including two duplicates and two pathway samples) were collected at Building N239A with the HVAC system operating (nine samples) and with the HVAC system off (nine samples). Indoor air samples were collected on January, 10, 2017, with the HVAC system operating and on January 15, 2017, with the HVAC system off. The sampling location details are provided in Table 10. Indoor and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All sampling results were below the EPA's indoor air cleanup levels with both the HVAC system operating and off, except two samples (17N239A-1-10-N and its duplicate 17M339A-1-10-N) collected in Utility Room U101 with the HVAC system operating, one sample (17N239A-1-06-N) collected in Room C102 with the HVAC system operating, and one sample (17N239A-1-08-F) collected in Room 125 with the HVAC system off. In these samples, TCE was detected at concentrations of 12, 13, 7, and 10 $\mu g/m^3$, respectively. TCE and PCE was measured in indoor work areas at concentrations ranging from 0.071 to 13 $\mu g/m^3$ and 0.038 to 0.24 $\mu g/m^3$ respectively.

COCs in indoor air were compared to Building N243 ambient air concentration ranges, as Building N243 is the closest building with ambient air samples. Indoor air concentrations exceeding the ambient air concentration ranges at Building N243 included TCE (18 of 19 – 9 samples with HVAC off, 9 samples with HVAC on), PCE (9 of 18 – 7 samples with HVAC off, 2 samples with HVAC on), cis-1,2-DCE (17 of 18 – 8 samples with HVAC off, 9 samples with HVAC on), trans-1,2-DCE (2 of 18 – 2 samples with HVAC off), 1,1-DCA (15 of 18 – 6 samples with HVAC off, 9 samples with HVAC on), 1,1-DCE (10 of 18 – 1 sample with HVAC off, 9 samples with HVAC on), and VC (12 of 16 – 3 samples with HVAC off, 9 samples with HVAC on). Table 12 provides the indoor air and ambient air sampling results.

5.22.5 Response Action Tier Designation

TCE concentrations exceeded the indoor air cleanup level in Rooms C102 and U102 with the HVAC system turned on. TCE concentrations exceeded the indoor air cleanup level in Room 125 with the HVAC system turned off. Room C102 is an entrance way and is not continuously occupied throughout the day. Room U101 is a utility room and is rarely occupied for only short durations by maintenance crews. Room 125 is the regularly occupied area that exceeded the indoor air cleanup level (with the HVAC off), therefore Building N239A is classified as Tier 2.

5.23 BUILDING N243

A walk-through inspection of Building N243 was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building N243 are included in Appendix A. The indoor air samples at Building N243 were collected with the HVAC system running on January 12, 2017, and were sampled with the HVAC system shut off on January 15, 2017.

5.23.1 Building Condition

Building N243 is an approximately 130,000-SF, three-story structure used as a flight guidance and simulation lab that operates Monday through Friday, 8:00 a.m. to 7:00 p.m. The building is occasionally occupied on the weekends. The building has a half basement at approximately 4.5 feet bgs that is used for office space, storage, and utilities. The basement floor and walls are constructed of concrete.

The building has a concrete slab floor. Cracks and seams are present on the slab floor. There is a sump in Room N032 with water at approximately 3 to 4 feet below the floor. Floor drains are present in Rooms N032 and 039 and all bathrooms. There are two elevators in the building. Electrical conduits penetrate the slab floor in Rooms N032, 039, and E034. Water supply and sewer drains are present in all bathrooms.

During refueling and aircraft mobilization for takeoff, fumes often drift onto the facility and are noticeable within the building.

5.23.2 HVAC System

Building N243 has an HVAC system (zoned heating/cooling). Limited information has been provided about the HVAC system. The main intake is located at grade on the western side of the building, near Room 113A. In addition, an active intake and a large cooling unit are located on the roof. The building has natural gas and steam heating systems. The steam is dispersed using a mechanical fan and no outside air is used. Fans are used in the building for ventilation and air circulation.

5.23.3 Existing Mitigation Measures

No mitigation measures are in place at Building N243.

5.23.4 Sampling Locations and Results

5.23.4.1 Previous Sampling Results

2004: A total of 31 samples were collected from Building N243 during the air sampling event conducted in March 2004 at Building N243. TCE was measured in indoor air at concentrations ranging from 0.1 to 1.11 $\mu g/m^3$ (NASA 2012).

2012: A total of 33 indoor air samples (including five duplicates) were collected in May 2012 from three floors and the basement of Building N243 with the HVAC system operating and off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. TCE and PCE were measured in indoor air at concentrations ranging from 0.0075 to 1.6 $\mu g/m^3$ and 0.022 to 0.35 $\mu g/m^3$, respectively, in Building N243.

2014: A total of 13 indoor air samples (including one duplicate) were collected from the first floor and basement of Building N243 with the HVAC system operating and off. One outdoor air sample from just outside Building N243 and two samples were collected upwind of the air intake for Building N243 with the HVAC system operating and off. Outdoor/intake air samples were collected along with indoor samples on February 14, 2014, with the HVAC system operating and on February 17, 2014, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. TCE was detected at concentrations exceeding the outdoor air concentration range for six samples (out of 13), five of which were collected with the HVAC system off and one with the HVAC system operating. PCE was detected at concentrations exceeding the outdoor air concentration range in three basement samples and two first-floor samples with the HVAC system off. TCE and PCE were measured in indoor air at concentrations ranging from 0.021J to 1.3 $\mu g/m^3$ and 0.027J to 0.40 $\mu g/m^3$, respectively, in Building N243. The maximum concentration of TCE was detected in a basement sample (14N243-B-06-F) collected with the HVAC system shut down.

2016: A total of 13 indoor air samples (including one duplicate) were collected from the first floor and basement of Building N243 with the HVAC system operating and off. One outdoor air sample from just outside Building N243 and two samples upwind of the air intake were collected for Building N243 with the HVAC system operating and off. Outdoor/intake air samples were collected along with indoor samples on January 14, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below indoor air cleanup levels with both the HVAC system operating and off. With the HVAC system operating, the following COCs were detected at concentrations above the outdoor air concentration ranges: PCE (five of five samples), TCE (five of five samples), cis-1,2-DCE (one of five samples), 1,1-DCA (three of five samples), and VC (one of five samples). With the HVAC system off, the following COCs were detected at concentrations above the outdoor air concentration ranges: PCE (seven of eight samples), TCE (seven of eight samples), cis-1,2-DCE (six of eight samples), 1,1-DCA (seven of eight samples), 1,1-DCE (one of eight samples), and VC (six of eight samples). TCE and PCE were measured in indoor air at concentrations ranging from 0.12 to 1.7 $\mu g/m^3$ and 0.054 to 0.87 $\mu g/m^3$, respectively, in Building N243. The maximum concentration of TCE was detected in Room C104, (16N243-1-02-F) collected with the HVAC system off.

5.23.4.2 Current (2017) Sampling Results

Fourteen indoor air samples (including one duplicate) were collected at Building N243 with the HVAC system operating (six samples) and with the HVAC system off (eight samples). Four

ambient air samples of 24-hour duration were collected outside Building N243. Indoor air samples were collected on January, 12, 2017, with the HVAC system operating and on January 15, 2017, with the HVAC system off. The sampling location details are provided in Table 10. Indoor and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (12 of 14 – 7 samples with HVAC off, 5 samples with HVAC on), PCE (11 of 14 – 7 samples with HVAC off, 4 samples with HVAC on), cis-1,2-DCE (9 of 14 – 7 samples with HVAC off, 2 samples with HVAC on), trans-1,2-DCE (2 of 14 – 2 samples with HVAC off), 1,1-DCE (4 of 14 – 4 samples with HVAC off), 1,1-DCA (10 of 14 – 7 samples with HVAC off, 3 samples with HVAC on), and VC (7 of 14 – 6 samples with HVAC off, 1 sample with HVAC on). TCE and PCE were measured in indoor air at concentrations ranging from 0.030J to 1.9 $\mu g/m^3$ and 0.061 to 1.2 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.23.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCA, 1,1-DCE, and VC concentrations in indoor air samples were detected above the ambient air concentration range for Building N243. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building N243 as Tier 3A.

5.24 BUILDING N243A

A walk-through inspection of Building N243A was conducted on December 1, 2016. Building survey forms were completed in 2011, 2015, and 2016. The forms and a summary table with any modifications from later inspections for Building N243A are included in Appendix A. The indoor air samples at Building N243A were collected with the HVAC system running on January 12, 2017, and were sampled with the HVAC system shut off on January 15, 2017.

5.24.1 Building Condition

Building N243A is an approximately 9,000-SF, three-story structure used as a welding and machine shop that operates Monday through Friday, 8:00 a.m. to 5:00 p.m. The building is infrequently used on the weekends. The building has a basement utility tunnel to the rotunda in Building N243, with conduits penetrating the slab. The basement floor and walls are constructed of concrete.

The building has a concrete slab floor. Cracks and seams are evident on the slab floor. No sumps/drains are present in the building. There are unknown conduits penetrating the slab floor in Rooms 101 and 104. New carpet was installed in Room 243 within one month of the survey date.

During refueling and aircraft mobilization for takeoff, fumes often drift onto the facility and are noticeable within the building.

5.24.2 HVAC System

Building N243A has a zoned heating/cooling HVAC system. The second-floor offices have only active HVAC systems. The cooling units are located outside the northwestern side of the building. Limited information has been provided about the HVAC system. Access was not available because of maintenance work being performed in the building.

Ventilation systems such as mechanical fans and open air vents on the northern and western walls are present in the building. A steam system is used in the building for heating purposes, and the steam is dispersed using a mechanical fan; no outside air is used.

5.24.3 Existing Mitigation Measures

No mitigation measures are in place at Building N243A.

5.24.4 Sampling Locations and Results

5.24.4.1 Previous Sampling Results

2012: A total of 10 indoor air samples (including two duplicates) were collected in May 2012 from two floors and the basement of Building N243A with the HVAC system operating and off. All sampling results were below the indoor air cleanup levels with the HVAC system both operating and off. Only PCE was detected at a concentration slightly exceeding the outdoor air concentration range for one sample collected in Room 104 (N243A-1-01-N) with the HVAC system operating (AM8AJV 2014a).

2014: Seven indoor air samples (including one duplicate) were collected from the first floor and basement of Building N243A with the HVAC system operating and off. Two outdoor air samples from just outside Building N243A were collected at the same location with the HVAC system operating and off. Indoor and outdoor air samples were collected on February 14, 2014, with the HVAC system operating and on February 17, 2014, with the HVAC system off. All sampling results were below the indoor air cleanup levels with the HVAC system both operating and off. 1,1-DCE and 1,1-DCA were detected at concentrations slightly exceeding their outdoor air concentration ranges for one sample collected in the basement (14N243A-B-01-F) with the HVAC system off. VC was detected at a concentration slightly exceeding the outdoor air concentration range for one sample (14N243A-B-01-N) collected in the basement with the HVAC system operating. None of the other COCs, including TCE and PCE, were detected at concentrations exceeding the outdoor air concentration ranges at Building N243A. TCE and PCE were measured in indoor air at concentrations ranging from 0.028 to 0.21 $\mu g/m^3$ and 0.026 to 0.26 $\mu g/m^3$, respectively, in Building N243A.

2016: Seven indoor air samples (including one duplicate) were collected from the first floor and basement of Building N243A with the HVAC system operating and off. Two outdoor air samples from just outside Building N243A were collected at the same location with the HVAC system operating and off. Indoor and outdoor air samples were collected on January 14, 2016, with the HVAC system operating and on January 17, 2016, with the HVAC system off. All sampling results were below the indoor air cleanup levels with the HVAC system both operating and off. With the HVAC system operating, the following COCs were found at concentrations above their outdoor air concentration ranges: TCE (four of four samples), PCE (two of four samples), cis-1,2-DCE (four of four samples), 1,1-DCA (four of four samples), and 1,1-DCE (one of four samples). With the HVAC system off, the following COCs were found at concentrations above their outdoor air concentration ranges: TCE (three of three samples), PCE (three of three samples), cis-1,2-DCE (three of three samples), 1,1-DCA (three of three samples), trans-1,2-DCE (one of three samples), and 1,1-DCE (three of three samples). TCE and PCE were measured in indoor air at concentrations ranging from 0.17 to 0.43 $\mu g/m^3$ and 0.069 to 0.21 $\mu g/m^3$, respectively, in Building N243A.

5.24.4.2 Current (2017) Sampling Results

Seven indoor air samples (including one duplicate) were collected at Building N243A with the HVAC system operating (three samples) and with the HVAC system off (four samples). Two ambient air samples of 24-hour duration were collected outside Building N243. Indoor air samples were collected on January, 12, 2017, with the HVAC system operating and on January 15, 2017, with the HVAC system off. The sampling location details are provided in Table 10. Indoor and outdoor air sampling location maps are provided in Appendix B. Photographs taken during sampling activities are provided in Appendix E.

All samples collected had COC concentrations that were below the EPA's indoor air cleanup levels. Indoor air concentrations exceeding the ambient air concentration range included TCE (3 of 7 – 3 samples with HVAC off), PCE (6 of 7 – 3 samples with HVAC off, 3 samples with HVAC on), cis-1,2-DCE (6 of 7 – 3 samples with HVAC off, 3 samples with HVAC on), 1,1-DCA (7 of 7 – 3 samples with HVAC off, 4 samples with HVAC on), and VC (2 of 7– 1 sample with HVAC off, 1 samples with HVAC on). No other COCs were detected at concentrations above the overall outdoor air concentration ranges in work areas. TCE and PCE were measured in indoor air at concentrations ranging from 0.068 to 0.12 $\mu g/m^3$ and 0.076 to 0.13 $\mu g/m^3$, respectively. Table 12 provides the indoor air and ambient air sampling results.

5.24.5 Response Action Tier Designation

All samples collected had COC concentrations that were below the indoor air cleanup levels. TCE, PCE, cis-1,2-DCE, and 1,1-DCA concentrations in indoor air samples were detected above the ambient air concentration range for Building N243A. Because indoor air COC results are above the ambient air concentration range, the Navy is classifying Building N243A as Tier 3A.

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6.0 QA/QC AND DATA VALIDATION

This section describes the quality and usability of analytical data collected during the annual vapor intrusion air sampling conducted in January 2017 at Moffett Field. Field sampling and laboratory analytical activities were performed in accordance with the *Final Sampling and Analysis Plan for Installation Restoration Site 28, Former Naval Air Station Moffett Field, Mountain View, California* (NOREAS 2016).

A total of 211 air samples, including field duplicates and outdoor ambient air samples, were collected from January 9 through 18, 2017 to evaluate the vapor intrusion pathways in 23 industrial/commercial buildings at Moffett Field.

Environmental samples were analyzed for VOCs using the EPA Method TO-15 SIM. Target VOCs included VC, 1,1-DCE, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, TCE, and PCE. All samples were received in good condition at the analytical laboratory. Sample analyses were performed by ALS Life Sciences Division (ALS Environmental) in Simi Valley, California. ALS is accredited (No. 4068) by the NELAP through Oregon ELAP and is approved by the DoD ELAP. A third-party validation firm, Element Consulting (Element), performed data validation on the chemical analyses for the project samples.

The overall data quality was determined based on the analytical results generated for field and laboratory QA/QC samples during this project. QA/QC for field activities was ensured through standardized sampling methods, rigorous documentation, and the collection of field duplicates as described in the project-specific Sampling and Analysis Plan (SAP; NOREAS 2016). Additionally, the laboratory performed QC analyses to assess precision and accuracy of the analytical processes as determined by method-required laboratory QC samples, calibration and verification standards, and method blanks. Results from method blanks were evaluated to assess the possibility of contamination of environmental samples that may have been introduced during the laboratory activities.

6.1 LABORATORY QUALITY CONTROL ANALYSES

Laboratory QC samples were prepared and analyzed by the laboratory to monitor the analytical process. The laboratory QC samples for this sampling event included method blanks, initial and continuing calibration blanks, internal standards, laboratory control samples (LCSs), instrument tune and calibration verifications, and surrogate spike samples. The laboratory analyzed all instrument calibration and QC samples at the method-required frequency.

6.2 DATA VALIDATION

Data validation was performed by an independent validation company, Element Consulting Services in San Diego, California, following the EPA Stage 3 (standard) on 80 percent of the project samples and EPA Stage 4 (full) on 20 percent of the project samples (Appendix D). As specified in the Final SAP, data validation included a review of the following parameters to assess data quality:

- COC records and sample condition
- Technical holding time for sample preparation and analysis
- Reporting limits
- Laboratory and field blanks
- Surrogate recoveries
- LCS and LCS duplicate spike recoveries and relative percent difference (RPD), if applicable
- Laboratory and field duplicate samples and RPDs
- Internal standards
- Instrument tuning and performance checks
- Initial and continuing calibration
- Compound identification and quantification
- Sample detection and quantitation limits.

Relevant data validation qualifiers are defined as follows:

- U – The analyte was analyzed for, but was not detected above, the sample reporting limit.
- J – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- R – The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- A – Validation finding is based upon technical validation criteria.
- P – Validation finding is based upon a protocol/contractual deviation.
- NQ – No qualification, the result was not significantly impacted by the validation finding; therefore, no qualification was applied.

The electronic data deliverable files also underwent a limited verification with the hardcopy report and discrepancies were noted. Once the data are reviewed and qualified, the data set is then evaluated using precision, accuracy, representativeness, completeness, comparability, and sensitivity criteria using the field and laboratory QC analyses.

6.2.1 Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days). No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

6.2.2 Field and Laboratory Duplicates

Field QC samples included 21 sets of field duplicates to assess the overall (i.e., sampling and analytical) precision of the sampling effort. For air samples, a RPD limit of 30 percent was used as specified in the SAP (NOREAS 2016). RPD values were only calculated for detected analytes. In general, RPD values were within the precision goal of 30 percent demonstrating acceptable agreement between the field duplicates and the primary groundwater samples for this project. Only the samples identified in the table below exhibited higher RPDs. Higher RPDs are expected for low-level analytes. Overall, field duplicate data indicate close agreement between the primary and the duplicate sample result. Qualified results summary based on field duplicates is presented below:

Primary/Duplicate Sample ID	Analyte	RPD	Results (µg/m^3)	Validation Qualifier	Reason for Qualification	Reportable
17M010-1-10-N 17M310-1-10 -N	1,1-DCA	32.3%	0.18 0.13	J-qualify	Field Duplicate	Yes
17M003-1-06-F 17M303-1-06-F	PCE	56.5%	0.084 0.047	J-qualify	Field Duplicate	Yes
17M012-1-03-F 17M312-1-03-F	trans-1,2-DCE	140.3%	0.079 0.45	J-qualify	Field Duplicate	Yes
17N243-B-07-F 17M343-B-07-F	trans-1,2-DCE	45.4%	0.063 0.1	J-qualify	Field Duplicate	Yes
17N239-1-07-F 17M339-1-07-F	trans-1,2-DCE	80.7%	0.068 0.16	J-qualify	Field Duplicate	Yes
17M016-1-02-N 17M316-1-02-N	TCE	174.7%	0.029 J 0.43	J-qualify	Field Duplicate	Yes
17M002-1-03 17M302-1-03	Vinyl chloride	32.3%	0.072 0.052	J-qualify	Field Duplicate	Yes
17M002-1-04 17M302-104	TCE	36.4%	0.063 0.091	J-qualify	Field Duplicate	Yes

The laboratory also prepared laboratory duplicates for every 20 field sample as required by the analytical method and reported detected compounds below the laboratory RPD criteria of 25 percent indicating acceptable analytical precision.

6.2.3 Sample Reporting Limits/Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the method reporting limits (MRLs). The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Sample reporting limits were reported as the method detection limits and MRLs. The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits. Some analytical results were "J"-flagged, because the results are estimated concentrations (low levels) that are less than the MRLs but greater than or equal to the method detection limits. These qualified trace results remain estimated values with the "J" flags retained during data validation.

6.2.4 Laboratory QC Analyses

Laboratory QC samples were prepared and analyzed by the laboratory to monitor the analytical process. The laboratory analyzed all instrument calibration and QC samples at the method-required frequency. The analyses were performed within all specifications of the TO-15 method. The QC criteria were met and are considered acceptable with the following minor exception:

- *SDG P1700259 and P1700262* – The spike recovery of surrogate compound Bromofluorobenzene slightly exceeded the in-house QC limit (70-130 percent) in six of the samples in these SDGs. However, no qualification was required since this surrogate is not associated with the target compounds identified for this project.

6.2.5 Data Usability Summary

Third-party validation reports indicate that data associated with samples collected for the Moffett Field VI air sampling event in January 2017 are usable and acceptable. All analyses were conducted within method-, project SAP-, and DoD QSM version 5.0-specifications. No results were rejected in this report. All technical holding time requirements were met. Minor qualification was necessary based on field duplicate results for a few of the samples. The analytical results and associated data validation qualifiers are provided in Table 12. Copies of the analytical laboratory reports, including COC forms and data validation reports, are provided in Appendix D.

7.0 FINDINGS AND CONCLUSIONS

A total of 211 air samples, including indoor and outdoor ambient air samples, were collected to evaluate the occurrence of and pathways for vapor intrusion in 23 industrial/commercial buildings at Moffett Field. This section summarizes the results and conclusions.

7.1 RESPONSE ACTION TIERING SYSTEM EVALUATION

Using relevant historical data from 2012, 2014, 2016, and current (2017) indoor air sampling results, and Table 2, the buildings were tiered to determine the need for a response action in accordance with the Response Action Tiering System (Table 3). Indoor air quality results for COCs were compared with the ROD Amendment industrial/commercial indoor air cleanup levels and with outdoor ambient air concentration ranges, with consideration of whether or not an air quality EC is in place. Table 4 provides a side-by-side comparison of historical and current 2017 tiering classification and Figure 4 illustrates the location of all indoor air samples, including 2017 TCE and PCE results at each location. Indoor and pathway air sampling location maps including 2017 TCE results at each location are provided in Appendix B.

Of the 23 buildings evaluated, Buildings 10, 45, and 126 were classified as Tier 1. Buildings N239 and N239A were classified as Tier 2. The remaining 18 buildings are classified as Tier 3A or Tier 3B. Buildings classified as Tier 3A (Buildings 2, 3, 12, 14, 15, 16, 555, 567, N210, N243, and N243A) will require continued long-term monitoring per the ROD Amendment (EPA 2010). Buildings classified as Tier 3B (Buildings 13, 29, 67, 76, 107, 510, and 566) do not require long-term monitoring per the ROD Amendment (EPA 2010). A complete response action tiering system evaluation is presented in Section 7, including a comparison with previous tiering results.

7.1.1 Tier 1 and Tier 2

Buildings classified as Tier 1 or Tier 2 require an appropriate EC be implemented as a remedy to meet indoor air cleanup levels. Development and implementation of long-term monitoring is also required at buildings classified as Tier 1 and Tier 2 per the ROD Amendment (EPA 2010). The results for buildings that were classified as either Tier 1 or Tier 2 are summarized below.

Of the 23 buildings sampled during the 2017 air sampling event, five buildings (Buildings 10, 45, 126, N239, and N239A) discussed below had one or more indoor air sampling result with concentrations exceeding the industrial/commercial indoor air cleanup levels in the ROD Amendment (EPA 2010). In addition, Building 16, which did not exceed the indoor air cleanup level in 2017, is discussed below since it is scheduled for mitigation measures in 2017 based on exceeding the indoor air cleanup level for TCE in 2014. Specific details and design of mitigation measures are included in the *Draft Work plan for Vapor Intrusion Mitigation at Installation Restoration Site 28 (Buildings 10, 16, 126, N210, N239, and N239A)* (CES 2017).

Building 10 (Boiler Plant for NASA Research Park): During the 2017 air sampling event, TCE was detected at a concentration exceeding the industrial/commercial indoor air cleanup screening level of 5 µg/m^3 in one indoor air sample and its associated duplicate sample at 11 µg/m^3 for both samples in Room 103`. These results were higher than indoor air concentrations measured in Room 103 during the 2014 and 2016 events. Building 10 is no longer continuously occupied; the building is only intermittently occupied during the day. Building 10 does not have an HVAC system. The Navy has reclassified this building as Tier 1 from 3A in 2016 and will continue monitoring until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

Building 16 (Maintenance Contractor Office and Shops): All samples collected during the 2017 air sampling event had COC concentrations that were below the indoor air cleanup levels and maintained classification as Tier 3A. However, based on historical data from 2014, the building has been selected for future mitigation measures. Building 16 proposed vapor intrusion mitigation measures are planned for implementation in 2017 (CES 2017); at which time, the sampling rationale will be reevaluated.

Building 45 (Storage Facility): During the 2017 air sampling event, PCE was detected at concentrations exceeding the industrial/commercial indoor air cleanup screening level of 2 µg/m^3 at two locations. Also, TCE was detected at concentrations exceeding indoor air cleanup screening level at one sampling location.

It should be noted that the interior of Building 45 was modified between the 2016 and 2017 air sampling events and walls separating Rooms 101 from former Rooms 101A, 102, and 102A have been removed, as shown in Appendix B. Cleaners, paint, and adhesive cans as described in the 2015 building survey have also been removed. Building 45 remains classified as Tier 1 based on 2016 and 2017 sampling results. Building 45 is only occupied for several days a week for periods of 2 to 4 hours. The Navy has not selected a remedial design for this building due to infrequency of use, but will continue monitoring indoor air.

Building 126 (Moffett Historical Society Museum): During the 2017 air sampling event, TCE, PCE, and VC were detected at concentrations exceeding the industrial/commercial indoor air cleanup screening levels. Eight of the 11 sampling locations exceed the indoor air cleanup screening levels for TCE. As a result, Building 126 was temporarily unoccupied until an interim mitigation measure was put in place.

In summary, TCE concentrations ranged from 12 µg/m^3 to 19 µg/m^3, exceeding the screening level at three of the four sample locations with the HVAC system on. TCE concentrations, ranging from 5.3 µg/m^3 to 24 µg/m^3, exceeded the screening level at all four sample locations with the HVAC system off. PCE concentrations, ranging from 5.4 µg/m^3 to 41 µg/m^3, exceeded the screening level at four of the four sample locations with the HVAC system on. PCE concentrations, ranging from 11 µg/m^3 to 56 µg/m^3, exceeded the screening level at four of the four sample locations with

the HVAC system off. VC concentrations, ranging from 2.1 µg/m^3 to 2.4 µg/m^3, exceeded the screening level of 2 µg/m^3, at two of the four sample locations with the HVAC system off. Concentrations of TCE, PCE and VC detected during the 2017 air sampling event are significantly higher than concentrations detected during the 2016, 2014, and 2012 events. The Navy will continue monitoring Building 126 until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2016); at which time, the sampling rationale will be reevaluated. Building 126 remains classified as Tier 1.

Building N239 (Life Sciences Building): During the 2017 air sampling event, TCE exceeded the industrial/commercial indoor air cleanup screening level in one sample, in Room B053A, with a concentration of 11 µg/m^3, with the HVAC system turned off. TCE was not detected above the screening level when the HVAC system was in operation. Building N239 was reclassified Tier 2 (from 3A in 2016) with the EC that the HVAC must remain on. The Navy will continue monitoring Building N239 until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2016); at which time, the sampling rationale will be reevaluated.

Building N239A (Offices and Centrifuges): During the 2017 air sampling event, TCE concentrations, ranging from 7.0 to 13 µg/m^3, exceeded the industrial/commercial indoor air cleanup screening level in three samples (one duplicate) in Rooms C102 and U101, with the HVAC system turned on. TCE was detected at a concentration exceeding the industrial/commercial indoor air cleanup screening level in one sample, in Room 125, with a concentration of 10 µg/m^3, with the HVAC system turned off. Room C102 is an entrance way and is not continuously occupied throughout the day. Room U101 is a utility room and is rarely occupied for only short durations by maintenance crews. Room 125 is the regularly occupied area that exceeded the indoor air cleanup level (with the HVAC off). Therefore, the Navy is reclassifying Building N239A as Tier 2 from 3A in 2016. The Navy will continue monitoring until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2016); at which time, the sampling rationale will be reevaluated.

7.2 SEASONAL VARIATIONS

The 2017 sampling provided air quality results during the winter season, which were used in conjunction with the late spring 2012, and winter 2014 and 2016 sampling results to conduct the tier response evaluation. Variations in temperature and moisture content have an impact on how organic compounds partition between soil, groundwater and soil gas (Washington 1996; Davis et al. 2001). VOC concentrations in the vadose zone soil gas tend to increase with increasing temperature and decreasing moisture content. Seasonal effects on vapor levels in soil gas in the interior areas of a building footprint may be limited to changes resulting from fluctuations in the depth to contaminated groundwater as they relate to the saturation of soils and moisture evaporation/vapor volatilization from changes in the depth of the capillary fringe atop the groundwater. The saturation and evaporation of the capillary fringe with the change in the depth to groundwater likely has an impact on the volatilization of organics from the groundwater. The

highest volatilization rates are expected to occur when the water table drops because of low rainfall amounts in late summer and early fall.

Both the 2014 and 2016 sampling air sampling events occurred during a period of drought, which may have negated any effects on the rate of vapor intrusion that would have occurred during a normal fall-winter rainy season. The 2017 sampling air sampling event occurred during a period of above average rain fall, therefore the effects of seasonal variation were expected to be significant. However, the concentrations VOCs in indoor air between the 2017 winter event, and the 2012 and 2013 summer events was minimal with the exception of Building 126 which had up to an order of magnitude increase in indoor air concentrations.

7.2.1 Factors Affecting Seasonal Variations

Studies have shown that the effects of variations in temperature and moisture content have a major impact on how organic compounds partition between soil, groundwater and soil gas (Washington 1996; Davis et al. 2001). VOC concentrations in the vadose zone soil gas tend to increase with increasing temperature and decreasing moisture content. Based on climatic data for Moffett Federal Airfield, the highest temperatures typically occur during June through September and the lowest occur during December through February. Generally, rainfall occurs during October through April, and little to no rainfall occurs from May through September. Based on seasonal variations in temperature and precipitation, high rates of vapor intrusion are expected in summer (June to September), and low rates are expected in late fall to early spring (November to April).

The complexity of site conditions can affect the levels of soil temperature, soil moisture, and air pressure differences (barometric and indoor air pressures from operation of the HVAC systems), making it difficult to clearly distinguish seasonal variations based on a limited number of sampling events. The factors that can influence seasonal variations in the rate of vapor intrusion include the following:

- Variable site geology (relict sand drainage channels and silt-clay sediments in the interchannel areas)
- Extensive paved areas
- Buried utility conduits including shallow trench conduits for the former steam lines
- Building construction – raised wooden buildings with and without enclosed crawl spaces, concrete slab foundations, and a few buildings with basements
- HVAC systems in some buildings and open window ventilation for other buildings
- Operation of an extensive groundwater extraction well system.

As most open areas are covered by concrete or asphalt, the sun shining on pavement likely heats shallow soil in paved areas to higher temperatures than the air temperatures, and limits the amount of moisture to reach the unsaturated soil. However, the building structures at the site will insulate the shallow soils beneath the buildings from daily (and possibly seasonal) temperature fluctuations,

and will likely limit the influx of moisture from precipitation and changes in humidity, except along subgrade utility conduits that can convey moisture, heat, and vapors. The vapor intrusion rates are likely different beneath the buildings with concrete foundations and the older wooden buildings, which are set on concrete blocks with crawl spaces. Seasonal effects on vapor levels in soil gas in the interior areas of a building footprint may be limited to changes resulting from fluctuations in the depth to contaminated groundwater as they relate to the saturation of soils and moisture evaporation/vapor volatilization from changes in the depth of the capillary fringe atop the groundwater. The saturation and evaporation of the capillary fringe with the change in the depth to groundwater likely has a major impact on the volatilization of organics from the groundwater. The highest volatilization rates are expected to occur when the water table drops because of low rainfall amounts in late summer and early fall.

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8.0 RECOMMENDATIONS

Recommendations in this section were prepared based on 2012, 2013, 2014, 2016, and 2017 indoor air sampling results and the ROD Amendment (EPA 2010).

8.1 VAPOR INTRUSION MONITORING PROGRAM

All sampled buildings (Table 1) have been evaluated and classified under the Response Action Tiering System. Response actions for each building will be implemented per the ROD Amendment (EPA 2010). Of the 23 buildings evaluated, Buildings 10, 45, and 126 were classified as Tier 1 and require that an appropriate EC be implemented as a remedy to meet indoor air cleanup levels. Buildings N239 and N239A are ranked as Tier 2, and require the use of interim measures/ECs to maintain air quality below indoor air cleanup levels.

Buildings 2, 3, 12, 14, 15, 16, 555, N210, N243, and N243A are classified as Tier 3A, because indoor air concentrations meet indoor air cleanup levels in work areas without an EC in place or operating. The response action for buildings classified as Tier 3A requires development and implementation of long-term monitoring per the ROD Amendment (EPA 2010).

Buildings 13, 29, 67, 76, 107, 510, 566, and 567 are classified as Tier 3B, because indoor air concentrations meet indoor air cleanup levels in work areas without an EC in place or operating and the indoor air concentrations are at or below the outdoor ambient air concentrations. The response action for buildings classified as Tier 3B will not require implementation of long-term monitoring per the ROD Amendment (EPA 2010).

8.2 POTENTIAL MITIGATION MEASURES

Specific details and design of mitigation measures are included in the *Draft Work plan for Vapor Intrusion Mitigation at Installation Restoration Site 28 (Buildings 10, 16, 126, N210, N239, and N239A)* [CES 2017]) and is therefore not discussed as part of the Report.

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TABLES

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TABLE 1

BUILDINGS SAMPLED DURING THE JANUARY 2017 SAMPLING EVENTS WITHIN THE NAVY AOR OF THE VAPOR INTRUSION STUDY AREA, MOFFETT FIELD, CALIFORNIA

Building Number	Building Use	Building Occupancy and Status
2	Gymnasium	intermittently occupied
3	Conference Center and Cafeteria	occupied
10	Boiler Plant for NASA Research Park	vacant
12	Commissary	occupied
13	Commissary Warehouse	occupied
14	Offices & Storage	intermittently occupied
15	NASA Security	occupied
16	Maintenance Contractor (IAP) Office & Shops	occupied
29	Bicycle Shop	occupied less than 8 hours/day
45	Storage Facility	intermittently occupied
67	U.S. Post Office	occupied
76	Locksmith Shop	occupied
107	ROICC Office	occupied
126	Moffett Historical Society Museum	occupied
510	Maintenance Offices	occupied
555	Tenant Offices	occupied
566	Tenant Offices	occupied
567	Warehouse	occupied
N210	Offices and Storage (former hangar)	occupied
N239	Life Sciences Building (offices and laboratories)	occupied
N239A	Offices and Centrifuge	occupied
N243	Flight Guidance and Simulation Laboratory	occupied
N243A	Welding and Machine Shop	occupied

Reference: MMEC October 2015 Work Plan IR Site 28 Vapor Intrusion Indoor Air Monitoring

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TABLE 2

RESPONSE ACTION TIERING SYSTEM FOR EXISTING AND FUTURE COMMERCIAL AND RESIDENTIAL BUILDINGS IN VAPOR INTRUSION STUDY AREA (TABLES 6A AND 6B OF THE ROD AMENDMENT, EPA 2010)

TABLE 6A
Response Action Tiering System for Existing Commercial and Residential Buildings in Vapor Intrusion Study Area (Sampled with Passive or Active Engineering Control in Place or Operating)

Tier	Description	Response Action
Tier 1	Building with indoor air concentrations greater than outdoor (background)* air concentrations and indoor air cleanup level.	Implement selected remedy (appropriate engineering control) to meet indoor air cleanup levels. Once indoor air cleanup level achieved and confirmed, building recategorized as Tier 2. Implement governmental, proprietary, and informational ICs (see Table 8).
Tier 2	Building with indoor air concentrations below the indoor air cleanup levels. Former Tier 1 existing building and Tier A future (new) building that confirmed indoor air concentrations are below the indoor air cleanup levels.	Ensure continued operation and maintenance of active ventilation system or other selected engineered remedy to meet RAOs. Develop and implement long-term monitoring and ICs implementation plan. Implement governmental, proprietary, and informational ICs (see Table 8). Where remedy is achieved through operation of an active ventilation system, agreement of property owner must be contained in a recorded agreement.

* Outdoor concentrations of TCE typically range from below laboratory analytical detection limits to 0.4 µg/m^3.

TABLE 6B
Response Action Tiering System for Existing Commercial and Residential Buildings in Vapor Intrusion Study Area (Sampled with No Engineering Control in Place or Operating)

Tier	Description	Response Action
Tier 1	Building with indoor air concentrations greater than outdoor (background)* air concentrations and indoor air cleanup level.	Implement selected remedy (appropriate engineering control) to meet indoor air cleanup levels. Once indoor air cleanup level achieved and confirmed, building recategorized as Tier 2. Implement governmental, proprietary, and informational ICs (see Table 8).
Tier 3A	Building with indoor air concentrations below indoor air cleanup levels, but greater than outdoor (background) concentrations.	No engineered remedy required. Develop and implement long-term monitoring plan. Implement governmental ICs (see Table 8).
Tier 3B	Building with indoor air concentrations at or within outdoor air (background)* concentrations.	No engineered remedy nor long-term monitoring required. Implement governmental ICs (see Table 8)
Tier 4	Buildings where converging lines of evidence demonstrate that there is no longer the potential for vapor intrusion into the building exceeding indoor air cleanup levels.	No action required after performance of all necessary confirmation sampling and documentation approved by EPA that no action is necessary.

* Outdoor concentrations of TCE typically range from below laboratory analytical detection limits to 0.4 µg/m^3.

Notes:

µg/m^3 – micrograms per cubic meter
USEPA – U.S. Environmental Protection Agency
IC – Institutional controls
MEW = Middlefield-Ellis-Whisman
RAO – remedial action objective
ROD – Record of Decision
TCE – trichloroethene

Reference: ROD Amendment for the Vapor Intrusion Pathway – MEW Superfund Study Area – August 2010.

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TABLE 3

SUMMARY OF TIERING SYSTEM AND RESPONSE ACTIONS FOR EXISTING COMMERCIAL BUILDINGS IN THE VAPOR INTRUSION STUDY AREA, MOFFETT FIELD, CALIFORNIA

Tier	Description	Response Action	Selected Remedy
1	Building with indoor air concentrations greater than outdoor (background) air concentrations and indoor air cleanup levels.	Implement selected remedy (appropriate EC) to meet indoor air cleanup levels. Once indoor air cleanup level is achieved and confirmed, building is recategorized as Tier 2. Implement governmental, proprietary, and information ICs.	Active subslab/submembrane ventilation, monitoring, and ICs (including conduit sealing).[1] ICs consist of : • Permitting and building requirements to install appropriate engineering controls in future construction. • Recorded agreements to ensure installation and operation of engineering controls; require information to be provided to future owners; require information of building changes be provided to USEPA and MEW responsible parties. Tracking service to provide information to USEPA and MEW responsible parties of occupancy and building changes.
2	Building with indoor air concentrations below the indoor air cleanup levels, while an EC is in place or in operation. Also, former Tier 1 buildings with confirmed indoor air concentrations that are below the indoor air cleanup levels.	Ensure continued operation and maintenance of active ventilation system or other selected engineered remedy to meet remedial action objectives. Develop and implement long-term monitoring and IC implementation plan. Implement governmental, proprietary and informational ICs. Where remedy is achieved through operation of an active ventilation system, agreement of property owner must be contained in a recorded agreement.	
3A	Building sampled without EC in place or operating with indoor air concentrations below indoor air cleanup levels, but greater than outdoor (background) concentrations.	No engineered remedy required. Develop and implement long-term monitoring plan. Implement governmental ICs.	No engineering control. ICs only. ICs consist of: Permitting and building requirements to install appropriate ECs in future construction.
3B	Building sampled without EC in place or operating with indoor air concentrations at or within outdoor air (background) concentrations.	No engineered remedy or long-term monitoring required. Implement governmental ICs.	
4	Buildings where converging lines of evidence demonstrate that there is no longer the potential for vapor intrusion into the building exceeding indoor air cleanup levels.	No action required after performance of all necessary confirmation sampling and documentation approved by USEPA that no action is necessary.	No remedy required.

Notes:

1 Alternatively, active indoor air ventilation system, monitoring and ICs (including conduit sealing) may be selected as the vapor intrusion remedy for Tiers 1 and 2 existing commercial building if the property/building owner agrees to use, operate, and monitor the indoor air ventilation system (e.g., HVAC system) in a manner consistent with the operations, maintenance, and monitoring plan developed for that building in a signed recorded agreement.

EC – engineering control;
IC – institutional control;
MEW – Middlefield-Ellis-Whisman;
USEPA – United States Environmental Protection Agency

Reference: MMEC January 2016 Work Plan IR Site 28 Vapor Intrusion Indoor Air Monitoring

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TABLE 4

TIER EVALUTAION SUMMARY FOR BUILDINGS IN THE NAVY VAPOR INTRUSION AREA OF CONCERN, MOFFETT FIELD, CALIFORNIA

Building Number	Building Use	2012 Tier Classification	2014 Tier Classification	2016 Tier Classification	2017 Tier Classification	Results Summary
Buildings with no HVAC Systems						
2	Gymnasium	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 29 ambient air concentration levels, as Building 29 is the closest building with an ambient air sample. COC concentrations are above Building 29 ambient air concentration levels. The Navy is classifying Building 2 as Tier 3A.
10*	Boiler Plant for NASA Research Park	2	2	3A	1	TCE (2 of 9 samples) exceeded the indoor air cleanup levels. The Navy is reclassifying Building 10 as Tier 1 from Tier 3A.
13	Commissary Warehouse	3A	3A	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air sample concentration levels for Building 13. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. The Navy is reclassifying Building 13 as Tier 3B from Tier 3A.
29	Bicycle Shop	3A	3B	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air concentration levels for Building 29. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. The Navy is reclassifying Building 29 as Tier 3B from Tier 3A.
45	Storage Facility	3A	3A	1	1	Indoor air concentrations of TCE were below the indoor air cleanup level and greater than the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. PCE (2 of 2 samples) exceeded the indoor air cleanup levels. The Navy is classifying Building 45 as Tier 1.
67	U.S. Post Office	3B	3B	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air concentration levels for Building 67. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. The Navy is reclassifying Building 67 as Tier 3B from Tier 3A.
76	Locksmith Shop	3B	3B	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 16 ambient air concentration ranges, as Building 16 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 16. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m3. The Navy is reclassifying Building 76 as Tier 3B from Tier 3A.
567	Warehouse	3A	3A	1	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration levels for Building 567. The Navy is reclassifying Building 567 as Tier 3A from Tier 1.

TABLE 4

TIER EVALUTAION SUMMARY FOR BUILDINGS IN THE NAVY VAPOR INTRUSION AREA OF CONCERN, MOFFETT FIELD, CALIFORNIA

Building Number	Building Use	2012 Tier Classification	2014 Tier Classification	2016 Tier Classification	2017 Tier Classification	Results Summary
Buildings with HVAC Systems						
3	Conference Center and Cafeteria	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 3. The Navy is classifying Building 3 as Tier 3A.
12	Commissary	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 12. The Navy is classifying Building 12 as Tier 3A.
14	Offices & Storage	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 14. The Navy is classifying Building 14 as Tier 3A.
15	NASA Security	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 15. The Navy is classifying Building 15 as Tier 3A.
16*	Maintenance Contractor (IAP) Office & Shops	3A	2	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 16. The Navy is classifying Building 16 as Tier 3A.
107	Resident Officer in Charge of Construction Office	3A	3A	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 555 ambient air concentration ranges, as Building 555 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 555. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. The Navy is reclassifying Building 107 as Tier 3B from Tier 3A.
126*	Moffett Historical Society Museum	1	1	1	1	PCE (9 of 9 samples), TCE (8 of 9 samples), and VC (2 of 9 samples) exceeded the indoor air cleanup levels. The Navy is classifying Building 126 as Tier 1.
510	Maintenance Offices	3A	3B	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected at approximately the ambient air sample concentration range for Building 510. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m^3. The Navy is reclassifying Building 510 as Tier 3B from Tier 3A.
555	Tenant Offices	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building 555. The Navy is classifying Building 555 as Tier 3A.
566	Tenant Offices	3B	3B	3A	3B	All samples collected had COC concentrations that were below the indoor air cleanup levels. COCs in indoor air were compared to Building 16 ambient air concentration ranges, as Building 16 is the closest building with ambient air samples. COC concentrations in indoor air samples were detected at approximately the ambient air concentration range for Building 16. Indoor air TCE concentrations were within the average ambient TCE range given in Table 6A and 6B of the 2010 ROD of ND to 0.4 µg/m3. The Navy is reclassifying Building 566 as Tier 3B from Tier 3A.
N210*	Offices & Storage (former hangar)	2	2	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration levels for Building N210. The Navy is classifying Building N210 as Tier 3A.

TABLE 4

TIER EVALUTAION SUMMARY FOR BUILDINGS IN THE NAVY VAPOR INTRUSION AREA OF CONCERN, MOFFETT FIELD, CALIFORNIA

Building Number	Building Use	2012 Tier Classification	2014 Tier Classification	2016 Tier Classification	2017 Tier Classification	Results Summary
N239*	Life Sciences Building (offices & laboratories)	3A	2	3A	2	TCE (1 of 21 samples) exceeded the indoor air cleanup levels, with the HVAC system off. The operation of the HVAC system is considered to be an EC. All COCs were below the indoor air cleanup levels with the EC on. TCE concentrations exceeded the indoor air cleanup levels with the EC not in place but were below into indoor air cleanup level with the EC in place. The Navy is reclassifying Building N239 as Tier 2 from Tier 3A.
N239A*	Offices & Centrifuge	3A	3A	3A	2	TCE (5 of 18 samples) exceeded the indoor air cleanup levels in Rooms C102, U101, U102, and 125. Four samples (one duplicate) in Rooms C102 and U101, and U102 exceeded the indoor air clean up levels with the HVAC system turned on. TCE exceeded the air cleanup screening level in one sample in Room 125 with the HVAC system turned off. The Navy reclassified Building N239A as Tier 2 from 3A in 2016. The Navy will continue monitoring until the proposed vapor intrusion mitigation measures are implemented in 2017 (CES 2016); at which time, the sampling rational will be reevaluated.
N243	Flight Guidance & Simulation Laboratory	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building N243. The Navy is classifying Building N243 as Tier 3A.
N243A	Welding & Machine Shop	3A	3A	3A	3A	All samples collected had COC concentrations that were below the indoor air cleanup levels. COC concentrations in indoor air samples were detected above the ambient air concentration range for Building N243A. The Navy is classifying Building N243A as Tier 3A.

Notes:

*Buildings 10, 16, 126, N210, N239, and N239A are scheduled for implementation of mitigation measures.

$\mu g/m^3$ - microgram(s) per cubic meter

COC = chemical of concern

EC = Engineering Control

HVAC = heating, ventilation, and air conditioning

NASA - National Aeronautics and Space Administration

ND = Not detected at or above the laboratory detection limit

PCE = tetrachloroethene

ROD - Record of Decision

TCE = trichloroethene

VC = Vinyl Chloride

Tier Classification increased since previous Tier Evaluation Report

Tier Classification decreased since previous Tier Evaluation Report

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TABLE 5

HYDROSTRATIGRAPHY OF MEW AND MOFFETT FIELD AREAS, MOFFETT FIELD, CALIFORNIA

Unit	Unit Subdivision	Range of Approximate Depths (feet below ground surface)	
		Top	**Bottom**
A	Upper portion of A (A) aquifer	0 to 13	15 to 35
	Lower portion of A (B1) aquifer	15 to 45	45 to 77
A/B	A/B (A/B2) aquitard	45 to 65	60 to 85
B	B2 (B2) aquifer zone	60 to 80	95 to 135
	(B2/B3) aquitard	95 to 105	99 to 111
	B3 (B3) aquifer zone	99 to 130	115 to 160
B/C	B/C (B3/C) aquitard	115 to 140	155 to 180
C	Unknown/undefined	155 to 160	250
Deep	Unknown/undefined	Generally deeper than 250	

Note: The equivalent aquifer/aquitard designations for the MEW study area are in parentheses.

Reference: MMEC October 2015 Work Plan IR Site 28 Vapor Intrusion Indoor Air Monitoring

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TABLE 6

INDOOR AIR CLEANUP LEVELS FOR CHEMICALS OF CONCERN IN THE AREA OF VAPOR INTRUSION STUDY AREA, MOFFETT FIELD, CALIFORNIA

Chemical of Concern	Indoor Air Cleanup Level (µg/m^3) *
	Commercial
Trichloroethene	5
Tetrachloroethene	2
cis-1,2-Dichloroethene	210
trans-1,2-Dichloroethene	210
Vinyl Chloride	2
1,1-Dichloroethane	6
1,1-Dichloroethene	700

Notes:

* Cleanup Levels as presented in the Record of Decision Amendment for the Vapor Intrusion Pathway (EPA 2010)

µg/m^3 = micrograms per cubic meter

Reference: MMEC October 2015 Work Plan IR Site 28 Vapor Intrusion Indoor Air Monitoring

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TABLE 7

2013 SOIL GAS SAMPLE RESULTS, MOFFETT FIELD, CALIFORNIA

Sample ID	Building	Sample Date	Unit	VC	1,1-DCE	trans-1,2-DCE	1,1-DCA	cis-1,2-DCE	TCE	PCE
Indoor Air Cleanup Level (IACL)			µg/m^3	2	700	210	6	210	5	2
Calculated Soil Gas Screening Levels Based on IACL and EPA's Subslab Attenuation Factor (0.03)[1,2]			µg/m^3	67	23,000	7,000	200	7,000	167	67
13M002-SG-02	2	6/27/2013	µg/m^3	<13	**29**	<40	<41	**56**	**830**	<34
13M002-SG-01	2	7/1/2013	µg/m^3	<13	**110**	<40	<41	<40	<27	<34
13M002-SG-03	2	7/1/2013	µg/m^3	<13	**220**	<40	**130**	**920**	**13,000**	<34
13M003-SG-01	3	6/27/2013	µg/m^3	<13	**2,400**	**330**	**1,200**	**7,200**	**140,000**	**130**
13M003-SG-01 (resample)[4]	3	6/28/2013	µg/m^3	<260[4]	**3,000**	<800[4]	**1,700**	**8,500**	**160,000**	<690[4]
13M003-SG-02	3	6/28/2013	µg/m^3	<13	<20	<40	<41	**50**	**45**	<34
13M010-SG-01	10	6/26/2013	µg/m^3	<13	**300**	**44**	**230**	**640**	**9,200**	**83**
13M310-SG-01 (Dup)	10	6/26/2013	µg/m^3	**38**	**35**	<40	<41	**51**	**420**	<34
13M010-SG-02	10	6/26/2013	µg/m^3	<13	**810**	**220**	**750**	**2,900**	**39,000**	**220**
13M010-SG-03	10	6/26/2013	µg/m^3	**36**	**52**	<40	<41	<40	**420**	<34
13M010-SG-04	10	6/27/2013	µg/m^3	<13	**430**	**150**	**340**	**4,300**	**12,000**	<34
13M012-SG-01	12	6/27/2013	µg/m^3	<13	**22**	<40	<41	**330**	**180**	<34
13M312-SG-01 (Dup)	12	6/27/2013	µg/m^3	<13	**48**	<40	<41	**470**	**160**	<34
13M012-SG-02	12	6/28/2013	µg/m^3	**99**	<20	<40	<41	**55**	<27	<34
13M012-SG-03	12	7/2/2013	µg/m^3	<13	<20	<40	<41	**84**	<27	<34
13M013-SG-01	13	7/2/2013	µg/m^3	<13	<20	<40	**66**	**140**	**340**	<34
13M014-SG-03	14	6/28/2013	µg/m^3	**7,400**	**1,200**	**740**	**210**	**9,000**	**2,900**	<34
13M015-SG-01	15	7/2/2013	µg/m^3	<13	<20	<40	<41	**140**	**830**	<34
13M015-SG-02	15	7/2/2013	µg/m^3	**4,400**	**2,900**	**3,600**	**5,900**	**80,000**	**9,600**	<34
13M016-SG-01	16	7/1/2013	µg/m^3	<13	**710**	**120**	**470**	**3,400**	**76,000**	**330**
13M016-SG-02	16	7/2/2013	µg/m^3	**35**	**1,200**	**1,100**	**1,100**	**9,400**	**85,000**	**170**
13M016-SG-03	16	7/2/2013	µg/m^3	<13	<20	<40	<41	<40	**64**	<34
13M316-SG-03 (Dup)	16	7/2/2013	µg/m^3	<13	<20	<40	<41	<40	**72**	<34
13M029-SG-01	29	6/27/2013	µg/m^3	<13	<20	<40	<41	<40	<27	<34
13M029-SG-02	29	6/27/2013	µg/m^3	**680**	<20	<40	<41	**290**	**44**	<34
13M045-SG-01	45	7/1/2013	µg/m^3	<13	**1,100**	**150**	**570**	**2,700**	**74,000**	**730**
13M067-SG-01	67	7/2/2013	µg/m^3	<13	<20	<40	<41	<40	**140**	<34
13M076-SG-01	76	7/2/2013	µg/m^3	<13	**1,200**	**300**	**790**	**4,800**	**65,000**	**83**
13M107-SG-01	107	7/2/2013	µg/m^3	<13	<20	<40	<41	<40	**67**	<34
13M126-SG-01	126	7/1/2013	µg/m^3	<13	**550**	**46**	**270**	**1,300**	**23,000**	**7,900**
13M126-SG-02	126	7/1/2013	µg/m^3	<13	**170**	**44**	**120**	**640**	**7,000**	**7,100**
13N210-SG-01	N210	6/27/2013	µg/m^3	**850**	**250**	**190**	**52**	**7,800**	**320**	<34
13N239-SG-01	N239	6/28/2013	µg/m^3	**16**	<20	<40	<41	**120**	**61**	<34
13N239-SG-02	N239	7/1/2013	µg/m^3	<13	<20	<40	<41	<40	<27	<34

TABLE 7

2013 SOIL GAS SAMPLE RESULTS, MOFFETT FIELD, CALIFORNIA

Sample ID	Building	Sample Date	Unit	VC	1,1-DCE	trans-1,2-DCE	1,1-DCA	cis-1,2-DCE	TCE	PCE
Indoor Air Cleanup Level (IACL)			µg/m^3	2	700	210	6	210	5	2
Calculated Soil Gas Screening Levels Based on IACL and EPA's Subslab Attenuation Factor (0.03)[1,2]			µg/m^3	67	23,000	7,000	200	7,000	167	67
13N239A-SG-01	N239A	6/27/2013	µg/m^3	<13	<20	<40	<41	<40	**54**	<34
13N239A-SG-02	N239A	6/27/2013	µg/m^3	<13	**32**	**93**	**190**	**410**	**1,800**	<34
13N243-SG-01	N243	6/28/2013	µg/m^3	<13	<20	<40	<41	<40	**50**	<34
13N343-SG-01 (Dup)	N243	6/28/2013	µg/m^3	<13	<20	<40	<41	<40	**130**	<34
13N243-SG-02	N243	6/28/2013	µg/m^3	<13	<20	<40	<41	<40	**120**	<34
13N243-SG-03	N243	6/28/2013	µg/m^3	<13	<20	<40	<41	<40	**53**	**960**
13N243-SG-04	N243	6/28/2013	µg/m^3	<13	<20	**50**	**560**	<40	<27	**280**
13N243A-SG-01	N243A	6/28/2013	µg/m^3	<13	<20	<40	**120**	**88**	**1,000**	**600**
13N243A-SG-02	N243A	6/28/2013	µg/m^3	<13	<20	<40	<41	<40	**39**	**150**
13M510-SG-01	510	6/26/2013	µg/m^3	<13	<20	<40	**370**	**120**	**330**	<34
13M555-SG-02	555	7/1/2013	µg/m^3	<13	<20	<40	<41	<40	**210**	<34
13M355-SG-02 (Dup)	555	7/1/2013	µg/m^3	<13	<20	<40	<41	<40	**180**	<34
13M555-SG-01	555	7/2/2013	µg/m^3	<13	**250**	**83**	**280**	**1,500**	**36,000**	**560**
13M566-SG-01	566	7/2/2013	µg/m^3	<13	**73**	<40	**46**	**87**	**1,500**	<34
13M567-SG-01	567	7/2/2013	µg/m^3	**56**	**690**	**160**	**450**	**4,500**	**77,000**	**180**
13MT-SG-01	Tunnel	7/1/2013	µg/m^3	<13	**71**	**100**	**410**	**1,500**	**8,800**	**320**
13MT-SG-02	Tunnel	7/1/2013	µg/m^3	<13	**120**	**64**	**650**	**1,500**	**13,000**	**220**
13MT-SG-03	Tunnel	6/27/2013	µg/m^3	<13	**130**	<40	<41	**180**	**3,700**	<34
13MT-SG-04	Tunnel	7/1/2013	µg/m^3	<13	**130**	<40	**81**	**250**	**1,700**	**65**
13MT-SG-05	Tunnel	7/1/2013	µg/m^3	<13	<20	<40	<41	**50**	**1,100**	**62**

Notes:

Detections are bold; Attenuated IACL exceedances are shaded.

TCE = trichloroethene

DCA = dichloroethane

DCE = dichloroethene

< = Not detected at the detection limit specified

Dup = duplicate

PCE = tetrachloroethene

VC = vinyl chloride

µg/m^3 = micrograms per cubic meter

1. EPA 2012. *EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings.* Office of Solid Waste and Emergency Response. Washington DC
2. The 95th percentile attenuation factor of 0.03 for TCE and PCE in subslab soil gas, derived from EPA's vapor intrusion database (EPA 2012), is used as a weighting multiplier with the ROD Amendment IACLs for indoor air to provide screening values for soil gas. For example for TCE: 5/0.03 = 167 □g/m^3. These screening values are for consideration of potential risk posed by COCs in soil gas and are not presented as cleanup goals for soil gas.
3. The June 28 13M003-SG-1 resample is a next-day verification sample for the June 27 13M003-SG-01 sample.

Reference: MMEC October 2015 Work Plan IR Site 28 Vapor Intrusion Indoor Air Monitoring

TABLE 8

2015 GROUNDWATER SAMPLE RESULTS, MOFFETT FIELD, CALIFORNIA

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	1,1-DCA (µg/L)	1,1-DCE (µg/L)	VC (µg/L)
U.S. Environmental Protection Agency MCL			**N/A**	**7**	**70**	**5**	**100**	**5**	**2**
		California MCL	**5**	**6**	**6**	**5**	**10**	**5**	**0.5**
14C33A	Upper A	9/23/2015	1 U	1 U	**0.39 J**	0.5 U	1 U	1 U	**0.75 J**
14D05A	Upper A	9/23/2015	**30**	25 U	**950**	13 U	**9.6 J**	**11 J**	**230**
14D12A	Upper A	9/22/2015	**32**	13 U	**390**	6.3 U	**6.5 J**	13 U	**5 J**
14D36A	Upper A	9/21/2015	**12**	**0.8 J**	**29**	6.3 U	**6.5 J**	13 U	**0.67 J**
14D39A	Upper A	9/21/2015	1 U	1 U	**0.58 J**	0.5 U	1 U	1 U	1 U
165A	Upper A	9/22/2015	**29**	1 U	**25**	0.5 U	**0.58 J**	1 U	1 U
28SI-01	Upper A	9/24/2015	**260**	**11 J**	**590**	9.1 U	18 U	18 U	18 U
28SI-02	Upper A	9/24/2015	**41 J**	170 U	**4600**	9.1 U	18 U	18 U	170 U
28SI-03	Upper A	9/24/2015	250 U	250 U	**5900**	9.1 U	18 U	18 U	250 U
28SI-05	Upper A	9/24/2015	100 U	100 U	**3000**	50 U	100 U	100 U	**71 J**
EA1-1	Upper A	9/23/2015	**770**	**140**	**770**	10 U	**7.1 J**	**16 J**	**44**
EA1-2	Upper A	9/23/2015	**200**	5 U	**120**	2.5 U	**3.6 J**	**4.1 J**	**2.1 J**
EA1-3	Upper A	9/23/2015	**73**	**1.8 J**	**130**	**1.2 J**	**5.2**	**2.1 J**	**8.1**
EA1-4	Upper A	9/23/2015	**54**	6.7 U	**230**	**1.2 J**	**5.2**	**2.1 J**	6.7 U
EA1-5	Upper A	9/23/2015	**34**	5.7 U	**210**	**1.2 J**	**5.2**	**2.1 J**	**16**
EA1-6	Upper A	9/23/2015	**150**	6.7 U	**230**	**1.2 J**	**5.2**	**2.1 J**	**57**
UST29-MW01	Upper A	9/21/2015	1 U	1 U	**0.51 J**	10 U	**6.4 J**	**11 J**	1 U
UST85-MW02	Upper A	9/24/2015	**15 J**	18 U	**480**	10 U	**6.4 J**	**11 J**	**14 J**
W20-01	Upper A	9/21/2015	1 U	1 U	**1**	0.5 U	1 U	1 U	1 U
W29-1	Upper A	9/22/2015	1 U	1 U	**0.39 J**	0.5 U	1 U	1 U	1 U
W29-2	Upper A	9/21/2015	1 U	1 U	**0.84 J**	0.5 U	**1.6**	1 U	**3.3**
W29-3	Upper A	9/21/2015	**14 J**	25 U	**760**	0.5 U	**1.6**	1 U	**23 J**
W29-4	Upper A	9/21/2015	**190**	5 U	**94**	0.5 U	**1.6**	1 U	5 U
W29-5	Upper A	9/22/2015	1 U	1 U	**0.44 J**	0.5 U	**1.6**	1 U	**0.4 J**
W56-2	Upper A	9/24/2015	**160**	17 U	**480**	8.3 U	**13 J**	**10 J**	**44**
W9-10	Upper A	9/22/2015	33 U	33 U	**1000**	17 U	33 U	33 U	**77**
W9-18	Upper A	10/9/2015	0.4 U	0.4 U	**1.1**	**0.68 J**	**1.1**	0.4 U	**1.7**
W9-19	Upper A	9/22/2015	**0.6 J**	1.7 U	**30**	**3.2**	**9**	1.7 U	**43**
W9-2	Upper A	9/21/2015	**1900**	50 U	**1100**	**1.2 J**	**8.3**	**0.77 J**	50 U
W9-24	Upper A	9/22/2015	1 U	1 U	**0.68 J**	**0.79 J**	**2**	1 U	**17 J**
W9-31	Upper A	9/21/2015	13 U	13 U	**190**	**0.79 J**	**2**	1 U	**380**
W9-37	Upper A	9/24/2015	25 U	25 U	**630**	13 U	**8.1 J**	25 U	**540**
W9-44	Upper A	9/22/2015	**550**	17 U	**270**	0.5 U	1 U	1 U	17 U
W9-45	Upper A	9/24/2015	**330**	**5.4 J**	**170**	0.5 U	1 U	1 U	11 U
W9-7	Upper A	9/21/2015	**290**	29 U	**880**	14 U	29 U	**14 J**	**15 J**
W9SC-1	Upper A	9/21/2015	**560**	20 U	**65**	33 U	67 U	67 U	20 U
W9SC-13	Upper A	9/21/2015	20 U	20 U	**660**	10 U	**18 J**	20 U	**310**
W9SC-14	Upper A	9/23/2015	**8.2 J**	29 U	**870**	14 U	29 U	29 U	**170**
WIC-1	Upper A	9/24/2015	**640**	**8 J**	**340**	25 U	50 U	50 U	22 U
WNX-1	Upper A	9/23/2015	**160**	10 U	**250**	**4 J**	**7.2 J**	10 U	10 U

TABLE 8

2015 GROUNDWATER SAMPLE RESULTS, MOFFETT FIELD, CALIFORNIA

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	PCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	1,1-DCA (µg/L)	1,1-DCE (µg/L)	VC (µg/L)
U.S. Environmental Protection Agency MCL			**N/A**	**7**	**70**	**5**	**100**	**5**	**2**
California MCL			**5**	**6**	**6**	**5**	**10**	**5**	**0.5**
WNX-2	Upper A	9/23/2015	50 U	50 U	**1600**	25 U	**31 J**	**30 J**	**200**
WNX-3	Upper A	9/23/2015	**190**	8 U	**220**	4 U	**3.7 J**	**4.4 J**	8 U
WU4-10	Upper A	9/21/2015	**82**	4 U	**92**	4 U	**3.7 J**	**4.4 J**	4 U
WU4-14	Upper A	9/22/2015	**2.6**	**0.31 J**	**4.4**	**0.31 J**	**0.73 J**	1 U	1 U
WU4-17	Upper A	9/22/2015	1 U	1 U	0.5 U	0.5 U	**1.6**	**1.3**	1 U
WU4-21	Upper A	9/21/2015	**1**	1 U	**26**	0.5 U	**1.6**	**1.3**	**0.48 J**
WU4-24	Upper A	9/21/2015	**1.9**	1 U	**2.1**	0.5 U	**1.6**	**1.3**	1 U
WU4-25	Upper A	9/21/2015	**0.46 J**	1.7 U	**36**	0.84 U	**7.2**	**2.5**	**0.5 J**
WU4-3	Upper A	9/22/2015	**1100 J**	33 U	**950 J**	17 U	**10 J**	**20 J**	33 U
WWR-3	Upper A	9/22/2015	**41**	3.3 U	**89**	1.7 U	**4.4**	**5.6**	3.3 U

Notes:

TCE = trichloroethene
PCE = tetrachloroethene
DCA = dichloroethane
DCE = dichloroethene
VC = vinyl chloride
µg/L = micrograms per liter
J = estimated concentration less than the limit of quantitation but greater than the detection limit
U = not detected at the reporting limit specificed

Detection are bolded
California MCL exceedances are shaded
MCL - maximum contamination level

TABLE 9

NUMBER OF AIR SAMPLES FOR INDIVIDUAL BUILDINGS, MOFFETT FIELD, CALIFORNIA

Building	Indoor Air Samples				Ambient/Outdoor Air Samples	Duplicate Samples	Total Number of Samples
	8-hour	10-hour	24-hour	Grab	24-hour[1]		
2	3					2	5
3		15			2	2	19
10	7				1	2	10
12			8		2	1	11
13			2		1	1	4
14	10					1	11
15			8		2	1	11
16		12			2	2	16
29	2				1		3
45	2				1		3
67			1		1		2
76	1						1
107	4						4
126	8				2	1	11
N210	8			1	1	1	11
N239			18	1	2	2	23
N239A			16			2	18
N243			13		4	1	18
N243A			6		2	1	9
510			4		2		6
555	4				2	1	7
566	4						4
567	3				1		4
Totals	56	27	76	2	29	21	211

Notes:

Total ambient/outdoor air samples: 29

Total indoor air samples: 182 (including 21 duplicate indoor air samples)

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TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
Buildings With No HVAC System													
Indoor Air Samples													
YYM002-1-02	TBD	TBD	2	1	107	NA	x				Work Area	Gymnasium	Potential future occupancy
YYM002-1-03	TBD	TBD	2	1	109	NA	x				Work Area	Gymnasium	Potential future occupancy
YYM002-1-04	TBD	TBD	2	1	104	NA	x				Pathway	Gymnasium	Boiler room, not occupied
YYM045-1-01	TBD	TBD	45	1	101	NA	x				Work Area	Former Paint Shop	Storage, unoccupied
YYM045-1-02	TBD	TBD	45	1	102	NA	x				Work Area	Former Paint Shop	Storage, unoccupied
YYM010-1-01	TBD	TBD	10	1	101	NA	x				Work Area	Boiler Plant	Main work area; east side of room
YYM010-1-02	TBD	TBD	10	1	101	NA	x				Work Area	Boiler Plant	Main work area; near cubes in SW corner
YYM014-C-01	TBD	TBD	14	1	Crawl Space	NA	x				Pathway	Demonstration Room	Crawl Space
YYM014-C-02	TBD	TBD	14	1	Crawl Space	NA	x				Pathway	Offices	Crawl Space
YYM014-1-03	TBD	TBD	14	1	Dem. Room	NA	x				Work Area	Demonstration Room	Meeting Room
YYM014-1-04	TBD	TBD	14	1	Workshop	NA	x				Work Area	Workshop	Work Area
YYM014-1-05	TBD	TBD	14	1	Offices	NA	x				Work Area	Offices	Work Area
YYM010-1-03	TBD	TBD	10	1	101	NA	x				Work Area	Boiler Plant	Main work area; near tunnel & sump
YYM010-1-05	TBD	TBD	10	1	102	NA	x				Work Area	Boiler Plant	Office
YYM010-1-06	TBD	TBD	10	1	N104	NA	x				Work Area	Boiler Plant	Boiler room, near water lines and sump
YYM029-B-01	TBD	TBD	29	Basement	Basement	NA	x				Pathway	Bicycle Shop	basement near drain and conduits
YYM029-1-01	TBD	TBD	29	1	106	NA	x				Work Area	Bicycle Shop	work area
YYM067-1-01	TBD	TBD	67	1	C101	NA			x		Work Area	U.S. Post Office	Near bathroom and slab break
YYM076-1-01	TBD	TBD	76	1	101	AC off	x				Work Area	Locksmith Shop	General work area, shut in with AC off
YYM567-1-01	TBD	TBD	567	1	107	NA	x				Work Area	Warehouse	Main work area, near former bollards
YYM567-1-02	TBD	TBD	567	1	102	NA	x				Work Area	Warehouse	Main work area, near electrical conduits
YYM567-1-03	TBD	TBD	567	1	104	NA	x				Work Area	Warehouse	Work area, near bathroom
YYM013-1-01	TBD	TBD	13	1	103	NA			x		Work Area	Commissary Warehouse	Food storage, near cracks or seam
YYM013-1-02	TBD	TBD	13	1	102	NA			x		Work Area	Commissary Warehouse	Merchandising storage, near crack or seam
Ambient Air Samples													
YYM010-A-01	TBD	TBD	10	Ambient Air	NA	NA			x		Background		
YYM013-A-01	TBD	TBD	13	Ambient Air	NA	NA			x		Background		
YYM029-A-01	TBD	TBD	29	Ambient Air	NA	NA			x		Background		
YYM045-A-01	TBD	TBD	45	Ambient Air	NA	NA			x		Background		
YYM067-A-01	TBD	TBD	67	Ambient Air	NA	NA			x		Background		
YYM567-A-01	TBD	TBD	567	Ambient Air	NA	NA			x		Background		
Duplicate Air Samples													
YYM302-1-04	TBD	TBD	2	1	104	NA	x				Duplicate	Gymnasium	Mitigation confirmation
YYM314-1-05	TBD	TBD	14	1	Offices	NA	x				Duplicate	Offices	Work Area
YYM310-1-03	TBD	TBD	10	1	101	NA	x				Duplicate	Boiler Plant	Main work area; near tunnel & sump
		Number of Indoor Air Samples =	**24**		**Ambient Air Samples =**	**6**					**Duplicate Samples =**	**3**	

TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
Buildings With HVAC Systems – HVAC in Operation													
Indoor Air Samples													
YYM126-1-01-N	TBD	TBD	126	1	103	on	x				Work Area	Museum	Main room in northern corner, near closet opening
YYM126-1-02-N	TBD	TBD	126	1	103	on	x				Work Area	Museum	Main room, south area
YYM126-1-04-N	TBD	TBD	126	1	106	on	x				Work Area	Museum	Access area for bathrooms
YYM126-1-05-N	TBD	TBD	126	1	101	on	x				Work Area	Museum	Previous sample location
YYM003-1-01-N	TBD	TBD	3	1	105	on		x			Work Area	Conference Center/Cafeteria	Hallway, outside of kitchen
YYM003-1-02-N	TBD	TBD	3	1	C104	on		x			Work Area	Conference Center/Cafeteria	Kitchen; near floor drains
YYM003-1-03-N	TBD	TBD	3	1	104A	on		x			Work Area	Conference Center/Cafeteria	Office
YYM003-1-04-N	TBD	TBD	3	1	122	on		x			Work Area	Conference Center/Cafeteria	Banquet Room
YYM003-1-07-N	TBD	TBD	3	1	108	on		x			Work Area	Conference Center/Cafeteria	Dining Room
YYM003-1-08-N	TBD	TBD	3	1	111	on		x			Work Area	Conference Center/Cafeteria	Office; near kitchen
YYM003-1-09-N	TBD	TBD	3	1	128	on		x			Work Area	Conference Center/Cafeteria	Work area with fire place
YYM012-1-01-N	TBD	TBD	12	1	109D	on			x		Work Area	Commissary Warehouse	Cashier office
YYM012-1-02-N	TBD	TBD	12	1	109	on			x		Work Area	Commissary Warehouse	By Cashier
YYM012-1-03-N	TBD	TBD	12	1	119	on			x		Work Area	Commissary Warehouse	Warehouse; near cracks or seams
YYM012-C-05-N	TBD	TBD	12	1	Crawl Space	on			x		Pathway	Commissary Warehouse	Under Room 110
YYM015-1-01-N	TBD	TBD	15	1	135D	on			x		Work Area	NASA Security	Office; staffed 24/7/365
YYM015-1-02-N	TBD	TBD	15	1	117	on			x		Work Area	NASA Security	Office, near electrical conduits
YYM015-1-03-N	TBD	TBD	15	1	C107	on			x		Work Area	NASA Security	Hallway, near Room 163 (HVAC) and Room 166 (office), near cubes
YYM015-1-06-N	TBD	TBD	15	1	C104	on			x		Work Area	NASA Security	Hallway, near Room 101 (drain), R102W and R104M (bathrooms) and N108 (HVAC)
YYN239A-B-01-N	TBD	TBD	N239A	Basement	Basement	on			x		Work Area	Centrifuge and Offices	On bio-dome scaffolding
YYN239A-1-09-N	TBD	TBD	N239A	1	144	on			x		Work Area	Centrifuge and Offices	Offices
YYN239A-1-03-N	TBD	TBD	N239A	1	120	on			x		Work Area	Centrifuge and Offices	Near bio-dome equipment
YYN239A-1-05-N	TBD	TBD	N239A	1	102	on			x		Work Area	Centrifuge and Offices	Office
YYN239A-1-06-N	TBD	TBD	N239A	1	C102	on			x		Work Area	Centrifuge and Offices	Hallway near utility rooms U101 and U102
YYN239A-1-08-N	TBD	TBD	N239A	1	125	on			x		Work Area	Centrifuge and Offices	Opposite flammable cabinet in highbay floor area
YYN239A-1-10-N	TBD	TBD	N239A	1	U101	on			x		Work Area	Centrifuge and Offices	
YYN239A-1-11-N	TBD	TBD	N239A	1	U102	on			x		Work Area	Centrifuge and Offices	
YYN243A-B-01-N	TBD	TBD	N243A	Basement	1	on			x		Pathway	Welding and Machine Shop	Within Tunnel
YYN243A-1-01-N	TBD	TBD	N243A	1	104	on			x		Work Area	Welding and Machine Shop	Main work area; near 10-inch vent conduit
YYN243A-1-02-N	TBD	TBD	N243A	1	101	on			x		Work Area	Welding and Machine Shop	Main work area; near electrical conduits
YYM107-1-01-N	TBD	TBD	107	1	106	on	x				Work Area	ROICC Office	Conference room near comm. conduits
YYM107-1-02-N	TBD	TBD	107	1	C101	on	x				Work Area	ROICC Office	Near Room 102
YYM510-1-02-N	TBD	TBD	510	1	110	on			x		Work Area	Maintenance Contractor Admin Offices	Cubical Area
YYM510-1-03-N	TBD	TBD	510	1	C101	on			x		Work Area	Maintenance Contractor Admin Offices	Near R101 and 103 (bathrooms)
YYM555-1-01-N	TBD	TBD	555	1	112	on	x				Work Area	Former hangar, now offices	Office, near Room 112B (drain)
YYM555-1-03-N	TBD	TBD	555	1	107A	on	x				Work Area	Former hangar, now offices	Near Room 107B (communications)

TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
YYM566-1-01-N	TBD	TBD	566	1	111	on	x				Work Area	Tenant Offices	Offices near 112 and 113
YYM566-1-02-N	TBD	TBD	566	1	C103	on	x				Work Area	Tenant Offices	Hallway, near electrical outlets in the floor
YYM016-1-01-N	TBD	TBD	16	1	106	on		x			Work Area	Maintenance Contractor (IAP) Offices	Office
YYM016-1-02-N	TBD	TBD	16	1	110	on		x			Work Area	Maintenance Contractor (IAP) Offices	Wood shop near cracks and seams
YYM016-1-03-N	TBD	TBD	16	1	111	on		x			Work Area	Maintenance Contractor (IAP) Offices	HVAC area, near cracks or seams
YYM016-1-04-N	TBD	TBD	16	1	113	on		x			Work Area	Maintenance Contractor (IAP) Offices	Office area; shallow groundwater
YYM016-1-05-N	TBD	TBD	16	1	103	on		x			Work Area	Maintenance Contractor (IAP) Offices	Office
YYN239-B-01-N	TBD	TBD	N239	Basement	53A	on			x		Work Area	Life Sciences Building	Library; SW area, stagnant air
YYN239-B-02-N	TBD	TBD	N239	Basement	053	on			x		Work Area	Life Sciences Building	Break area for library staff
YYN239-B-05-N	TBD	TBD	N239	Basement	C001	on			x		Work Area	Life Sciences Building	Hallway near N089 (or B11); near sump
YYN239-B-06-N	TBD	TBD	N239	Basement	C002	on			x		Work Area	Life Sciences Building	Hallway near Room 030
YYN239-1-02-N	TBD	TBD	N239	1	C104	on			x		Work Area	Life Sciences Building	Hallway near Room 178
YYN239-1-03-N	TBD	TBD	N239	1	191	on			x		Work Area	Life Sciences Building	Office near chem lab
YYN239-1-05-N	TBD	TBD	N239	1	138S	on			x		Work Area	Life Sciences Building	Chem area near Room R103 (bathroom)
YYN239-1-07-N	TBD	TBD	N239	1	102	on			x		Work Area	Life Sciences Building	Cubicles; away from labs
YYN239-1-08-N	TBD	TBD	N239	1	C101	on			x		Work Area	Life Sciences Building	Hallway near stairwell and elevator
YYN243-B-02-N	TBD	TBD	N243	Basement	C002	on			x		Work Area	Flight Guidance/Simulation Lab	Main corridor for offices
YYN243-B-04-N	TBD	TBD	N243	Basement	C008	on			x		Work Area	Flight Guidance/Simulation Lab	Hallway near Office 083
YYN243-B-06-N	TBD	TBD	N243	Basement	050	on			x		Work Area	Flight Guidance/Simulation Lab	Machine shop near sump
YYN243-B-07-N	TBD	TBD	N243	Basement	054	on			x		Work Area	Flight Guidance/Simulation Lab	Near below grade hydraulic equipment
YYN243-1-01-N	TBD	TBD	N243	1	136	on			x		Work Area	Flight Guidance/Simulation Lab	Office, near R102 and R103 (bathrooms)
YYN243-1-02-N	TBD	TBD	N243	1	C104	on			x		Work Area	Flight Guidance/Simulation Lab	Rotunda hallway, previous sample location
Ambient Air Samples													
YYM003-A-01-N	TBD	TBD	3	Ambient Air	NA	NA			x		Background		
YYM012-A-01-N	TBD	TBD	12	Ambient Air	NA	NA			x		Background		
YYM015-A-01-N	TBD	TBD	15	Ambient Air	NA	NA			x		Background		
YYM126-A-01-N	TBD	TBD	126	Ambient Air	NA	NA			x		Background		
YYN239-A-01-N	TBD	TBD	N239	Ambient Air	NA	NA			x		Background		
YYN243A-A-01-N	TBD	TBD	N243A	Ambient Air	NA	NA			x		Background		
YYM510-A-01-N	TBD	TBD	510	Ambient Air	NA	NA			x		Background		
YYM555-A-01-N	TBD	TBD	555	Ambient Air	NA	NA			x		Background		
YYM016-A-01-N	TBD	TBD	16	Ambient Air	NA	NA			x		Background		
YYN210-A-01-N	TBD	TBD	N210	Ambient Air	NA	NA			x		Background		
YYN243-A-01-N	TBD	TBD	N243	Ambient Air	NA	NA			x		Intake		
YYN243-A-02-N	TBD	TBD	N243	Ambient Air	NA	NA			x		Background		
Duplicate Samples													
YYM326-1-02-F	TBD	TBD	126	1	103	NA	x				Duplicate	Museum	
YYM303-1-07-N	TBD	TBD	3	1	108	on		x			Duplicate	Conference Center/Cafeteria	Mitigation measures confirmation near conduit
YYM416-1-02-N	TBD	TBD	16	1	110	on		x			Duplicate	Maintenance Contractor (IAP) Offices	
YYM339A-1-10-N	TBD	TBD	N239A	1	U101	on			x		Duplicate	Centrifuge and Offices	Confirmation sample Utility room U101

TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
YYM343A-1-01-N	TBD	TBD	N243A	1	104	on			x		Duplicate	Welding and Machine Shop	Main work area; near 10-inch vent conduit
YYM339-B-01-N	TBD	TBD	N239	Basement	53A	on			x		Duplicate	Life Sciences Building	
YYM355-1-03-NN	TBD	TBD	555	1	107A	on	x				Duplicate	Former hangar, now offices	
		Number of Indoor Air Samples =	**58**		**Ambient Air Samples =**	**12**					**Duplicate Samples =**	**7**	
Buildings With HVAC Systems – HVAC System Shut Down													
Indoor Air Samples													
YYM126-1-01-F	TBD	TBD	126	1	103	NA	x				Work Area	Museum	Main room in northern corner, near closet opening
YYM126-1-02-F	TBD	TBD	126	1	103	NA	x				Work Area	Museum	Main room, south area
YYM126-1-04-F	TBD	TBD	126	1	106	NA	x				Work Area	Museum	Access area for bathrooms
YYM126-1-05-F	TBD	TBD	126	1	101	NA	x				Work Area	Museum	Previous sample location
YYM012-1-01-F	TBD	TBD	12	1	109D	off			x		Work Area	Commissary Warehouse	Cashier office
YYM012-1-02-F	TBD	TBD	12	1	109	off			x		Work Area	Commissary Warehouse	By Cashier
YYM012-1-03-F	TBD	TBD	12	1	119	off			x		Work Area	Commissary Warehouse	Warehouse; near cracks or seams
YYM012-C-05-F	TBD	TBD	12	1	Crawl Space	off			x		Pathway	Commissary Warehouse	Under Room 110
YYM015-1-01-F	TBD	TBD	15	1	135D	off			x		Work Area	NASA Security	Office; staffed 24/7/365
YYM015-1-02-F	TBD	TBD	15	1	117	off			x		Work Area	NASA Security	Office, near electrical conduits
YYM015-1-03-F	TBD	TBD	15	1	C107	off			x		Work Area	NASA Security	Hallway, near Room 163 (HVAC) and Room 166 (office), near cubes
YYM015-1-06-F	TBD	TBD	15	1	C104	off			x		Work Area	NASA Security	Hallway, near Room 101 (drain), R102W and R104M (bathrooms) and N108 (HVAC)
YYN239-B-01-F	TBD	TBD	N239	Basement	53A	off			x		Work Area	Life Sciences Building	Library; SW area, stagnant air
YYN239-B-02-F	TBD	TBD	N239	Basement	053	off			x		Work Area	Life Sciences Building	Break area for library staff
YYN239-G-04-F	TBD	TBD	N239	Basement	C001	off				x	Pathway	Life Sciences Building	Elevator Grab Sample
YYN239-B-05-F	TBD	TBD	N239	Basement	C001	off			x		Work Area	Life Sciences Building	Hallway near N089 (or B11); near sump
YYN239-B-06-F	TBD	TBD	N239	Basement	C002	off			x		Work Area	Life Sciences Building	Hallway near Room 030
YYN239-1-02-F	TBD	TBD	N239	1	C104	off			x		Work Area	Life Sciences Building	Hallway near Room 178
YYN239-1-03-F	TBD	TBD	N239	1	191	off			x		Work Area	Life Sciences Building	Office near chem lab
YYN239-1-05-F	TBD	TBD	N239	1	138S	off			x		Work Area	Life Sciences Building	Chem area near Room R103 (bathroom)
YYN239-1-07-F	TBD	TBD	N239	1	102	off			x		Work Area	Life Sciences Building	Cubicles; away from labs
YYN239-1-08-F	TBD	TBD	N239	1	C101	off			x		Work Area	Life Sciences Building	Hallway near stairwell and elevator
YYN239A-B-01-F	TBD	TBD	N239A	Basement	Basement	off			x		Pathway	Centrifuge and Offices	On bio-dome scaffolding
YYN239A-1-09-F	TBD	TBD	N239A	1	144	off			x		Pathway	Centrifuge and Offices	Near sump with PID detections
YN239A-1-03-F	TBD	TBD	N239A	1	120	off			x		Work Area	Centrifuge and Offices	Near bio-dome equipment
YYN239A-1-05-F	TBD	TBD	N239A	1	102	off			x		Work Area	Centrifuge and Offices	Office
YYN239A-1-06-F	TBD	TBD	N239A	1	C102	off			x		Work Area	Centrifuge and Offices	Hallway near utility rooms U101 and U102
YYN239A-1-08-F	TBD	TBD	N239A	1	125	off			x		Work Area	Centrifuge and Offices	Opposite flammable cabinet in highbay floor area
YYN239A-1-10-F	TBD	TBD	N239A	1	U101	off			x		Work Area	Centrifuge and Offices	
YYN239A-1-11-F	TBD	TBD	N239A	1	U102	off			x		Work Area	Centrifuge and Offices	

TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
YYN243-B-02-F	TBD	TBD	N243	Basement	C002	off			x		Work Area	Flight Guidance/Simulation Lab	Main corridor for offices
YYN243-B-03-F	TBD	TBD	N243	Basement	N032	off			x		Pathway	Flight Guidance/Simulation Lab	Utility room
YYN243-B-04-F	TBD	TBD	N243	Basement	C008	off			x		Work Area	Flight Guidance/Simulation Lab	Hallway near Office 083
YYN243-B-06-F	TBD	TBD	N243	Basement	050	off			x		Work Area	Flight Guidance/Simulation Lab	Machine shop near sump
YYN243-B-07-F	TBD	TBD	N243	Basement	054	on			x		Work Area	Flight Guidance/Simulation Lab	Near below grade hydraulic equipment
YYN243-1-01-F	TBD	TBD	N243	1	136	off			x		Work Area	Flight Guidance/Simulation Lab	Office, near R102 and R103 (bathrooms)
YYN243-1-02-F	TBD	TBD	N243	1	C104	off			x		Work Area	Flight Guidance/Simulation Lab	Rotunda hallway, previous sample location
YYN243A-B-01-F	TBD	TBD	N243A	Basement	1	off			x		Work Area	Welding and Machine Shop	Within Tunnel
YYN243A-1-01-F	TBD	TBD	N243A	1	104	off			x		Work Area	Welding and Machine Shop	Main work area; near 10-inch vent conduit
YYN243A-1-02-F	TBD	TBD	N243A	1	101	off			x		Work Area	Welding and Machine Shop	Main work area; near electrical conduits
YYM510-1-02-F	TBD	TBD	510	1	110	off			x		Work Area	Maintenance Contractor Admin Offices	Cubical Area
YYM510-1-03-F	TBD	TBD	510	1	C101	off			x		Work Area	Maintenance Contractor Admin Offices	Near R101 and 103 (bathrooms)
YYM003-1-01-F	TBD	TBD	3	1	105	off		x			Work Area	Conference Center/Cafeteria	Office; above crawl space sample
YYM003-1-02-F	TBD	TBD	3	1	C104	off		x			Work Area	Conference Center/Cafeteria	Hallway outside of kitchen
YYM003-1-03-F	TBD	TBD	3	1	104A	off		x			Work Area	Conference Center/Cafeteria	Office
YYM003-1-04-F	TBD	TBD	3	1	122	off		x			Work Area	Conference Center/Cafeteria	Banquet Room
YYM003-1-06-F	TBD	TBD	3	1	130	off		x			Pathway	Conference Center/Cafeteria	Near conduit; phone lines penetrate floor
YYM003-1-07-F	TBD	TBD	3	1	108	off		x			Work Area	Conference Center/Cafeteria	Dining Room
YYM003-1-08-F	TBD	TBD	3	1	111	off		x			Work Area	Conference Center/Cafeteria	Office; near kitchen
YYM003-1-09-F	TBD	TBD	3	1	128	off		x			Work Area	Conference Center/Cafeteria	Work area with fire place
YYM016-1-01-F	TBD	TBD	16	1	106	off		x			Work Area	Maintenance Contractor (IAP) Offices	Office
YYM016-1-02-F	TBD	TBD	16	1	110	off		x			Work Area	Maintenance Contractor (IAP) Offices	Wood shop near cracks and seams
YYM016-1-03-F	TBD	TBD	16	1	111	off		x			Work Area	Maintenance Contractor (IAP) Offices	HVAC area, near cracks or seams
YYM016-1-04-F	TBD	TBD	16	1	113	off		x			Work Area	Maintenance Contractor (IAP) Offices	Office area; shallow groundwater
YYM016-1-05-F	TBD	TBD	16	1	103	off		x			Work Area	Maintenance Contractor (IAP) Offices	Office
YYM107-1-01-F	TBD	TBD	107	1	106	off	x				Work Area	ROICC Office	Conference room near comm. conduits
YYM107-1-02-F	TBD	TBD	107	1	C101	off	x				Work Area	ROICC Office	Near Room 102
YYN210-1-01-F	TBD	TBD	N210	1	143	off	x				Work Area	Former hangar, now offices	Near communications & offices
YYN210-1-02-F	TBD	TBD	N210	1	C117A	off	x				Work Area	Former hangar, now offices	Hallway near cubical
YYN210-G-03-F	TBD	TBD	N210	1	near V101	off				x	Pathway	Former hangar, now offices	Elevator Grab Sample
YYN210-1-04-F	TBD	TBD	N210	1	138E	off	x				Work Area	Former hangar, now offices	Office
YYN210-1-05-F	TBD	TBD	N210	1	146	off	x				Work Area	Former hangar, now offices	Display in stairwell; previous sample location
YYN210-1-06-F	TBD	TBD	N210	1	Q134	off	x				Pathway	Former hangar, now offices	AC Room
YYN210-1-07-F	TBD	TBD	N210	1	100A	off	x				Work Area	Former hangar, now offices	Access room
YYN210-1-08-F	TBD	TBD	N210	1	C10	off	x				Work Area	Former hangar, now offices	Near 010
YYN210-1-09-F	TBD	TBD	N210	1	148	off	x				Work Area	Former hangar, now offices	Near wall of hanger pit
YYN210-1-10-F	TBD	TBD	N210	1	near 033 & 036	off	x				Work Area	Former hangar, now offices	Cubicles
YYN210-C-11-F	TBD	TBD	N210	1	Crawl Space	off	x				Pathway	Crawl Space where vapor extraction system is located	Crawl Space beneath raised floor
YYM555-1-01-F	TBD	TBD	555	1	112	off	x				Work Area	Former hangar, now offices	Office, near Room 112B (drain)

TABLE 10

PLANNED INDOOR AIR SAMPLING LOCATIONS IN 2016 WORK PLAN, MOFFETT FIELD, CALIFORNIA

Sample Name	Sample Date	Sample Day	Location			HVAC	Sample Duration				Sample Type	Building Information	Sampling Rationale
			Building	Floor	Room	(on or off)	8-Hour	10-Hour	24-Hour	Grab			
YYM555-1-03-F	TBD	TBD	555	1	107A	off	x				Work Area	Former hangar, now offices	Near Room 107B (communications)
YYM566-1-01-F	TBD	TBD	566	1	111	off	x				Work Area	Tenant Offices	Offices near 112 and 113
YYM566-1-02-F	TBD	TBD	566	1	C103	off	x				Work Area	Tenant Offices	Hallway, near electrical outlets in the floor
Ambient Air Samples													
YYM012-A-01-F	TBD	TBD	12	Ambient Air	NA	NA			x		Background		
YYM015-A-01-F	TBD	TBD	15	Ambient Air	NA	NA			x		Background		
YYN239-A-01-F	TBD	TBD	N239	Ambient Air	NA	NA			x		Background		
YYN243-A-01-F	TBD	TBD	N243	Intake	NA	NA			x		Background		
YYN243A-A-01-F	TBD	TBD	N243A	Ambient Air	NA	NA			x		Background		
YYN243A-A-02-F	TBD	TBD	N243A	Ambient Air	NA	NA			x		Background		
YYM510-A-01-F	TBD	TBD	510	Ambient Air	NA	NA			x		Background		
YYM003-A-01-F	TBD	TBD	3	Ambient Air	NA	NA			x		Background		
YYM016-A-01-F	TBD	TBD	16	Ambient Air	NA	NA			x		Background		
YYN210-A-01-F	TBD	TBD	N210	Ambient Air	NA	NA			x		Background		
YYM555-A-01-F	TBD	TBD	555	Ambient Air	NA	NA			x		Background		
YYM126-A-01-F	TBD	TBD	126	Ambient Air	NA	NA			x		Background		
Duplicate Air Samples													
YYM312-1-03-F	TBD	TBD	12	1	Crawl Space	off			x		Duplicate	Commissary Warehouse	Under Room 110
YYM315-1-03-F	TBD	TBD	15	1	C107	off			x		Duplicate	NASA Security	hallway near 163 and 166
YYM339A-1-10-F	TBD	TBD	N239A	1	U101	off			x		Duplicate	Centrifuge and Offices	Confirmation sample Utility room U101
YYM343-B-07-F	TBD	TBD	N243	Basement	054	off			x		Duplicate	Flight Guidance/Simulation Lab	Near below grade hydraulic equipment
YYM339-1-07-F	TBD	TBD	N239	1	102	off			x		Duplicate	Life Sciences Building	Cubicles; away from labs
YYM303-1-06-F	TBD	TBD	3	1	130	off		x			Duplicate	Conference Center/Cafeteria	Mitigation measures confirmation near conduit
YYM316-1-03-F	TBD	TBD	16	1	111	off		x			Duplicate	Maintenance Contractor (IAP) Offices	HVAC area, near cracks or seams
YYM310-1-10-F	TBD	TBD	N210	1	near 033 & 036	off	x				Duplicate	Former hangar, now offices	Cubicles
		Number of Indoor Air Samples =	**72**		**Ambient Air Samples =**	**12**					**Duplicate Samples =**	**8**	
		Total Indoor Air Samples =	**154**		**Total Ambient Air Samples =**	**30**					**Total Duplicate Samples =**	**18**	
											Total Samples =	**202**	

Notes:
AC – air conditioning
HVAC – heating, ventilation, and air conditioning
NASA – National Aeronautics and Space Administration
ROICC – Officer in Charge of Construction
TBD – to be determined
SW – southwest

TABLE 11

DEVIATIONS FROM SAMPLING PLAN, MOFFETT FIELD, CALIFORNIA

Planned Sample Name	Revised Sample Name	Building Affected	Deviation Notes
N/A	17M302-1-03	2	Added duplicate sample to ensure that the sampling event's requirement of 10 percent duplicate samples was met.
17M003-1-07-N	N/A	3	Redoing tile floors in Room 108, Relocated sample to Room 101B.
17M303-1-07-N	N/A		Redoing tile floors in Room 108, Relocated sample to Room 101B.
17M003-A-01-F	N/A	3	No roof access on for Building 3, Relocated sample to south west side of Building 3.
17M003-A-01-N	N/A	3	No roof access on for Building 3, Relocated sample to south west side of Building 3.
17M010-1-07	N/A	10	Samples taken for quarterly event added to Tier Evaluation Data.
17M010-1-10	N/A	10	Samples taken for quarterly event added to Tier Evaluation Data.
17M310-1-10	N/A	10	Samples taken for quarterly event added to Tier Evaluation Data.
N/A	17M313-1-02	13	Added duplicate sample to ensure that the sampling event's requirement of 10 percent duplicate samples was met.
N/A	17M014-1-03-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-1-04-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-1-05-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M314-1-05-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-C-01-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-C-02-N	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-1-03-F	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-1-04-F	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-1-05-F	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-C-01-F	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M014-C-02-F	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
17M014-1-03	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
17M014-1-04	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
17M014-1-05	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.

TABLE 11

DEVIATIONS FROM SAMPLING PLAN, MOFFETT FIELD, CALIFORNIA

Planned Sample Name	Revised Sample Name	Building Affected	Deviation Notes
17M314-1-05	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
17M014-C-01	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
17M014-C-02	N/A	14	Building 14 was discovered to have had an HVAC system installed after the 2014 sampling event. Building 14 was sampled with the HVAC Off and On scenarios in 2017.
N/A	17M314-1-05-N	14	Added duplicate sample to ensure that the sampling event's requirement of 10 percent duplicate samples was met.
17M416-1-02-N	17M316-1-02-N	16	Renamed sample to follow duplicate sample nomenclature.
N/A	YYM016-1-06-N	16	Room 108 sampled to investigate potential vapor intrusion pathways.
N/A	YYM016-1-06-F	16	Room 108 sampled to investigate potential vapor intrusion pathways.
17M326-1-02-F	17M326-1-02-N	126	Renamed sample to reflect "HVAC On" nomenclature.
17M355-1-03-N	17M355-1-01-N	555	Mistakenly placed duplicate sample with 17M555-1-01-N, updated sample name to reflect location.
YYM355-1-03-NN	YYM355-1-03-N	555	Renamed sample to follow HVAC on sample nomenclature.
17N210-1-05-F	N/A	N210	The room was locked; NASA security & FSM did not have room access; not sampled.
17N210-1-09-F	N/A	N210	The room was locked; NASA security & FSM did not have room access; not sampled.
N/A	N/A	N210	At Building N210, at the request of the FSM, the building was sampled while the HVAC system was in operation. Building N210 has several servers that require continuous cooling to prevent overheating. As an alternative to turning off the HVAC system, the air intake was restricted with plastic sheeting to limit the amount of outdoor air entering the building.
N/A	N/A	N243	At Building N243, at the request of the FSM, the building was sampled while the HVAC system was in operation. Building N243 has several servers that require continuous cooling to prevent overheating. As an alternative to turning off the HVAC system, the air intake was restricted with plastic sheeting to limit the amount of outdoor air entering the building.
YYN243A-A-02-F	YYN243-A-02-F	N243	Renamed sample to reflect correct building sampled.

TABLE 12

2017 ANNUAL VAPOR INTRUSION AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

							75-34-3	75-35-4	156-59-2	127-18-4	79-01-6	156-60-5	75-01-4
Analyte *							**1,1-DCA**	**1,1,-DCE**	***cis-1,2-DCE***	**PCE**	**TCE**	***trans-1,2-DCE***	**Vinyl Chloride**
Indoor Commercial Screening Level (µg/m³)							6	700	210	2	5	210	2
Building	**Sample ID**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Duration**	**Sample Date**							
2	17M002-1-02	First	107	N/A	7h 48min	1/17/2017	0.029 U	0.03 U	**0.043**	**0.082**	**0.25**	**0.044**	0.029 U
2	17M002-1-03	First	109	N/A	7h 45min	1/17/2017	**0.024 J**	**0.021 J**	**0.23**	**0.076**	**0.72**	**0.044**	**0.072**
2	17M002-1-04	First	104	N/A	7h 44min	1/17/2017	0.065 U	0.068 U	0.068 U	**0.059 J**	**0.063 J**	**0.036 J**	0.065 U
2	17M302-1-03	First	109	N/A	7h 42min	1/17/2017	**0.024 J**	**0.018 J**	**0.19**	**0.088**	**0.6**	**0.054**	**0.052**
2	17M302-1-04	First	104	N/A	7h 44min	1/17/2017	**0.011 J**	0.032 U	**0.016 J**	**0.067**	**0.091**	**0.026 J**	0.03 U
3	17M003-1-01-F	First	105	OFF	9h 50min	1/16/2017	**0.028 J**	**0.018 J**	**0.091**	**0.084**	**1.5**	**0.22**	**0.016 J**
3	17M003-1-01-N	First	Room 105	ON	10hr	1/10/2017	**0.023 J**	**0.012 J**	**0.037**	**0.073**	**0.15**	**0.027 J**	**0.02 J**
3	17M003-1-02-F	First	C104	OFF	9h 57min	1/16/2017	**0.031 J**	**0.019 J**	**0.084**	**0.059**	**1.4**	**0.049**	**0.013 J**
3	17M003-1-02-N	First	Room C100	ON	10hr	1/10/2017	0.03 U	0.032 U	**0.016 J**	**0.045**	**0.23**	0.032 U	0.03 U
3	17M003-1-03-F	First	104A	OFF	9h 50min	1/16/2017	**0.031 J**	**0.029 J**	**0.14**	**0.11**	**2.6**	**0.45**	**0.032 J**
3	17M003-1-03-N	First	Room 108A	ON	10hr	1/10/2017	**0.015 J**	0.034 U	**0.021 J**	**0.055**	**0.19**	0.034 U	**0.016 J**
3	17M003-1-04-F	First	122	OFF	9h 58min	1/16/2017	**0.035 J**	**0.013 J**	**0.071**	**0.058**	**1.7**	**0.06**	**0.043**
3	17M003-1-04-N	First	Room 122	ON	10hr	1/10/2017	**0.013 J**	0.034 U	**0.023 J**	**0.042**	**0.34**	0.034 U	**0.015 J**
3	17M003-1-06-F	First	130	OFF	10h	1/16/2017	**0.016 J**	0.033 U	**0.052**	**0.084**	**0.66**	**0.029 J**	**0.11**
3	17M003-1-07-F	First	108	OFF	9h 55min	1/16/2017	**0.046**	**0.047**	**0.21**	**0.078**	**4.6**	**0.071**	**0.073**
3	17M003-1-07-N	First	101B	ON	10hr	1/10/2017	0.031 U	0.033 U	**0.023 J**	**0.047**	**0.26**	0.033 U	**0.023 J**
3	17M003-1-08-F	First	111	OFF	9h 54min	1/16/2017	**0.044**	**0.044**	**0.2**	**0.081**	**4.5**	**0.067**	**0.052**
3	17M003-1-08-N	First	111	ON	10hr	1/10/2017	**0.014 J**	0.029 U	**0.046**	**0.05**	**0.79**	0.029 U	**0.017 J**
3	17M003-1-09-F	First	128	OFF	9h 59min	1/16/2017	**0.028 J**	**0.024 J**	**0.081**	**0.11**	**0.9**	**0.045**	**0.11**
3	17M003-1-09-N	First	128	ON	10hr	1/10/2017	0.032 U	0.034 U	0.034 U	**0.046**	**0.096**	0.034 U	**0.029 J**
3	17M003-A-01-F	Ambient	N/A	OFF	22h 15min	1/16/2017	0.025 U	0.026 U	**0.023 J**	**0.058**	**0.087**	**0.034**	0.025 U
3	17M003-A-01-N	Ambient	Ambient	ON	24hr	1/10/2017	**0.014 J**	0.027 U	0.027 U	**0.039**	**0.087**	0.027 U	0.026 U
3	17M303-1-06-F	First	130	OFF	10h	1/16/2017	**0.016 J**	0.03 U	**0.047**	**0.047**	**0.73**	**0.028 J**	**0.1**
3	17M303-1-07-N	First	101B	ON	10hr	1/10/2017	0.033 U	0.034 U	**0.023 J**	**0.048**	**0.26**	0.034 U	**0.023 J**
10	17M010-1-01	First	101	N/A	8hr	1/12/2017	**0.037**	**0.034**	**0.38**	**0.068**	**2.6**	**0.029 J**	0.023 U
10	17M010-1-02	First	101	N/A	8hr	1/12/2017	**0.042**	**0.031 J**	**0.35**	**0.064**	**2.4**	**0.026 J**	0.025 U
10	17M010-1-03	First	101	N/A	8hr	1/12/2017	0.028 U	**0.025 J**	**0.28**	**0.064**	**1.9**	**0.022 J**	0.028 U
10	17M010-1-05	First	102	N/A	8hr	1/12/2017	**0.042**	**0.046**	**0.27**	**0.069**	**2.5**	**0.027 J**	0.027 U
10	17M010-1-06	First	N104	N/A	8hr	1/12/2017	**0.023 J**	0.029 U	**0.088**	**0.042**	**0.65**	**0.017 J**	0.027 U
10	17M010-1-07	Outdoor	Exhaust	N/A	8hr	1/12/2017	0.027 U	0.028 U	0.028 U	**0.028 J**	**0.037**	**0.012 J**	0.027 U
10	17M010-1-10	First	103	N/A	8hr	1/12/2017	**0.18**	**0.15**	**2**	**0.1**	**11**	**0.048**	0.029 U
10	17M010-A-01	Ambient	N/A	N/A	24hr 24min	1/12/2017	0.025 U	0.026 U	**0.015 J**	**0.043**	**0.061**	**0.071**	0.025 U
10	17M310-1-03	First	101	N/A	8hr	1/12/2017	**0.03 J**	**0.025 J**	**0.28**	**0.056**	**1.9**	**0.023 J**	0.027 U
10	17M310-1-10	First	103	N/A	8hr	1/12/2017	**0.13**	**0.14**	**1.9**	**0.1**	**11**	**0.054**	0.027 U
12	17M012-1-01-F	First	109D	OFF	23h 45min	1/15/2017	**0.02 J**	0.039 U	**0.069**	**0.14**	**0.65**	**0.77**	0.037 U
12	17M012-1-01-N	First	109D	ON	24h	1/10/2017	0.031 U	0.033 U	**0.015 J**	**0.063**	**0.17**	0.033 U	0.031 U
12	17M012-1-02-F	First	109	OFF	23h 44min	1/15/2017	0.053 U	0.056 U	**0.041 J**	**0.076**	**0.31**	**0.11**	0.053 U
12	17M012-1-02-N	First	109	ON	23h 50min	1/12/2017	**0.013 J**	0.026 U	**0.061**	**0.083**	**0.37**	**0.061**	0.025 U
12	17M012-1-03-F	First	109	OFF	23h 46min	1/15/2017	0.025 U	0.026 U	**0.019 J**	**0.089**	**0.06**	**0.079**	0.025 U
12	17M012-1-03-N	First	119	ON	24h	1/10/2017	0.027 U	0.028 U	**0.014 J**	**0.061**	**0.068**	0.028 U	0.027 U
12	17M012-A-01-F	Ambient	N/A	OFF	23h 47min	1/15/2017	**0.0095 J**	0.028 U	**0.02 J**	**0.069**	**0.097**	**0.079**	0.027 U
12	17M012-A-01-N	Ambient	Ambient	ON	24h	1/10/2017	0.025 U	0.027 U	0.027 U	**0.034**	**0.086**	0.027 U	0.025 U
12	17M012-C-05-F	Crawl Space	Crawl Space	OFF	23h 50min	1/15/2017	**0.025 J**	**0.015 J**	**0.15**	**0.063**	**0.98**	**0.2**	**0.14**
12	17M012-C-05-N	Crawl Space	Pathway under 110	ON	23h 50min	1/12/2017	**0.042**	**0.022 J**	**0.3**	**0.03 J**	**1.8**	**0.017 J**	**0.012 J**
12	17M312-1-03-F	First	109	OFF	23h 45min	1/15/2017	0.03 U	0.032 U	**0.019 J**	**0.11**	**0.062**	**0.45**	0.03 U
13	17M013-1-01	First	103	N/A	23h 49min	1/18/2017	**0.012 J**	0.025 U	**0.019 J**	**0.037**	**0.038**	**0.015 J**	0.024 U
13	17M013-1-02	First	102	N/A	23h 49min	1/18/2017	0.028 U	0.029 U	**0.013 J**	**0.034 J**	**0.049**	0.029 U	0.028 U
13	17M013-A-01	Ambient	N/A	N/A	23h 49min	1/18/2017	0.028 U	0.03 U	0.03 U	**0.03 J**	**0.042**	0.03 U	0.028 U
13	17M313-1-02	First	102	N/A	23h 48min	1/18/2017	0.028 U	0.03 U	0.03 U	**0.032 J**	**0.039**	0.03 U	0.028 U

TABLE 12

2017 ANNUAL VAPOR INTRUSION AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *							1,1-DCA	1,1,-DCE	*cis-1,2-DCE*	PCE	TCE	*trans-1,2-DCE*	Vinyl Chloride
Indoor Commercial Screening Level (µg/m³)							6	700	210	2	5	210	2
Building	**Sample ID**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Duration**	**Sample Date**							
14	17M014-1-03-F	First	Dem. Room	OFF	7h 43min	1/16/2017	**0.021 J**	0.03 U	**0.18**	**0.21**	**0.94**	**0.052**	0.029 U
14	17M014-1-03-N	First	Dem. Room	ON	6h 59min	1/17/2017	0.038 U	0.04 U	**0.022 J**	**0.093**	**0.082**	**0.047 J**	0.038 U
14	17M014-1-04-F	First	Workshop	OFF	7h 49min	1/16/2017	**0.021 J**	0.032 U	**0.2**	**0.23**	**0.96**	**0.052**	0.031 U
14	17M014-1-04-N	First	Workshop	ON	6h 59min	1/17/2017	0.033 U	0.035 U	**0.022 J**	**0.09**	**0.078**	**0.042**	0.033 U
14	17M014-1-05-F	First	Offices	OFF	7h 44min	1/16/2017	**0.019 J**	0.038 U	**0.068**	**0.11**	**1.3**	**0.044 J**	0.036 U
14	17M014-1-05-N	First	Offices	ON	7h 2min	1/17/2017	**0.014 J**	0.035 U	**0.053**	**0.096**	**0.76**	**0.056**	0.034 U
14	17M014-C-01-F	Crawl Space	Crawl Space	OFF	7h 43min	1/16/2017	**0.079**	**0.034 J**	**0.32**	**0.15**	**4.6**	**0.81**	**0.14**
14	17M014-C-01-N	Crawl Space	Crawl Space	ON	7h 18min	1/17/2017	**0.022 J**	**0.014 J**	**0.058**	**0.087**	**0.54**	**0.065**	**0.066**
14	17M014-C-02-F	Crawl Space	Crawl Space	OFF	7h 49min	1/16/2017	**0.046**	**0.027 J**	**0.14**	**0.094**	**3.1**	**0.053**	**0.064**
14	17M014-C-02-N	Crawl Space	Crawl Space	ON	7h 15min	1/17/2017	**0.037 J**	**0.028 J**	**0.14**	**0.089**	**3.2**	**0.082**	**0.076**
14	17M314-1-05-N	First	Offices	ON	7h 1min	1/17/2017	**0.015 J**	0.043 U	**0.058**	**0.086**	**0.76**	**0.057**	0.041 U
15	17M015-1-01-F	First	135D	OFF	23h 42min	1/15/2017	**0.04 J**	**0.028 J**	**0.18**	**0.12**	**3.3**	**0.068**	0.038 U
15	17M015-1-01-N	First	135D	ON	24hr	1/10/2017	**0.024 J**	0.056 U	0.056 U	**0.03 J**	**0.071**	0.056 U	0.053 U
15	17M015-1-02-F	First	117	OFF	23h 36min	1/15/2017	0.034 U	0.036 U	**0.019 J**	**0.058**	**0.09**	**0.067**	0.034 U
15	17M015-1-02-N	First	117	ON	24hr	1/10/2017	**0.0093 J**	0.032 U	0.032 U	**0.032 J**	**0.15**	0.032 U	0.03 U
15	17M015-1-03-F	First	C107	OFF	23h 41min	1/15/2017	**0.016 J**	0.037 U	**0.057**	**0.072**	**0.95**	**0.063**	0.035 U
15	17M015-1-03-N	First	C107	ON	24hr	1/10/2017	0.039 U	0.041 U	0.041 U	**0.033 J**	**0.073**	0.041 U	0.039 U
15	17M015-1-06-F	First	C104	OFF	23h 41min	1/15/2017	**0.011 J**	0.03 U	**0.042**	**0.058**	**1.1**	**0.056**	0.029 U
15	17M015-1-06-N	First	C104	ON	24hr	1/10/2017	0.032 U	0.034 U	0.034 U	**0.04 J**	**0.081**	**0.013 J**	0.032 U
15	17M015-A-01-F	Ambient	N/A	OFF	23h 38min	1/15/2017	**0.01 J**	0.027 U	**0.021 J**	**0.06**	**0.082**	**0.073**	0.025 U
15	17M015-A-01-N	Ambient	Ambient	ON	23h 55min	1/12/2017	0.027 U	0.028 U	0.028 U	**0.038**	**0.028 J**	**0.075**	0.027 U
15	17M315-1-03-F	First	C107	OFF	23h 42min	1/15/2017	**0.012 J**	0.03 U	**0.048**	**0.062**	**0.88**	**0.054**	0.029 U
16	17M016-1-01-F	First	106	OFF	9h 50min	1/16/2017	**0.02 J**	0.031 U	**0.15**	**0.12**	**0.88**	**0.043**	0.029 U
16	17M016-1-01-N	First	106	ON	9h 37min	1/18/2017	**0.017 J**	0.034 U	**0.019 J**	**0.064**	**0.2**	0.034 U	0.032 U
16	17M016-1-02-F	First	110	OFF	9h 48min	1/16/2017	**0.03 J**	0.03 U	**0.16**	**0.14**	**0.81**	**0.039**	0.029 U
16	17M016-1-02-N	First	110	ON	9h 34min	1/18/2017	0.033 U	0.034 U	0.034 U	**0.18**	**0.029 J**	0.034 U	0.033 U
16	17M016-1-03-F	First	111	OFF	9h 51min	1/16/2017	**0.021 J**	0.03 U	**0.16**	**0.16**	**0.79**	**0.036**	0.029 U
16	17M016-1-03-N	First	111	ON	9h 35min	1/18/2017	0.029 U	0.03 U	**0.019 J**	**0.14**	**0.49**	0.03 U	0.029 U
16	17M016-1-04-F	First	113	OFF	9h 54min	1/16/2017	**0.033 J**	0.04 U	**0.29**	**0.25**	**1.8**	**0.075**	0.038 U
16	17M016-1-04-N	First	113	ON	9h 35min	1/18/2017	0.038 U	0.04 U	0.04 U	**0.055**	**0.44**	0.04 U	0.038 U
16	17M016-1-05-F	First	103	OFF	9h 50min	1/16/2017	**0.021 J**	0.037 U	**0.14**	**0.11**	**0.79**	**0.038 J**	0.035 U
16	17M016-1-05-N	First	103	ON	9h 57min	1/18/2017	**0.01 J**	0.03 U	**0.03 J**	**0.057**	**0.27**	**0.019 J**	0.028 U
16	17M016-1-06-F	First	108	OFF	9h 43min	1/16/2017	**0.023 J**	0.032 U	**0.23**	**0.2**	**0.92**	**0.064**	**0.041**
16	17M016-1-06-N	First	108	ON	9h 59min	1/18/2017	**0.03 J**	**0.017 J**	**0.089**	**1.5**	**0.57**	**0.086**	**0.036**
16	17M016-A-01-F	Ambient	N/A	OFF	23h 29min	1/16/2017	**0.01 J**	0.028 U	**0.053**	**0.059**	**0.27**	**0.069**	0.027 U
16	17M016-A-01-N	Ambient	N/A	ON	23h 50min	1/18/2017	0.029 U	0.03 U	**0.03 J**	**0.03 J**	**0.17**	0.03 U	0.029 U
16	17M316-1-02-N	First	110	ON	9h 36min	1/18/2017	**0.017 J**	0.035 U	**0.025 J**	**0.099**	**0.43**	0.035 U	0.034 U
16	17M316-1-03-F	First	111	OFF	9h 48min	1/16/2017	**0.018 J**	0.03 U	**0.16**	**0.17**	**0.77**	**0.038**	0.029 U
29	17M029-1-01	First	106	N/A	8hr	1/9/2017	**0.016 J**	0.031 U	**0.16**	**0.29**	**0.39**	0.031 U	**0.031 J**
29	17M029-A-01	Ambient	N/A	N/A	24hr	1/9/2017	0.029 U	0.03 U	**0.037**	**0.066**	**0.07**	0.03 U	0.029 U
29	17M029-B-01	First	Basement	N/A	8hr	1/9/2017	**0.013 J**	0.031 U	**0.14**	**0.26**	**0.35**	0.031 U	**0.029 J**
45	17M045-1-01	First	101	N/A	7h 47min	1/17/2017	**0.2**	**0.054**	**1.2**	**2.6**	**4.8**	**0.095**	**0.085**
45	17M045-1-02	First	102	N/A	7h 44min	1/17/2017	**0.19**	**0.048**	**1.1**	**2.6**	**4.7**	**0.082**	**0.074**
45	17M045-A-01	Ambient	N/A	N/A	23h 56min	1/17/2017	**0.01 J**	0.029 U	**0.18**	**0.3**	**0.46**	**0.041**	**0.016 J**
67	17M067-1-01	First	C101	N/A	23h 51min	1/17/17	**0.0096 J**	0.03 U	**0.031 J**	**0.072**	**0.34**	**0.042**	0.028 U
67	17M067-A-01	Ambient	N/A	N/A	23h 46min	1/17/17	**0.02 J**	0.026 U	**0.039**	**0.069**	**0.14**	**0.038**	0.025 U
76	17M076-1-01	First	101	N/A	7h 4min	1/17/17	**0.011 J**	0.026 U	**0.034**	**0.067**	**0.27**	**0.037**	0.025 U
107	17M107-1-01-F	First	106	OFF	7h 59min	1/16/2017	0.026 U	0.027 U	**0.02 J**	**0.11**	**0.075**	**1.1**	0.026 U
107	17M107-1-01-N	First	106	ON	7h 39min	1/17/2017	**0.01 J**	0.032 U	**0.022 J**	**0.067**	**0.082**	**0.055**	0.03 U
107	17M107-1-02-F	First	C101	OFF	7h 57min	1/16/2017	0.028 U	0.029 U	**0.015 J**	**0.048**	**0.058**	**0.029 J**	0.028 U

TABLE 12

2017 ANNUAL VAPOR INTRUSION AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *							1,1-DCA	1,1,-DCE	*cis-1,2-DCE*	PCE	TCE	*trans-1,2-DCE*	Vinyl Chloride
Indoor Commercial Screening Level (µg/m³)							6	700	210	2	5	210	2
Building	**Sample ID**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Duration**	**Sample Date**							
107	17M107-1-02-N	First	C102	ON	7h 39min	1/17/2017	**0.0092 J**	0.026 U	**0.018 J**	**0.065**	**0.078**	**0.062**	0.025 U
126	17M126-1-01-F	First	103	OFF	8h 11min	1/17/2017	**0.29**	**0.29**	**21**	**32**	**15**	**0.14**	**1.3**
126	17M126-1-01-N	First	103	ON	6h 20min	1/11/2017	**0.24**	**0.29**	**17**	**29**	**13**	**0.12**	**0.84**
126	17M126-1-02-F	First	103	OFF	8h 11min	1/17/2017	**0.46**	**0.49**	**34**	**51**	**23**	**0.22**	**2.1**
126	17M126-1-02-N	First	103	ON	6h 21min	1/11/2017	**0.35**	**0.43**	**24**	**41**	**18**	**0.16**	**1.3**
126	17M126-1-04-F	First	106	OFF	8h 10min	1/17/2017	**0.48**	**0.5**	**37**	**56**	**24**	**0.25**	**2.4**
126	17M126-1-04-N	First	106	ON	6h 22min	1/11/2017	**0.22**	**0.26**	**15**	**26**	**12**	**0.1**	**0.81**
126	17M126-1-05-F	First	101	OFF	8h 12min	1/17/2017	**0.1**	**0.096**	**6.8**	**11**	**5.3**	**0.053**	**0.45**
126	17M126-1-05-N	First	101	ON	5hr 59min	1/18/2017	**0.051**	**0.045**	**3**	**5.4**	**2.6**	**0.027 J**	**0.2**
126	17M126-A-01-F	Ambient	N/A	OFF	23h 38min	1/17/2017	**0.016 J**	0.03 U	**0.52**	**0.85**	**0.43**	**0.043**	**0.038**
126	17M126-A-01-N	Ambient	N/A	ON	24hr	1/11/2017	**0.029 J**	**0.027 J**	**1.5**	**2.7**	**1.3**	**0.023 J**	**0.081**
126	17M326-1-02-N	First	103	ON	6h 21min	1/11/2017	**0.35**	**0.43**	**24**	**41**	**19**	**0.17**	**1.3**
510	17M510-1-02-F	First	110	OFF	23h 34min	1/15/2017	0.027 U	0.028 U	**0.024 J**	**0.055**	**0.17**	**0.069**	0.027 U
510	17M510-1-02-N	First	110	ON	23h 50min	1/18/2017	0.029 U	0.03 U	0.03 U	**0.043**	**0.072**	0.03 U	0.029 U
510	17M510-1-03-F	First	C101	OFF	23h 34min	1/15/2017	0.029 U	0.03 U	**0.029 J**	**0.06**	**0.19**	**0.061**	0.029 U
510	17M510-1-03-N	First	C101	ON	23h 50min	1/18/2017	0.029 U	0.03 U	0.03 U	**0.05**	**0.06**	0.03 U	0.029 U
510	17M510-A-01-F	Ambient	N/A	OFF	23h 35min	1/15/2017	0.027 U	0.029 U	**0.029 J**	**0.061**	**0.12**	**0.061**	**0.013 J**
510	17M510-A-01-N	Ambient	N/A	ON	23h 50min	1/18/2017	0.028 U	0.03 U	0.03 U	**0.052**	**0.037**	0.03 U	0.028 U
555	17M355-1-01-N	First	112	ON	7h 53min	1/18/2017	0.26 U	0.27 U	0.27 U	0.27 U	**0.16 J**	0.27 U	0.26 U
555	17M555-1-01-F	First	112	OFF	7h 51min	1/16/2017	**0.033 J**	0.032 U	**0.45**	**0.12**	**0.76**	**0.052**	**0.021 J**
555	17M555-1-01-N	First	112	ON	7h 53min	1/18/2017	**0.011 J**	0.032 U	**0.069**	**0.059**	**0.21**	**0.019 J**	0.03 U
555	17M555-1-03-F	First	107A	OFF	7h 49min	1/16/2017	**0.037**	**0.012 J**	**0.51**	**0.13**	**0.86**	**0.055**	**0.022 J**
555	17M555-1-03-N	First	107A	ON	7h 53min	1/18/2017	**0.014 J**	0.034 U	**0.066**	**0.061**	**0.19**	**0.016 J**	0.032 U
555	17M555-A-01-F	Ambient	N/A	OFF	23h 36min	1/16/2017	0.027 U	0.028 U	**0.034 J**	**0.057**	**0.063**	**0.05**	0.027 U
555	17M555-A-01-N	Ambient	N/A	ON	23h 49min	1/18/2017	**0.0091 J**	0.031 U	**0.024 J**	**0.032 J**	**0.23**	**0.011 J**	0.029 U
566	17M566-1-01-F	First	111	OFF	7h 56min	1/16/2017	0.027 U	0.028 U	0.028 U	**0.047**	**0.14**	**0.033 J**	0.027 U
566	17M566-1-01-N	First	111	ON	8hr	1/9/2017	**0.013 J**	0.033 U	**0.024 J**	**0.039 J**	**0.14**	**0.013 J**	0.032 U
566	17M566-1-02-F	First	C103	OFF	7h 53min	1/16/2017	0.03 U	0.031 U	**0.014 J**	**0.047**	**0.17**	**0.037 J**	0.03 U
566	17M566-1-02-N	First	C103	ON	8hr	1/9/2017	0.034 U	0.036 U	**0.016 J**	**0.04 J**	**0.15**	0.036 U	0.034 U
567	17M567-1-01	First	107	N/A	8hr	1/11/2017	**0.097**	**0.059**	**0.076**	**0.074**	**2.7**	**0.015 J**	0.033 U
567	17M567-1-02	First	102	N/A	8hr	1/11/2017	**0.095**	**0.055**	**0.074**	**0.075**	**2.7**	**0.016 J**	0.029 U
567	17M567-1-03	First	104	N/A	8hr	1/11/2017	**0.15**	**0.069**	**0.051**	**0.066**	**1.4**	**0.013 J**	0.031 U
567	17M567-A-01	Ambient	N/A	N/A	24hr	1/11/2017	0.024 U	0.025 U	0.025 U	**0.04**	**0.052**	**0.013 J**	0.024 U
N210	17M310-1-10-F	First	near 033 & 036	OFF	7h 53min	1/16/2017	**0.01 J**	0.032 U	**0.053**	**0.085**	**0.96**	**0.031 J**	0.03 U
N210	17N210-1-01-F	First	143	OFF	7h 50min	1/16/2017	0.032 U	0.033 U	**0.028 J**	**0.063**	**0.32**	**0.13**	0.032 U
N210	17N210-1-02-F	First	C117A	OFF	7h 52min	1/16/2017	0.03 U	0.031 U	**0.026 J**	**0.047**	**0.3**	**0.024 J**	0.03 U
N210	17N210-1-04-F	First	138E	OFF	8h 19min	1/16/2017	0.029 U	0.03 U	**0.037**	**0.061**	**0.52**	**0.041**	0.029 U
N210	17N210-1-06-F	First	Q134	OFF	7h 21min	1/16/2017	**0.02 J**	0.043 U	0.043 U	**0.066**	**0.29**	**0.022 J**	0.041 U
N210	17N210-1-07-F	First	100A	OFF	7h 49min	1/16/2017	**0.026 J**	**0.021 J**	**0.32**	**0.064**	**1.3**	**0.036 J**	**0.026 J**
N210	17N210-1-08-F	First	C10	OFF	7h 49min	1/16/2017	**0.014 J**	**0.011 J**	**0.14**	**0.062**	**1.1**	**0.035**	**0.01 J**
N210	17N210-1-10-F	First	near 033 & 036	OFF	7h 54min	1/16/2017	0.033 U	0.035 U	**0.054**	**0.041 J**	**0.85**	**0.029 J**	0.033 U
N210	17N210-A-01-F	Ambient	N/A	OFF	24h 13min	1/16/2017	**0.0085 J**	0.029 U	**0.021 J**	**0.069**	**0.058**	**0.072**	0.028 U
N210	17N210-C-11-F	Crawl Space	Crawl Space	OFF	7h 40min	1/16/2017	**0.36**	**0.46**	**2.5**	**0.84**	**95**	**0.21**	0.024 U
N210	17N210-G-03-F	Elevator	near V101	OFF	N/A	1/16/2017	**0.096**	0.03 U	**0.11**	**0.1**	**0.54**	**0.046**	0.028 U
N239	17M339-1-07-F	First	C101	OFF	23h 16min	1/15/2017	0.026 U	0.028 U	**0.079**	**0.085**	**0.14**	**0.16**	0.026 U
N239	17M339-B-01-N	Basement	53A	ON	24hr 5min	1/12/2017	**0.054**	0.029 U	**0.052**	**0.053**	**0.14**	**0.052**	0.027 U
N239	17N239-1-02-F	First	191	OFF	23h 13min	1/15/2017	**0.041**	**0.016 J**	**0.38**	**0.1**	**0.87**	**0.088**	**0.025 J**
N239	17N239-1-02-N	First	C104	ON	24hr	1/12/2017	**0.015 J**	0.044 U	**0.065**	**0.052 J**	**0.16**	**0.051 J**	0.042 U
N239	17N239-1-03-F	First	138S	OFF	23h 10min	1/15/2017	**0.0099 J**	0.028 U	**0.09**	**0.065**	**0.21**	**0.069**	0.027 U
N239	17N239-1-03-N	First	191	ON	24hr 5min	1/12/2017	0.036 U	0.038 U	**0.071**	**0.052**	**0.19**	**0.049**	0.036 U

TABLE 12

2017 ANNUAL VAPOR INTRUSION AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *							1,1-DCA	1,1,-DCE	*cis-1,2-DCE*	PCE	TCE	*trans-1,2-DCE*	Vinyl Chloride
Indoor Commercial Screening Level (µg/m³)							6	700	210	2	5	210	2
Building	**Sample ID**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Duration**	**Sample Date**							
N239	17N239-1-05-F	First	102	OFF	23h 19min	1/15/2017	0.028 U	**0.015 J**	**0.31**	**0.089**	**0.73**	**0.088**	**0.022 J**
N239	17N239-1-05-N	First	138S	ON	24hr	1/12/2017	0.027 U	0.028 U	**0.029 J**	**0.051**	**0.08**	**0.053**	0.027 U
N239	17N239-1-07-F	First	C101	OFF	23h 17min	1/15/2017	**0.0098 J**	0.025 U	**0.06**	**0.064**	**0.15**	**0.068**	0.024 U
N239	17N239-1-07-N	First	102	ON	24hr 6min	1/12/2017	0.028 U	0.03 U	**0.035 J**	**0.053**	**0.094**	**0.051**	0.028 U
N239	17N239-1-08-F	First	Basement	OFF	23h 15min	1/15/2017	**0.028 J**	**0.02 J**	**0.43**	**0.15**	**0.96**	**0.096**	**0.03 J**
N239	17N239-1-08-N	First	C101	ON	24hr 2 mn	1/12/2017	0.028 U	0.029 U	**0.045**	**0.054**	**0.12**	**0.051**	0.028 U
N239	17N239-A-01-F	Ambient	N/A	OFF	23h 17min	1/15/2017	0.029 U	0.03 U	**0.016 J**	**0.057**	**0.04**	**0.074**	0.029 U
N239	17N239-A-01-N	Ambient	N/A	ON	24hr 5min	1/12/2017	0.025 U	0.027 U	0.027 U	**0.057**	**0.021 J**	**0.05**	0.025 U
N239	17N239-B-01-F	Basement	53A	OFF	23h 7min	1/15/2017	**0.15**	**0.22**	**4.2**	**0.1**	**11**	**0.13**	**0.26**
N239	17N239-B-01-N	Basement	53A	ON	24hr 5min	1/12/2017	0.028 U	0.029 U	**0.051**	**0.053**	**0.14**	**0.048**	0.028 U
N239	17N239-B-02-F	Basement	053	OFF	23h 8min	1/15/2017	**0.031 J**	**0.027 J**	**0.55**	**0.067**	**1.4**	**0.072**	**0.033 J**
N239	17N239-B-02-N	Basement	053	ON	24hr 2 min	1/12/2017	0.048 U	0.051 U	0.051 U	**0.057 J**	**0.032 J**	**0.038 J**	0.048 U
N239	17N239-B-05-F	Basement	C002	OFF	23h 8min	1/15/2017	**0.049**	**0.036**	**0.4**	**0.37**	**0.95**	**0.093**	**0.039**
N239	17N239-B-05-N	Basement	C001	ON	23h 59min	1/12/2017	**0.0083 J**	0.025 U	**0.052**	**0.089**	**0.13**	**0.049**	0.024 U
N239	17N239-B-06-F	Basement	C104	OFF	23h 7min	1/15/2017	**0.036 J**	**0.023 J**	**0.52**	**0.33**	**1.1**	**0.082**	**0.035 J**
N239	17N239-B-06-N	Basement	C002	ON	23h 59min	1/12/2017	0.028 U	0.03 U	**0.05**	**0.12**	**0.14**	**0.054**	0.028 U
N239	17N239-G-04-F	Elevator	C001	OFF	N/a	1/15/2017	**0.026 J**	**0.018 J**	**0.36**	**0.2**	**0.81**	**0.089**	**0.026 J**
N239A	17M339A-1-10-F	First	U101	OFF	23h 13min	1/15/2017	**0.012 J**	0.032 U	**0.21**	**0.12**	**0.85**	**0.085**	**0.012 J**
N239A	17M339A-1-10-N	First	U101	ON	24 hr	1/10/2017	**0.18**	**0.25**	**5.2**	**0.24**	**13**	**0.067**	**0.29**
N239A	17N239A-1-03-F	First	120	OFF	23h 51min	1/15/2017	0.028 U	0.03 U	**0.076**	**0.11**	**0.47**	**0.066**	0.028 U
N239A	17N239A-1-03-N	First	120	ON	24 hr	1/10/2017	**0.055**	**0.075**	**1.4**	**0.069**	**3.6**	**0.025 J**	**0.085**
N239A	17N239A-1-05-F	First	102	OFF	23h 51min	1/15/2017	0.029 U	0.03 U	**0.024 J**	**0.054**	**0.071**	**0.08**	0.029 U
N239A	17N239A-1-05-N	First	102	ON	24 hr	1/10/2017	**0.018 J**	**0.019 J**	**0.36**	**0.035 J**	**0.92**	0.033 U	**0.023 J**
N239A	17N239A-1-06-F	First	C102	OFF	23h 33min	1/15/2017	**0.018 J**	0.031 U	**0.042**	**0.075**	**0.095**	**0.081**	**0.013 J**
N239A	17N239A-1-06-N	First	C102	ON	24 hr	1/10/2017	**0.11**	**0.16**	**3.1**	**0.05**	**7**	**0.039**	**0.18**
N239A	17N239A-1-08-F	First	125	OFF	23h 14min	1/15/2017	**0.015 J**	0.03 U	**0.14**	**0.1**	**10**	**0.085**	0.028 U
N239A	17N239A-1-08-N	First	125	ON	24 hr	1/10/2017	**0.018 J**	**0.012 J**	**0.26**	**0.048**	**3.3**	**0.014 J**	**0.016 J**
N239A	17N239A-1-09-F	First	144	OFF	23h 31min	1/15/2017	0.03 U	0.032 U	**0.12**	**0.082**	**0.51**	**0.067**	0.03 U
N239A	17N239A-1-09-N	First	144	ON	24 hr	1/10/2017	**0.026 J**	**0.013 J**	**0.2**	**0.038**	**0.47**	**0.029 J**	**0.016 J**
N239A	17N239A-1-10-F	First	U101	OFF	23h 15min	1/15/2017	**0.013 J**	**0.013 J**	**0.24**	**0.11**	**0.95**	**0.08**	**0.015 J**
N239A	17N239A-1-10-N	First	U101	ON	24 hr	1/10/2017	**0.2**	**0.27**	**5.4**	**0.19**	**12**	**0.068**	**0.29**
N239A	17N239A-1-11-F	First	U102	OFF	23h 51min	1/15/2017	**0.0099 J**	0.029 U	**0.15**	**0.11**	**0.68**	**0.08**	0.027 U
N239A	17N239A-1-11-N	First	U102	ON	24 hr	1/10/2017	**0.13**	**0.19**	**3.7**	**0.074**	**8.8**	**0.05**	**0.22**
N239A	17N239A-B-01-F	Basement	Basement	OFF	23h 49min	1/15/2017	**0.0091 J**	0.028 U	**0.035**	**0.088**	**0.29**	**0.041**	0.026 U
N239A	17N239A-B-01-N	Basement	Basement	ON	24 hr	1/10/2017	**0.018 J**	**0.013 J**	**0.24**	**0.045**	**0.73**	**0.013 J**	**0.016 J**
N243	17M343-B-07-F	Basement	054	OFF	23h 34min	1/15/2017	**0.017 J**	**0.016 J**	**0.28**	**0.44**	**0.81**	**0.1**	**0.02 J**
N243	17N243-1-01-F	First	136	OFF	24h 5min	1/15/2017	**0.013 J**	0.03 U	**0.18**	**0.28**	**0.38**	**0.064**	**0.015 J**
N243	17N243-1-01-N	First	136	ON	23h 53min	1/12/2017	0.031 U	0.033 U	0.033 U	**0.062**	**0.03 J**	**0.042**	0.031 U
N243	17N243-1-02-F	First	C104	OFF	24h 1min	1/15/2017	**0.035 J**	**0.032 J**	**0.53**	**1.2**	**1.9**	**0.068**	**0.047**
N243	17N243-1-02-N	First	C104	ON	23h 53min	1/12/2017	0.026 U	0.028 U	**0.02 J**	**0.11**	**0.058**	**0.039**	0.026 U
N243	17N243-A-01-F	Ambient	N/A	OFF	23h 55min	1/15/2017	0.028 U	0.029 U	**0.026 J**	**0.066**	**0.053**	**0.07**	0.028 U
N243	17N243-A-01-N	Ambient	N/A	ON	23h 55min	1/12/2017	0.026 U	0.028 U	0.028 U	**0.049**	**0.023 J**	**0.043**	0.026 U
N243	17N243-A-02-F	Ambient	N/A	OFF	23h 55min	1/15/2017	0.029 U	0.03 U	**0.021 J**	**0.076**	**0.049**	**0.081**	0.029 U
N243	17N243-A-02-N	Ambient	N/A	ON	24hr	1/12/2017	0.026 U	0.028 U	0.028 U	**0.051**	**0.026 J**	**0.043**	0.026 U
N243	17N243-B-02-F	Basement	C002	OFF	24h 2min	1/15/2017	0.031 U	0.032 U	**0.033 J**	**0.083**	**0.077**	**0.06**	0.031 U
N243	17N243-B-02-N	Basement	C002	ON	23h 53min	1/12/2017	**0.011 J**	0.026 U	**0.015 J**	**0.061**	**0.12**	**0.043**	0.025 U
N243	17N243-B-03-F	Basement	N032	OFF	23h 40min	1/15/2017	**0.0081 J**	0.028 U	**0.021 J**	**0.075**	**0.05**	**0.06**	0.026 U
N243	17N243-B-04-F	Basement	C008	OFF	24h 3min	1/15/2017	**0.016 J**	0.033 U	**0.2**	**0.87**	**0.68**	**0.061**	**0.021 J**
N243	17N243-B-04-N	Basement	C008	ON	23h 49min	1/12/2017	**0.53**	0.028 U	**0.026 J**	**0.21**	**0.065**	**0.035**	0.027 U
N243	17N243-B-06-F	Basement	050	OFF	23h 43min	1/15/2017	**0.021 J**	**0.025 J**	**0.31**	**0.59**	**1.2**	**0.21**	**0.021 J**

TABLE 12

2017 ANNUAL VAPOR INTRUSION AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *							1,1-DCA	1,1,-DCE	*cis-1,2-DCE*	PCE	TCE	*trans-1,2-DCE*	Vinyl Chloride
Indoor Commercial Screening Level (µg/m³)							6	700	210	2	5	210	2
Building	**Sample ID**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Duration**	**Sample Date**							
N243	17N243-B-06-N	Basement	050	ON	23h 53min	1/12/2017	0.048 U	0.051 U	**0.082**	**0.18**	**0.37**	**0.045 J**	0.048 U
N243	17N243-B-07-F	Basement	054	OFF	23h 42min	1/15/2017	**0.016 J**	**0.014 J**	**0.25**	**0.44**	**0.75**	**0.063**	**0.017 J**
N243	17N243-B-07-N	Basement	054	ON	24hr 5min	1/12/2017	**0.011 J**	0.028 U	**0.18**	**0.32**	**0.45**	**0.045**	**0.013 J**
N243A	17M343A-1-01-N	First	104	ON	24hr	1/12/2017	**0.015 J**	0.025 U	**0.097**	**0.13**	**0.083**	**0.035**	0.024 U
N243A	17N243A-1-01-F	First	104	OFF	23h 44min	1/15/2017	**0.014 J**	0.03 U	**0.1**	**0.11**	**0.11**	**0.047**	0.029 U
N243A	17N243A-1-01-N	First	104	ON	24hr	1/12/2017	**0.014 J**	0.036 U	**0.095**	**0.11**	**0.09**	**0.042 J**	0.034 U
N243A	17N243A-1-02-F	First	101	OFF	23h 44min	1/15/2017	**0.017 J**	0.035 U	**0.084**	**0.1**	**0.14**	**0.053**	0.033 U
N243A	17N243A-1-02-N	First	101	ON	24hr	1/12/2017	**0.0093 J**	0.027 U	**0.032 J**	**0.079**	**0.068**	**0.04**	0.026 U
N243A	17N243A-A-01-F	Ambient	N/A	OFF	24h 5 min	1/15/2017	0.028 U	0.029 U	**0.032 J**	**0.088**	**0.097**	**0.094**	0.028 U
N243A	17N243A-A-01-N	Ambient	N/A	ON	24hr	1/12/2017	0.025 U	0.026 U	**0.027 J**	**0.084**	**0.076**	**0.041**	0.025 U
N243A	17N243A-B-01-F	First	Basement	OFF	23h 39min	1/15/2017	**0.02 J**	0.03 U	**0.51**	**0.11**	**0.12**	**0.052**	**0.038**
N243A	17N243A-B-01-N	Basement	Basement	ON	24hr	1/12/2017	**0.023 J**	0.03 U	**0.59**	**0.1**	**0.082**	**0.058**	**0.035 J**

Notes:

* VOCs were analyzed by EPA TO-15 Select Ion Monitoring Method.

1,1-DCE = 1,1-dichloroethene

trans-1,2-DCE = trans-1,2-dichloroethene

1,1-DCA = 1,1-dichloroethane

cis-1,2-DCE = cis-1,2-dichloroethene

TCE = trichloroethene

PCE = tetrachloroethene

N/A = Not applicable

U = Not detected at or above the reported limit

J = The result is an estimated concentration that is less than the method reporting limit (MRL) but greater than or equal to the MDL.

µg/m^3 = micrograms per cubic meter

bold = Detection

bold = Detections above ROD Indoor Commercial Screening Level.

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TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
2	M002-1-01	1	100	NA	Work Area	8 hr	5/18/2012	<0.014	<0.016	<0.015	<0.015	0.025 J	0.15	0.033 J
2	M002-1-02	1	107	NA	Work Area	8 hr	5/18/2012	<0.015	<0.017	<0.015	<0.015	0.012 J	0.049	0.066
2	14M002-1-02	1	107	NA	Work Area	8 hr	2/11/2014	<0.025	<0.028	0.017 J	<0.028	0.029 J	0.10	0.046
2	16M002-1-02	1	107	NA	Work Area	8 hr	1/12/2016	0.037 U	0.039 U	0.057	0.039 U	0.045 J	0.13	0.084
2	17M002-1-02	First	107	N/A	Work Area	7h 48min	1/17/2017	0.029 U	0.03 U	0.044	0.029 U	0.043	0.25	0.08
2	M002-1-03	1	109	NA	Work Area	8 hr	5/18/2012	<0.015	<0.017	<0.016	<0.016	0.020 J	0.12	0.033 J
2	14M002-1-03	1	109	NA	Work Area	8 hr	2/11/2014	0.018 J	0.012 J	0.011 J	0.016 J	0.22	0.69	0.067
2	16M002-1-03	1	109	NA	Work Area	8 hr	1/12/2016	0.044 J	0.036 J	0.063	0.043 J	0.35	1.0	0.086
2	17M002-1-03	First	109	N/A	Work Area	7h 45min	1/17/2017	0.072	0.021 J	0.044	0.024 J	0.230	0.72	0.08
2	17M302-1-03	First	104	N/A	Work Area	7h 42min	1/17/2017	0.052	0.018 J	0.054	0.024 J	0.190	0.60	0.09
2	M002-1-04	1	104	NA	Pathway	8 hr	5/18/2012	<0.015	<0.017	<0.015	<0.015	0.022 J	0.34	0.033 J
2	13M002-1-04	1	104	NA	Confirmation	8 hr	5/24/2013	<0.0078	<0.0086	<0.017	0.014 J	0.03 J	0.92	0.23
2	13M202-1-04	1	104	NA	Duplicate	8 hr	5/24/2013	<0.0081	<0.0089	<0.018	0.011 J	0.025 J	0.62	0.032 J
2	14M002-1-04	1	104	NA	Pathway	8 hr	2/11/2014	<0.029	<0.032	<0.032	<0.032	0.052	0.39	0.055
2	14M302-1-04	1	104	NA	Duplicate	8 hr	2/11/2014	<0.029	<0.032	<0.032	<0.032	0.052	0.41	0.055
2	16M302-1-04	1	104	NA	Duplicate	8 hr	1/12/2016	0.036 U	0.038 U	0.044 J	0.019 J	0.042 J	0.18	0.062
2	16M002-1-04	1	104	NA	Pathway	8 hr	1/12/2016	0.041 U	0.043 U	0.045 J	0.043 U	0.041 J	0.17	0.061
2	17M002-1-04	First	104	N/A	Work Area	7h 44min	1/17/2017	0.065 U	0.068 U	0.036 J	0.065 U	0.068 U	0.063 J	0.059 J
2	17M302-1-04	First	104	N/A	Work Area	7h 44min	1/17/2017	0.03 U	0.032 U	0.026 J	0.011 J	0.016 J	0.09	0.07
2	13M002-A-01	Ambient Air	NA	NA	Background	24 hr	5/24/2013	<0.0070	<0.0077	<0.015	0.022 J	0.040	0.091	0.031 J
2	13M002-G-04	1	104	NA	Pathway	Grab hr	5/17/2013	0.12	0.095	0.11	0.59	12	11	0.15
3	M003-1-01-F	1	105	off	Work Area	10 hr	5/28/2012	<0.014	<0.016	<0.015	<0.015	0.036 J	0.39	0.021 J
3	M403-1-01-F	1	130	off	Duplicate	10 hr	5/28/2012	0.014	<0.016	<0.015	0.018 J	0.12	1.2	0.09
3	14M003-1-01-F	1	105	off	Work Area	10 hr	2/16/2014	<0.029	0.030 J	<0.032	0.026 J	0.093	1.5	0.038 J
3	16M003-1-01-F	1	105	off	Work Area	10 hr	1/17/2016	0.026 J	0.030 U	0.030 U	0.0089 J	0.020 J	0.22	0.042
3	17M003-1-01-F	First	105	OFF	Work Area	9h 50min	1/16/2017	0.016 J	0.018 J	0.22	0.028 J	0.091	1.50	0.08
3	M003-1-01-N	1	105	on	Work Area	10 hr	5/18/2012	<0.018	<0.020	<0.018	0.0077J	0.048	0.59	0.032 J
3	M403-1-01-N	1	130	on	Duplicate	10 hr	5/18/2012	0.041	0.062	0.029 J	0.065	0.51	7.6	0.11
3	14M003-1-01-N	1	105	on	Work Area	10 hr	2/12/2014	<0.031	<0.034	0.020 J	0.012 J	0.055	0.50	0.072
3	16M003-1-01-N	1	105	on	Work Area	10 hr	1/12/2016	0.033 U	0.035 U	0.069	0.13	0.078	0.47	0.13
3	16M003-1-01-N	1	105	on	Work Area	10 hr	1/12/2016	0.033 U	0.035 U	0.069	0.13	0.078	0.47	0.13
3	17M003-1-01-N	First	Room 105	ON	Work Area	10hr	1/10/2017	0.02 J	0.012 J	0.027 J	0.023 J	0.037	0.15	0.07
3	M003-1-02-F	1	C104	off	Work Area	10 hr	5/28/2012	<0.012	0.1	0.020 J	0.081	0.72	3	0.021 J
3	14M003-1-02-F	1	C104	off	Work Area	10 hr	2/16/2014	0.014 J	0.15	0.041	0.10	0.62	4.5	0.030 J
3	16M003-1-02-F	1	C104	off	Work Area	10 hr	1/17/2016	0.029 U	0.077	0.024 J	0.068	0.21	2.5	0.034 J
3	17M003-1-02-F	First	C104	OFF	Work Area	9h 57min	1/16/2017	0.013 J	0.019 J	0.049	0.031 J	0.084	1.40	0.06
3	M003-1-02-N	1	C104	on	Work Area	10 hr	5/18/2012	<0.018	<0.020	<0.018	0.010 J	0.057	0.31	0.096
3	14M003-1-02-N	1	C104	on	Work Area	10 hr	2/12/2014	<0.030	0.024 J	0.019 J	0.024 J	0.13	0.94	0.10
3	16M003-1-02-N	1	C104	on	Work Area	10 hr	1/12/2016	0.031 U	0.033 U	0.11	0.011 J	0.041	0.31	0.11
3	17M003-1-02-N	First	Room C100	ON	Work Area	10hr	1/10/2017	0.03 U	0.032 U	0.032 U	0.03 U	0.016 J	0.23	0.05
3	M003-1-03-F	1	104A	off	Work Area	10 hr	5/28/2012	0.021 J	<0.017	<0.015	0.0063 J	0.031 J	0.25	0.066
3	14M003-1-03-F	1	104A	off	Work Area	10 hr	2/16/2014	<0.027	0.014 J	0.015 J	0.015 J	0.049	0.66	0.035 J
3	16M003-1-03-F	1	104A	off	Work Area	10 hr	1/17/2016	0.058	0.034 U	0.034 U	0.028 J	0.030 J	0.46	0.054
3	17M003-1-03-F	First	104A	OFF	Work Area	9h 50min	1/16/2017	0.032 J	0.029 J	0.45	0.031 J	0.140	2.60	0.11
3	M003-1-03-N	1	104A	on	Work Area	10 hr	5/18/2012	0.011 J	<0.017	<0.016	<0.016	0.040 J	0.39	0.033 J
3	14M003-1-03-N	1	104A	on	Work Area	10 hr	2/12/2014	<0.044	<0.048	<0.048	<0.048	0.030 J	0.27	0.088
3	16M003-1-03-N	1	104A	on	Work Area	10 hr	1/12/2016	0.013 J	0.033 U	0.061	0.016 J	0.064	0.39	0.11
3	17M003-1-03-N	First	Room 108A	ON	Work Area	10hr	1/10/2017	0.016 J	0.034 U	0.034 U	0.015 J	0.021 J	0.19	0.06
3	M003-1-04-F	1	122	off	Work Area	10 hr	5/28/2012	0.04	<0.017	<0.016	0.0076 J	0.038 J	0.18	0.020 J
3	14M003-1-04-F	1	122	off	Work Area	10 hr	2/16/2014	0.045	0.016 J	<0.030	0.013 J	0.043	0.35	0.025 J
3	16M003-1-04-F	1	122	off	Work Area	10 hr	1/17/2016	0.033 U	0.035 U	0.035 U	0.035 U	0.020 J	0.32	0.046
3	17M003-1-04-F	First	122	OFF	Work Area	9h 58min	1/16/2017	0.043	0.013 J	0.06	0.035 J	0.071	1.70	0.06
3	M003-1-04-N	1	122	on	Work Area	10 hr	5/18/2012	0.029 J	<0.018	<0.017	0.0091 J	0.054	0.33	0.032 J
3	14M003-1-04-N	1	122	on	Work Area	10 hr	2/12/2014	0.016 J	0.011 J	0.017 J	0.014 J	0.066	0.46	0.95
3	16M003-1-04-N	1	122	on	Work Area	10 hr	1/12/2016	0.022 J	0.031 U	0.089	0.019 J	0.061	0.44	0.11
3	17M003-1-04-N	First	Room 122	ON	Work Area	10hr	1/10/2017	0.015 J	0.034 U	0.034 U	0.013 J	0.023 J	0.34	0.04
3	M003-1-06-F	1	130	off	Pathway	10 hr	5/28/2012	0.098 J	<0.020	<0.018	0.019 J	0.13	1.4	0.07
3	13M003-1-06-F	1	130	off	Confirmation	10 hr	5/26/2013	0.27	0.023 J	<0.017	0.019 J	0.075	0.92	0.058
3	13M303-1-06-F	1	130	off	Duplicate	10 hr	5/26/2013	0.28	0.023 J	<0.018	0.018 J	0.075	0.92	0.061

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
3	14M003-1-06-F	1	130	off	Pathway	10 hr	2/16/2014	0.050	0.045	0.015 J	0.038	0.13	1.7	0.090
3	14M303-1-06-F	1	130	off	Duplicate	10 hr	2/16/2014	0.052	0.044 J	0.022 J	0.037 J	0.14	1.6	0.092
3	16M003-1-06-F	1	130	off	Pathway	10 hr	1/17/2016	0.030 J	0.12	0.014 J	0.056	0.27	6.8	0.087
3	16M303-1-06-F	1	130	off	Duplicate	10 hr	1/17/2016	0.031 J	0.12	0.015 J	0.056	0.26	6.6	0.084
3	17M003-1-06-F	First	130	OFF	Work Area	10h	1/16/2017	0.11	0.033 U	0.029 J	0.016 J	0.052	0.66	0.08
3	17M303-1-06-F	First	130	OFF	Work Area	10h	1/16/2017	0.1	0.03 U	0.028 J	0.016 J	0.047	0.73	0.05
3	M003-1-06-N	1	130	on	Pathway	10 hr	5/18/2012	0.043	0.066	0.035 J	0.065	0.53	7.9	0.12
3	13M003-1-06-N	1	130	on	Confirmation	10 hr	5/24/2013	0.13	0.063	0.021 J	0.035 J	0.18	2.9	0.12
3	13M303-1-06-N	1	130	on	Duplicate	10 hr	5/24/2013	0.11	0.069	0.022 J	0.035	0.20	3.2	0.14
3	M003-1-07-F	1	108	off	Work Area	10 hr	5/28/2012	0.06	0.029 J	0.0086 J	0.032 J	0.23	3.9	0.032 J
3	14M003-1-07-F	1	108	off	Work Area	10 hr	2/16/2014	0.048	0.069	0.013 J	0.046	0.14	4.0	0.041
3	16M003-1-07-F	1	108	off	Work Area	10 hr	1/17/2016	0.036 J	0.039	0.012 J	0.032 J	0.11	3.5	0.056
3	17M003-1-07-F	First	108	OFF	Work Area	9h 55min	1/16/2017	0.073	0.047	0.071	0.046	0.210	4.60	0.08
3	M003-1-07-N	1	108	on	Work Area	10 hr	5/18/2012	0.12	0.023 J	0.011 J	0.025 J	0.22	2.7	0.056
3	14M003-1-07-N	1	108	on	Work Area	10 hr	2/12/2014	0.047	0.032 J	0.017 J	0.023 J	0.089	1.7	0.22
3	14M303-1-07-N	1	108	on	Duplicate	10 hr	2/12/2014	0.046	0.031 J	0.020 J	0.022 J	0.087	1.6	0.22
3	16M003-1-07-N	1	108	on	Work Area	10 hr	1/12/2016	0.037 J	0.037 U	0.061	0.014 J	0.076	0.85	0.11
3	16M303-1-07-N		108	on	Duplicate	10 hr	1/12/2016	0.037 J	0.035 U	0.061	0.012 J	0.074	0.87	0.11
3	17M003-1-07-N	First	101B	ON	Work Area	10hr	1/10/2017	0.023 J	0.033 U	0.033 U	0.031 U	0.023 J	0.26	0.05
3	17M303-1-07-N	First	101B	ON	Work Area	10hr	1/10/2017	0.023 J	0.034 U	0.034 U	0.033 U	0.023 J	0.26	0.05
3	M003-1-08-F	1	111	off	Work Area	10 hr	5/28/2012	0.2	0.022 J	<0.020	0.027 J	0.25	2	0.039J
3	14M003-1-08-F	1	111	off	Work Area	10 hr	2/16/2014	0.045	0.011 J	<0.035	0.011 J	0.039 J	0.51	0.028 J
3	16M003-1-08-F	1	111	off	Work Area	10 hr	1/17/2016	0.025 J	0.030 U	0.030 U	0.017 J	0.023 J	0.36	0.038
3	17M003-1-08-F	First	111	OFF	Work Area	9h 54min	1/16/2017	0.052	0.044	0.067	0.044	0.200	4.50	0.08
3	M003-1-08-N	1	111	on	Work Area	10 hr	5/18/2012	0.012 J	<0.017	<0.016	<0.016	0.021J	0.12	0.032J
3	14M003-1-08-N	1	111	on	Work Area	10 hr	2/12/2014	0.016 J	<0.031	0.013 J	<0.031	0.028 J	0.21	0.11
3	16M003-1-08-N	1	111	on	Work Area	10 hr	1/12/2016	0.041 U	0.043 U	0.061	0.013 J	0.035 J	0.21	0.10
3	17M003-1-08-N	First	111	ON	Work Area	10hr	1/10/2017	0.017 J	0.029 U	0.029 U	0.014 J	0.046	0.79	0.05
3	M003-1-09-F	1	128	off	Work Area	10 hr	5/28/2012	0.56	<0.017	<0.016	0.0087 J	0.045	0.22	0.073
3	14M003-1-09-F	1	128	off	Work Area	10 hr	2/16/2014	0.38	0.016 J	<0.032	0.020 J	0.058	0.25	0.034 J
3	16M003-1-09-F	1	128	off	Work Area	10 hr	1/17/2016	0.15	0.031 U	0.031 U	0.027 J	0.017 J	0.14	0.04
3	17M003-1-09-F	First	128	OFF	Work Area	9h 59min	1/16/2017	0.11	0.024 J	0.045	0.028 J	0.081	0.90	0.11
3	M003-1-09-N	1	128	on	Work Area	10 hr	5/18/2012	0.21	<0.016	0.0076 J	0.014 J	0.14	0.78	0.044
3	14M003-1-09-N	1	128	on	Work Area	10 hr	2/12/2014	0.10	<0.032	0.13 J	<0.032	0.038	0.21	0.19
3	16M003-1-09-N	1	128	on	Work Area	10 hr	1/12/2016	0.041 J	0.039 U	0.062	0.039 U	0.040 J	0.15	0.098
3	17M003-1-09-N	First	128	ON	Work Area	10hr	1/10/2017	0.029 J	0.034 U	0.034 U	0.032 U	0.034 U	0.10	0.05
3	M003-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/28/2012	<0.014	<0.016	<0.015	0.0086 J	0.063	0.24	0.094
3	13M003-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2013	<0.0078	<0.0086	<0.017	0.013 J	0.021 J	0.069	0.016 J
3	13M303-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2013	<0.0071	<0.0078	<0.016	0.061 J	0.022 J	0.074	0.019 J
3	14M003-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.028	<0.031	<0.031	<0.031	0.053	0.058	0.44
3	16M003-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.031 U	0.033 U	0.033 U	0.033 U	0.033 U	0.038 J	0.037 J
3	17M003-A-01-F	Ambient	N/A	OFF	Ambient	22h 15min	1/16/2017	0.025 U	0.026 U	0.034	0.025 U	0.023 J	0.09	0.06
3	M003-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/18/2012	<0.013	<0.014	<0.013	0.006 J	0.04	0.14	0.081
3	13M003-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/24/2013	<0.0076	<0.0083	<0.017	0.10	0.035 J	0.11	0.030 J
3	14M003-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.023	<0.025	0.012 J	<0.025	0.053	0.18	0.051
3	16M003-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.034 U	0.036 U	0.029 J	0.036 U	0.026 J	0.12	0.070
3	17M003-A-01-N	Ambient	Ambient	ON	Ambient	24hr	1/10/2017	0.026 U	0.027 U	0.027 U	0.014 J	0.027 U	0.09	0.04
3	M003-C-05-F	1	Crawl Space	off	Pathway	10 hr	5/28/2012	<0.020	<0.023	<0.021	<0.021	0.12	1.8	0.053
3	13M003-C-05-F	1	105	off	Confirmation	10 hr	5/26/2013	<0.0076	0.041	<0.017	0.083	0.11	1.5	0.021 J
3	M003-C-05-N	1	Crawl Space	on	Pathway	10 hr	5/18/2012	<0.029	<0.033	<0.030	<0.030	0.18	2	0.078
3	13M003-C-05-N	1	105	on	Confirmation	10 hr	5/24/2013	<0.0078	0.05	<0.017	0.27	0.15	2.2	0.036 J
3	13M003-G-05-F	1	Conduit 105	off	Pathway	Grab hr	5/26/2013	<0.0078	0.046	<0.017	0.066	0.17	3.0	0.023 J
3	13M003-G-05-N	1	Conduit 105	on	Pathway	Grab hr	5/17/2013	<0.0077	0.040	<0.017	0.054	0.16	2.7	0.026 J
3	13M003-G-06-F	1	Conduit 130	off	Pathway	Grab hr	5/26/2013	0.056	<0.0072	<0.014	0.038	0.017 J	0.15	0.026
3	13M003-G-06-N	1	Conduit 130	on	Pathway	Grab hr	5/17/2013	<0.0074	<0.0081	<0.016	0.025 J	<0.016	0.087	0.12
10	M010-1-01	1	101	NA	Work Area	8 hr	5/18/2012	<0.019	0.19	0.053	0.21	2.3	8	5.4
10	M310-1-01	Tunnel	Tunnel	NA	Duplicate	8 hr	5/18/2012	<0.54	21	6	24	270	820	650
10	14M010-1-01	1	101	NA	Work Area	8 hr	2/11/2014	<0.028	0.037	0.011 J	0.022 J	0.17	1.4	0.069
10	16M010-1-01	1	101	NA	Work Area	8 hr	1/12/2016	0.034 U	0.021 J	0.053	0.024 J	0.093	1.1	0.11

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
10	17M010-1-01	First	101	N/A	Work Area	8hr	1/12/2017	0.023 U	0.034	0.029 J	0.037	0.380	2.60	0.07
10	M010-1-02	1	101	NA	Work Area	8 hr	5/18/2012	<0.014	0.2	0.059	0.22	2.6	8.2	5.9
10	14M010-1-02	1	101	NA	Work Area	8 hr	2/11/2014	<0.025	0.026 J	0.010 J	0.019 J	0.15	1.1	0.063
10	16M010-1-02	1	101	NA	Work Area	8 hr	1/12/2016	0.032 U	0.015 J	0.055	0.025 J	0.080	1.1	0.12
10	17M010-1-02	First	101	N/A	Work Area	8hr	1/12/2017	0.025 U	0.031 J	0.026 J	0.042	0.350	2.40	0.06
10	M010-1-03	1	101	NA	Work Area	8 hr	5/18/2012	0.021 J	0.61	0.18	0.69	7.9	26	19
10	14M010-1-03	1	101	NA	Work Area	8 hr	2/11/2014	<0.030	0.025 J	0.010 J	0.018 J	0.13	1.0	0.12
10	14M310-1-03	1	101	NA	Duplicate	24 hr	2/12/2014	<0.041	0.022 J	0.024 J	0.018 J	0.20	0.66	0.072
10	16M010-1-03	1	101	NA	Work Area	8 hr	1/12/2016	0.035 U	0.018 J	0.051	0.019 J	0.077	1.3	0.11
10	16M310-1-03	1	101	NA	Duplicate	8 hr	1/12/2016	0.030 U	0.014 J	0.056	0.015 J	0.062	0.88	0.11
10	M010-1-03	Quarterly	102	N/A	Work Area	7day	11/30/2016	**	0.0048 J	0.014	0.0055 J	0.031	1.90	0.11
10	17M010-1-03	First	101	N/A	Work Area	8hr	1/12/2017	0.028 U	0.025 J	0.022 J	0.028 U	0.280	1.90	0.06
10	17M310-1-03	First	101	N/A	Work Area	8hr	1/12/2017	0.027 U	0.025 J	0.023 J	0.03 J	0.280	1.90	0.06
10	M010-1-05	1	102	NA	Work Area	8 hr	5/18/2012	0.0080 J	0.22	0.063	0.24	2.7	8.9	6.3
10	14M010-1-05	1	102	NA	Work Area	8 hr	2/11/2014	<0.024	0.032	0.011 J	0.020 J	0.16	1.1	0.14
10	16M010-1-05	1	102	NA	Work Area	8 hr	1/12/2016	0.044 U	0.046 U	0.055	0.015 J	0.061	0.86	0.11
10	17M010-1-05	First	102	N/A	Work Area	8hr	1/12/2017	0.027 U	0.046	0.027 J	0.042	0.270	2.50	0.07
10	M010-1-06	1	N104	NA	Work Area	8 hr	5/18/2012	<0.014	0.076	0.020 J	0.068	0.87	4	1.2
10	14M010-1-06	1	N104	NA	Work Area	8 hr	2/11/2014	<0.025	0.089	0.018 J	0.070	0.55	3.7	0.24
10	16M010-1-06	1	N104	NA	Work Area	8 hr	1/12/2016	0.032 U	0.020 J	0.061	0.040	0.13	1.1	0.14
10	17M010-1-06	First	N104	N/A	Work Area	8hr	1/12/2017	0.027 U	0.029 U	0.017 J	0.023 J	0.088	0.65	0.04
10	M010-1-07	Quarterly	Exhaust	N/A	Work Area	7day	11/30/2016	**	0.0025 J	0.014	0.0015 U	0.0094 J	0.20	0.09
10	17M010-1-07	Outdoor	Exhaust	N/A	Work Area	8hr	1/12/2017	0.027 U	0.028 U	0.012 J	0.027 U	0.028 U	0.04	0.028 J
10	M010-1-10	Quarterly	103	N/A	Work Area	7day	11/30/2016	**	0.0043 J	0.014	0.0042 J	0.029	1.20	0.08
10	M310-1-10	Quarterly	103	N/A	Work Area	7day	11/30/2016	**	0.0032 J	0.014	0.0041 J	0.026	1.20	0.08
10	17M010-1-10	First	103	N/A	Work Area	8hr	1/12/2017	0.029 U	0.15	0.048	0.18	2.000	11.00	0.10
10	17M310-1-10	First	103	N/A	Work Area	8hr	1/12/2017	0.027 U	0.14	0.054	0.13	1.900	11.00	0.10
10	M010-A-01	Ambient Air	NA	NA	Background	10 hr	5/18/2012	<0.014	<0.016	<0.015	0.0066 J	0.056	0.057	0.13
10	14M010-A-01	Ambient Air	NA	NA	Background	24 hr	2/12/2014	<0.024	<0.027	0.010 J	<0.027	0.13	0.043	0.040
10	16M010-A-01	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.032 U	0.034 U	0.030 J	0.034 U	0.015 J	0.056	0.068
10	17M010-A-01	Ambient	N/A	N/A	Ambient	24hr 24min	1/12/2017	0.025 U	0.026 U	0.071	0.025 U	0.015 J	0.06	0.04
10	14M010-H-08	1	Floor Trench-N	NA	Work Area	8 hr	2/11/2014	<0.023	1.8	0.18	0.93	5.6	46	0.43
10	M010-T-04	Tunnel	Tunnel	NA	Pathway	8 hr	5/18/2012	<0.92	24	7.1	28	310	960	770
10	14M010-T-04	1	Floor Trench-S	NA	Pathway	8 hr	2/11/2014	0.016 J	1.4	0.14	0.78	5.0	73	0.79
10	14M010-T-09	1	Tunnel	NA	Work Area	8 hr	2/11/2014	<0.14	1.2	0.13 J	0.67	4.1	34	0.32
12	M012-1-01-F	1	109D	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.016	0.0067 J	0.022 J	0.16	0.088
12	14M012-1-01-F	1	109D	off	Work Area	24 hr	2/18/2014	<0.036	0.017 J	0.016 J	0.013 J	0.10	0.46	0.070
12	17M012-1-01-F	First	109D	OFF	Work Area	23h 45min	1/15/2017	0.037 U	0.039 U	0.77	0.02 J	0.069	0.65	0.14
12	M012-1-01-N	1	109D	on	Work Area	24 hr	5/21/2012	<0.015	0.022 J	<0.015	<0.015	0.029 J	0.2	0.27 J
12	M412-1-01-N	1	109D	on	Duplicate	24 hr	5/21/2012	<0.016	0.021 J	<0.017	<0.017	0.027 J	0.2	0.13 J
12	13M012-1-01-N	1	109D	on	Work Area	24 hr	5/24/2013	<0.0080	0.010 J	<0.017	0.021 J	0.025 J	0.20	0.050
12	14M012-1-01-N	1	109D	on	Work Area	24 hr	2/13/2014	<0.029	0.013 J	0.016 J	<0.032	0.057	0.28	0.087
12	17M012-1-01-N	First	109D	ON	Work Area	24h	1/10/2016	0.031 U	0.033 U	0.033 U	0.031 U	0.015 J	0.17	0.06
12	16M012-1-01-N	1	109D	on	Work Area	24 hr	1/14/2016	0.032 U	0.034 U	0.051	0.011 J	0.027 J	0.24	0.078
12	13M412-1-01-N (Dup)	1	109D	on	Duplicate	24 hr	5/24/2013	<0.0072	0.0094 J	<0.016	0.015 J	0.024 J	0.20	0.056
12	M012-1-02-F	1	109	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.018 J	0.094	0.12
12	14M012-1-02-F	1	109	off	Work Area	24 hr	2/18/2014	<0.027	0.014 J	0.012 J	0.012 J	0.096	0.38	0.083
12	16M012-1-02-F	1	109	off	Work Area	24 hr	1/19/2016	0.030 U	0.014 J	0.018 J	0.012 J	0.036 J	0.16	0.13
12	17M012-1-02-F	First	109	OFF	Work Area	23h 44min	1/15/2017	0.053 U	0.056 U	0.11	0.053 U	0.041 J	0.31	0.08
12	M012-1-02-N	1	109	on	Work Area	24 hr	5/21/2012	<0.015	0.018 J	<0.015	<0.015	0.030 J	0.2	0.081
12	14M012-1-02-N	1	109	on	Work Area	8 hr	2/13/2014	<0.029	0.011 J	0.014 J	<0.032	0.059	0.25	0.092
12	17M012-1-02-N	First	109	ON	Work Area	23h 50min	1/12/2016	0.025 U	0.026 U	0.061	0.013 J	0.061	0.37	0.08
12	16M012-1-02-N	1	109	on	Work Area	24 hr	1/14/2016	0.034 U	0.036 U	0.036 J	0.036 U	0.027 J	0.19	0.079
12	M012-1-03-F	1	119	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.0098 J	0.019 J	0.15
12	14M012-1-03-F	1	119	off	Work Area	24 hr	2/18/2014	<0.027	<0.029	<0.029	<0.029	0.077	0.13	0.051
12	16M012-1-03-F	1	119	off	Work Area	24 hr	1/19/2016	0.031 U	0.033 U	0.022 J	0.033 U	0.043	0.11	0.081
12	17M012-1-03-F	First	109	OFF	Work Area	23h 46min	1/15/2017	0.025 U	0.026 U	0.079	0.025 U	0.019 J	0.06	0.09
12	17M312-1-03-F	First	109	OFF	Work Area	23h 45min	1/15/2017	0.03 U	0.032 U	0.45	0.03 U	0.019 J	0.06	0.11
12	M012-1-03-N	1	119	on	Work Area	24 hr	5/21/2012	<0.015	<0.017	<0.015	<0.015	<0.015	0.017 J	0.46

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
12	14M012-1-03-N	1	119	on	Work Area	8 hr	2/13/2014	<0.031	<0.034	0.014 J	<0.034	0.047	0.074	0.058
12	17M012-1-03-N	First	119	ON	Work Area	24h	1/10/2016	0.027 U	0.028 U	0.028 U	0.027 U	0.014 J	0.07	0.06
12	16M012-1-03-N	1	119	on	Work Area	25 hr	1/14/2016	0.029 U	0.030 U	0.041	0.030 U	0.027 J	0.071	0.056
12	M012-2-01-F	2	214	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.020 J	0.062	0.032 J
12	M012-2-01-N	2	214	on	Work Area	24 hr	5/21/2012	<0.014	<0.016	<0.014	<0.014	0.010 J	0.053	0.058
12	13M012-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2013	<0.0060	<0.0066	<0.013	0.0074 J	<0.013	0.056	0.020 J
12	14M012-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/18/2014	<0.035	<0.038	<0.038	<0.038	0.082	0.078	0.046
12	16M012-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/19/2016	0.031 U	0.033 U	0.021 J	0.025 J	0.038 J	0.079	0.098
12	17M012-A-01-F	Ambient	N/A	OFF	Ambient	23h 47min	1/15/2017	0.027 U	0.028 U	0.079	0.0095 J	0.02 J	0.10	0.07
12	M012-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/21/2012	<0.014	<0.015	<0.014	<0.014	<0.014	0.014 J	0.21
12	13M012-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/24/2013	<0.0067	<0.0073	<0.015	0.024 J	0.013 J	0.059	0.026 J
12	14M012-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.028	<0.031	0.015 J	<0.031	0.055	0.081	0.056
12	17M012-A-01-N	Ambient	Ambient	ON	Ambient	24h	1/10/2016	0.025 U	0.027 U	0.027 U	0.025 U	0.027 U	0.09	0.03
12	16M012-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.027 U	0.028 U	0.027 J	0.028 U	0.024 J	0.074	0.042
12	M012-C-04-F	1	Crawl Space	off	Pathway	24 hr	5/27/2012	<0.030	<0.035	<0.031	<0.031	0.43	3.7	0.33
12	13M012-C-04-F	1	C102	off	Confirmation	24 hr	5/27/2013	<0.029	<0.031	<0.063	<0.030	<0.063	0.41	0.030 J
12	M012-C-04-N	1	Crawl Space	on	Pathway	24 hr	5/21/2012	<0.031	<0.035	<0.032	<0.032	0.094	1.4	0.082
12	13M012-C-04-N	1	C102	on	Confirmation	24 hr	5/24/2013	<0.0075	0.026 J	<0.016	0.039	0.065	0.89	0.032 J
12	M012-C-05-F	1	Crawl Space	off	Pathway	24 hr	5/27/2012	<0.031	<0.035	<0.032	0.035 J	0.086	0.74	0.050 J
12	13M012-C-05-F	1	110	off	Confirmation	24 hr	5/27/2013	<0.043	<0.047	<0.095	0.24	0.23	2.6	0.037 J
12	14M012-C-05-F	1	Crawl Space	off	Pathway	24 hr	2/18/2014	<0.028	0.075	0.038	0.079	0.27	6.1	0.046
12	14M312-C-05-F	1	Crawl Space	off	Duplicate	24 hr	2/18/2014	<0.028	0.064	0.036 J	0.070	0.31	5.2	0.046
12	16M012-C-05-F	1	Crawl Space	off	Pathway	24 hr	1/19/2016	0.030 U	0.078	0.089	0.12	0.18	7.1	0.062
12	16M312-C-05-F	1	Crawl Space	off	Duplicate	24 hr	1/19/2016	0.032 U	0.069	0.11	0.11	0.17	7.2	0.081
12	17M012-C-05-F	Crawl Space	Crawl Space	OFF	Crawl Space	23h 50min	1/15/2017	0.14	0.015 J	0.2	0.025 J	0.150	0.98	0.06
12	M012-C-05-N	1	Crawl Space	on	Pathway	24 hr	5/21/2012	<0.026	0.053 J	0.034J	0.079	0.48	6.1	0.12
12	13M012-C-05-N	1	110	on	Confirmation	24 hr	5/24/2013	<0.0080	0.034 J	0.023 J	0.062	0.24	3.0	0.028 J
12	14M012-C-05-N	1	Crawl Space	on	Pathway	8 hr	2/13/2014	0.010 J	0.091	0.046	0.089	0.30	6.0	0.056
12	17M012-C-05-N	Crawl Space	Pathway under 110	ON	Crawl Space	23h 50min	1/12/2016	0.012 J	0.022 J	0.017 J	0.042	0.300	1.80	0.03 J
12	16M012-C-05-N	1	Crawl Space	on	Pathway	24 hr	1/14/2016	0.032 U	0.046	0.081	0.19	0.12	4.2	0.047
12	13M012-G-04-F	1	Conduit C102	off	Pathway	Grab hr	5/26/2013	<0.0069	<0.0076	<0.015	0.059	0.026 J	0.049	0.032 J
12	13M012-G-04-N	1	Conduit C102	on	Pathway	Grab hr	5/17/2013	<0.0079	<0.0087	<0.017	0.037 J	0.11	1.8	0.045
12	13M012-G-05-F	1	Conduit 110	off	Pathway	Grab hr	5/26/2013	<0.0068	0.018 J	<0.015	0.066 J	0.12	1.5	0.024 J
12	13N312-G-05-F	1	Conduit 110	off	Duplicate	24 hr	5/26/2013	<0.0065	0.020 J	<0.014	0.029 J	0.13	1.8	0.025 J
12	13M012-G-05-N	1	Conduit 110	on	Pathway	Grab hr	5/17/2013	ND	ND	ND	0.0192 J	ND	0.267	0.0342 J
13	M013-1-01	1	103	NA	Work Area	24 hr	5/27/2012	<0.018	<0.020	<0.018	<0.018	0.021 J	0.093	0.024 J
13	M313-1-01	1	103	NA	Duplicate	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.025 J	0.099	0.18 J
13	14M013-1-01	1	103	NA	Work Area	24 hr	2/18/2014	<0.027	<0.029	0.0091 J	0.011 J	0.21	0.39	0.057
13	16M013-1-01	1	103	NA	Work Area	24 hr	1/14/2016	0.033 U	0.035 U	0.034 J	0.016 J	0.031 J	0.077	0.053
13	17M013-1-01	First	103	N/A	Work Area	23h 49min	1/18/2017	0.024 U	0.025 U	0.015 J	0.012 J	0.019 J	0.04	0.04
13	M013-1-02	1	102	NA	Work Area	24 hr	5/27/2012	<0.013	<0.015	<0.013	0.0063 J	0.12	0.32	0.15
13	14M013-1-02	1	102	NA	Work Area	24 hr	2/18/2014	<0.026	<0.029	<0.029	<0.029	0.11	0.19	0.046
13	16M013-1-02	1	102	NA	Work Area	24 hr	1/14/2016	0.026 U	0.027 U	0.040	0.071	0.22	0.46	0.056
13	17M013-1-02	First	102	N/A	Work Area	23h 49min	1/18/2017	0.028 U	0.029 U	0.029 U	0.028 U	0.013 J	0.05	0.034 J
13	17M313-1-02	First	102	N/A	Work Area	23h 48min	1/18/2017	0.028 U	0.03 U	0.03 U	0.028 U	0.03 U	0.04	0.032 J
13	14M013-A-01	Ambient Air	NA	NA	Background	24 hr	2/18/2014	<0.032	<0.035	<0.035	<0.035	0.066	0.061	0.043
13	16M013-A-01	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.030 U	0.031 U	0.030 J	0.023 J	0.018 J	0.055	0.038
13	17M013-A-01	Ambient	N/A	N/A	Ambient	23h 49min	1/18/2017	0.028 U	0.03 U	0.03 U	0.028 U	0.03 U	0.04	0.03 J
14	M314-1-01	1	Unoccupied Office	NA	Duplicate	8 hr	6/12/2012	<0.015	<0.017	0.014 J	<0.016	0.049	0.44	0.080 J
14	M014-1-03	1	Demo Room	NA	Work Area	8 hr	6/12/2012	<0.014	<0.016	<0.014	<0.014	0.0095 J	0.028 J	0.12
14	14M014-1-03	1	Demo Room	NA	Work Area	8 hr	2/12/2014	<0.027	<0.030	<0.030	<0.030	0.014 J	0.050	0.053
14	16M014-1-03-F	1	Dem. Room	off	Work Area	8 hr	1/17/2016	0.030 U	0.032 U	0.032 U	0.015 J	0.027 J	0.23	0.15
14	17M014-1-03-F	First	Dem. Room	OFF	Work Area	7h 43min	1/16/2017	0.029 U	0.03 U	0.052	0.021 J	0.180	0.94	0.21
14	16M014-1-03-N	1	Dem. Room	on	Work Area	8 hr	1/13/2016	0.031 U	0.032 U	0.020 J	0.032 U	0.032 U	0.026 J	0.055
14	17M014-1-03-N	First	Dem. Room	ON	Work Area	6h 59min	1/17/2016	0.038 U	0.04 U	0.047 J	0.038 U	0.022 J	0.08	0.09
14	M014-1-04	1	Workshop	NA	Work Area	8 hr	6/12/2012	<0.016	<0.019	0.058	<0.017	<0.017	0.024 J	0.06
14	14M014-1-04	1	Workshop	NA	Work Area	8 hr	2/12/2014	<0.034	<0.038	<0.038	<0.038	0.016 J	0.16	0.052
14	16M014-1-04-F	1	Workshop	off	Work Area	8 hr	1/17/2016	0.028 U	0.030 U	0.030 U	0.032 J	0.042	0.39	0.040
14	17M014-1-04-F	First	Workshop	OFF	Work Area	7h 49min	1/16/2017	0.031 U	0.032 U	0.052	0.021 J	0.200	0.96	0.23

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
14	16M014-1-04-N	1	Workshop	on	Work Area	8 hr	1/13/2016	0.032 U	0.034 U	0.020 J	0.034 U	0.034 U	0.026 J	0.027 J
14	17M014-1-04-N	First	Workshop	ON	Work Area	6h 59min	1/17/2016	0.033 U	0.035 U	0.042	0.033 U	0.022 J	0.08	0.09
14	M014-1-05	1	Offices	NA	Work Area	8 hr	6/12/2012	<0.016	<0.018	0.064	<0.017	<0.017	0.020 J	0.042
14	14M014-1-05	1	Offices	NA	Work Area	8 hr	2/12/2014	<0.029	<0.032 J	0.011 J	<0.032 J	0.022 J	0.28	0.058
14	14M314-1-05	1	Offices	NA	Duplicate	8 hr	2/12/2014	<0.029	0.011 J	0.012 J	0.020 J	0.044 J	0.29	0.060
14	16M014-1-05-F	1	Offices	off	Work Area	8 hr	1/17/2016	0.024 U	0.025 U	0.025 U	0.025 U	0.025 U	0.027 J	0.026 J
14	17M014-1-05-F	First	Offices	OFF	Work Area	7h 44min	1/16/2017	0.036 U	0.038 U	0.044 J	0.019 J	0.068	1.30	0.11
14	16M014-1-05-N	1	Offices	on	Work Area	8 hr	1/13/2016	0.032 U	0.034 U	0.018 J	0.034 U	0.034 U	0.085	0.044
14	16M314-1-05-N	1	Offices	on	Duplicate	8 hr	1/13/2016	0.033 U	0.035 U	0.019 J	0.035 U	0.035 U	0.086	0.045
14	17M014-1-05-N	First	Offices	ON	Work Area	7h 2min	1/17/2016	0.034 U	0.035 U	0.056	0.014 J	0.053	0.76	0.10
14	17M314-1-05-N	First	Offices	ON	Work Area	7h 1min	1/17/2016	0.041 U	0.043 U	0.057	0.015 J	0.058	0.76	0.09
14	M014-1-06	1	Unoccupied Office	NA	Work Area	8 hr	6/12/2012	<0.016	<0.018	<0.016	<0.016	0.05	0.46	0.086
14	M014-1-07	1	Unoccupied Office	NA	Work Area	8 hr	6/12/2012	<0.019	<0.022	0.032 J	<0.020	0.050 J	0.46	0.11 J
14	M014-C-01	1	Crawl Space	NA	Pathway	8 hr	6/12/2012	<0.061	<0.069	<0.063	<0.063	0.22	1.8	0.079 J
14	14M014-C-01	1	Crawl Space	NA	Pathway	8 hr	2/12/2014	<0.031	0.041	0.019 J	0.041	0.078	1.5	0.052
14	16M014-C-01-F	1	Crawl Space	NA	Pathway	8 hr	1/17/2016	0.027 U	0.10	0.048	0.090	0.24	6.8	0.047
14	17M014-C-01-F	Crawl Space	Crawl Space	OFF	Crawl Space	7h 43min	1/16/2017	0.14	0.034 J	0.81	0.079	0.320	4.60	0.15
14	16M014-C-01-N	1	Crawl Space	NA	Pathway	8 hr	1/13/2016	0.036 U	0.030 J	0.058	0.12	0.070	1.6	0.035 J
14	17M014-C-01-N	Crawl Space	Crawl Space	ON	Crawl Space	7h 18min	1/17/2016	0.066	0.014 J	0.065	0.022 J	0.058	0.54	0.09
14	M014-C-02	1	Crawl Space	NA	Pathway	8 hr	6/12/2012	<0.065	<0.073	<0.067	<0.067	0.27	2.3	0.045 J
14	14M014-C-02	1	Crawl Space	NA	Pathway	8 hr	2/12/2014	<0.029	0.11	0.029 J	0.066	0.17	4.5	0.057
14	16M014-C-02-F	1	Crawl Space	NA	Pathway	8 hr	1/17/2016	0.025 U	0.20	0.052	0.081	0.26	7.0	0.064
14	17M014-C-02-F	Crawl Space	Crawl Space	OFF	Crawl Space	7h 49min	1/16/2017	0.064	0.027 J	0.053	0.046	0.140	3.10	0.09
14	16M014-C-02-N	1	Crawl Space	NA	Pathway	8 hr	1/13/2016	0.029 U	0.070	0.081	0.063	0.14	5.5	0.051
14	17M014-C-02-N	Crawl Space	Crawl Space	ON	Crawl Space	7h 15min	1/17/2016	0.076	0.028 J	0.082	0.037 J	0.140	3.20	0.09
15	M015-1-01-F	1	135D	off	Work Area	24 hr	5/27/2012	<0.015	0.020 J	<0.016	0.015 J	0.13	1.6	0.26
15	M315-1-01-F	Ambient Air	NA	NA	Duplicate	24 hr	5/27/2012	<0.014	<0.016	<0.015	<0.015	0.019 J	0.038	0.022 J
15	14M015-1-01-F	1	135D	off	Work Area	24 hr	2/17/2014	0.10	0.017 J	0.021 J	<0.044	0.14	1.8	0.12
15	16M015-1-01-F	1	135D	off	Work Area	24 hr	1/18/2016	0.039	0.031 U	0.031 U	0.013 J	0.051	0.77	0.039
15	17M015-1-01-F	First	135D	OFF	Work Area	23h 42min	1/15/2017	0.038 U	0.028 J	0.068	0.04 J	0.180	3.30	0.12
15	M015-1-01-N	1	135D	on	Work Area	24 hr	5/22/2012	<0.014	<0.016	<0.015	<0.015	0.0082 J	0.032 J	0.12
15	M415-1-01-N	1	117	on	Duplicate	24 hr	5/22/2012	<0.017	<0.020	<0.018	<0.018	0.019 J	0.12	0.026 J
15	14M015-1-01-N	1	135D	on	Work Area	8 hr	2/13/2014	<0.025	<0.028	0.012 J	<0.028	0.084	0.074	0.048
15	16M015-1-01-N	1	135D	on	Work Area	24 hr	1/14/2016	0.037 U	0.039 U	0.026 J	0.039 U	0.018 J	0.080	0.039 J
15	17M015-1-01-N	First	135D	ON	Work Area	24hr	1/10/2017	0.053 U	0.056 U	0.056 U	0.024 J	0.056 U	0.07	0.03 J
15	M015-1-02-F	1	117	off	Work Area	24 hr	5/27/2012	<0.016	0.059	0.0086 J	0.024 J	0.24	2.5	0.042
15	14M015-1-02-F	1	117	off	Work Area	24 hr	2/17/2014	<0.033	<0.036	0.012 J	<0.036	0.092	0.25	0.051
15	16M015-1-02-F	1	117	off	Work Area	24 hr	1/18/2016	0.028 U	0.013 J	0.033 J	0.011 J	0.031 J	1.5	0.063
15	17M015-1-02-F	First	117	OFF	Work Area	23h 36min	1/15/2017	0.034 U	0.036 U	0.067	0.034 U	0.019 J	0.09	0.06
15	M015-1-02-N	1	117	on	Work Area	24 hr	5/22/2012	<0.013	<0.015	<0.014	<0.014	0.017 J	0.13	0.035 J
15	14M015-1-02-N	1	117	on	Work Area	8 hr	2/13/2014	<0.029	<0.032	<0.032	<0.032	0.15	0.17	0.058
15	16M015-1-02-N	1	117	on	Work Area	24 hr	1/14/2016	0.033 U	0.034 U	0.025 J	0.034 U	0.025 J	0.13	0.10
15	17M015-1-02-N	First	117	ON	Work Area	24hr	1/10/2017	0.03 U	0.032 U	0.032 U	0.0093 J	0.032 U	0.15	0.032 J
15	M015-1-03-F	1	C107	off	Work Area	24 hr	5/27/2012	0.010 J	0.019 J	<0.014	0.015 J	0.12	1.5	0.051
15	14M015-1-03-F	1	C107	off	Work Area	24 hr	2/17/2014	0.043	0.015 J	0.015 J	<0.031	0.12	1.5	0.071
15	14M315-1-03-F	1	C107	off	Duplicate	24 hr	2/17/2014	0.047 J	0.017 J	<0.049 J	<0.049	0.13	1.6	0.062
15	16M015-1-03-F	1	C107	off	Work Area	24 hr	1/18/2016	0.056	0.038 U	0.038 U	0.038 U	0.070	0.69	0.049
15	16M315-1-03-F	1	C107	off	Duplicate	24 hr	1/18/2016	0.058	0.035 U	0.035 U	0.013 J	0.066	0.62	0.046
15	17M015-1-03-F	First	C107	OFF	Work Area	23h 41min	1/15/2017	0.035 U	0.037 U	0.063	0.016 J	0.057	0.95	0.07
15	17M315-1-03-F	First	C107	OFF	Work Area	23h 42min	1/15/2017	0.029 U	0.03 U	0.054	0.012 J	0.048	0.88	0.06
15	M015-1-03-N	1	C107	on	Work Area	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	0.0093 J	0.037 J	0.51
15	14M015-1-03-N	1	C107	on	Work Area	8 hr	2/13/2014	<0.038	<0.042	0.013 J	<0.042	0.11	0.079	0.077
15	16M015-1-03-N	1	C107	on	Work Area	24 hr	1/14/2016	0.032 U	0.034 U	0.026 J	0.034 U	0.018 J	0.078	0.041
15	17M015-1-03-N	First	C107	ON	Work Area	24hr	1/10/2017	0.039 U	0.041 U	0.041 U	0.039 U	0.041 U	0.07	0.033 J
15	M015-1-04-F	1	C107	off	Work Area	24 hr	5/27/2012	0.0078 J	0.022 J	<0.012	0.012 J	0.084	1.1	0.19
15	M015-1-04-N	1	C107	on	Work Area	24 hr	5/22/2012	<0.016	<0.019	<0.017	<0.017	<0.017	0.033 J	0.043
15	M015-1-05-F	1	128	off	Work Area	24 hr	5/27/2012	<0.017	<0.019	<0.018	0.015 J	0.13	1.5	0.05
15	M015-1-05-N	1	128	on	Work Area	24 hr	5/22/2012	<0.015	<0.017	<0.015	<0.015	0.0093 J	0.04	0.024 J
15	M015-1-06-F	1	C104	off	Work Area	24 hr	5/27/2012	<0.014	0.020 J	<0.014	0.013 J	0.13	1.3	0.05

TABLE 13

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Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
15	14M015-1-06-F	1	C104	off	Work Area	24 hr	2/17/2014	0.023 J	0.018 J	0.014 J	0.020 J	0.12	1.5	0.054
15	16M015-1-06-F	1	C104	off	Work Area	24 hr	1/18/2016	0.0099 J	0.026 U	0.026 U	0.0088 J	0.026 J	0.86	0.031
15	17M015-1-06-F	First	C104	OFF	Work Area	23h 41min	1/15/2017	0.029 U	0.03 U	0.056	0.011 J	0.042	1.10	0.06
15	M015-1-06-N	1	C104	on	Work Area	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	0.014 J	0.084	0.022 J
15	14M015-1-06-N	1	C104	on	Work Area	8 hr	2/13/2014	<0.027	<0.030	0.012 J	<0.030	0.11	0.12	0.047
15	16M015-1-06-N	1	C104	on	Work Area	24 hr	1/14/2016	0.034 U	0.035 U	0.024 J	0.019 J	0.019 J	0.091	0.045
15	17M015-1-06-N	First	C104	ON	Work Area	24hr	1/10/2017	0.032 U	0.034 U	0.013 J	0.032 U	0.034 U	0.08	0.04 J
15	M015-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2012	<0.013	<0.015	<0.014	<0.014	0.017 J	0.035	0.095 J
15	14M015-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.023	<0.026	<0.026	<0.026	0.028 J	0.060	0.034
15	16M015-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.032 U	0.034 U	0.034 U	0.034 U	0.024 J	0.085	0.025 J
15	17M015-A-01-F	Ambient	N/A	OFF	Ambient	23h 38min	1/15/2017	0.025 U	0.027 U	0.073	0.01 J	0.021 J	0.08	0.06
15	M015-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/22/2012	<0.014	<0.016	<0.014	<0.014	0.0087 J	0.021 J	0.16
15	14M015-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/14/2014	<0.031	<0.034	0.015 J	<0.034	0.061	0.063	0.068
15	17M015-A-01-N	Ambient	Ambient	ON	Ambient	23h 55min	1/12/2016	0.027 U	0.028 U	0.075	0.027 U	0.028 U	0.028 J	0.04
15	16M015-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.024 U	0.026 U	0.018 J	0.026 U	0.012 J	0.054	0.033
16	M016-1-01-F	1	106	off	Work Area	10 hr	5/28/2012	<0.014	<0.016	<0.015	0.017 J	0.13	0.64	0.100 J
16	M416-1-01-F	1	106	off	Duplicate	10 hr	5/28/2012	<0.019	<0.022	<0.020	0.021 J	0.14	0.68	0.031 J
16	14M016-1-01-F	1	106	off	Work Area	10 hr	2/16/2014	<0.026	0.032 J	0.022 J	0.038	0.17	2.0	0.075
16	16M016-1-01-F	1	106	off	Work Area	10 hr	1/17/2016	0.78	0.027 J	0.021 J	0.019 J	0.70	1.1	0.26
16	17M016-1-01-F	First	106	OFF	Work Area	9h 50min	1/16/2017	0.029 U	0.031 U	0.043	0.02 J	0.150	0.88	0.12
16	M016-1-01-N	1	106	on	Work Area	10 hr	5/24/2012	<0.015	<0.017	<0.015	0.0077 J	0.07	0.067	0.030 J
16	M416-1-01-N	1	106	on	Duplicate	10 hr	5/24/2012	<0.015	<0.017	<0.015	0.0077 J	0.067	0.066	0.067 J
16	14M016-1-01-N	1	106	on	Work Area	10 hr	2/12/2014	<0.028	<0.030	0.019 J	<0.030	0.11	0.15	0.064
16	16M016-1-01-N	1	106	on	Work Area	10 hr	1/13/2016	0.037 U	0.039 U	0.017 J	0.013 J	0.039 U	0.099	0.028 J
16	17M016-1-01-N	First	106	ON	Work Area	9h 37min	1/18/2017	0.032 U	0.034 U	0.034 U	0.017 J	0.019 J	0.20	0.06
16	M016-1-02-F	1	110	off	Work Area	10 hr	5/28/2012	<0.016	0.019 J	<0.017	0.024 J	0.27	1.1	0.19
16	14M016-1-02-F	1	110	off	Work Area	10 hr	2/16/2014	<0.027	0.022 J	0.011 J	0.032 J	0.13	1.9	0.28
16	16M016-1-02-F	1	110	off	Work Area	10 hr	1/17/2016	1.5	0.037	0.037	0.013 J	1.5	0.78	0.59
16	17M016-1-02-F	First	110	OFF	Work Area	9h 48min	1/16/2017	0.029 U	0.03 U	0.039	0.03 J	0.160	0.81	0.14
16	M016-1-02-N	1	110	on	Work Area	10 hr	5/24/2012	<0.015	<0.017	<0.015	0.0087 J	0.089	0.17	0.072
16	14M016-1-02-N	1	110	on	Work Area	10 hr	2/12/2014	<0.030	<0.033	0.016 J	0.011 J	0.11 J	0.46	0.19
16	14M416-1-02-N	1	110	on	Duplicate	10 hr	2/12/2014	<0.029	<0.032	0.016 J	0.012 J	0.17 J	0.46	0.19
16	16M016-1-02-N	1	110	on	Work Area	10 hr	1/13/2016	0.012 J	0.033 U	0.017 J	0.011 J	0.018 J	0.21	0.064
16	16M416-1-02-N	1	110	on	Duplicate	10 hr	1/13/2016	0.026 U	0.028 U	0.10	0.0098 J	0.023 J	0.25	0.11
16	17M016-1-02-N	First	110	ON	Work Area	9h 34min	1/18/2017	0.033 U	0.034 U	0.034 U	0.033 U	0.034 U	0.029 J	0.18
16	17M316-1-02-N	First	110	ON	Work Area	9h 36min	1/18/2017	0.034 U	0.035 U	0.035 U	0.017 J	0.025 J	0.43	0.10
16	M016-1-03-F	1	111	off	Work Area	10 hr	5/28/2012	0.0071 J	0.022 J	0.0067 J	0.024 J	0.33	1.1	0.073
16	14M016-1-03-F	1	111	off	Work Area	10 hr	2/16/2014	<0.026	0.015 J	0.17 J	<0.028	0.10	1.2	0.25
16	14M316-1-03-F	1	111	off	Duplicate	10 hr	2/16/2014	<0.029	0.016 J	0.015 J	0.024 J	0.11	1.4	0.25
16	16M016-1-03-F	1	111	off	Work Area	10 hr	1/17/2016	0.84	0.021 J	0.021 J	0.014 J	0.80	0.63	0.34
16	16M316-1-03-F	1	111	off	Duplicate	10 hr	1/17/2016	0.78	0.021 J	0.020 J	0.015 J	0.77	0.62	0.34
16	17M016-1-03-F	First	111	OFF	Work Area	9h 51min	1/16/2017	0.029 U	0.03 U	0.036	0.021 J	0.160	0.79	0.16
16	17M316-1-03-F	First	111	OFF	Work Area	9h 48min	1/16/2017	0.029 U	0.03 U	0.038	0.018 J	0.160	0.77	0.17
16	M016-1-03-N	1	111	on	Work Area	10 hr	5/24/2012	<0.015	<0.017	<0.016	0.0084 J	0.085	0.18	0.075
16	14M016-1-03-N	1	111	on	Work Area	10 hr	2/12/2014	<0.029	<0.032	0.014 J	<0.032	0.083	0.34	0.15
16	16M016-1-03-N	1	111	on	Work Area	10 hr	1/13/2016	0.034 U	0.036 U	0.017 J	0.036 U	0.021 J	0.31	0.11
16	17M016-1-03-N	First	111	ON	Work Area	9h 35min	1/18/2017	0.029 U	0.03 U	0.03 U	0.029 U	0.019 J	0.49	0.14
16	M016-1-04-F	1	113	off	Work Area	10 hr	5/28/2012	<0.015	0.031 J	<0.016	0.022 J	0.25	1.9	0.071
16	14M016-1-04-F	1	113	off	Work Area	10 hr	2/16/2014	<0.023	0.024 J	0.015 J	0.028 J	0.18	2.6	0.31
16	16M016-1-04-F	1	113	off	Work Area	10 hr	1/17/2016	0.026 U	0.028 U	0.028 U	0.022 J	0.019 J	0.71	0.059
16	17M016-1-04-F	First	113	OFF	Work Area	9h 54min	1/16/2017	0.038 U	0.04 U	0.075	0.033 J	0.290	1.80	0.25
16	M016-1-04-N	1	113	on	Work Area	10 hr	5/24/2012	<0.014	<0.016	<0.015	0.009 J	0.11	0.2	0.059
16	14M016-1-04-N	1	113	on	Work Area	10 hr	2/12/2014	<0.025	0.010 J	0.016 J	0.012 J	0.12	0.89	0.20
16	16M016-1-04-N	1	113	on	Work Area	10 hr	1/13/2016	0.033 U	0.035 U	0.019 J	0.011 J	0.021 J	0.49	0.14
16	17M016-1-04-N	First	113	ON	Work Area	9h 35min	1/18/2017	0.038 U	0.04 U	0.04 U	0.038 U	0.04 U	0.44	0.06
16	M016-1-05-F	1	103	off	Work Area	10 hr	5/28/2012	<0.015	0.032 J	0.0079 J	0.031 J	0.25	1.2	0.18
16	14M016-1-05-F	1	103	off	Work Area	10 hr	2/16/2014	<0.028	0.074	0.027 J	0.075	0.52	6.6	0.10
16	16M016-1-05-F	1	103	off	Work Area	10 hr	1/17/2016	0.71	0.026 J	0.020 J	0.019 J	0.65	1.1	0.24
16	17M016-1-05-F	First	103	OFF	Work Area	9h 50min	1/16/2017	0.035 U	0.037 U	0.038 J	0.021 J	0.140	0.79	0.11

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
16	M016-1-05-N	1	103	on	Work Area	10 hr	5/24/2012	<0.015	<0.017	<0.016	0.0077 J	0.071	0.082	0.033 J
16	14M016-1-05-N	1	103	on	Work Area	10 hr	2/12/2014	<0.024	<0.026	0.017 J	<0.026	0.12	0.11	0.058
16	16M016-1-05-N	1	103	on	Work Area	10 hr	1/13/2016	0.039 U	0.041 U	0.035 J	0.041 U	0.041 U	0.17	0.096
16	17M016-1-05-N	First	103	ON	Work Area	9h 57min	1/18/2017	0.028 U	0.03 U	0.019 J	0.01 J	0.03 J	0.27	0.06
16	17M016-1-06-F	First	108	OFF	Work Area	9h 43min	1/16/2017	0.041	0.032 U	0.064	0.023 J	0.230	0.92	0.20
16	17M016-1-06-N	First	108	ON	Work Area	9h 59min	1/18/2017	0.036	0.017 J	0.086	0.03 J	0.089	0.57	1.50
16	M016-A-01-F	Ambient Air	NA	off	Background	24 hr	5/28/2012	<0.016	<0.018	<0.016	<0.016	0.020 J	0.034 J	0.036 J
16	14M016-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.030	<0.033	0.011 J	<0.033	0.089	0.083	0.046
16	16M016-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.031 U	0.032 U	0.032 U	0.032 U	0.016 J	0.055	0.030 J
16	17M016-A-01-F	Ambient	N/A	OFF	Ambient	23h 29min	1/16/2017	0.027 U	0.028 U	0.069	0.01 J	0.053	0.27	0.06
16	M016-A-01-N	Ambient Air	NA	on	Background	24 hr	5/24/2012	<0.016	<0.018	<0.016	<0.016	0.010 J	0.024 J	0.037 J
16	14M016-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.028	<0.031	0.014 J	<0.031	0.065	0.049	0.045
16	16M016-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.028 U	0.029 U	0.017 J	0.013 J	0.042	0.19	0.036
16	17M016-A-01-N	Ambient	N/A	ON	Ambient	23h 50min	1/18/2017	0.029 U	0.03 U	0.03 U	0.029 U	0.03 J	0.17	0.03 J
29	M029-1-01	1	106	NA	Work Area	8 hr	5/21/2012	<0.014	<0.016	<0.014	<0.014	0.075	0.18	0.23
29	14M029-1-01	1	106	NA	Work Area	8 hr	2/11/2014	<0.036	<0.040	<0.040	<0.040	0.089	0.069	0.061
29	16M029-1-01	1	106	NA	Work Area	8 hr	1/12/2016	0.027 U	0.028 U	0.050	0.028 U	0.054	0.17	0.091
29	17M029-1-01	First	106	N/A	Work Area	8hr	1/09/2017	0.031 J	0.031 U	0.031 U	0.016 J	0.160	0.39	0.29
29	M029-A-01	Ambient Air	NA	NA	Background	24 hr	5/21/2012	<0.016	<0.018	<0.016	<0.016	0.034 J	0.056	0.027 J
29	14M029-A-01	Ambient Air	NA	NA	Background	8 hr	2/11/2014	<0.029	<0.032	<0.032	<0.032	0.013 J	0.04	0.049
29	16M029-A-01	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.030 U	0.032 U	0.029 J	0.032 U	0.068	0.12	0.093
29	17M029-A-01	Ambient	N/A	N/A	Ambient	24hr	1/09/2017	0.029 U	0.03 U	0.03 U	0.029 U	0.037	0.07	0.07
29	M029-B-01	Basement	Basement	NA	Pathway	8 hr	5/21/2012	<0.015	<0.017	<0.015	<0.015	0.053	0.13	0.19
29	14M029-B-01	Basement	Basement	NA	Pathway	8 hr	2/11/2014	<0.033	<0.036	0.012 J	<0.036	0.020 J	0.063	0.060
29	16M029-B-01	Basement	Basement	NA	Pathway	8 hr	1/12/2016	0.030 U	0.032 U	0.056	0.16	0.047	0.15	0.093
29	17M029-B-01	First	Basement	N/A	Work Area	8hr	1/09/2017	0.029 J	0.031 U	0.031 U	0.013 J	0.140	0.35	0.26
45	M345-1-01	1	101	NA	Duplicate	8 hr	5/24/2012	<0.015	<0.017	<0.015	0.0089 J	0.071	0.37	0.037 J
45	M045-1-01	1	101	NA	Work Area	8 hr	5/24/2012	<0.015	<0.017	<0.015	0.0084 J	0.07	0.37	0.04
45	14M045-1-01	1	101	NA	Work Area	8 hr	2/12/2014	0.012 J	0.013 J	0.014 J	0.019 J	0.19	0.62	0.12
45	16M045-1-01	1	101	NA	Work Area	8 hr	1/12/2016	0.16	0.11	0.10	0.18	2.8	7	5
45	17M045-1-01	First	101	N/A	Work Area	7h 47min	1/17/2017	0.085	0.054	0.095	0.2	1.200	4.80	2.60
45	M045-1-02	1	102	NA	Work Area	8 hr	5/24/2012	0.0096 J	<0.017	<0.015	0.0098 J	0.1	0.44	0.068
45	14M045-1-02	1	102	NA	Work Area	8 hr	2/12/2014	0.016 J	0.017 J	0.015 J	0.016 J	0.23	0.80	0.26
45	16M045-1-02	1	102	NA	Work Area	8 hr	1/12/2016	0.074	0.054	0.070	0.096	1.4	3.9	2.6
45	17M045-1-02	First	102	N/A	Work Area	7h 44min	1/17/2017	0.074	0.048	0.082	0.19	1.100	4.70	2.60
45	14M045-A-01	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.024	0.0096 J	0.012 J	<0.026	0.13	0.38	0.072
45	16M045-A-01	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.032 U	0.034 U	0.027 J	0.034 U	0.15	0.35	0.15
45	17M045-A-01	Ambient	N/A	N/A	Ambient	23h 56min	1/17/2017	0.016 J	0.029 U	0.041	0.01 J	0.180	0.46	0.30
67	M367-1-01	Ambient Air	NA	NA	Duplicate	24 hr	5/21/2012	<0.013	<0.015	<0.014	<0.014	0.011 J	0.021 J	0.034 J
67	M067-1-01	1	C101	NA	Work Area	24 hr	5/21/2012	<0.013	<0.015	<0.014	<0.014	0.012 J	0.086	0.039
67	14M067-1-01	1	C101	NA	Work Area	24 hr	2/12/2014	<0.030	<0.033	0.012 J	<0.033	0.022 J	0.086	0.042
67	16M067-1-01	1	C101	NA	Work Area	24 hr	1/13/2016	0.030 U	0.031 U	0.041	0.013 J	0.031 U	0.18	0.068
67	17M067-1-01	First	C101	N/A	Work Area	23h 51min	1/17/17	0.028 U	0.03 U	0.042	0.0096 J	0.031 J	0.34	0.07
67	M067-1-02	1	104	NA	Work Area	24 hr	5/21/2012	<0.015	<0.017	<0.016	<0.016	0.011 J	0.046	0.025 J
67	M067-A-01	Ambient Air	NA	NA	Background	24 hr	5/21/2012	<0.016	<0.018	<0.017	<0.017	0.012 J	0.023 J	0.078 J
67	14M067-A-01	Ambient Air	NA	NA	Background	24 hr	2/12/2014	<0.022	<0.025	0.012 J	<0.025	0.028 J	0.049	0.060
67	16M067-A-01	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.035 U	0.037 U	0.026 J	0.015 J	0.037 U	0.055	0.056
67	17M067-A-01	First	N/A	N/A	Work Area	23h 46min	1/17/17	0.025 U	0.026 U	0.038	0.02 J	0.039	0.14	0.07
76	M076-1-01	1	101	NA	Work Area	24 hr	5/21/2012	<0.015	0.053	<0.015	0.007 J	0.078	0.12	0.052
76	14M076-1-01	1	101	AC off	Work Area	8 hr	2/11/2014	<0.029	0.012 J	0.0098 J	<0.032	0.14	0.14	0.060
76	16M076-1-01	1	101	AC off	Work Area	8 hr	1/12/2016	0.039 U	0.041 U	0.069	0.041 U	0.040 J	0.36	0.12
76	17M076-1-01	First	101	N/A	Work Area	7h 4min	1/17/17	0.025 U	0.026 U	0.037	0.011 J	0.034	0.27	0.07
76	M076-1-01-N	1	101	NA	Work Area	24 hr	6/12/2012	<0.018	0.038 J	<0.019	<0.019	0.048	0.15	0.055
107	M107-1-01-F	1	106	off	Work Area	8 hr	5/28/2012	<0.016	0.059	<0.016	<0.016	0.037 J	0.11	0.058
107	14M107-1-01-F	1	106	off	Work Area	8 hr	2/16/2014	<0.029	<0.032	<0.032	0.013 J	0.022 J	0.13	0.12
107	16M107-1-01-F	1	106	off	Work Area	8 hr	1/17/2016	0.21	0.031 U	0.031 U	0.66	0.25	0.12	0.15
107	17M107-1-01-F	First	106	OFF	Work Area	7h 59min	1/16/2017	0.026 U	0.027 U	1.1	0.026 U	0.02 J	0.08	0.11
107	M107-1-01-N	1	106	on	Work Area	8 hr	5/23/2012	<0.014	<0.016	<0.015	<0.015	0.022 J	0.1	0.065
107	14M107-1-01-N	1	106	on	Work Area	8 hr	2/11/2014	<0.031	<0.034	<0.034	<0.034	0.036 J	0.13	0.11

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
107	16M107-1-01-N	1	106	on	Work Area	8 hr	1/12/2016	0.040 U	0.042 U	0.055	0.016 J	0.045 J	0.13	0.13
107	17M107-1-01-N	First	106	ON	Work Area	7h 39min	1/17/2017	0.03 U	0.032 U	0.055	0.01 J	0.022 J	0.08	0.07
107	M107-1-02-F	1	C101	off	Work Area	8 hr	5/28/2012	<0.013	0.030 J	<0.014	<0.014	0.028 J	0.051	<0.013
107	14M107-1-02-F	1	C101	off	Work Area	8 hr	2/16/2014	<0.026	<0.029	<0.029	<0.029	0.017 J	0.11	0.086
107	16M107-1-02-F	1	C101	off	Work Area	8 hr	1/17/2016	0.096	0.031 U	0.031 U	0.024 J	0.11	0.073	0.080
107	17M107-1-02-F	First	C101	OFF	Work Area	7h 57min	1/16/2017	0.028 U	0.029 U	0.029 J	0.028 U	0.015 J	0.06	0.05
107	M107-1-02-N	1	C101	on	Work Area	8 hr	5/23/2012	<0.016	<0.018	<0.016	<0.016	0.014 J	0.043	0.051
107	14M107-1-02-N	1	C101	on	Work Area	8 hr	2/11/2014	<0.032	<0.035	<0.035	<0.035	0.027 J	0.055	0.073
107	16M107-1-02-N	1	C101	on	Work Area	8 hr	1/12/2016	0.036 U	0.037 U	0.054	0.037 U	0.027 J	0.095	0.11
107	17M107-1-02-N	First	C102	ON	Work Area	7h 39min	1/17/2017	0.025 U	0.026 U	0.062	0.0092 J	0.018 J	0.08	0.07
126	M326-1-01-F	1	102	off	Duplicate	8 hr	6/12/2012	0.023 J	0.053	0.065 J	0.035 J	0.55	1.8	2.3
126	M126-1-01-F	1	103	off	Work Area	8 hr	6/12/2012	0.038 J	0.069	0.07	0.054	0.93	2.6	3.2
126	14M126-1-01-F	1	103	off	Work Area	8 hr	2/18/2014	0.035 J	0.053	0.018 J	0.044	0.66	2.4	3.1
126	16M126-1-01-F	1	103	off	Work Area	8 hr	1/19/2016	1.7	0.090	0.048	0.055	1.6	3.3	6.5
126	17M126-1-01-F	First	103	OFF	Work Area	8h 11min	1/17/2017	1.3	0.29	0.14	0.29	21.000	15.0	32.00
126	M126-1-01-N	1	103	on	Work Area	8 hr	5/18/2012	0.027 J	0.044	0.013 J	0.043	0.85	2.2	2.8
126	14M126-1-01-N	1	103	on	Work Area	8 hr	2/12/2014	0.036 J	0.043 J	0.024 J	0.050	0.70	2.8	3.7
126	16M126-1-01-N	1	103	on	Work Area	8 hr	1/13/2016	0.080	0.050 U	0.018 J	0.018 J	0.53	0.82	1.6
126	17M126-1-01-N	First	17M126-1-01-N	ON	Work Area	6h 20min	1/11/2017	0.84	0.29	0.12	0.24	17.000	13.0	29.00
126	M126-1-02-F	1	103	off	Work Area	8 hr	6/12/2012	0.035 J	0.083	0.073	0.044	0.86	2	2.7
126	14M126-1-02-F	1	103	off	Work Area	8 hr	2/18/2014	0.037 J	0.046	0.018 J	0.045	0.73	2.3	3.0
126	16M126-1-02-F	1	103	off	Work Area	8 hr	1/19/2016	1.5	0.085	0.044	0.051	1.7	3.3	6.4
126	16M326-1-02-F	1	103	off	Duplicate	8 hr	1/19/2016	1.5	0.084	0.043	0.048	1.7	3.3	6.4
126	17M126-1-02-F	First	103	OFF	Work Area	8h 11min	1/17/2017	2.1	0.49	0.22	0.46	34.000	23.0	51.00
126	M126-1-02-N	1	103	on	Work Area	8 hr	5/18/2012	0.028 J	0.06	0.013 J	0.038	0.87	1.8	2.6
126	14M126-1-02-N	1	103	on	Work Area	8 hr	2/12/2014	0.040 J	0.027 J	0.020 J	0.035 J	0.66	1.8	2.4
126	14M326-1-02-N	1	103	NA	Duplicate	8 hr	2/12/2014	0.035 J	0.029 J	0.021 J	0.037 J	0.65	1.8	2.4
126	16M126-1-02-N	1	103	on	Work Area	8 hr	1/13/2016	0.090	0.017 J	0.021 J	0.18	0.67	1.0	1.9
126	17M126-1-02-N	First	17M126-1-02-N	ON	Work Area	6h 21min	1/11/2017	1.3	0.43	0.16	0.35	24.000	18.0	41.00
126	17M326-1-02-N	First	17M326-1-02-N	ON	Work Area	6h 21min	1/11/2017	1.3	0.43	0.17	0.35	24.000	19.0	41.00
126	M126-1-03-F	1	102	off	Work Area	8 hr	6/12/2012	0.023 J	0.062	0.097 J	0.035 J	0.54	1.8	2.2
126	M126-1-03-N	1	102	on	Work Area	8 hr	5/18/2012	0.017 J	0.038	0.010 J	0.029 J	0.52	1.6	1.9
126	M126-1-04-F	1	106	off	Work Area	8 hr	6/12/2012	0.053	0.044	0.066	0.046	1.1	1.4	2
126	14M126-1-04-F	1	106	off	Work Area	8 hr	2/18/2014	0.022 J	0.029 J	0.013 J	0.027 J	0.42	1.3	1.7
126	16M126-1-04-F	1	106	off	Work Area	8 hr	1/19/2016	1	0.057	0.032 J	0.035 J	1.6	2.3	4.9
126	17M126-1-04-F	First	106	OFF	Work Area	8h 10min	1/17/2017	2.4	0.5	0.25	0.48	37.000	24.0	56.00
126	M126-1-04-N	1	106	on	Work Area	8 hr	5/18/2012	0.053	0.052	0.016 J	0.057	1.4	2.3	2.7
126	14M126-1-04-N	1	106	on	Work Area	8 hr	2/12/2014	0.026 J	0.023 J	0.018 J	0.030 J	0.48	1.4	1.8
126	16M126-1-04-N	1	106	on	Work Area	8 hr	1/13/2016	0.067	0.038 U	0.024 J	0.045 J	0.54	0.74	1.4
126	17M126-1-04-N	First	17M126-1-04-N	ON	Work Area	6h 22min	1/11/2017	0.81	0.26	0.1	0.22	15.000	12.0	26.00
126	M126-1-05-F	1	101	off	Work Area	8 hr	6/12/2012	0.023 J	0.082	0.081	0.055	0.73	3.1	4.4
126	14M126-1-05-F	1	101	off	Work Area	8 hr	2/18/2014	0.026 J	0.093	0.024 J	0.063	0.69	4.7	5.2
126	16M126-1-05-F	1	101	off	Work Area	8 hr	1/19/2016	2.3	0.13	0.066	0.064	1.7	4.8	8.9
126	17M126-1-05-F	First	101	OFF	Work Area	8h 12min	1/17/2017	0.45	0.096	0.053	0.1	6.800	5.30	11.00
126	M126-1-05-N	1	101	on	Work Area	8 hr	5/18/2012	0.013 J	0.057	0.010 J	0.038 J	0.55	2.8	2.8
126	14M126-1-05-N	1	101	on	Work Area	8 hr	2/12/2014	0.023 J	0.11	0.037 J	0.079	0.70	5.8	6.5
126	16M126-1-05-N	1	101	on	Work Area	8 hr	1/13/2016	1.8	0.12	0.066	0.076	1.9	4.6	9.7
126	17M126-1-05-N	First	17M126-1-05-N	ON	Work Area	5hr 59min	1/18/2017	0.2	0.045	0.027 J	0.051	3.000	2.60	5.40
126	14M126-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/19/2014	<0.026	<0.028	<0.028	<0.028	0.060	0.045	0.065
126	16M126-A-01-F	Ambient Air	NA	off	Background	8 hr	1/19/2016	0.030 U	0.032 U	0.032 U	0.0096 J	0.032 U	0.025 J	0.047
126	17M126-A-01-F	Ambient	N/A	OFF	Ambient	23h 38min	1/17/2017	0.038	0.03 U	0.043	0.016 J	0.520	0.43	0.85
126	M126-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/18/2012	<0.014	<0.015	<0.014	<0.014	0.061	0.065	0.2
126	14M126-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.033	<0.037	0.017 J	<0.037	0.096	0.093	0.092
126	16M126-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.057	0.034 U	0.019 J	0.034 U	0.15	0.15	0.29
126	17M126-A-01-N	Ambient	17M126-A-01-N	ON	Ambient	24hr	1/11/2017	0.081	0.027 J	0.023 J	0.029 J	1.500	1.30	2.70
126	M126-A-02-N	Ambient Air	NA	NA	Background	24 hr	5/22/2012	<0.016	<0.019	<0.017	<0.017	0.030 J	0.088	0.088
126	M126-A-03-N	Ambient Air	NA	NA	Background	24 hr	5/23/2012	<0.013	<0.015	<0.014	<0.014	0.039	0.051	0.07
126	M126-A-04-N	Ambient Air	NA	NA	Background	24 hr	5/24/2012	<0.016	<0.019	<0.017	<0.017	<0.017	0.027 J	0.1
126	M126-A-05-F	Ambient Air	NA	NA	Background	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.033 J	0.056	0.11

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
126	M126-A-06-F	Ambient Air	NA	NA	Background	24 hr	5/28/2012	<0.016	<0.018	<0.017	<0.017	0.031 J	0.039 J	0.039 J
126	M126-A-07-F	Ambient Air	NA	NA	Background	24 hr	6/12/2012	<0.017	<0.019	<0.017	<0.017	0.030 J	0.046	0.049
510	M510-1-01-F	1	108A	off	Work Area	24 hr	5/27/2012	<0.016	0.037 J	<0.016	0.019 J	0.33	0.12	0.064
510	M410-1-01-F	Ambient Air	NA	NA	Duplicate	24 hr	5/27/2012	<0.016	0.09	0.019 J	0.051	1	0.17	0.160 J
510	M510-1-01-N	1	108A	on	Work Area	24 hr	5/23/2012	<0.015	<0.017	<0.015	0.0089 J	0.110 J	0.084	0.057
510	M510-1-02-F	1	110	off	Work Area	24 hr	5/27/2012	<0.016	0.032 J	<0.017	0.020 J	0.31	0.12	0.049
510	14M510-1-02-F	1	110	off	Work Area	24 hr	2/17/2014	<0.035	0.019 J	0.014 J	<0.039	0.44	0.16	0.073
510	16M510-1-02-F	1	110	off	Work Area	24 hr	1/18/2016	0.034 U	0.036 U	0.036 U	0.036 U	0.036 U	0.086	0.088
510	17M510-1-02-F	First	110	OFF	Work Area	23h 34min	1/15/2017	0.027 U	0.028 U	0.069	0.027 U	0.024 J	0.17	0.06
510	M510-1-02-N	1	110	on	Work Area	24 hr	5/23/2012	<0.014	0.018 J	<0.014	0.010 J	0.13	0.096	0.048
510	14M510-1-02-N	1	110	on	Work Area	24 hr	2/13/2014	<0.027	0.016 J	0.016 J	<0.030	0.30	0.10	0.055
510	16M510-1-02-N	1	110	on	Work Area	24 hr	1/14/2016	0.025 U	0.026 U	0.016 J	0.026 U	0.021 J	0.091	0.036
510	17M510-1-02-N	First	110	ON	Work Area	23h 50min	1/18/2017	0.029 U	0.03 U	0.03 U	0.029 U	0.03 U	0.07	0.04
510	M510-1-03-F	1	C101	off	Work Area	24 hr	5/27/2012	<0.014	0.044	<0.015	0.024 J	0.44	0.15	0.058
510	14M510-1-03-F	1	C101	off	Work Area	24 hr	2/17/2014	<0.038	0.025 J	0.013 J	0.020 J	0.48	0.19	0.075
510	16M510-1-03-F	1	C101	off	Work Area	24 hr	1/18/2016	0.032 U	0.033 U	0.033 U	0.033 U	0.033 U	0.084	0.031 J
510	17M510-1-03-F	First	C101	OFF	Work Area	23h 34min	1/15/2017	0.029 U	0.03 U	0.061	0.029 U	0.029 J	0.19	0.06
510	M510-1-03-N	1	C101	on	Work Area	24 hr	5/23/2012	<0.020	<0.023	<0.021	0.012 J	0.16	0.1	0.52
510	14M510-1-03-N	1	C101	on	Work Area	24 hr	2/13/2014	<0.030	0.018 J	0.018 J	<0.034	0.32	0.12	0.060
510	16M510-1-03-N	1	C101	on	Work Area	24 hr	1/14/2016	0.028 U	0.029 U	0.019 J	0.029 U	0.023 J	0.10	0.040
510	17M510-1-03-N	First	C101	ON	Work Area	23h 50min	1/18/2017	0.029 U	0.03 U	0.03 U	0.029 U	0.03 U	0.06	0.05
510	M410-1-01-N	1	108A	on	Duplicate	24 hr	5/23/2012	<0.016	<0.018	<0.016	0.010 J	0.150 J	0.095	0.052
510	M510-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2012	<0.014	0.092	0.018 J	0.049	1	0.15	0.092 J
510	14M510-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.029	0.070	0.029 J	0.044	1.5	0.17	0.068
510	16M510-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.031 U	0.033 U	0.033 U	0.0096 J	0.033 U	0.020 J	0.025 J
510	17M510-A-01-F	Ambient	N/A	OFF	Ambient	23h 35min	1/15/2017	0.013 J	0.029 U	0.061	0.027 U	0.029 J	0.12	0.06
510	M510-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/23/2012	<0.014	0.045	0.0087 J	0.022 J	0.41	0.2	0.11
510	14M510-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.027	0.033 J	0.021 J	0.021 J	0.65	0.12	0.065
510	16M510-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.014 J	0.035 U	0.015 J	0.016 J	0.032 J	0.069	0.040 J
510	17M510-A-01-N	Ambient	N/A	ON	Ambient	23h 50min	1/18/2017	0.028 U	0.03 U	0.03 U	0.028 U	0.03 U	0.04	0.05
555	N555-1-01-F	1	112	off	Work Area	8 hr	5/28/2012	0.017 J	0.021 J	<0.015	0.023 J	0.49	0.85	0.038
555	14M555-1-01-F	1	112	off	Work Area	8 hr	2/16/2014	<0.029	<0.032	<0.032	0.020 J	0.041	0.42	0.044
555	16M555-1-01-F	1	112	off	Work Area	8 hr	1/17/2016	0.035 U	0.037 U	0.037 U	0.037 U	0.037 U	0.14	0.031 J
555	17M555-1-01-F	First	112	OFF	Work Area	7h 51min	1/16/2017	0.021 J	0.032 U	0.052	0.033 J	0.450	0.76	0.12
555	N555-1-01-N	1	112	on	Work Area	8 hr	5/23/2012	<0.016	<0.018	<0.017	0.009 J	0.047	0.17	0.036 J
555	14M555-1-01-N	1	112	on	Work Area	8 hr	2/12/2014	<0.042	<0.047	<0.047	<0.047	0.039 J	0.16	0.049 J
555	16M555-1-01-N	1	112	on	Work Area	8 hr	1/13/2016	0.029 U	0.031 U	0.031 U	0.019 J	0.031 U	0.057	0.027 J
555	17M355-1-01-N	First	112	ON	Work Area	7h 53min	1/18/2017	0.26 U	0.27 U	0.27 U	0.26 U	0.27 U	0.16 J	0.27 U
555	17M555-1-01-N	First	112	ON	Work Area	7h 53min	1/18/2017	0.03 U	0.032 U	0.019 J	0.011 J	0.069	0.21	0.06
555	N555-1-02-F	1	C101	off	Work Area	8 hr	5/28/2012	0.018 J	0.023 J	<0.016	0.024 J	0.5	0.87	0.14
555	N555-1-02-N	1	C101	on	Work Area	8 hr	5/23/2012	<0.015	<0.017	<0.015	0.0078 J	0.052	0.21	0.038 J
555	N555-1-03-F	1	107A	off	Work Area	8 hr	5/28/2012	0.026 J	0.032 J	0.0099 J	0.032 J	0.72	1.3	0.11
555	14M555-1-03-F	1	107A	off	Work Area	8 hr	2/16/2014	<0.032	<0.035	<0.035	0.021 J	0.046	0.46	0.047
555	16M555-1-03-F	1	107A	off	Work Area	8 hr	1/17/2016	0.031 U	0.032 U	0.032 U	0.010 J	0.032 U	0.14	0.031 J
555	17M555-1-03-F	First	107A	OFF	Work Area	7h 49min	1/16/2017	0.022 J	0.012 J	0.055	0.037	0.510	0.86	0.13
555	N555-1-03-N	1	107A	on	Work Area	8 hr	5/23/2012	<0.015	<0.017	<0.016	0.0084 J	0.06	0.23	0.04
555	14M355-1-03-N	1	107A	on	Duplicate	8 hr	2/12/2014	<0.028	<0.031	0.015 J	<0.031	0.035 J	0.13	0.062
555	14M555-1-03-N	1	107A	on	Work Area	8 hr	2/12/2014	<0.027	<0.030	0.014 J	<0.030	0.037	0.14	0.068
555	16M555-1-03-N	1	107A	on	Work Area	8 hr	1/13/2016	0.031 U	0.032 U	0.032 U	0.92	0.032 U	0.032 U	0.027 J
555	16M355-1-03-N	1	107A	on	Duplicate	8 hr	1/13/2016	0.029 U	0.031 U	0.031 U	0.031 U	0.031 U	0.056	0.024 J
555	17M555-1-03-N	First	107A	ON	Work Area	7h 53min	1/18/2017	0.032 U	0.034 U	0.016 J	0.014 J	0.066	0.19	0.06
555	M555-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/28/2012	<0.017	<0.019	<0.017	<0.017	0.036 J	0.019 J	0.018 J
555	14M555-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/18/2014	<0.029	<0.032	0.010 J	<0.032	0.012 J	0.033 J	0.040
555	16M555-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.032 U	0.034 U	0.034 U	0.034 U	0.034 U	0.018 J	0.024 J
555	17M555-A-01-F	Ambient	N/A	OFF	Ambient	23h 36min	1/16/2017	0.027 U	0.028 U	0.05	0.027 U	0.034 J	0.06	0.06
555	M555-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/23/2012	<0.016	<0.018	<0.017	<0.017	0.017 J	0.026 J	0.078
555	14M555-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/13/2014	<0.032	<0.035	0.013 J	<0.035	0.037 J	0.044	0.044
555	16M555-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/14/2016	0.031 U	0.033 U	0.013 J	0.033 U	0.033 U	0.043	0.035 J
555	17M555-A-01-N	Ambient	N/A	ON	Ambient	23h 49min	1/18/2017	0.029 U	0.031 U	0.011 J	0.0091 J	0.024 J	0.23	0.032 J

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
566	M566-1-01-F	1	111	off	Work Area	8 hr	5/28/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.04	0.028 J
566	14M566-1-01-F	1	111	off	Work Area	8 hr	2/16/2014	<0.024	<0.026	<0.026	<0.026	0.020 J	0.16	0.16
566	16M566-1-01-F	1	111	off	Work Area	8 hr	1/17/2016	0.029 U	0.031 U	0.031 U	0.031 U	0.031 U	0.075	0.028 J
566	17M566-1-01-F	First	111	OFF	Work Area	7h 56min	1/16/2017	0.027 U	0.028 U	0.033 J	0.027 U	0.028 U	0.14	0.05
566	M566-1-01-N	1	111	on	Work Area	8 hr	5/23/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.013 J	0.030 J
566	14M566-1-01-N	1	111	on	Work Area	8 hr	2/11/2014	<0.027	<0.030	<0.030	<0.030	0.052	0.043	0.069
566	16M566-1-01-N	1	111	on	Work Area	8 hr	1/12/2016	0.043 U	0.045 U	0.067	0.045 U	0.022 J	0.17	0.099
566	17M566-1-01-N	First	111	ON	Work Area	8hr	1/09/2017	0.032 U	0.033 U	0.013 J	0.013 J	0.024 J	0.14	0.039 J
566	M566-1-02-F	1	C103	off	Work Area	8 hr	5/28/2012	<0.020	<0.022	<0.020	<0.020	<0.020	0.065	0.019 J
566	14M566-1-02-F	1	C103	off	Work Area	8 hr	2/16/2014	<0.033	<0.037	<0.037	<0.037	0.015 J	0.13	0.060
566	16M566-1-02-F	1	C103	off	Work Area	8 hr	1/17/2016	0.012 J	0.031 U	0.031 U	0.031 U	0.015 J	0.13	0.029 J
566	17M566-1-02-F	First	C103	OFF	Work Area	7h 53min	1/16/2017	0.03 U	0.031 U	0.037 J	0.03 U	0.014 J	0.17	0.05
566	M566-1-02-N	1	C103	on	Work Area	8 hr	5/23/2012	<0.018	<0.021	<0.019	<0.019	<0.019	0.012 J	0.033 J
566	14M566-1-02-N	1	C103	on	Work Area	8 hr	2/11/2014	<0.028	<0.031	<0.031	<0.031	0.063	0.062	0.078
566	16M566-1-02-N	1	C103	on	Work Area	8 hr	1/12/2016	0.032 U	0.034 U	0.060	0.010 J	0.022 J	0.17	0.11
566	17M566-1-02-N	First	C103	ON	Work Area	8hr	1/09/2017	0.034 U	0.036 U	0.036 U	0.034 U	0.016 J	0.15	0.04 J
566	M566-1-03-F	1	C104	off	Work Area	8 hr	5/28/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.097	0.021 J
566	M566-1-03-N	1	C104	on	Work Area	8 hr	5/23/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.012 J	0.082
567	M567-1-01	1	107	NA	Work Area	24 hr	5/21/2012	<0.016	0.037 J	<0.016	0.047	0.24	2.6	0.53
567	14M567-1-01	1	107	NA	Work Area	8 hr	2/18/2014	<0.030	0.050	0.020 J	0.071	0.20	3.5	0.061
567	16M567-1-01	1	107	NA	Work Area	8 hr	1/12/2016	0.033 U	0.077	0.075	0.16	0.15	5.0	0.12
567	17M567-1-01	First	107	N/A	Work Area	8hr	1/11/2017	0.033 U	0.059	0.015 J	0.097	0.076	2.70	0.07
567	M567-1-02	1	102	NA	Work Area	24 hr	5/21/2012	<0.016	0.049	0.011 J	0.057	0.36	3.9	0.75
567	14M567-1-02	1	102	NA	Work Area	8 hr	2/18/2014	<0.026	0.051	0.020 J	0.062	0.21	3.6	0.064
567	16M567-1-02	1	102	NA	Work Area	8 hr	1/12/2016	0.033 U	0.083	0.079	0.16	0.16	5.3	0.12
567	17M567-1-02	First	102	N/A	Work Area	8hr	1/11/2017	0.029 U	0.055	0.016 J	0.095	0.074	2.70	0.08
567	M567-1-03	1	104	NA	Work Area	24 hr	5/21/2012	<0.015	0.028 J	<0.015	0.030 J	0.11	1.2	0.22
567	14M467-1-03	1	104	NA	Work Area	8 hr	2/18/2014	<0.027	0.037	0.014 J	0.060	0.16	1.9	0.053
567	14M567-1-03	1	104	NA	Work Area	8 hr	2/18/2014	<0.030	0.036 J	0.015 J	0.055	0.15	1.8	0.057
567	16M567-1-03	1	104	NA	Work Area	8 hr	1/12/2016	0.042 U	0.049 J	0.069	0.13	0.13	3.0	0.10
567	17M567-1-03	First	104	N/A	Work Area	8hr	1/11/2017	0.031 U	0.069	0.013 J	0.15	0.051	1.40	0.07
567	14M567-A-01	Ambient Air	NA	NA	Background	24 hr	2/19/2014	<0.029	<0.032	0.010 J	<0.032	0.22	0.048	0.035 J
567	16M567-A-01	Ambient Air	NA	NA	Background	24 hr	1/13/2016	0.038 U	0.040 U	0.049	0.040 U	0.040 U	0.11	0.075
567	17M567-A-01	Ambient	N/A	N/A	Ambient	24hr	1/11/2017	0.024 U	0.025 U	0.013 J	0.024 U	0.025 U	0.05	0.04
N210	M310-1-01-F	1	100	off	Duplicate	8 hr	5/28/2012	<0.016	0.027 J	<0.017	0.011 J	0.098	1.1	0.086 J
N210	N210-1-01-F	1	143	off	Work Area	8 hr	5/28/2012	<0.016	0.021 J	<0.017	0.0072 J	0.061	0.55	0.033 J
N210	14N210-1-01-F	1	143	off	Work Area	8 hr	2/16/2014	<0.026	0.017 J	<0.029	0.011 J	0.060	1.0	0.048
N210	16N210-1-01-F	1	143	off	Work Area	8 hr	1/17/2016	0.031 U	0.014 J	0.032 U	0.013 J	0.19	1.1	0.075
N210	17N210-1-01-F	First	143	OFF	Work Area	7h 50min	1/16/2017	0.032 U	0.033 U	0.13	0.032 U	0.028 J	0.32	0.06
N210	N210-1-02-F	1	C117A	off	Work Area	8 hr	5/28/2012	<0.015	0.025 J	<0.015	0.0081 J	0.055	0.49	0.029 J
N210	M310-1-02-F	1	148	off	Duplicate	8 hr	5/28/2012	<0.016	<0.018	<0.017	<0.017	0.018 J	0.15	0.670 J
N210	14N210-1-02-F	1	C117A	off	Work Area	8 hr	2/16/2014	<0.030	0.016 J	<0.033	<0.033	0.057	0.94	0.045
N210	16N210-1-02-F	1	C117A	off	Work Area	8 hr	1/17/2016	0.029 U	0.039	0.030 U	0.022 J	0.25	2.5	0.077
N210	17N210-1-02-F	First	C117A	OFF	Work Area	7h 52min	1/16/2017	0.03 U	0.031 U	0.024 J	0.03 U	0.026 J	0.30	0.05
N210	N210-1-04-F	1	138E	off	Work Area	8 hr	5/28/2012	<0.016	0.018 J	<0.016	0.0078 J	0.06	0.58	0.028 J
N210	14N210-1-04-F	1	138E	off	Work Area	8 hr	2/16/2014	<0.033	0.019 J	<0.036	<0.036	0.093	1.4	0.051
N210	16N210-1-04-F	1	138E	off	Work Area	8 hr	1/17/2016	0.027 U	0.018 J	0.028 U	0.015 J	0.24	1.3	0.072
N210	17N210-1-04-F	First	138E	OFF	Work Area	8h 19min	1/16/2017	0.029 U	0.03 U	0.041	0.029 U	0.037	0.52	0.06
N210	N210-1-05-F	1	146	off	Work Area	8 hr	5/28/2012	<0.017	<0.019	<0.017	0.012 J	0.15	0.47	0.032 J
N210	14N210-1-05-F	1	146	off	Work Area	8 hr	2/16/2014	<0.029	<0.032	<0.032	<0.032	0.038	0.38	0.034 J
N210	16N210-1-05-F	1	146	off	Work Area	8 hr	1/17/2016	0.030 U	0.017 J	0.031 U	0.013 J	0.22	1.4	0.10
N210	N210-1-06-F	1	Q134	off	Pathway	8 hr	5/28/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.15	0.046
N210	14N210-1-06-F	1	Q134	off	Pathway	8 hr	5/28/2012	<0.027	<0.030	<0.030	<0.030	0.072	0.060	0.025 J
N210	16N210-1-06-F	1	Q134	off	Pathway	8 hr	1/17/2016	0.035 U	0.037 U	0.037 U	0.027 J	0.041 J	0.12	0.035 J
N210	17N210-1-06-F	First	Q134	OFF	Work Area	7h 21min	1/16/2017	0.041 U	0.043 U	0.022 J	0.02 J	0.043 U	0.29	0.07
N210	N210-1-07-F	1	100	off	Work Area	8 hr	5/28/2012	<0.015	0.033 J	<0.015	0.012 J	0.11	1.2	0.047 J
N210	14N210-1-07-F	1	100A	off	Work Area	8 hr	2/16/2014	<0.029	0.013 J	0.010 J	<0.033	0.057	0.89	0.045
N210	16N210-1-07-F	1	100A	off	Work Area	8 hr	1/17/2016	0.030 U	0.015 J	0.031 U	0.012 J	0.21	1.3	0.078
N210	17N210-1-07-F	First	100A	OFF	Work Area	7h 49min	1/16/2017	0.026 J	0.021 J	0.036 J	0.026 J	0.320	1.30	0.06

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
N210	N210-1-08-F	1	C10	off	Work Area	8 hr	5/28/2012	<0.016	0.022 J	<0.016	0.011 J	0.1	1.4	0.036 J
N210	14N210-1-08-F	1	C10	off	Work Area	8 hr	2/16/2014	<0.027	0.016 J	<0.030	0.012 J	0.062	1.1	0.049
N210	16N210-1-08-F	1	C10	off	Work Area	8 hr	1/17/2016	0.030 U	0.016 J	0.032 U	0.013 J	0.21	1.3	0.077
N210	17N210-1-08-F	First	C10	OFF	Work Area	7h 49min	1/16/2017	0.01 J	0.011 J	0.035	0.014 J	0.140	1.10	0.06
N210	N210-1-09-F	1	148	off	Work Area	8 hr	5/28/2012	<0.016	<0.018	<0.016	<0.016	0.017 J	0.14	0.034 J
N210	14N210-1-09-F	1	148	off	Work Area	8 hr	2/16/2014	<0.023	<0.026	<0.026	<0.026	0.027 J	0.43	0.041
N210	N210-1-10-F	1	near 033 & 036	off	Work Area	8 hr	5/28/2012	<0.015	0.031 J	<0.015	0.016 J	0.18	2	0.11
N210	14M310-1-10-F	1	near 033 & 036	off	Duplicate	8 hr	2/16/2014	<0.030	0.016 J	<0.033	<0.033 J	0.067	1.2	0.65 J
N210	14N210-1-10-F	1	near 033 & 036	off	Work Area	8 hr	2/16/2014	<0.029	0.017 J	<0.033	0.011 J	0.07	1.2	0.058 J
N210	16N210-1-10-F	1	near 033 & 036	off	Work Area	8 hr	1/17/2016	0.030 U	0.014 J	0.032 U	0.014 J	0.19	1.0	0.072
N210	16M310-1-10-F	1	near 033 & 036	off	Duplicate	8 hr	1/17/2016	0.029 U	0.013 J	0.030 U	0.012 J	0.19	1.0	0.074
N210	17N210-1-10-F	First	near 033 & 036	OFF	Work Area	7h 54min	1/16/2017	0.033 U	0.035 U	0.029 J	0.033 U	0.054	0.85	0.041 J
N210	17M310-1-10-F	First	near 033 & 036	OFF	Work Area	7h 53min	1/16/2017	0.03 U	0.032 U	0.031 J	0.01 J	0.053	0.96	0.09
N210	N210-1-11-F	1	near 033 & 036	off	Pathway	8 hr	5/28/2012	<0.016	0.086	0.025 J	0.056	0.74	17	0.2
N210	N210-1-12-F	1	143	off	Pathway	8 hr	5/28/2012	<0.016	0.022 J	<0.017	<0.017	0.085	0.8	0.13
N210	N210-2-01-F	2	L244	off	Work Area	8 hr	5/28/2012	<0.015	0.036 J	<0.015	0.013 J	0.14	1.4	0.043
N210	N210-2-02-F	2	C248	off	Work Area	8 hr	5/28/2012	<0.015	0.042	<0.016	0.014 J	0.15	1.7	0.05
N210	N210-2-03-F	2	255A	off	Work Area	8 hr	5/28/2012	<0.014	0.019 J	<0.014	0.011 J	0.1	1.2	0.051
N210	M210-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/28/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.015 J	0.048
N210	14N210-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.024	<0.027	0.017 J	<0.027	0.033	0.068	0.060
N210	16N210-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.035 U	0.036 U	0.036 U	0.060	0.045	0.084	0.039 J
N210	17N210-A-01-F	Ambient	N/A	OFF	Ambient	24h 13min	1/16/2017	0.028 U	0.029 U	0.072	0.0085 J	0.021 J	0.06	0.07
N210	14N210-C-11-F	1	Crawl Space	off	Pathway	8 hr	2/16/2014	<0.030	0.41	0.072	0.18	1.6	40	0.27
N210	16N210-C-11-F	1	Crawl Space	off	Pathway	8 hr	1/17/2016	0.033 U	0.095	0.054	0.10	0.61	9.7	0.12
N210	17N210-C-11-F	Crawl Space	Crawl Space	OFF	Crawl Space	7h 40min	1/16/2017	0.024 U	0.46	0.21	0.36	2.500	95.0	0.84
N210	N210-G-03-F	1	near V101	off	Pathway	Grab hr	5/28/2012	<0.013	<0.015	<0.014	<0.014	0.1	0.51	0.032 J
N210	M310-G-03-F	1	near V101	off	Duplicate	Grab hr	5/28/2012	<0.014	0.019 J	<0.014	<0.014	0.12	0.51	0.030 J
N210	14N210-G-03-F	1	near V101	off	Pathway	Grab hr	2/16/2014	<0.030	<0.033	<0.033	<0.033	0.076	0.56	0.039 J
N210	16N210-G-03-F	1	near V101	off	Pathway	Grab hr	1/17/2016	0.033 U	0.034 U	0.017 J	0.034 U	0.15	0.95	0.054
N210	17N210-G-03-F	Elevator	near V101	OFF	Work Area	N/A	1/16/2017	0.028 U	0.03 U	0.046	0.096	0.110	0.54	0.10
N239	N239-1-01-F	1	C103	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.017 J	0.07	0.2
N239	M339-1-01-F	1	102	off	Duplicate	24 hr	5/27/2012	<0.015	<0.017	<0.016	0.016	0.034 J	0.15	0.087 J
N239	N239-1-01-N	1	C103	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.015	<0.015	<0.015	0.009 J	0.13
N239	N239-1-02-F	1	C104	off	Work Area	24 hr	5/27/2012	<0.014	<0.015	<0.014	<0.014	0.012 J	0.042	0.12
N239	14N239-1-02-F	1	C104	off	Work Area	24 hr	2/17/2014	<0.031	<0.034	0.012 J	<0.034	0.11	0.34	0.063
N239	16N239-1-02-F	1	C104	off	Work Area	24 hr	1/18/2016	0.031 U	0.032 U	0.018 J	0.012 J	0.10	0.28	0.040
N239	17N239-1-02-F	First	191	OFF	Work Area	23h 13min	1/15/2017	0.025 J	0.016 J	0.088	0.041	0.380	0.87	0.10
N239	N239-1-02-N	1	C104	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.0091 J	0.027 J
N239	14N239-1-02-N	1	C104	on	Work Area	24 hr	2/14/2014	<0.030	<0.033	0.016 J	<0.033	0.063	0.032 J	0.074
N239	16N239-1-02-N	1	C104	on	Work Area	24 hr	1/15/2016	0.036 U	0.038 U	0.014 J	0.038 U	0.044 J	0.10	0.036 J
N239	17N239-1-02-N	First	C104	ON	Work Area	24hr	1/12/2017	0.042 U	0.044 U	0.051 J	0.015 J	0.065	0.16	0.052 J
N239	N239-1-03-F	1	191	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.014 J	0.046	0.1
N239	14N239-1-03-F	1	189	off	Work Area	24 hr	2/17/2014	<0.029	<0.032	0.012 J	<0.032	0.064	0.21	0.055
N239	16N239-1-03-F	1	189	off	Work Area	24 hr	1/18/2016	0.035 U	0.037 U	0.015 J	0.092	0.024 J	0.15	0.033 J
N239	17N239-1-03-F	First	138S	OFF	Work Area	23h 10min	1/15/2017	0.027 U	0.028 U	0.069	0.0099 J	0.090	0.21	0.07
N239	N239-1-03-N	1	191	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.011 J	0.025 J
N239	14N239-1-03-N	1	189	on	Work Area	24 hr	2/14/2014	<0.030	<0.033	<0.033	<0.033	0.012 J	0.035 J	0.027 J
N239	16N239-1-03-N	1	189	on	Work Area	24 hr	1/15/2016	0.033 U	0.035 U	0.015 J	0.035 U	0.053	0.12	0.11
N239	17N239-1-03-N	First	191	ON	Work Area	24hr 5min	1/12/2017	0.036 U	0.038 U	0.049	0.036 U	0.071	0.19	0.05
N239	N239-1-04-F	1	U102	off	Pathway	24 hr	5/27/2012	<0.014	<0.016	<0.015	<0.015	0.018 J	0.064	0.12
N239	N239-1-04-N	1	U102	on	Pathway	24 hr	5/24/2012	<0.016	<0.018	<0.016	0.013 J	0.024 J	0.015 J	0.043
N239	N239-1-05-F	1	138S	off	Work Area	24 hr	5/28/2012	<0.014	<0.016	<0.014	<0.014	0.019 J	0.065	0.12
N239	14N239-1-05-F	1	138S	off	Work Area	24 hr	2/17/2014	<0.030	<0.033	<0.033	<0.033	0.039 J	0.097	0.046
N239	16N239-1-05-F	1	138S	off	Work Area	24 hr	1/18/2016	0.064 U	0.067 U	0.024 J	0.067 U	0.23	0.56	0.033 J
N239	17N239-1-05-F	First	102	OFF	Work Area	23h 19min	1/15/2017	0.022 J	0.015 J	0.088	0.028 U	0.310	0.73	0.09
N239	N239-1-05-N	1	138S	on	Work Area	24 hr	5/24/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.014 J	0.027 J
N239	14N239-1-05-N	1	138S	on	Work Area	24 hr	2/14/2014	<0.029	<0.032	<0.032	<0.032	0.010 J	0.049	0.032 J
N239	16N239-1-05-N	1	138S	on	Work Area	24 hr	1/15/2016	0.068 U	0.071 U	0.071 U	0.071 U	0.041 J	0.092	0.033 J
N239	17N239-1-05-N	First	138S	ON	Work Area	24hr	1/12/2017	0.027 U	0.028 U	0.053	0.027 U	0.029 J	0.08	0.05

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
N239	N239-1-06-F	1	U101	off	Pathway	24 hr	5/27/2012	<0.015	0.017 J	<0.016	0.0078 J	0.041	0.16	0.23
N239	N239-1-06-N	1	U101	on	Pathway	24 hr	5/24/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.013 J	0.16
N239	N239-1-07-F	1	102	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.017	0.0074 J	0.037 J	0.16	0.160 J
N239	14M339-1-07-F	1	102	off	Duplicate	24 hr	2/17/2014	<0.041	<0.045	<0.045	<0.045	0.047 J	0.13	0.052 J
N239	14N239-1-07-F	1	102	off	Work Area	24 hr	2/17/2014	<0.041	<0.045	<0.045	<0.045	0.047 J	0.13	0.051 J
N239	16M339-1-07-F	1	102	off	Duplicate	24 hr	1/18/2016	0.042 U	0.044 U	0.022 J	0.044 U	0.044 J	0.14	0.031 J
N239	16N239-1-07-F	1	102	off	Work Area	24 hr	1/18/2016	0.029 U	0.030 U	0.030 U	0.030 U	0.055	0.15	0.035 J
N239	17N239-1-07-F	First	C101	OFF	Work Area	23h 17min	1/15/2017	0.024 U	0.025 U	0.068	0.0098 J	0.060	0.15	0.06
N239	17M339-1-07-F	First	C101	OFF	Work Area	23h 16min	1/15/2017	0.026 U	0.028 U	0.16	0.026 U	0.079	0.14	0.09
N239	N239-1-07-N	1	102	on	Work Area	24 hr	5/24/2012	0.013 J	<0.022	0.014 J	0.018 J	0.016 J	0.026 J	0.039 J
N239	14N239-1-07-N	1	102	on	Work Area	24 hr	2/14/2014	<0.027	<0.030	0.013 J	<0.030	0.012 J	0.052	0.038
N239	16N239-1-07-N	1	102	on	Work Area	24 hr	1/15/2016	0.033 U	0.035 U	0.015 J	0.035 U	0.041 J	0.094	0.034 J
N239	17N239-1-07-N	First	102	ON	Work Area	24hr 6min	1/12/2017	0.028 U	0.03 U	0.051	0.028 U	0.035 J	0.09	0.05
N239	N239-1-08-F	1	C101	off	Work Area	24 hr	5/27/2012	<0.013	<0.015	<0.014	<0.014	0.021 J	0.082	0.096
N239	14N239-1-08-F	1	C101	off	Work Area	24 hr	2/17/2014	<0.031	<0.034	<0.034	<0.034	0.079	0.26	0.063
N239	16N239-1-08-F	1	C101	off	Work Area	24 hr	1/18/2016	0.029 U	0.031 U	0.031 U	0.0098 J	0.066	0.18	0.094
N239	17N239-1-08-F	First	Basement	OFF	Work Area	23h 15min	1/15/2017	0.03 J	0.02 J	0.096	0.028 J	0.430	0.96	0.15
N239	N239-1-08-N	1	C101	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.0083 J	0.049
N239	14N239-1-08-N	1	C101	on	Work Area	24 hr	2/14/2014	<0.034	<0.037	<0.037	<0.037	0.012 J	0.029 J	0.032 J
N239	16N239-1-08-N	1	C101	on	Work Area	24 hr	1/15/2016	0.031 U	0.033 U	0.033 U	0.033 U	0.056	0.033 U	0.031 U
N239	17N239-1-08-N	First	C101	ON	Work Area	24hr 2 mn	1/12/2017	0.028 U	0.029 U	0.051	0.028 U	0.045	0.12	0.05
N239	N239-2-01-F	2	211	off	Work Area	24 hr	5/27/2012	<0.013	<0.015	<0.014	<0.014	0.018 J	0.095	0.18
N239	N239-2-01-N	2	211	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.017 J	0.024 J
N239	N239-2-02-F	2	U202	off	Pathway	24 hr	5/27/2012	<0.016	<0.018	<0.017	<0.017	0.019 J	0.066	0.12
N239	N239-2-03-F	2	275	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.016 J	0.045	0.061
N239	N239-2-03-N	2	275	on	Work Area	24 hr	5/24/2012	<0.016	<0.019	<0.017	<0.017	<0.017	0.0093 J	0.023 J
N239	N239-2-04-F	2	U201	off	Pathway	24 hr	5/27/2012	<0.014	0.021 J	<0.015	0.0089 J	0.059	0.26	0.13
N239	N239-3-01-F	3	355	off	Work Area	24 hr	5/27/2012	<0.012	<0.014	<0.013	0.0053 J	0.019 J	0.26	0.076
N239	M339-3-01-F	3	U302	off	Duplicate	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.016 J	0.062	0.170 J
N239	N239-3-01-N	3	355	on	Work Area	24 hr	5/24/2012	<0.016	<0.019	<0.017	<0.017	<0.017	0.025 J	0.021 J
N239	N239-3-02-F	3	C303	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.019 J	0.086	0.12
N239	N239-3-02-N	3	C303	on	Work Area	24 hr	5/24/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.011 J	0.023 J
N239	N239-3-03-F	3	U302	off	Work Area	24 hr	5/27/2012	<0.013	<0.015	<0.013	<0.013	0.019 J	0.07	0.220 J
N239	N239-4-01-F	4	C401	off	Work Area	24 hr	5/27/2012	<0.016	0.022 J	<0.017	0.0074 J	0.021 J	0.092	0.12
N239	N239-4-01-N	4	C401	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.015	<0.015	<0.015	0.0092 J	0.094
N239	N239-4-02-F	4	U401	off	Pathway	24 hr	5/27/2012	<0.012	<0.014	<0.013	<0.013	0.037	0.064	0.020 J
N239	N239-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2012	<0.015	<0.017	<0.016	<0.016	0.014 J	0.025 J	0.024 J
N239	14N239-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.029	<0.032	<0.032	<0.032	0.030 J	0.059	0.040
N239	16N239-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.032 U	0.034 U	0.034 U	0.034 U	0.016 J	0.071	0.040 J
N239	17N239-A-01-F	Ambient	N/A	OFF	Ambient	23h 17min	1/15/2017	0.029 U	0.03 U	0.074	0.029 U	0.016 J	0.04	0.06
N239	N239-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/24/2012	<0.016	<0.018	<0.017	<0.017	<0.017	0.0099 J	0.16
N239	14N239-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/14/2014	<0.030	<0.033	<0.033	<0.033	<0.035	0.023 J	0.025 J
N239	16N239-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/15/2016	0.030 U	0.032 U	0.014 J	0.032 U	0.037 J	0.087	0.041
N239	17N239-A-01-N	Ambient	N/A	ON	Ambient	24hr 5min	1/12/2017	0.025 U	0.027 U	0.05	0.025 U	0.027 U	0.021 J	0.06
N239	N239-B-01-F	Basement	53A	off	Work Area	24 hr	5/27/2012	0.061	0.19	0.018 J	0.058	1.1	3.8	0.056 J
N239	M339-B-01-F	Basement	53A	off	Duplicate	24 hr	5/27/2012	0.059	0.17	0.024 J	0.062	1.1	3.6	0.940 J
N239	14N239-B-01-F	Basement	53A	off	Work Area	24 hr	2/17/2014	0.083	0.12	0.033 J	0.083	1.8	5.8	0.061
N239	16N239-B-01-F	Basement	53A	off	Work Area	24 hr	1/18/2016	0.028 J	0.027 J	0.019 J	0.024 J	0.47	1.2	0.039 J
N239	17N239-B-01-F	Basement	53A	OFF	Work Area	23h 7min	1/15/2017	0.26	0.22	0.13	0.15	4.20	11.0	0.10
N239	N239-B-01-N	Basement	53A	on	Work Area	24 hr	5/24/2012	<0.017	<0.020	<0.018	<0.018	<0.018	0.0098 J	0.032 J
N239	14M339-B-01-N	Basement	53A	on	Duplicate	24 hr	2/14/2014	<0.028	<0.031	<0.031	<0.031	0.013 J	0.029 J	0.040
N239	14N239-B-01-N	Basement	53A	on	Work Area	24 hr	2/14/2014	<0.029	<0.033	<0.033	<0.033	0.0096 J	0.025 J	0.026 J
N239	16N239-B-01-N	Basement	53A	on	Work Area	24 hr	1/15/2016	0.033 U	0.035 U	0.015 J	0.035 U	0.044	0.10	0.035 J
N239	16M339-B-01-N	Basement	53A	on	Duplicate	24 hr	1/15/2016	0.032 U	0.033 U	0.015 J	0.033 U	0.043	0.1	0.035 J
N239	17N239-B-01-N	Basement	53A	ON	Work Area	24hr 5min	1/12/2017	0.028 U	0.029 U	0.048	0.028 U	0.051	0.14	0.05
N239	17M339-B-01-N	Basement	53A	ON	Work Area	24hr 5min	1/12/2017	0.027 U	0.029 U	0.052	0.054	0.052	0.14	0.05
N239	N239-B-02-F	Basement	53	off	Work Area	24 hr	5/27/2012	<0.018	0.023 J	<0.018	<0.018	0.077	0.3	0.098
N239	14N239-B-02-F	Basement	053	off	Work Area	24 hr	2/17/2014	<0.029	0.022 J	0.012 J	0.013 J	0.17	0.63	0.063
N239	16N239-B-02-F	Basement	053	off	Work Area	24 hr	1/18/2016	0.032 U	0.033 U	0.014 J	0.028 J	0.086	0.27	0.053

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
N239	17N239-B-02-F	Basement	053	OFF	Work Area	23h 8min	1/15/2017	0.033 J	0.027 J	0.072	0.031 J	0.550	1.40	0.07
N239	N239-B-02-N	Basement	53	on	Work Area	24 hr	5/24/2012	<0.013	<0.015	<0.014	<0.014	<0.014	0.0092 J	0.17
N239	14N239-B-02-N	Basement	053	on	Work Area	24 hr	2/14/2014	<0.026	<0.029	<0.029	<0.029	0.010 J	0.028 J	0.029 J
N239	16N239-B-02-N	Basement	053	on	Work Area	24 hr	1/15/2016	0.034 U	0.035 U	0.016 J	0.022 J	0.047	0.11	0.037 J
N239	17N239-B-02-N	Basement	053	ON	Work Area	24hr 2 min	1/12/2017	0.048 U	0.051 U	0.038 J	0.048 U	0.051 U	0.032 J	0.057 J
N239	N239-B-03-F	Basement	C001	off	Work Area	24 hr	5/27/2012	<0.017	<0.019	<0.017	<0.017	0.032 J	0.14	0.089
N239	N239-B-03-N	Basement	C001	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.0089 J	0.046
N239	N239-B-05-F	Basement	C001	off	Work Area	24 hr	5/27/2012	<0.015	0.027 J	0.013 J	0.011 J	0.018 J	0.13	0.55
N239	14N239-B-05-F	Basement	C001	off	Work Area	24 hr	2/17/2014	<0.032	0.017 J	0.021 J	0.017 J	0.19	0.78	0.33
N239	16N239-B-05-F	Basement	C001	off	Work Area	24 hr	1/18/2016	0.05	0.055	0.023 J	0.064	0.78	2.1	0.15
N239	17N239-B-05-F	Basement	C002	OFF	Work Area	23h 8min	1/15/2017	0.039	0.036	0.093	0.049	0.400	0.95	0.37
N239	N239-B-05-N	Basement	C001	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.0093 J	0.25
N239	14N239-B-05-N	Basement	C001	on	Work Area	24 hr	2/14/2014	<0.029	<0.032	<0.032	<0.032	0.011 J	0.038 J	0.080
N239	16N239-B-05-N	Basement	C001	on	Work Area	24 hr	1/15/2016	0.036 U	0.038 U	0.015 J	0.038 U	0.042 J	0.20	0.14
N239	17N239-B-05-N	Basement	C001	ON	Work Area	23h 59min	1/12/2017	0.024 U	0.025 U	0.049	0.0083 J	0.052	0.13	0.09
N239	N239-B-06-F	Basement	C002	off	Work Area	24 hr	5/27/2012	<0.014	0.065	<0.015	0.017 J	0.063	0.29	0.096
N239	14N239-B-06-F	Basement	C002	off	Work Area	24 hr	2/17/2014	<0.029	<0.033	0.013 J	0.014 J	0.085	0.34	0.10
N239	16N239-B-06-F	Basement	C002	off	Work Area	24 hr	1/18/2016	0.032 U	0.034 U	0.015 J	0.045	0.066	0.18	0.033 J
N239	17N239-B-06-F	Basement	C104	OFF	Work Area	23h 7min	1/15/2017	0.035 J	0.023 J	0.082	0.036 J	0.520	1.10	0.33
N239	N239-B-06-N	Basement	C002	on	Work Area	24 hr	5/24/2012	<0.018	<0.020	<0.019	<0.019	<0.019	0.0077 J	0.025 J
N239	14N239-B-06-N	Basement	C002	on	Work Area	24 hr	2/14/2014	<0.031	<0.034	<0.034	<0.034	0.011 J	0.027 J	0.025 J
N239	16N239-B-06-N	Basement	C002	on	Work Area	24 hr	1/15/2016	0.038 U	0.039 U	0.015 J	0.039 U	0.044 J	0.098	0.051
N239	17N239-B-06-N	Basement	C002	ON	Work Area	23h 59min	1/12/2017	0.028 U	0.03 U	0.054	0.028 U	0.050	0.14	0.12
N239	N239-G-04-F	Basement	C001	off	Pathway	Grab hr	5/27/2012	<0.014	<0.016	<0.014	<0.014	0.011 J	1	0.14
N239	14N239-G-04-F	Basement	C001	off	Pathway	Grab hr	2/16/2014	<0.026	<0.029	<0.029	0.0099 J	0.092	0.41	0.11
N239	16N239-G-04-F	Basement	C001	off	Pathway	Grab hr	1/17/2016	0.035 U	0.037 U	0.037 U	0.015 J	0.086	0.17	0.026 J
N239	17N239-G-04-F	Elevator	C001	OFF	Work Area	N/a	1/15/2017	0.026 J	0.018 J	0.089	0.026 J	0.360	0.81	0.20
N239	N239-G-04-N	Basement	C001	on	Pathway	Grab hr	5/24/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.13	0.093
N239	N239-G-07-F	Basement	C004	off	Pathway	Grab hr	5/27/2012	<0.013	<0.015	<0.013	0.0069 J	0.0093 J	0.043	0.085
N239	N239-G-07-N	Basement	C004	on	Pathway	Grab hr	5/24/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.038	0.14
N239A	M439-1-01-F	1	144	off	Duplicate	24 hr	5/27/2012	<0.012	<0.014	<0.013	<0.013	0.087	0.3	0.033 J
N239A	M439-1-01-N	1	144	on	Duplicate	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	0.065	0.2	0.023 J
N239A	N239A-1-02-F	1	145	off	Work Area	24 hr	5/27/2012	<0.014	<0.016	<0.015	<0.015	0.045	0.2	0.088
N239A	N239A-1-02-N	1	145	on	Work Area	24 hr	5/22/2012	<0.014	<0.016	<0.015	<0.015	0.064	0.21	0.11
N239A	N239A-1-03-F	1	120	off	Work Area	24 hr	5/27/2012	0.017 J	0.036	<0.013	0.016 J	0.26	1.4	0.088
N239A	14N239A-1-03-F	1	120	off	Work Area	24 hr	2/17/2014	<0.045	<0.050	<0.050	0.025 J	0.25	1.1	0.19
N239A	16N239A-1-03-F	1	120	off	Work Area	24 hr	1/18/2016	0.034 U	0.035 U	0.046	0.014 J	0.19	0.72	0.081
N239A	17N239A-1-03-F	First	120	OFF	Work Area	23h 51min	1/15/2017	0.028 U	0.03 U	0.066	0.028 U	0.076	0.47	0.11
N239A	N239A-1-03-N	1	120	on	Work Area	24 hr	5/22/2012	0.016 J	0.024 J	0.0075 J	0.024 J	0.34	1.7	0.11
N239A	14N239A-1-03-N	1	120	on	Work Area	24 hr	2/14/2014	<0.031	0.011 J	<0.035	<0.035	0.20	0.66	0.056
N239A	16N239A-1-03-N	1	120	on	Work Area	24 hr	1/15/2016	0.053	0.052	0.031 J	0.048	1.1	2.6	0.086
N239A	17N239A-1-03-N	First	120	ON	Work Area	24 hr	1/10/2017	0.085	0.075	0.025 J	0.055	1.400	3.6	0.07
N239A	N239A-1-04-F	1	120	off	Work Area	24 hr	5/27/2012	0.020 J	0.044	<0.015	0.020 J	0.31	1.6	0.082
N239A	N239A-1-04-N	1	120	on	Work Area	24 hr	5/22/2012	0.021 J	0.029 J	<0.016	0.027 J	0.42	2	0.055
N239A	N239A-1-05-F	1	102	off	Work Area	24 hr	5/27/2012	<0.014	<0.016	<0.014	<0.014	0.013 J	0.025 J	0.021 J
N239A	14N239A-1-05-F	1	102	off	Work Area	24 hr	2/17/2014	<0.040	<0.044	<0.044	<0.044	0.044 J	0.088	0.049 J
N239A	17N239A-1-05-F	First	102	OFF	Work Area	23h 51min	1/15/2017	0.029 U	0.03 U	0.08	0.029 U	0.024 J	0.07	0.05
N239A	14N239A-1-05-N	1	102	on	Work Area	24 hr	2/14/2014	<0.029	<0.032	<0.032	<0.032	0.035 J	0.10	0.027 J
N239A	17N239A-1-05-N	First	104	ON	Work Area	24 hr	1/10/2017	0.023 J	0.019 J	0.033 U	0.018 J	0.360	0.92	0.035 J
N239A	N239A-1-06-F	1	C102	off	Work Area	24 hr	5/27/2012	0.1	0.15	0.025 J	0.073	1.6	6.8	0.052
N239A	13N239A-1-06-F	1	C102	off	Confirmation	24 hr	5/27/2013	<0.0086	<0.0095	<0.019	0.015 J	<0.019	0.039 J	0.021 J
N239A	14N239A-1-06-F	1	C102	off	Work Area	24 hr	2/17/2014	<0.029	<0.033	0.013 J	<0.033	0.065	0.15	0.055
N239A	16N239A-1-06-F	1	C102	off	Work Area	24 hr	1/18/2016	0.031 U	0.033 U	0.025 J	0.018 J	0.12	0.35	0.051
N239A	17N239A-1-06-F	First	C102	OFF	Work Area	23h 33min	1/15/2017	0.013 J	0.031 U	0.081	0.018 J	0.042	0.10	0.08
N239A	N239A-1-06-N	1	C102	on	Work Area	24 hr	5/22/2012	0.034 J	0.043	0.0096 J	0.023 J	0.49	1.8	0.032 J
N239A	13N239A-1-06-N	1	C102	on	Confirmation	24 hr	5/24/2013	0.011 J	0.013 J	<0.019	0.021 J	0.13	0.53	0.033 J
N239A	14N239A-1-06-N	1	C102	on	Work Area	24 hr	2/14/2014	0.11	0.12	0.035 J	0.072	1.8	5.6	0.046
N239A	16N239A-1-06-N	1	C102	on	Work Area	24 hr	1/15/2016	0.084	0.076	0.038 J	0.062	1.6	3.5	0.054
N239A	17N239A-1-06-N	First	C102	ON	Work Area	24 hr	1/10/2017	0.18	0.16	0.039	0.11	3.100	7.0	0.05

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
N239A	N239A-1-08-F	1	125	off	Work Area	24 hr	5/27/2012	0.037 J	0.071	0.020 J	0.035 J	0.41	1.9	0.1
N239A	14N239A-1-08-F	1	125	off	Work Area	24 hr	2/17/2014	<0.030	<0.034	<0.034	<0.034	0.051	0.37	0.087
N239A	16N239A-1-08-F	1	125	off	Work Area	24 hr	1/18/2016	0.014 J	0.033 U	0.091	0.026 J	0.25	0.93	0.092
N239A	17N239A-1-08-F	First	125	OFF	Work Area	23h 14min	1/15/2017	0.028 U	0.03 U	0.085	0.015 J	0.140	10.0	0.10
N239A	N239A-1-08-N	1	125	on	Work Area	24 hr	5/22/2012	<0.016	0.023 J	<0.016	0.021 J	0.34	1.5	0.040 J
N239A	14N239A-1-08-N	1	125	on	Work Area	24 hr	2/14/2014	0.022 J	0.023 J	0.011 J	0.018 J	0.39	1.2	0.099
N239A	16N239A-1-08-N	1	125	on	Work Area	24 hr	1/15/2016	0.026 J	0.024 J	0.045	0.027 J	0.52	1.2	0.056
N239A	17N239A-1-08-N	First	125	ON	Work Area	24 hr	1/10/2017	0.016 J	0.012 J	0.014 J	0.018 J	0.260	3.30	0.05
N239A	N239A-1-09-F	1	144	off	Pathway	24 hr	5/27/2012	<0.016	<0.018	<0.017	<0.017	0.088	0.31	0.064 J
N239A	14N239A-1-09-F	1	144	off	Pathway	24 hr	2/17/2014	<0.058	<0.064	<0.064	<0.064	0.24	0.62	0.067 J
N239A	16N239A-1-09-F	1	144	off	Pathway	24 hr	1/18/2016	0.021 J	0.018 J	0.018 J	0.020 J	0.58	1.1	0.064
N239A	17N239A-1-09-F	First	144	OFF	Work Area	23h 31min	1/15/2017	0.03 U	0.032 U	0.067	0.03 U	0.120	0.51	0.08
N239A	N239A-1-09-N	1	144	on	Work Area	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	0.072	0.22	0.024 J
N239A	14N239A-1-09-N	1	144	on	Work Area	24 hr	2/14/2014	0.014 J	0.014 J	<0.034	0.013 J	0.28	0.73	0.032 J
N239A	16N239A-1-09-N	1	144	on	Work Area	24 hr	1/15/2016	0.20	0.18	0.071	0.15	4.3	8.7	0.10
N239A	17N239A-1-09-N	First	144	ON	Work Area	24 hr	1/10/2017	0.016 J	0.013 J	0.029 J	0.026 J	0.200	0.47	0.04
N239A	13N239A-1-10-F	1	U101	off	Work Area	24 hr	5/27/2013	<0.0076	<0.0084	<0.017	0.017 J	0.050	0.41	0.079
N239A	14M339A-1-10-F	1	U101	off	Duplicate	24 hr	2/17/2014	<0.027	<0.030	0.016 J	<0.030	0.074	0.40	0.13
N239A	14N239A-1-10-F	1	U101	off	Work Area	24 hr	2/17/2014	<0.027	<0.030	0.011 J	<0.030	0.070	0.38	0.11
N239A	16M339A-1-10-F	1	U101	off	Duplicate	24 hr	1/18/2016	0.021 J	0.018 J	0.050	0.028 J	0.34	1.0	0.088
N239A	16N239A-1-10-F	1	U101	off	Work Area	24 hr	1/18/2016	0.020 J	0.018 J	0.051	0.019 J	0.33	1.0	0.099
N239A	17N239A-1-10-F	First	U101	OFF	Work Area	23h 15min	1/15/2017	0.015 J	0.013 J	0.08	0.013 J	0.240	0.95	0.11
N239A	17M339A-1-10-F	First	U101	OFF	Work Area	23h 13min	1/15/2017	0.012 J	0.032 U	0.085	0.012 J	0.210	0.85	0.12
N239A	13N239A-1-10-N	1	U101	on	Work Area	24 hr	5/24/2013	0.033 J	0.045 J	<0.021	0.067	0.43	1.8	0.11
N239A	14M339A-1-10-N	1	U101	on	Duplicate	24 hr	2/14/2014	0.72	0.74	0.19	0.49	14	40	0.13
N239A	14N239A-1-10-N	1	U101	on	Work Area	24 hr	2/14/2014	0.90	0.72	0.21	0.47	13	39	0.13
N239A	16M339A-1-10-N	1	U101	on	Duplicate	24 hr	1/15/2016	0.16	0.24	0.071	0.23	5.3	12	0.20
N239A	16N239A-1-10-N	1	U101	on	Work Area	24 hr	1/15/2016	0.18	0.28	0.081	0.25	6.1	14	0.22
N239A	17N239A-1-10-N	First	U101	ON	Work Area	24 hr	1/10/2017	0.29	0.27	0.068	0.2	5.400	12.0	0.19
N239A	17M339A-1-10-N	First	C102	ON	Work Area	24 hr	1/10/2017	0.29	0.25	0.067	0.18	5.200	13.0	0.24
N239A	13N239A-1-11-F	1	U102	off	Work Area	24 hr	5/27/2013	0.0091 J	0.010 J	<0.015	0.010 J	0.12	0.60	0.067
N239A	14N239A-1-11-F	1	U102	off	Work Area	24 hr	2/17/2014	<0.030	<0.033	0.012 J	<0.033	0.15	0.67	0.12
N239A	16N239A-1-11-F	1	U102	off	Work Area	24 hr	1/18/2016	0.020 J	0.017 J	0.058	0.018 J	0.32	0.99	0.091
N239A	17N239A-1-11-F	First	U102	OFF	Work Area	23h 51min	1/15/2017	0.027 U	0.029 U	0.08	0.0099 J	0.150	0.68	0.11
N239A	13N239A-1-11-N	1	U102	on	Duplicate	24 hr	5/24/2013	0.17	0.23	0.039	0.11	2.4	10	0.066
N239A	13N239A-1-11-N	1	U102	on	Work Area	24 hr	5/24/2013	0.17	0.23	0.040	0.11	2.3	9.7	0.066
N239A	14N239A-1-11-N	1	U102	on	Work Area	24 hr	2/14/2014	0.027 J	0.027 J	0.013 J	0.024 J	0.50 J	1.5 J	0.10 J
N239A	16N239-A-1-11-N	1	U102	on	Work Area	24 hr	1/15/2016	0.053	0.050	0.029 J	0.045	1.1	2.4	0.076
N239A	17N239A-1-11-N	First	U102	ON	Work Area	24 hr	1/10/2017	0.22	0.19	0.05	0.13	3.700	8.8	0.07
N239A	N239A-2-01-F	2	226	off	Work Area	24 hr	5/27/2012	0.044 J	0.058	0.0093 J	0.034 J	0.49	2	0.055
N239A	N239A-2-01-N	2	226	on	Work Area	24 hr	5/22/2012	0.014 J	0.032 J	<0.015	0.022 J	0.45	1.6	0.21
N239A	13N239-A-01-F	Ambient Air	NA	NA	Background	24 hr	5/27/2013	<0.0069	<0.0075	<0.015	0.0054 J	<0.015	0.0085 J	0.016 J
N239A	13N239-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/24/2013	<0.0070	<0.0076	<0.015	0.074	<0.015	0.024 J	0.029 J
N239A	N239A-B-01-F	Basement	Basement	off	Pathway	24 hr	5/27/2012	0.032 J	0.037 J	<0.018	0.017 J	0.26	1.2	0.42
N239A	14N239A-B-01-F	Basement	Basement	off	Pathway	24 hr	2/17/2014	<0.028	<0.030	0.015 J	<0.030	0.084	0.55	0.13
N239A	16N239A-B-01-F	Basement	Basement	off	Pathway	24 hr	1/18/2016	0.032 U	0.017 J	0.11	0.047	0.20	0.79	0.12
N239A	17N239A-B-01-F	Basement	Basement	OFF	Work Area	23h 49min	1/15/2017	0.026 U	0.028 U	0.041	0.0091 J	0.035	0.29	0.09
N239A	N239A-B-01-N	Basement	Basement	on	Work Area	24 hr	5/22/2012	0.0085 J	<0.016	<0.014	0.0083 J	0.074	0.34	0.083
N239A	14N239A-B-01-N	Basement	Basement	on	Work Area	24 hr	2/14/2014	<0.029	<0.032	0.0099 J	<0.032	0.12	0.33	0.056
N239A	16N239A-B-01-N	Basement	Basement	on	Work Area	24 hr	1/15/2016	0.032 U	0.033 U	0.055	0.027 J	0.46	0.76	0.075
N239A	17N239A-B-01-N	Basement	Basement under 120	ON	Work Area	24 hr	1/10/2017	0.016 J	0.013 J	0.013 J	0.018 J	0.240	0.73	0.05
N239A	N239A-G-07-F	1	142	off	Pathway	Grab hr	5/28/2012	<0.022	<0.025	<0.023	0.010 J	0.13	0.82	0.041 J
N239A	N239A-G-07-N	1	142	on	Pathway	Grab hr	5/22/2012	<0.020	<0.022	<0.020	<0.020	0.019 J	0.15	0.032 J
N239A	13N239A-G-10-F	1	U101	off	Conduit	Grab hr	5/26/2013	<0.0075	<0.0082	<0.016	0.033 J	0.53	3.6	0.1
N239A	13N239A-G-10-N	1	U101	on	Conduit	Grab hr	5/24/2013	0.026 J	0.028 J	<0.015	0.058	1.50	6.30	0.16
N243	N243-1-01-F	1	136	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.017	0.0130 J	0.12	0.24	0.069
N243	M343-1-01-F	1	C103	off	Duplicate	24 hr	5/27/2012	0.016	0.018	0.017	0.017	0.052 J	0.13	0.084
N243	14N243-1-01-F	1	136	off	Work Area	24 hr	2/17/2014	<0.035	<0.039	0.013 J	<0.039	0.22	0.46	0.080
N243	16N243-1-01-F	1	136	off	Work Area	24 hr	1/18/2016	0.017 J	0.033 U	0.033 U	0.019 J	0.22	0.63	0.27

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
N243	16M343-1-01-F	1	136	off	Duplicate	24 hr	1/18/2016	0.016 J	0.031 U	0.031 U	0.033 J	0.21	0.59	0.25
N243	17N243-1-01-F	First	136	OFF	Work Area	24h 5min	1/15/2017	0.015 J	0.03 U	0.064	0.013 J	0.180	0.38	0.28
N243	N243-1-01-N	1	136	on	Work Area	24 hr	5/24/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.021 J	0.27 J
N243	M343-1-01-N	1	136	on	Duplicate	24 hr	5/24/2012	<0.021	<0.023	<0.021	<0.021	<0.021	0.022 J	0.11 J
N243	14N243-1-01-N	1	136	on	Work Area	24 hr	2/14/2014	<0.031	<0.034	<0.034	<0.034	0.029 J	0.10	0.072
N243	16N243-1-01-N	1	136	on	Work Area	24 hr	1/15/2016	0.034 U	0.036 U	0.014 J	0.036 U	0.11	0.22	0.066
N243	17N243-1-01-N	First	136	ON	Work Area	23h 53min	1/12/2017	0.031 U	0.033 U	0.042	0.031 U	0.033 U	0.03 J	0.06
N243	N243-1-02-F	1	C104	off	Work Area	24 hr	5/27/2012	<0.016	<0.019	<0.017	<0.017	0.026 J	0.054	0.033 J
N243	14N243-1-02-F	1	C104	off	Work Area	24 hr	2/17/2014	0.016 J	0.016 J	0.015 J	0.034 J	0.35	1.1	0.40
N243	16N243-1-02-F	1	C104	off	Work Area	24 hr	1/18/2016	0.042	0.026 J	0.017 J	0.036 J	0.52	1.7	0.87
N243	17N243-1-02-F	First	C104	OFF	Work Area	24h 1min	1/15/2017	0.047	0.032 J	0.068	0.035 J	0.530	1.90	1.20
N243	N243-1-02-N	1	C104	on	Work Area	24 hr	5/24/2012	<0.014	<0.016	<0.015	<0.015	<0.015	0.020 J	0.1
N243	14N243-1-02-N	1	C104	on	Work Area	24 hr	2/14/2014	<0.031	<0.034	<0.034	<0.034	0.20	0.041	0.058
N243	16N243-1-02-N	1	C104	on	Work Area	24 hr	1/15/2016	0.036 U	0.037 U	0.037 U	0.012 J	0.083	0.20	0.077
N243	16M243-1-02-N	1	101	on	Duplicate	24 hr	1/15/2016	0.028 U	0.030 U	0.014 J	0.012 J	0.092	0.18	0.062
N243	17N243-1-02-N	First	C104	ON	Work Area	23h 53min	1/12/2017	0.026 U	0.028 U	0.039	0.026 U	0.02 J	0.06	0.11
N243	N243-1-03-F	1	C103	off	Work Area	24 hr	5/27/2012	0.036 J	0.041 J	0.032 J	0.038 J	0.086 J	0.16	0.096
N243	N243-1-03-N	1	C103	on	Work Area	24 hr	5/24/2012	<0.013	<0.014	<0.013	0.0061 J	0.013 J	0.038	0.076
N243	N243-2-01-F	2	C202	off	Work Area	24 hr	5/27/2012	<0.013	0.049	<0.014	<0.014	0.1	0.21	0.06
N243	N243-2-01-N	2	C202	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.022 J	0.045
N243	N243-2-02-F	2	248	off	Work Area	24 hr	5/27/2012	<0.016	0.046	<0.016	0.013 J	0.097	0.2	0.15
N243	N243-2-02-N	2	248	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.015	<0.015	<0.015	0.021 J	0.047
N243	N243-2-03-F	2	C207	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.028 J	0.063	0.08
N243	N243-2-03-N	2	C207	on	Work Area	24 hr	5/24/2012	<0.017	<0.019	<0.017	<0.017	<0.017	0.018 J	0.062
N243	N243-3-01-F	3	N310	off	Pathway	24 hr	5/27/2012	<0.014	<0.015	<0.014	0.0074 J	0.084	0.14	0.034J
N243	N243-3-01-N	3	N310	on	Pathway	24 hr	5/24/2012	<0.015	<0.017	<0.015	<0.015	<0.015	0.013 J	0.022J
N243	M243-A-01-F	Intake	NA	off	Intake	24 hr	5/27/2012	<0.030	<0.034	<0.031	<0.031	<0.031	<0.030	0.052 J
N243	14N243-A-01-F	Intake	NA	NA	Background	24 hr	2/17/2014	<0.030	<0.033	0.011 J	<0.033	0.059	0.12	0.046
N243	16N243-A-01-F	Ambient Air	NA	NA	Intake	24 hr	1/18/2016	0.031 U	0.033 U	0.033 U	0.033 U	0.079	0.16	0.064
N243	17N243-A-01-F	Ambient	N/A	OFF	Ambient	23h 55min	1/15/2017	0.028 U	0.029 U	0.07	0.028 U	0.026 J	0.05	0.07
N243	M243-A-01-N	Ambient Air	NA	NA	Background	24 hr	5/24/2012	<0.017	<0.019	<0.017	<0.017	<0.017	0.0083 J	0.024 J
N243	14N243-A-01-N	Ambient Air	NA	NA	Intake	24 hr	2/14/2014	<0.028	<0.031	<0.031	<0.031	<0.033	0.021 J	0.027 J
N243	16N243-A-01-N	Ambient Air	NA	NA	Intake	24 hr	1/15/2016	0.028 U	0.029 U	0.013 J	0.011 J	0.095	0.18	0.054
N243	17N243-A-01-N	Ambient	N/A	ON	Ambient	23h 55min	1/12/2017	0.026 U	0.028 U	0.043	0.026 U	0.028 U	0.023 J	0.05
N243	17N243-A-02-F	Ambient	N/A	OFF	Ambient	23h 55min	1/15/2017	0.029 U	0.03 U	0.081	0.029 U	0.021 J	0.05	0.08
N243	M243-A-02-N	Intake	NA	on	Intake	24 hr	5/24/2012	<0.012	<0.014	<0.013	<0.013	<0.013	<0.013	0.2
N243	14N243-A-02-N	Ambient Air	NA	NA	Background	24 hr	2/14/2014	<0.029	<0.032	<0.032	<0.032	0.012 J	0.040	0.030 J
N243	16N243-A-02-N	Ambient Air	NA	NA	Background	24 hr	1/15/2016	0.027 U	0.029 U	0.051	0.0087 J	0.14	0.19	0.063
N243	17N243-A-02-N	Ambient	N/A	ON	Ambient	24hr	1/12/2017	0.026 U	0.028 U	0.043	0.026 U	0.028 U	0.026 J	0.05
N243	M343-B-01-F	Basement	N032	off	Duplicate	24 hr	5/27/2012	<0.022	<0.025	<0.023	<0.023	0.023	0.023 J	0.15
N243	N243-B-01-N	Basement	63	on	Work Area	24 hr	5/24/2012	<0.016	<0.018	<0.017	<0.017	0.013 J	0.029 J	0.047
N243	N243-B-02-F	Basement	C002	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.017	<0.017	0.018 J	0.041 J	0.032 J
N243	14N243-B-02-F	Basement	C002	off	Work Area	24 hr	2/17/2014	<0.027	<0.030	0.011 J	<0.030	0.12	0.26	0.075
N243	16N243-B-02-F	Basement	C002	off	Work Area	24 hr	1/18/2016	0.014 J	0.033 U	0.044	0.019 J	0.19	0.52	0.36
N243	17N243-B-02-F	Basement	C002	OFF	Work Area	24h 2min	1/15/2017	0.031 U	0.032 U	0.06	0.031 U	0.033 J	0.08	0.08
N243	N243-B-02-N	Basement	C002	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	<0.016	<0.016	0.023 J	0.079
N243	14N243-B-02-N	Basement	C002	on	Work Area	24 hr	2/14/2014	<0.031	<0.034	<0.034	<0.034	0.026 J	0.085	0.074
N243	16N243-B-02-N	Basement	C002	on	Work Area	24 hr	1/15/2016	0.032 U	0.034 U	0.013 J	0.014 J	0.10	0.21	0.070
N243	17N243-B-02-N	Basement	C002	ON	Work Area	23h 53min	1/12/2017	0.025 U	0.026 U	0.043	0.011 J	0.015 J	0.12	0.06
N243	N243-B-03-F	Basement	N032	off	Pathway	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.013 J	0.022 J	0.14
N243	14N243-B-03-F	Basement	N032	off	Pathway	24 hr	2/17/2014	<0.028	<0.031	0.011 J	<0.031	0.055	0.11	0.058
N243	16N243-B-03-F	Basement	N032	off	Pathway	24 hr	1/18/2016	0.030 U	0.031 U	0.031 U	0.011 J	0.066	0.12	0.053
N243	17N243-B-03-F	Basement	N032	OFF	Work Area	23h 40min	1/15/2017	0.026 U	0.028 U	0.06	0.0081 J	0.021 J	0.05	0.08
N243	N243-B-03-N	Basement	N032	on	Pathway	24 hr	5/24/2012	<0.012	<0.014	<0.013	0.0053 J	<0.013	0.0075 J	0.066 J
N243	M343-B-03-N	Basement	N032	on	Duplicate	24 hr	5/24/2012	<0.014	<0.016	<0.014	0.014	<0.014	0.0075 J	0.022 J
N243	N243-B-04-F	Basement	C008	off	Work Area	24 hr	5/27/2012	<0.017	<0.019	<0.017	<0.017	0.020 J	0.042 J	0.030 J
N243	14N243-B-04-F	Basement	C008	off	Work Area	24 hr	2/17/2014	0.032 J	0.015 J	0.015 J	0.036	0.30	0.93	0.36
N243	16N243-B-04-F	Basement	C008	off	Work Area	24 hr	1/18/2016	0.021 J	0.031 U	0.031 U	0.019 J	0.19	0.61	0.33
N243	17N243-B-04-F	Basement	C008	OFF	Work Area	24h 3min	1/15/2017	0.021 J	0.033 U	0.061	0.016 J	0.200	0.68	0.87

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	Sample Name	Floor	Room	HVAC (on/off)	Sample Type	Sample Duration (hr)	Sample Date							
N243	N243-B-04-N	Basement	C008	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.015	0.0069 J	<0.015	0.015 J	0.023 J
N243	14N243-B-04-N	Basement	C008	on	Work Area	24 hr	2/14/2014	<0.033 J	<0.036 J	<0.036 J	<0.036 J	0.061 J	0.039 J	0.043 J
N243	16N243-B-04-N	Basement	C008	on	Work Area	24 hr	1/15/2016	0.024 U	0.025 U	0.012 J	0.0084 J	0.080	0.21	0.082
N243	17N243-B-04-N	Basement	C008	ON	Work Area	23h 49min	1/12/2017	0.027 U	0.028 U	0.035	0.53	0.026 J	0.07	0.21
N243	N243-B-06-F	Basement	50	off	Work Area	24 hr	5/27/2012	0.023 J	0.067	<0.016	0.027 J	0.64	1.6	0.21
N243	14M343-B-06-F	Basement	050	off	Work Area	24 hr	2/17/2014	0.015 J	0.021 J	0.016 J	0.026 J	0.42	1.3	0.32
N243	14N243-B-06-F	Basement	050	off	Work Area	24 hr	2/17/2014	0.016 J	0.021 J	0.037 J	0.029 J	0.41	1.3	0.32
N243	16N243-B-06-F	Basement	050	off	Work Area	24 hr	1/18/2016	0.012 J	0.032 U	0.032 U	0.019 J	0.21	0.68	0.26
N243	17N243-B-06-F	Basement	050	OFF	Work Area	23h 43min	1/15/2017	0.021 J	0.025 J	0.21	0.021 J	0.310	1.20	0.59
N243	N243-B-06-N	Basement	50	on	Work Area	24 hr	5/24/2012	<0.016	<0.018	<0.017	<0.017	0.0099 J	0.027 J	0.033 J
N243	14N243-B-06-N	Basement	050	on	Work Area	24 hr	2/14/2014	<0.027	0.012 J	<0.030	<0.030	0.047	0.84	0.037
N243	16N243-B-06-N	Basement	050	on	Work Area	24 hr	1/15/2016	0.015 J	0.035 U	0.015 J	0.018 J	0.26	0.71	0.20
N243	17N243-B-06-N	Basement	050	ON	Work Area	23h 53min	1/12/2017	0.048 U	0.051 U	0.045 J	0.048 U	0.082	0.37	0.18
N243	14N243-B-07-F	Basement	054	off	Work Area	24 hr	2/14/2014	<0.029	<0.032	<0.032	0.012 J	0.11	0.35	0.10
N243	17N243-B-07-F	Basement	054	OFF	Work Area	23h 42min	1/15/2017	0.017 J	0.014 J	0.063	0.016 J	0.250	0.75	0.44
N243	17M343-B-07-F	Basement	054	OFF	Work Area	23h 34min	1/15/2017	0.02 J	0.016 J	0.1	0.017 J	0.280	0.81	0.44
N243	N243-B-07-N	Basement	54	on	Work Area	24 hr	5/24/2012	<0.015	<0.017	<0.016	0.015 J	0.18	0.6	0.35
N243	16N243-B-07-N	Basement	054	off	Work Area	24 hr	1/15/2016	0.028 U	0.030 U	0.014 J	0.014 J	0.12	0.34	0.094
N243	17N243-B-07-N	Basement	054	ON	Work Area	24hr 5min	1/12/2017	0.013 J	0.028 U	0.045	0.011 J	0.180	0.45	0.32
N243	N243-B-08-F	Basement	C010	off	Pathway	24 hr	5/27/2012	0.06	0.019 J	0.0081 J	0.024J	0.85	0.17	0.096
N243	N243-B-08-N	Basement	C010	on	Pathway	24 hr	5/24/2012	0.058	0.021 J	0.0081 J	0.026 J	0.92	0.15	0.14
N243	M343-B-08-N	Basement	C010	on	Duplicate	24 hr	5/24/2012	0.056	0.018 J	0.015	0.024 J	0.84	0.15	0.12
N243	N243-G-05-F	Basement	C001	off	Pathway	Grab hr	5/27/2012	<0.016	<0.018	<0.016	0.015 J	0.029 J	0.15	0.041
N243	N243-G-05-N	Basement	C001	on	Pathway	Grab hr	5/24/2012	<0.014	<0.016	<0.014	<0.014	<0.014	0.025 J	0.044
N243A	N243A-1-01-F	1	104	off	Work Area	24 hr	5/27/2012	<0.015	<0.017	<0.015	0.010 J	0.052	0.058	0.04
N243A	14N243A-1-01-F	1	104	off	Work Area	24 hr	2/17/2014	<0.079	0.034 J	<0.087	<0.087	0.11	0.16	0.081 J
N243A	16N243A-1-01-F	1	104	off	Work Area	24 hr	1/18/2016	0.028 U	0.013 J	0.030 U	0.017 J	0.11	0.31	0.15
N243A	17N243A-1-01-F	First	104	OFF	Work Area	23h 44min	1/15/2017	0.029 U	0.03 U	0.047	0.014 J	0.100	0.11	0.11
N243A	N243A-1-01-N	1	104	on	Work Area	24 hr	5/22/2012	<0.014	<0.016	<0.014	0.0092 J	0.033 J	0.028 J	0.26
N243A	14M343A-1-01-N	1	104	on	Duplicate	24 hr	2/14/2014	<0.031	0.026 J	<0.034 J	0.020 J	0.053	0.046	0.056
N243A	14N243A-1-01-N	1	104	on	Work Area	24 hr	2/14/2014	<0.029	0.025 J	0.011 J	0.020 J	0.051	0.046	0.063
N243A	16N243A-1-01-N	1	104	on	Work Area	24 hr	1/15/2016	0.025 U	0.011 J	0.012 J	0.014 J	0.083	0.17	0.069
N243A	17N243A-1-01-N	First	104	ON	Work Area	24hr	1/12/2017	0.034 U	0.036 U	0.042 J	0.014 J	0.095	0.09	0.11
N243A	17M343A-1-01-N	First	104	ON	Work Area	24hr	1/12/2017	0.024 U	0.025 U	0.035	0.015 J	0.097	0.08	0.13
N243A	N243A-1-02-F	1	101	off	Work Area	24 hr	5/27/2012	<0.016	<0.018	<0.017	0.0075 J	0.039 J	0.067	0.032 J
N243A	14N243A-1-02-F	1	101	off	Work Area	24 hr	2/17/2014	<0.037	0.025 J	0.014 J	0.021 J	0.10	0.19	0.085
N243A	16N243A-1-02-F	1	101	off	Work Area	24 hr	1/18/2016	0.013 J	0.015 J	0.015 J	0.026 J	0.15	0.43	0.21
N243A	17N243A-1-02-F	First	101	OFF	Work Area	23h 44min	1/15/2017	0.033 U	0.035 U	0.053	0.017 J	0.084	0.14	0.10
N243A	N243A-1-02-N	1	101	on	Work Area	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	0.015 J	0.033 J	0.026 J
N243A	14N243A-1-02-N	1	101	on	Work Area	24 hr	2/14/2014	<0.026	0.012 J	<0.029	0.012 J	0.033 J	0.062	0.049
N243A	16N243A-1-02-N	1	101	on	Work Area	24 hr	1/15/2016	0.029 U	0.031 U	0.015 J	0.020 J	0.097	0.23	0.084
N243A	17N243A-1-02-N	First	101	ON	Work Area	24hr	1/12/2017	0.026 U	0.027 U	0.04	0.0093 J	0.032 J	0.07	0.08
N243A	N243A-2-01-F	2	201	off	Work Area	24 hr	5/27/2012	<0.016	0.022 J	<0.016	0.012 J	0.061	0.21	0.087
N243A	N243A-2-01-N	2	201	on	Work Area	24 hr	5/22/2012	<0.016	<0.018	<0.016	0.0095 J	0.038 J	0.11	0.12
N243A	N243A-A-01-F	Ambient Air	NA	off	Background	24 hr	5/27/2012	<0.016	<0.018	<0.016	<0.016	0.012 J	0.024 J	0.17
N243A	14N243A-A-01-F	Ambient Air	NA	NA	Background	24 hr	2/17/2014	<0.026	<0.029	<0.029	<0.029	0.047	0.095	0.048
N243A	16N243A-A-01-F	Ambient Air	NA	NA	Background	24 hr	1/18/2016	0.032 U	0.034 U	0.034 U	0.034 U	0.024 J	0.10	0.031 J
N243A	17N243A-A-01-F	Ambient	N/A	OFF	Ambient	24h 5 min	1/15/2017	0.028 U	0.029 U	0.094	0.028 U	0.032 J	0.10	0.09
N243A	M243A-A-01-N	Ambient Air	NA	on	Background	24 hr	5/22/2012	<0.016	<0.018	<0.016	<0.016	<0.016	0.013 J	0.022 J
N243A	14N243A-A-01-N	Ambient Air	NA	NA	Background	24 hr	2/14/2014	<0.033	<0.036	<0.036	<0.036	<0.038	0.021 J	0.041 J
N243A	16N243A-A-01-N	Ambient Air	NA	NA	Background	24 hr	1/15/2016	0.023 J	0.027 U	0.015 J	0.0086 J	0.045	0.11	0.079
N243A	17N243A-A-01-N	Ambient	N/A	ON	Ambient	24hr	1/12/2017	0.025 U	0.026 U	0.041	0.025 U	0.027 J	0.08	0.08
N243A	M343A-B-01-F	Basement	1	off	Duplicate	24 hr	5/27/2012	<0.018	<0.020	<0.018	<0.018	0.062	0.062	0.15
N243A	N243A-B-01-F	Basement	1	off	Work Area	24 hr	5/27/2012	<0.017	0.020 J	<0.018	<0.018	0.063	0.061	0.15
N243A	14N243A-B-01-F	Basement	1	off	Work Area	24 hr	2/17/2014	<0.027	0.076	0.020 J	0.056	0.20	0.15	0.072
N243A	16N243A-B-01-F	Basement	1	off	Work Area	24 hr	1/18/2016	0.032 U	0.021 J	0.037 J	0.023 J	0.15	0.33	0.16
N243A	17N243A-B-01-F	First	Basement	OFF	Work Area	23h 39min	1/15/2017	0.038	0.03 U	0.052	0.02 J	0.510	0.12	0.11
N243A	M343A-B-01-N	Basement	1	on	Duplicate	24 hr	5/22/2012	<0.035	<0.040	<0.036	<0.036	0.15	0.043 J	0.098
N243A	N243A-B-01-N	Basement	1	on	Pathway	24 hr	5/22/2012	<0.029	0.041 J	<0.030	<0.030	0.16	0.047 J	0.1

TABLE 13

ANNUAL VAPOR INTRUSION HISTORICAL AIR MONITORING DATA, MOFFETT FIELD, CALIFORNIA

Analyte *								Vinyl Chloride	1,1,-DCE	*trans-1,2-DCE*	1,1-DCA	*cis-1,2-DCE*	TCE	PCE
Indoor Commercial Screening Level (µg/m³)								2	700	210	6	210	5	2
Building	**Sample Name**	**Floor**	**Room**	**HVAC (on/off)**	**Sample Type**	**Sample Duration (hr)**	**Sample Date**							
N243A	14N243A-B-01-N	Basement	1	on	Pathway	24 hr	2/14/2014	0.039	0.034 J	0.011 J	0.028 J	0.12	0.053	0.053
N243A	16N243A-B-01-N	Basement	1	on	Pathway	24 hr	1/15/2016	0.030 U	0.031 U	0.038	0.024 J	0.12	0.20	0.082
N243A	17N243A-B-01-N	Basement	Basement	ON	Work Area	24hr	1/12/2017	0.035 J	0.03 U	0.058	0.023 J	0.590	0.08	0.10

Notes:
Values exceeding the Commercial Indoor Air Cleanup level are bolded.
J = the result is an estimated concentration that is less than the limit of quantitation but greater than or equal to the method detection limit.
µg/m3 = micrograms per cubic meter.
Sampling Identification Number Example:

N210	1	1	1	N
(Building Number)	(Floor Level)	(Floor Level)	(Sample Location ID)	(HVAC Operation Code Status)

Samples names ending with N – Engineering Control (HVAC) is operating
Sample names ending with F – Engineering Control (HVAC) is shut down, or
If the HVAC code is absent, the building is without an operational engineering control (e.g., HVAC system)

1,1-DCE	= 1,1-dichloroethene
trans-1,2-DCE	= trans-1,2-dichloroethene
1,1-DCA	= 1,1-dichloroethane
cis-1,2-DCE	= cis-1,2-dichloroethene
TCE	= trichloroethene
PCE	= tetrachloroethene
N/A	= Not applicable
U or <	= Not detected at or above the reported limit
J	= The result is an estimated concentration that is less than the method reporting limit (MRL) but greater than or equal to the MDL.
µg/m^3	= micrograms per cubic meter
11	= Detections above ROD Indoor Commercial Screening Level.

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TABLE 14

JANUARY 2017 OVERALL AMBIENT AIR CONCENTRATION RANGES, AREA OF VAPOR INTRUSION STUDY AREA, MOFFETT FIELD, CALIFORNIA

Chemical of Concern	Ambient Air Concentration Range (µg/m^3)[a]
Trichloroethene	0.021J to 1.3
Tetrachloroethene	0.03J to 2.7
cis-1,2-Dichloroethene	210
trans-1,2-Dichloroethene	210
Vinyl Chloride	2
1,1-Dichloroethane	6
1,1-Dichloroethene	700

Notes:

[a]Established from the results of outdoor air samples collected as per the Work Plan (NOREAS 2016).

J = the results is an estimated concentration that is less than the limit of quantitation but greater than or equal to the method detection limit.

µg/m^3 = micrograms per cubic meter

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FIGURES

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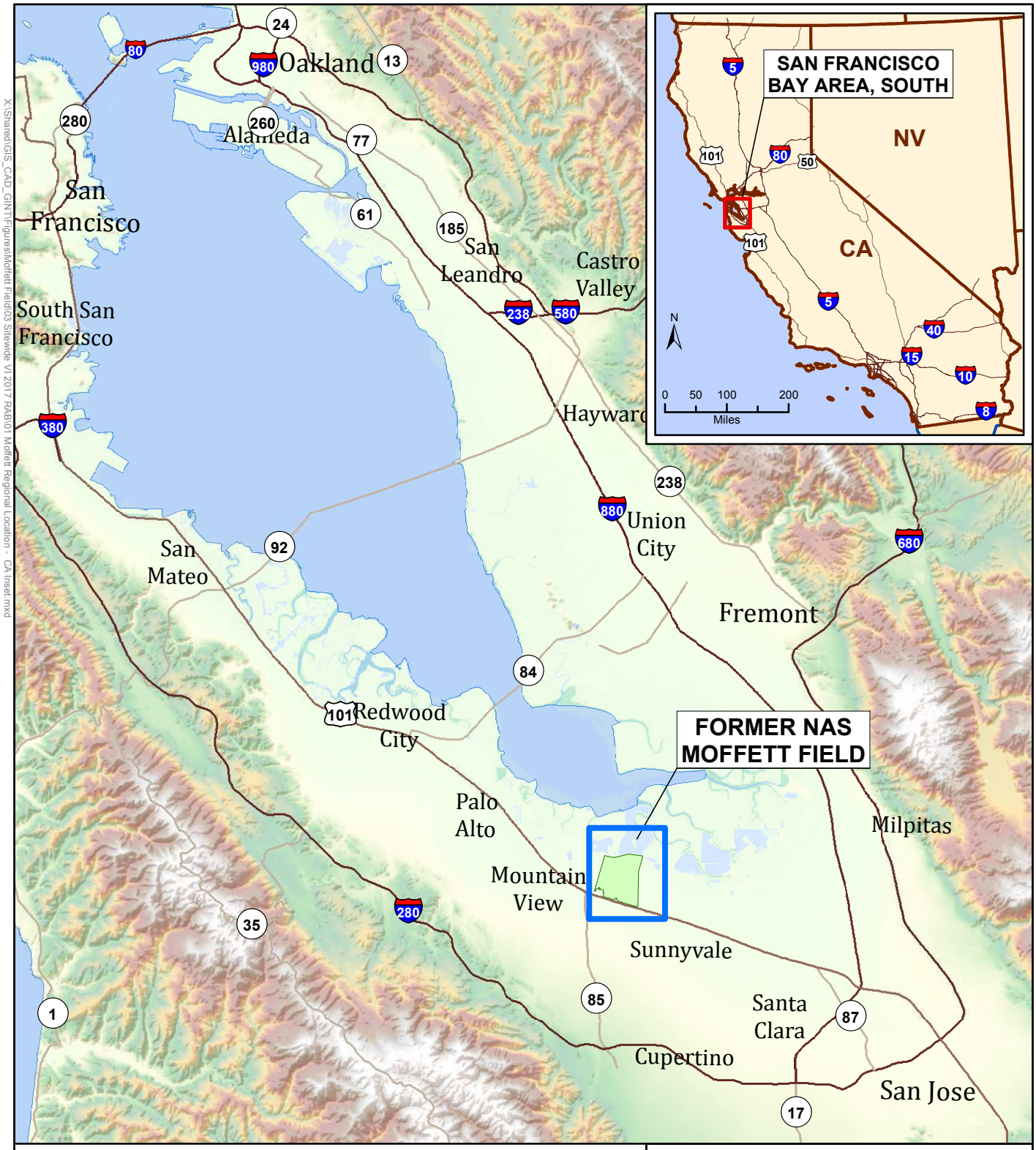

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LEGEND

- Interstate
- U.S. Highway
- State Higway

0 2 4 8 Miles

N

DEPARTMENT OF THE NAVY — NAVFAC Naval Facilities Engineering Command — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 1

REGIONAL LOCATION MAP

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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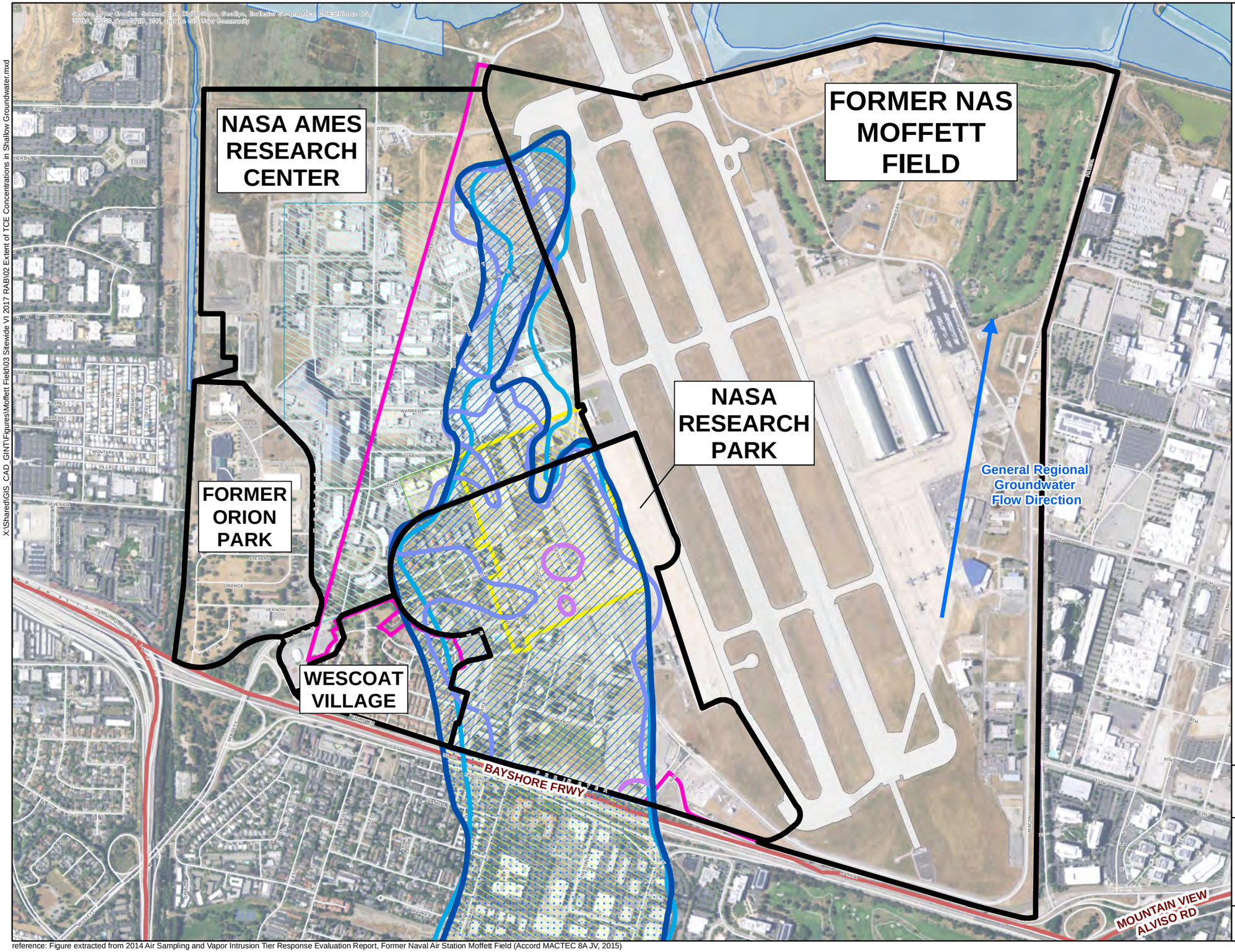

LEGEND

Vapor Intrusion Area of Responsibility

- NAVY Area of Responsibility
- MEW Area of Responsibility
- NASA Area of Responsibility
- VI Study Area - MEW
- VI Study Area - Moffet
- Moffett Field Parcel Boundary
- Highway / Major Corridor
- Streets
- RUNWAY
- 5 µg/L TCE Isopleth in shallow groundwater (as understood in 2011)
- 5 µg/L TCE Isopleth in shallow groundwater (as understood in 2015)
- 5 µg/L PCE Isopleth in shallow groundwater (as understood in 2015)

NOTE: 2015 TCE and PCE isopleths shown only for Moffett Field section of the VI Study Area

MEW - Middlefield-Ellis-Whisman
NASA - National Aeronautics and Space Administration
NAVY - Department of the Navy
PCE - Tetrachloroethene
TCE - Trichloroethene
VI - Vapor Intrusion
µg/L - micrograms per liter

N

0 500 1,000 2,000 Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 2

EXTENT OF TCE CONCENTRATIONS OF THE AQUIFER A/A1 ZONE IN THE MEW SUPERFUND STUDY AREA

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

reference: Figure extracted from 2014 Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field (Accord MACTEC 8A JV, 2015)

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LEGEND

Vapor Intrusion Area of Responsibility

- NAVY Area of Responsibility
- MEW Area of Responsibility
- NASA Area of Responsibility

Buildings by Area of Responsibity

- NAVY (sampled during 2012-2016 Vapor Intrusion Study)
- NAVY (not sampled)
- NASA
- MEW
- Moffett Field Parcel Boundary
- Highway
- Street
- Runway
- Creek or Watercourse
- Original Vapor Intrusion Study Area: Approximate limit of TCE plume exceeding 5 parts per billion (ppb) in shallow groundwater (2009)
- 5 µg/L TCE Isopleth in shallow groundwater (as understood in 2015)
- 5 µg/L PCE Isopleth in shallow groundwater (as understood in 2015)

NOTE: 2015 TCE and PCE isopleths shown only for Moffett Field section of the VI Study Area

MEW - Middlefield-Ellis-Whisman
NASA - National Aeronautics and Space Administration
NAVY - Department of the Navy
PCE - Tetrachloroethene
TCE - Trichloroethene
VI - Vapor Intrusion

µg/L - micrograms per liter

N

0 300 600 1,200 Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 3

VAPOR INTRUSION
AREAS OF RESPONSIBILITY

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

reference: Figure extracted from 2014 Air Sampling and Vapor Intrusion Tier Response Evaluation Report, Former Naval Air Station Moffett Field (Accord MACTEC 8A JV, 2015)

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General Regional Groundwater Flow Direction

Hangar 1

WATS

N243A N243 N239 N239A N213 N210 N211 N207 N237 N235

YYN243A-A-01
17N243-B-07
17N243A-1-02
17N243A-B-01
17N243A-1-01
17N243-B-06
17N243-1-01
17N243-B-04
17N243-1-02
17N243-A-02
17N243-B-03
17N243-A-01
17N210-1-08
17N210-A-01
17N210-1-07
17N210-1-09
17N210-1-10
17N210-1-01
17N210-G-03
17N210-1-05
17N210-1-02
17N210-1-04
17N210-1-06
17N239A-1-05
17N239A-1-03
17N239A-B-01
17N239A-1-09
17N239-1-03
17N239-B-02
17N239-1-05
17N239-B-06
17N239-1-07
17N239-B-05
17N239-1-08
17N239-G-04
17N239-1-02
17N239-A-01
17M045-A-01
17M045-1-02
17M045-1-01
17M029-B-01
17M029-1-01
17M029-A-01
17M002-1-04
17M002-1-03
17M002-1-02
17M012-1-02
17M012-1-03
17M012-1-01
17M012-A-01
17M012-C-05
17M013-A-01
17M013-1-02
17M013-1-01
17M014-C-02
17M014-1-05
17M014-1-04
17M014-1-03
17M014-C-01
17M067-A-01
17M067-1-01
17M003-1-03
17M003-1-01
17M003-1-06
17M003-1-07
17M003-1-09
17M003-1-08
17M003-A-01
17M003-1-04
17M003-1-02
17M567-1-02
17M567-1-01
17M567-A-01
17M567-1-03
17M015-1-06
17M015-1-02
17M015-1-01
17M015-A-01
17M015-1-03
17M076-1-01
17M126-A-01
17M126-1-04-N
M010-1-07
17M010-1-01
17M010-1-05
17M010-1-06
17M010-A-01
17M010-1-09
17M010-1-03
17M010-1-02
17M016-A-01
17M016-1-05
17M016-1-04
17M016-1-03
17M016-1-02
17M016-1-01
17M566-1-01
17M566-1-02
17M510-1-03
17M510-A-01
17M510-1-02
17M107-1-01
17M107-1-02
17M555-A-01
17M555-1-03
17M555-1-01

17M126-1-01-F: 15
17M126-1-01-N: 13
17M126-1-04-F: 24
17M126-1-04-N: 12
17M126-1-05-F: 5.3
17M126-1-02-F: 23
17M126-1-02-N: 18
17M326-1-02-N: 19
7: 95 (CRAWL SPACE)
17N239A-1-10-N: 12
17M339A-1-10-N: 13
17N239A-1-08-F: 10
17N239A-1-11-N: 8.8
17N239A-1-06-N: 7
17N239-B-01-F (BASEMENT): 11
17M010-1-10: 11
17M310-1-10: 11

45A 64 29 460 76 T-36A

1000 100 10 5

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Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014. No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210,, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- TCE Detected Above Indoor Air Screening Level of 5.0 µg/m³
- Indoor Air Sampling
- Ambient Air Sampling
- NAVY BUILDINGS (sampled)
- NAVY BUILDINGS (not sampled)
- MEW BUILDINGS (not sampled)
- NASA BUILDINGS
- WATS (Westside Aquifers Treatment System)
- Vapor Intrusion Study Area (initial 2009 estimate of groundwater TCE>= 5µg/L)

TCE Isopleth in shallow groundwater [as understood in 2015] (µg/L)

- 1,000
- 100
- 10
- 5

17M010-1-10 / 11 — TCE Detections above Indoor Air Screening Level of 5.0 µg/m³

NOTES:

Trichloroethene (TCE) was detected at all indoor air sampling locations. See Table 11 for a complete summary of indoor air sampling results.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample nomenclature.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
TCE - Trichloroethene
µg/m³ - micrograms per cubic meter (air samples)

N

0 100 200 400 Feet

DEPARTMENT OF THE NAVY — NAVFAC Naval Facilities Engineering Command Southwest — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 4

INDOOR AIR SAMPLING LOCATIONS WITH TCE EXCEEDANCES

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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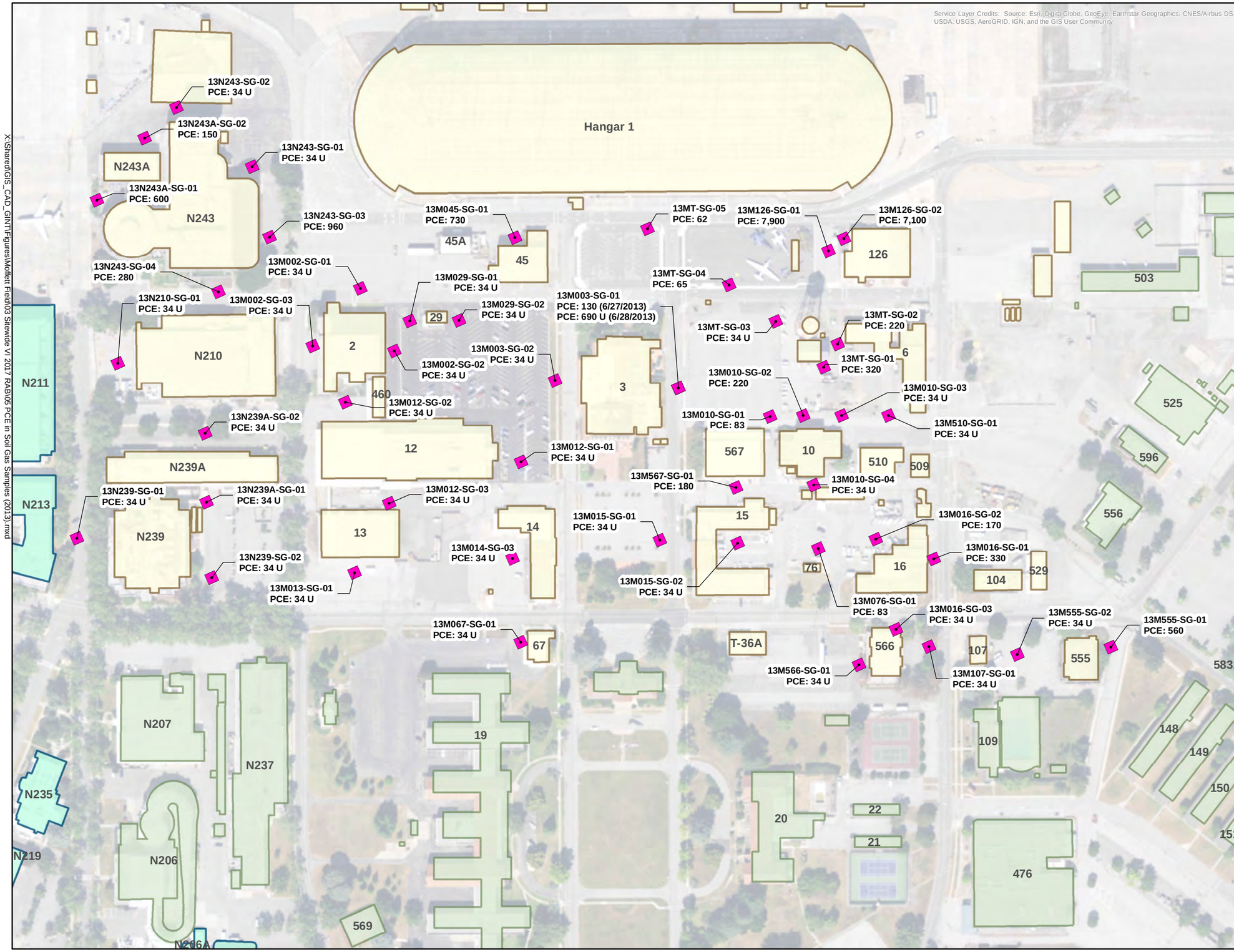

LEGEND

Buildings by Area of

- NAVY BUILDINGS
- MEW BUILDINGS
- NASA BUILDINGS
- PCE RESULTS - SOIL GAS SAMPLING LOCATION (2013)

NOTE:

PCE concentrations shown are from soil gas samples collected by AM8AJV, June- July 2013.

Results in micrograms per cubic meter (µg/m³)

PCE -- tetrachloroethene (perchloroethene)

N

0 100 200 400 Feet

DEPARTMENT OF THE NAVY

NAVFAC Naval Facilities Engineering Command

SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 5

DISTRIBUTION OF TETRACHLOROETHENE IN SOIL GAS

NOREAS

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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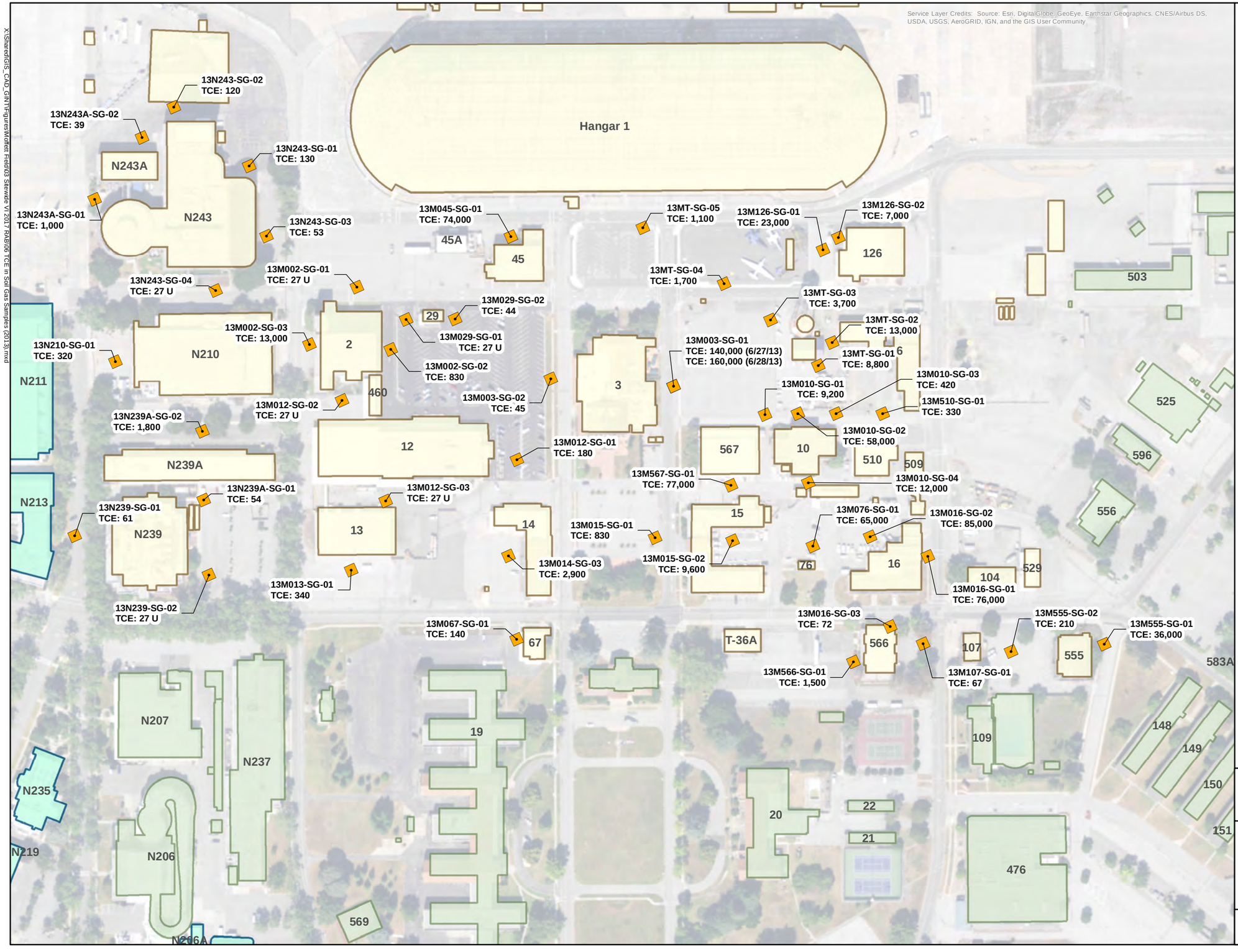

LEGEND

Buildings by Area of

- NAVY BUILDINGS
- MEW BUILDINGS
- NASA BUILDINGS
- TCE RESULTS - SOIL GAS SAMPLING LOCATION (2013)

NOTE:

TCE concentrations shown are from soil gas samples collected by AM8AJV, June- July 2013.

Results in micrograms per cubic meter (µg/m^3)

TCE -- trichloroethene

N

0 100 200 400 Feet

DEPARTMENT OF THE NAVY

NAVFAC Naval Facilities Engineering Command

SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 6

DISTRIBUTION OF TRICHLOROETHENE IN SOIL GAS

NOREAS

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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14C33A PCE: 1 U
EA1-5 PCE: 5.7 U
N010TW06 PCE: 20
WU4-10 PCE: 4 U
W9-24 PCE: 1 U
General Regional Groundwater Flow Direction
Hangar 1
N010TW05 PCE: 95
EA1-2 PCE: 5 U
WU4-14 PCE: 0.31 J
N243A
W29-5 PCE: 1 U
N010TW04 PCE: 61
W9-45 PCE: 5.4 J
WNX-3 PCE: 8 U
WWR PCE: 3.3 U
W29-1 PCE: 1 U
EA1-4 PCE: 6.7 U
N243
WNX-2 PCE: 50 U
WATS
45A
W9SC-1 PCE: 20 U
WNX-1 PCE: 10 U
W29-2 PCE: 1 U
W9-31 PCE: 13 U
45
N010TW03 PCE: 12
W9-18 PCE: 0.4 U
126
28SI-05 PCE: 100 U
W9-10 PCE: 33 U
W9SC-14 PCE: 29 U
503
WIC-1 PCE: 8 J
EA1-1 PCE: 140
28SI-03 PCE: 250 U
N210
29
EA1-3 PCE: 1.8 J
2
N010TW02 PCE: 0.7
6
N211
W29-3 PCE: 25 U
460
3
28SI-01 PCE: 11 J
14D12A PCE: 13 U
EA1-6 PCE: 6.7 U
W29-4 PCE: 5 U
N010TW01 PCE: 0.69
UST85-MW02 PCE: 18 U
525
14D05A PCE: 25 U
12
W9-37 PCE: 25 U
567
10
510
509
28SI-02 PCE: 170 U
596
N239A
N213
W9SC-13 PCE: 20 U
W9-2 PCE: 50 U
WU4-17 PCE: 1 U
N239
13
14
15
556
W9-44 PCE: 17 U
WU4-3 PCE: 33 U
W56-2 PCE: 17 U
W9-7 PCE: 29 U
76
16
104
529
W9-19 PCE: 1.7 U
67
T-36A
566
107
555
583A
N207
N237
19
109
148
149
N235
20
22
150
N219
N206
21
151
476
569
N206A

LEGEND

- NAVY Area of
- MEW Area of
- NASA Area of

Buildings by Area of Responsibity

- NAVY BUILDINGS
- MEW BUILDINGS
- NASA BUILDINGS
- HANGAR 1 OUTLINE
- WATS (Westside Aquifers Treatment System)
- Street Edges (Moffett
- S Steam Distribution Line
- Water Sampling Location, 2010 Tunnel Investigation
- Groundwater Sampling Location, 2015

PCE Isopleth in shallow groundwater [as understood in 2015] (µg/L)

- 100
- 10
- 5

NOTES:

PCE - Tetrachloroethene

µg/L - micrograms per liter (groundwater samples)

See Table 7 for a complete summary of 2015 groundwater sampling results.

N

0 100 200 400 Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 7

DISTRIBUTION OF TETRACHLOROETHENE IN SHALLOW GROUNDWATER

NOREAS

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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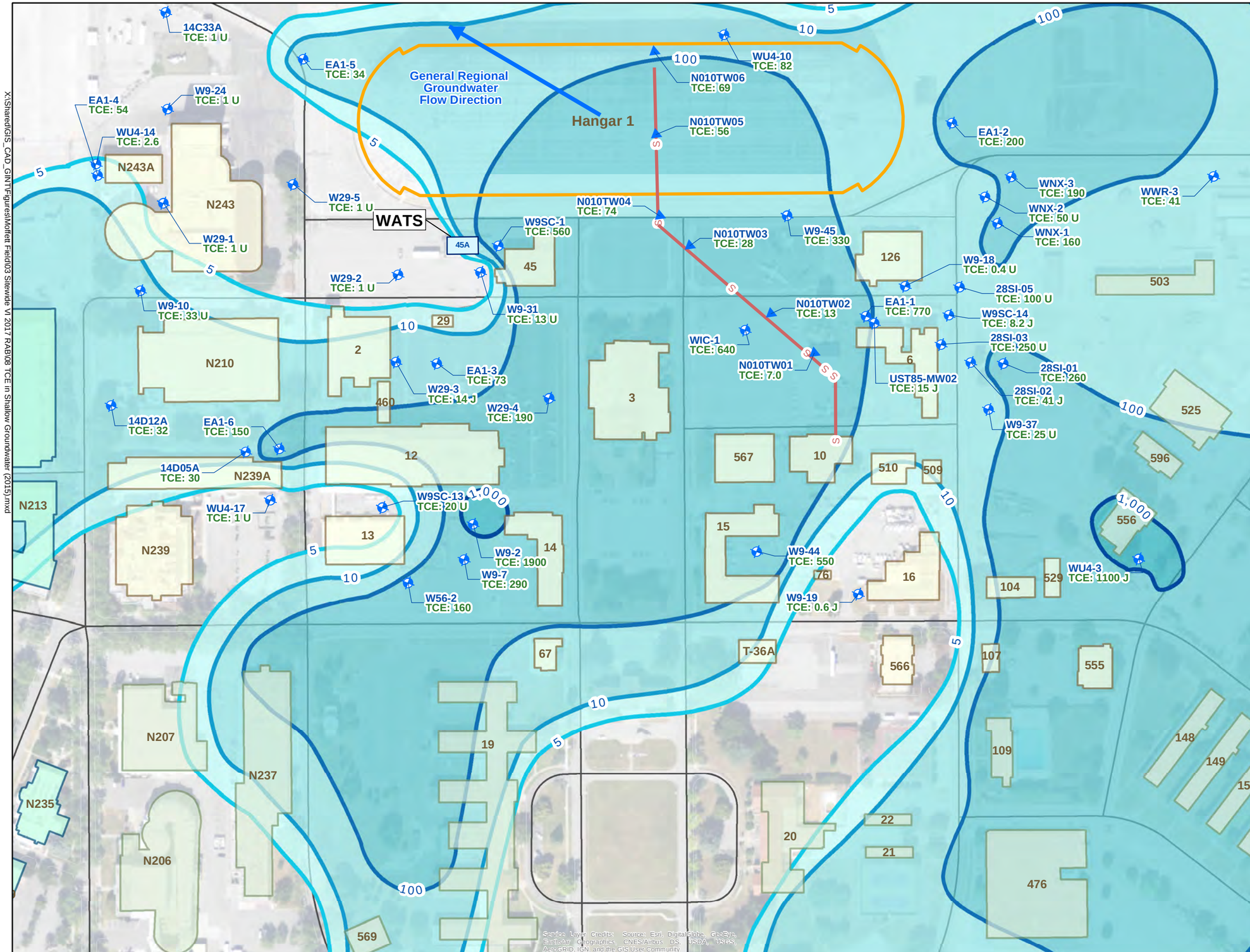

LEGEND

Buildings by Area of Responsibity

- NAVY BUILDINGS
- MEW BUILDINGS
- NASA BUILDINGS
- HANGAR 1 OUTLINE
- WATS (Westside Aquifers Treatment System)
- Street Edges (Moffett
- S Steam Distribution Line
- Water Sampling Location, 2010 Tunnel Investigation
- Groundwater Sampling Location, 2015

TCE Isopleth in shallow groundwater (µg/L) [as understood in 2015]

- 1,000
- 100
- 10
- 5

NOTES:

TCE - Trichloroethene

µg/L - micrograms per liter (groundwater samples)

See Table 7 for a complete summary of 2015 groundwater sampling results.

N

0 100 200 400 Feet

DEPARTMENT OF THE NAVY — NAVFAC — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 8

DISTRIBUTION OF TRICHLOROETHENE IN SHALLOW GROUNDWATER

NOREAS

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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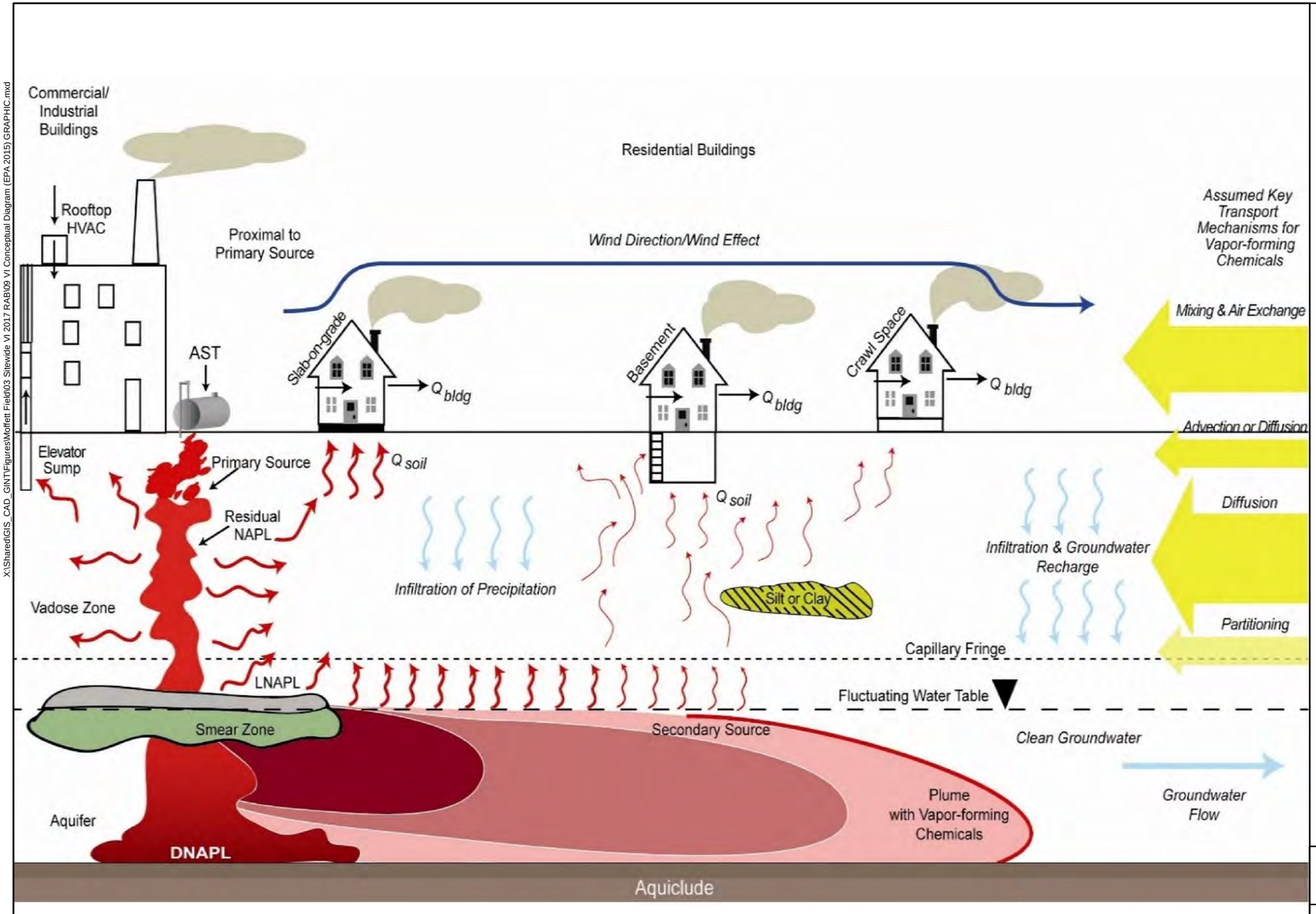

Shows several key elements and processes entailed with vapor intrusion. A subsurface source of vapor-forming chemicals is present underneath and near an industrial building in the form of contaminated soil and groundwater. Groundwater contaminated with vapor-forming chemicals is also present some distance from the industrial property, potentially affecting residential buildings with different types of construction. Vapors emanate from the contaminated soil and groundwater into the surrounding and overlying vadose zone and migrate (primarily by diffusion) in soil pore spaces towards the buildings. Soil gas enters the buildings through various openings, primarily under the influence of advection. Ambient air can infiltrate into the buildings or can be drawn into a building mechanically. Other aspects illustrate that precipitation can influence soil moisture in the vadose zone; that groundwater recharge percolating through clean soil can, in some circumstances, dilute concentrations of groundwater contaminants in the uppermost zone; and that low-permeability layers (such as silt and clay) can impede vapor migration in the vadose zone.

SOURCE: *Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, US EPA, June 2015
Figure 2-1:
Illustration of Key Elements of the Conceptual Model of Soil Vapor Intrusion

SOURCE: *Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, US EPA, June 2015
Figure 2-1:
Illustration of Key Elements of the Conceptual Model of Soil Vapor Intrusion Note: Q_{soil} represents soil gas entry; Qbldg represents air exchange.

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE 9

VAPOR INTRUSION PATHWAY
CONCEPTUAL DIAGRAM (EPA 2015)

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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APPENDIX A

BUILDING SURVEY FORMS AND SUMMARY TABLE

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TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
M002	Gymnasium (2 floors; approximately 17,000 square feet)	Hours of Operation: Monday through Friday, 10am to 2pm, 4pm to 8pm. Intermittent use of basketball court, locker rooms, and office	N/A.	Floor Details: Raised wooden floor basketball court, tiled bathroom and locker rooms. Floor Conditions: No breaks in wooden or tile floor visible.	Shower and floor drains: RMs 101B, 101C, 103, 104, 111A, and 111B. Conduit Penetrating Slab: RM 100 electrical conduits penetrate wooden floor in eastern corner; RMs 103 and 111A sewer plumbing; RM 104 gas line (boiler room).	Building does not have an HVAC system. Other ventilation: Open Windows, Restroom Fans, AC unit in RM 110. Heat Type: Steam; delivery involves mechanical fan to disperse heat; no outside air used.	N/A.	Cleaning supplies in Room 101A. Asbestos tank in Room 104 ppbRAE: all readings were 0 ppb.
M003	Conference Center and Cafeteria (1 floor; approximately 25,000 square feet)	Cafeteria operates Monday through Friday for breakfast and lunch. The facility intermittently hosts various meetings and functions, including on weekends. Offices operate Monday through Friday 8 am to 6 pm.	Basement: Partial crawl space, approximately 3 feet bgs. Basement Usage: Utilities. Basement Floor: Concrete where visible. Basement Walls: Wooden construction	Floor Details: Concrete and raised wooden floor above crawl space and carpeted over. Crawl space (basement) present from RMs 105, 127, 124, C110, and 110 to the northeastern end of the bldg. Slab Conditions: Cracks and seams are present in concrete where visible.	Floor Drains: RMs 126, 110, R102M, R101W, R103W, R101M, R105W, R100M, J123, 107. Other Conduits: RM 110 kitchen--electrical conduits located in northeast corner of room; RM 112--electrical conduits; RM 130 communication room--phone line penetrations.	HVAC system is a zoned heating/cooling system that runs continuously. Air intake in on the roof. All HVAC equipment is mounted on the roof. 20 exhaust fans. Fans in kitchen areas are 3 to 5 HP, all other fans are 1 HP. Exhaust fans located in the following rooms: R101W, 111, 111B, Kitchen, 112, R101M, 125, 127, 128A, 105W, R100M, 101A, 108, 101B, RM 128 - 2 fans, RMs 103, 110 - 5 fans, RM 104 - 2 fans, RM 116 - 2 fans RMs 102, 113, 122, 124, 127 - 2 fans, RM 105 9 AC units with capacity from 5 to 20 tons. Kitchen blowers on for events, fans off at night. Other ventilation: Mechanical Fans, Open Windows, Restroom Fans. Cool air blowers in Kitchen from roof air supply. Heating System: Building specific heating system with delivery involves mechanical fan to disperse steam heat, no outside air used.	N/A.	Cleaning supplies in meat cooler. Janitorial supplies in J123. Carbon dioxide tanks in Kitchen. Table cloths/linen is dry cleaned for events. ppbRAE: highest reading was of 55 ppb in RM 108 (Cafe)
M010	Main boiler plant for NASA Research Park (1 floor; approximately 12,000 square feet)	Former boiler plant. The boiler was taken out of service by Feb. 2014 and removed during Mar.–Apr. 2014. The facility formerly operated Monday through Friday for 8 hours per day with no weekend use. With removal of the boiler, Building 10 is no longer continuously occupied; the building is only intermittently occupied during the day.	Basement Type: Tunnel to Hangar 1. Basement Usage: Former utilities. Pipes through tunnels. Basement Floor: Concrete. Floor cracks and seams. Basement Walls: Poured Concrete. Moisture: Unknown.	Floor Details: Concrete slab. Slab Condition: Cracks and seams are present. RM N104 grates over pipe tunnel. RM N102 tile over concrete slab. Steal cover over tunnel leading to Hangar 1.	Drains/Sumps: RM N104-sump; RM 101--sump in floor trench access to tunnel with probable groundwater seepage. Steam lines: present in RM N104 Floor drains: RM 101 (3 drains) and RM R106. Other Conduits: RM101--water lines; RM R106--toilet/sink; RMs 107 and N104--electrical conduits.	No HVAC system in building. Other ventilation: Open Windows, Restroom Fans, 2 window mounted AC units. Heating System: formerly housed the boiler for the steam line that distributed steam by below ground trenches to the other buildings in NASA Ames. Delivery involved mechanical fans to disperse heat.	The boiler was taken out of service by Feb. 2014, and removed during Mar.- Apr. 2014.	Steel frame, stucco interior, high ceilings. Miscellaneous abandoned calibration solutions in N108. There is furniture made of pressed wood products throughout the building. ppbRAE: highest reading was of 2 ppb in RM R106 (restroom). With the boiler being removed in 2014, the building is no longer continuously occupied

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
M012	Military Commissary - First floor: Grocery Store and Warehouse Second floor: Offices (2 floors; approximately 59,000 square feet)	Building is used 24 hour per day, Monday through Sunday evening. Closed Sunday 9pm to Monday 5 am. Grocery store hours: Monday through Wednesday - 9 am to 6 pm; Thursday - 9 am to 7 pm; Friday - 9 am to 6 pm; Saturday - 9 am to 6 pm. Open at night for stocking.	Crawl space under entire building, except under RM 101. Unknown condition.	Floor Details: Raised floor throughout the building. Floor is carpeted or tiled except RM 101. RM 101 is a warehouse storage and has a concrete floor. Cracks and seams present in RM 101 floor	Floor Drains: RMs 118 & 117 (meat kitchen), 113, 101, 104B/C, and 105D (bathrooms) Sinks: 117, 118, 104, 104D Other Conduits: RMs 110 and 117--electrical conduits; RM 110 Unknown conduits. Sumps: RMs 105 and 118 Elevator shafts: 112 and 109A/B (not in use) Fire suppression main: 101	HVAC system is central air system and has exhaust capability which is in operation continuously. HVAC is managed by Jacobs (facilities). 9X3-ton AC units (1 or 2 in use) and a 10 ton unit - all mounted on the roof with intakes on the roof. 6 exhaust fans located on roof. Other ventilation: Mechanical Fans, Open Windows, Restroom Fans . Heating System: Building specific heating system with natural gas and electric space heaters	N/A.	RM 118: Cleaners for meat kitchen. RM 104: Chemical (cleaners) storage. RM 109: Sealed cleaners, batteries, air fresheners, etc. (Market). Second floor: Pressed wood office furniture. ppbRAE: highest reading was of 427 ppb in RM 115 (office). Most rooms in building had readings over 100 ppb.
M013	Storage Warehouse (1 floor; approximately 16,000 square feet)	Building open 24 hours per day, people in/out of building throughout the day for stocking Building 12.	Crawl space under RM 102.	Floor Details: Steel frame with concrete foundation, concrete slab present in RM 103. Raised floor in RM 102. Floor details of RM 101 is unknown; no access was available. Slab Condition: Cracks and seams are present in RM 103.	Drains/Sumps: none. Other Conduits: RM 102--electrical conduits penetrate raised concrete floor at northern side. RM 103--water main and electrical conduits.	No HVAC system for building. Open air ventilation. Other ventilation: Open Windows. Mechanics fans. Heating System: None	N/A.	RM 102: sealed cans of hair spray, cleaners, deodorant, air freshener, paint, foam, gas/diesel cans. ppbRAE: all readings were 0 ppb.
M014	Tennant occupied offices - Western portion is leased to SkyTran, an alternative transportation company; eastern portion is leased to Virgin America as a back up facility.	SkyTran side typically utilized 5 to 6 hours at a time for demonstrations; however some months the area is used for several days to prepare for presentations. Virgin America side is used as a back up facility only, and is rarely occupied.	Crawl space under entire building except RMs 119 and 120.	Concrete slab floor covered by carpeting/tile except RM 119 and 120 which is bare concrete.	Communication conduits in Northern side of building. Communications and electrical conduits penetrate the concrete floor in the utility room near the western demonstration room. Steam lines and water pipes are located throughout much of the building; bathrooms and a kitchenette is located north of the demonstration room. Additional bathrooms are located in the eastern wing. Boiler area: RM C101, water conduits penetrate floor.	HVAC system is a zoned heating/cooling system that runs continuously on SkyTrain and Virgin America sides. HVAC is managed by Jacobs (facilities) Also mechanical fans, restroom vent fans and open windows. Heating System: Building specific heating system with natural gas.	An HVAC system was installed between the Feb. 2014 and Jan. 2016 sampling events.	Chemicals in kitchen, work shop, and rest rooms. Pressed wood office furniture throughout the building. ppbRAE: all readings were 0 ppb.
M015	NASA Security (1 floor; approximately 17,000 square feet)	Majority of offices staffed 8 hours per day, 5 days a week with infrequent weekend use. Lieutenant office (RM 135D) is staffed 24 hours per day, 7 days per week.	N/A.	Floor Details: Concrete slab. Tile and carpet floor. Slab Condition: Cracks and seams where visible.	Floor drains: RMs 101, R102W, R104M, 146, N108, 117A, N163, and 150. Other Conduits: RMs R113, R115, R102W, R104M--Toilets.	HVAC system runs continuously . HVAC piped into rooms, no HVAC vents in hallways. Chiller in room 118. Jacobs (facilities) manages HVAC system. 2 air handlers: A/H-1 in RM 163 - SW corner of building; A/H-2 in RM 108 - E side of building; Air intake is outside of mechanical rooms at approx. 8 feet above ground surface. 5 exhaust fans - 3 on east wing: 1 at NE corner, 2 at central area of east wing, 2 on west wing, 1 at NW corner, 1 at SW corner. Other ventilation: Open Windows, Restroom Fans, AC window mounted unit in RM 111 and 112. Heating System: Building specific boiler system with natural gas. HVAC does have exhaust capabilities (exhaust fans).	N/A.	Vapor intrusion mitigation method - maintains positive pressure with makeup air adjustment. Waste oil: N163 and N106. Cleaners and air fresheners: restrooms and janitor closet. Uniforms are dry cleaned. Offices have carpet, tile in hallway. ppbRAE: only readings of 38 (RM 128, office), 116 (RM C107, hallway), and 177 ppb (RM R155, men's rest room with air freshener).

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
M016	Occupied by Jacobs the Facilities Maintenance Contractor (approximately 15,000 square feet)	Majority of workers are in the building Monday Through Friday from 6AM - 4 PM and swing shift crew of two people.	N/A.	Floor Details: Concrete slab. Slab Condition: Cracks and seams are present.	Drains/Sumps: None. Other Conduits: RMs R101 & R102--sink drain conduit and toilet plumbing; RM 118--electrical conduits.	HVAC system is a forced air system, with intake from roof. Jacobs (facilities) manages system. System is operational on weekends. Rooms with HVAC ventilation: 114, 112, 116, 117, 119, 110A, 111, 110, 108, 106, 102, 106, 104, 105, 103, R101. Air handler is in RM 111. Small exhaust fan in RM 106. Other ventilation: Open Windows, Restroom Fans, mechanics fans, AC window mounted unit in RM 110A. Heating System: Building specific boiler system with natural gas (currently not working, but blower on). Office space heaters.	N/A.	Vapor intrusion mitigation method - maintains positive pressure with makeup air adjustment. RM 115: calibration gas RM 111: lubricants Outside: generator and transformer use diesel fuel (NE of 118) Chemicals used in building: shop chemicals (lubricants), calibration solutions, and calibration gas. Pressed wood and office furniture throughout the building. ppbRAE: highest reading was of 642 ppb in RM 108 (office) however dust aerosol disinfectant a few minutes before reading was taken. Most readings in rooms ranged from 0 to 40 ppb.
M029	Bicycle Repair Shop (Basement plus 1 floor; 1,400 square feet)	Building operating hours are intermittent, buy typically the building is occupied a 2-4 hours a day.	Basement Type: Full basement under RM 106. Basement Usage: Storage and utilities. Basement Floor: Concrete with cracks and seams. Basement Walls: Poured Concrete. Moisture: Dry.	Floor Details: Concrete, tile; Room 106 has raised wood. Slab Conditions: Cracks and seams where visible.	Drains/Sumps: Drain located in basement below RM 106. RM 102 (restroom) floor and shower drain. Other Conduits: Unknown conduits located in the basement and RM 103.	No HVAC system in building. Other ventilation: Open Windows, Restroom Fans, mechanics fans. Heating System: Steam; delivery involves mechanical fan to disperse heat; no outside air used. Electric space heaters.	N/A.	Cleaners: RM 102 (restroom) Pressed furniture throughout the building. RM 106 has lots of objects created from particleboard. ppbRAE: highest reading was of 26 ppb in RM 103.
M045	Former paint shop. Currently used for the purpose of housing technical demonstrations of mechanical rover (UAV). (1 floor; approximately 9,000 square feet)	Infrequent use of the building- -estimated at a few days per week for 2 to 4 hours at a time.	N/A.	Floor Details: Concrete slab. Slab Condition: Cracks and seams present. Tile: RM 105 and 106 A/B	Sump: Room 107A, approximately 6 feet deep Other Conduits: RM 101, 101A, and 102--electrical conduits and utility corridor located in floor. The corridor traverses building from east to west at an unknown depth. Sinks and toilets: RM 106A/B	No HVAC system in the building. There are two large mechanical venting systems to the South and West walls (not in service). Other ventilation: Open Windows, Restroom Fans, and mechanics fans.	Between the Jan. 2016 and Jan. 2017 air sampling events, the walls separating RMs 101, 101A, 102, and 102A have been removed and are now all part of RM 101.	Cleaners: RM 106A Future chemical storage: RM 105 Future Remodeling: walls between 105 and 105A will be demolished. RM 105 will have AC unit installed, hold chemicals, and be a soldering station. ppbRAE: highest reading was of 49 ppb in RM 103 (storage). All other rooms had readings of 0 ppb.
M067	US Post Office (1 floor; approximately 2,000 square feet)	Monday through Saturday, 08:30 am to 3:30 pm.	N/A.	Floor Details: Concrete slab. Slab Condition: Seams and a break between footer and slab on southwest portion of building. Floor: All tiled floor. Walls: Stucco.	Drains/Sumps: None. Other Conduits: RMs 101 and 102--toilets.	No HVAC system in building. A single window mounted AC unit. Small floor and desk fans used to move air around in building. Other ventilation: Open Windows, Restroom Fans. Heating System: Building specific system with natural gas heating. Electric heaters with fans.	New roof installed about 1 year ago.	RM 101: air freshener, perfume, bathroom cleaners, car cleaners, tire cleaner, motor oil. ppbRAE: highest reading was of 6505 ppb in RM 101 (women's rest room) which smelled of air freshener and perfume. All other rooms had readings of 0 ppb.

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
M076	Locksmith shop (1 floor; approximately 400 square feet)	Monday through Friday, 8 am to 4 pm	N/A.	Floor Details: Concrete throughout and tile in restroom.	Drains/Sumps: none. Other Conduits: RM R102--sewer and water conduits.	No HVAC system. Single window mounted AC unit located in RM 101. A/C unit on 24/7. Other ventilation: Open Windows, Restroom Fans. Heating System: Steam; delivery involves mechanical fan to disperse heat; no outside air used.	N/A.	RM 101: orange degreaser. RM R102: restroom cleaner. ppbRAE: highest reading was of 140 ppb in RM 101 (lock shop/orange degreaser). 40 ppb in RM 103 (entry way) and 0 ppb in RM R102 (restroom).
M107	ROICC Management Office (1 floor; approximately 1,800 square feet)	Hours of Operation: Monday through Friday, 7:30 AM to 5:00 PM.	N/A.	Floor Details: Concrete and carpet. Slab Condition: Unknown.	Drains/Sumps: Drain in RM R101 Other Conduits: RM R101--sewer conduit for toilet and sink pipes; RM 107--electrical and communication conduits in eastern corner of room and kitchen sink.	HVAC system is a central heating/cooling system. Intake on the roof. HVAC is maintained by Jacobs (facilities) HVAC system runs continuously. Heating also by HVAC. Vents in RMs: 105, 106, 104, 103, 102, and 101. Other ventilation: Open Windows. Office fans. Heating Fuels: Natural Gas.	N/A.	RM 101: cleaners ppbRAE: all readings in building were between 18 and 30 ppb.
M126	Moffett Historical Society Museum (1 floor; 3 buildings; approximately 13,000 square feet)	Museum hours are Wednesday through Saturday, 10 am to 2 pm. Workers occupy building from 9:30 AM to 3:00 PM Wednesday through Saturday.	N/A.	Floor Details: Concrete (RM 101 and 102) and carpet (103). Slab: Seams where visible. Tile: 106, 106A, 105, 104, 105A	Floor Drains: 104, 105, and 106A. Other Conduits: RMs 104 and 106A--sewer conduits; RM 105--sink drain. Server Conduits: RM 104 and RM 106A, running through void space.	HVAC system in main building (RM 103, 104, 105, 106, and 106A). System maintained by Jacobs (facilities). Other ventilation: Mechanical Fans, Open Windows, Restroom Fans. Heating System: Radiant heat (natural gas and electricity) with mechanical dispersion system (RM 101 and 102).	HVAC System installed in early 2012.	Cleaners: RM 104, 105, and 105A. Paints/solvents: RM 102. Historical uniforms are dry cleaned (RM 101). ppbRAE: highest reading was 19 ppb in RM 101 near drycleaned uniform.
N210	Former aircraft Hangar converted to office space. (3 floor; approximately 95,000 square feet)	Monday through Friday, 8 am to 6 pm. The building is rarely used on weekends, during day shift only.	Basement floor: Located in former Hangar area. Concrete. Foundation walls: Poured concrete. Dry. Utilities forcomputer numerical control machine shop.	Floor Details: Concrete, carpeted, tile, raised flooring over concrete slab. Slab Condition: Cracks and seams visible.	Sump: basement, restrooms (MR137 showers) Floor Drains/cleanouts: First floor bathrooms - 259B, 255B, 256A&B, R249, 135, J140, R140 C/D, Q134, J140, C117A, 117, 148, C190B, hangar pit, and R250. Elevators: Two elevators (V101 and V102) (PID readings were non detect). Other Conduits: RM 240--electrical conduits.	HVAC system is a zoned heating/cooling system with two separate HVAC systems. The system operates at a set point temperature. The 1st and 2nd floors have a chiller and natural gas hot water boiler providing heating and cooling to these levels. There are also three air handlers (fans) providing a continuous supply of fresh air to both of these levels of the building (with no recirculated air). Outside air is collected from intakes on the roof. There is an air handler on the east roof with a 5 HP roof fan. There are 2 air handlers in the attic space above RM 257; they supply east and west sides of 1st & 2nd floors separately; each have 40 HP and run off VFDs. The other, separate HVAC system is a self-contained (air is recycled) air hearting and cooling unit that services only the "penthouse" (a 3rd floor addition to this building); there is no makeup air, the air supply is through the stairwell. These are alarmed to prevent failure and the alarm system operates 24 hours each day. There are 8 exhaust fans on the roof; 7 are in service. Two of the exhaust fans are for Room 134 (the main chiller room). One is for RM 131. Three are for restrooms. Occupants often complain about the operation of the HVAC unit. Other ventilation: Open Windows, Restroom Fans Heating System: Natural Gas HVAC system is maintained and managed by Jacobs (facilities).	Nov./Dec. 2016: High bay area has been modified by new tenants tenant as a computer numerical control machine shop.	Large opening (4 square feet) that penetrates slab located in RM 283 (PID reading was non detect). Large voids are located between RMs 259B and C247 that are at least two stories high and used for utilities with a concrete slab present and no flooring. During re-fueling and when aircrafts mobilize for take off, fumes often drift onto the facility and are noticeable within the facility. Majority of office space on first floor is on raised flooring. The building was converted in the 1950s from one large hangar to 2/3 office space that is 2 stories in height (E, S, and W perimeters of building) and 1/3 highbay. There is a vapor extraction system installed under the raised floor beneath Rooms 143 and 145; the exhaust fan for the system is on the roof. New chemicals in the high bay area include; cleaners, paint, HAZ waste (resin), Heat transfer fluid ppbRAE: all readings in the building were 0 ppb.

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
N239	Life Sciences Building (Basement + 3 floors with 4th floor penthouse (approximately 150,000 square feet)	Building is typically occupied Monday through Friday, 6 am to 6 pm. Building is always open with sporadic weekend and after hour use. Building could be occupied at any time due to needs of timed lab experiments.	Full Basement Basement Usage: Office Space, storage, and utilities. Basement Floor: Concrete. Basement Walls: Poured Concrete. Moisture: Dry. HVAC: continuously on in basement.	Floor Details: Concrete, carpet, and tile. Slab Condition: Cracks and seams visible.		HVAC system is a zoned heating/cooling system. The HVAC is operated continuously. HVAC system is operated by Jacobs (facilities). Two 60 HP air handlers located in the basement - intake on the roof of the building. Make up air is 100% intake, no recycling. Air felt stagnant in NW portion of the library (RM 053). Other ventilation: Mechanical Fans, Restroom Fans, Chemical fume hoods 35 exhaust fans and 52 fume hoods (see fan and chemical fume hood inventory list for details and room numbers). Heating Systems: Natural Gas, Steam. Steam delivery involves mechanical fan to disperse heat and radiators; no outside air used.	Nov./Dec. 2016: carpet was installed in RM 138 (carpet glue was used to attach the carpeting to the floor slab). 2016; New roof installed during building survey. While roofing was in progress approximately 5 rooms in the building were with out HVAC at a time due to intakes being covered.	The transferring of chemicals from bulk storage to the labs usually entails a sealed container placed inside an unsealed carrying container. Solvents used throughout labs. Trichloroethene was observed in lab number 432. PID detections were observed in association with solvents and chemicals with a high VOC content located in many of the laboratories. The chemicals were typically stored in the flammable cabinets within the laboratories. Lab coats are dry cleaned. Generator on NE side of building near open windows. ppbRAE: All readings of 0 ppb on first floor. In the basement, all but three readings were 0 ppb, with the highest being 186 ppb in B086 (which was thought to be due to an open acetone bottle in the lab).
N239A	Offices and Centrifuge Operations (Basement + 2 floors; approximately 34,000 square feet)	Two offices on 2nd floor: Monday through Friday, 6 am to 4 pm. Office is occupied by students, who work on highly varied schedule with possible weekend use. Rare weekend use. Centrifuge testing areas has not been used regularly for the past two years. Highbay area and first floor shops: Monday through Friday, 6 am to 4 pm, but intermittently during that time period.	Basement Type: Two large open vaults located in highbay (RM 120) Basement Usage: Storage and bio-dome station. Basement Floor: Concrete. Basement Walls: Poured Concrete. Moisture: Dry.	Floor Details: Concrete and tile. Slab Condition: Cracks and seams visible.	Sumps: RM 144--Depth approximately 8 feet below floor, dry, PID reading = 250 to 270 ppb. Floor Drains: all bathrooms, 120, R121, R102, 141, 142, 145. Elevators: Two elevator shafts (E101 and S102), PID reading = non detect. Other Conduits: Electrical conduits in highbay area; unknown conduits penetrate wall of bio- dome vault area at elevation that is below grade. Utility conduits: U102, 120, 104, 144, 145, 142, 141.	HVAC system is a zoned heating/cooling system. HVAC operates 24/7. Building FSM did not have knowledge of number of air handlers or air intake location. Aerial photos indicate possibly three intake air handlers on north end of building. One intake on south end of building. 12 possible vent locations. Jacobs (facilities) maintains and manages HVAC system operation. Other Information: Supply and return vents located in office area (RM 243). Other ventilation: Open Windows, Restroom Fans, Chemical fume hoods. Heating System: Natural Gas, Steam. Steam delivery involves mechanical fan to disperse heat and radiators; no outside air used.	N/A.	RM 120: paint, lab supplies, flammable lockers RM 125: paint, solvents, lubricants, glues, and flammable lockers RM 104: glues Lab coats are dry cleaned. There is office furniture made of plywood located throughout the building. ppbRAE: all readings in building were 0 ppb.

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
N243	Flight Guidance and Simulation Lab (Basement + 3 floors; approximately 130,000 square feet)	Monday through Friday, 6 am to 6 pm. Some weekend work and late/night work.	Basement Type: Half basement--approximately 4.5 feet bgs. Basement Usage: Office Space, storage, and utilities. Basement Floor: Concrete and mixed tile/carpet in offices in southern portion of basement. Basement Walls: Poured concrete. Moisture: Dry.	Floor Details: Concrete. Slab. New carpet on Southern part of 1st floor. Mixed tile and carpet in the SW portion of the building (RM 189). Condition: Cracks and seams are present.	Sumps: RM N032--Water at approximately 3 to 4 ft. below the floor. Floor Drains: RMs N032 (3 drains), 039, 117, 174, and all bathrooms. Elevators: Two typical personnel elevators (PID readings were non detect). Other Conduits: RMs N032, 039, 052, E034, simulators--electrical conduits. Water supply and sewer drain in all bathrooms and breakrooms.	,I	N/A.	During re-fueling and when aircrafts mobilize for take off, fumes often drift onto the facility and are noticeable within the building. Generators in simulator rooms are vented outside, but it was noted that exhaust leaks to building. Gas powered tools used in building. Chemicals in rooms: 50, 59, 189, 201 (over 50 chemicals used in building). Motion simulators/shops: oil, gas, glues, etc. Recarpeting in 136 area on 1st floor in Oct. 2016 (carpet glue was used to bond carpet to slab). Office furniture made of plywood located throughout the building. ppbRAE: all readings were 0 ppb except for two locations in area RM 50 (138 and 65 ppb).
N243A	Welding and Machine Shop (Basement + 3 floors, 3 stories; approximately 9,000 square feet)	Monday through Friday, 8 am to 5 pm. Infrequent weekend use.	Basement Type: Tunnel to rotunda in Building N243. Basement Usage: Utilities condor. Basement Floor: Concrete. Basement Walls: Poured concrete. Moisture: Dry.	Floor Details: Concrete. Slab Condition: Cracks and seams are present.	Drains/Sumps: None Other conduits: RMs 101 and 104 Utilities: See utility map	HVAC system is a zoned heating/cooling system. HVAC operated continuously. HVAC Zones: 2nd floor offices have only active HVAC systems. Jacobs (facilities) maintains and manages HVAC system operation. Other ventilation: Mechanical fans, open bay doors, open air vents located on Northern and Western walls. Heating System: Steam; delivery involves mechanical fan to disperse heat; no outside air used.	N/A	During re-fueling and when aircrafts mobilize for take off, fumes often drift onto the facility and are noticeable within the building. Chemicals: RM 102A (21 chemicals used in building) ppbRAE: all readings were 0 ppb.
M510	Jacobs the Facilities Maintenance Contractor administration building. (1 floor; approximately 5,000 square feet)	Office workers occupy the building Monday through Friday, 6 am to 5pm. Facility communications room (108A) is occupied 24 hour per day, 7 days a week, 365 days a year, by at least 2 people.	N/A.	Floor Details: Concrete, carpet, and tile (102, 105, 101, 103, 111). Slab Condition: Unknown.	Floor Drains: RMs S102, R101 and R103 Other Conduits: RM 105--sink drain; RM J102--water heater; RM 101 and 103--toilet and sink.	Two roof mounted AC units. Zone 1: RM 109 and 112 (on when occupied); Zone 2: rest of building (always on). 100% of intake from roof outside air. Jacobs (facilities) maintains and manages HVAC system operation. Other ventilation: Exhaust fans in the two bathrooms, mechanics fans, open windows. Heating System: Natural gas	RM 112 was recarpeted in 2016 (glue was used to attach the carpet to the slab).	Chemicals: RM 101: glue RM 103: glue RM 107: boiler water (water + iron) J102: Cleaners (windex + commit) There is office furniture made of plywood located throughout the building. ppbRAE: all readings were between 1 and 18 ppb except for the bathrooms where air freshener is perpetually released (181 men's rest room and 62 women's rest room).

TABLE A-1. SUMMARY OF BUILDING SURVEY RESULTS
FORMER NAVAL AIR STATION MOFFETT FIELD, CALIFORNIA

Building Number	Type of Building (# of floors; area)	Building Work Hours	Basement Information	Floor Information	Conduits Penetrating Floor and Elevator Information	HVAC Systems Details	Recent Remodeling Information	Further Building Related Information
M555	Office Building - Multiple tenants (1 floor; approximately 5,000 square feet)	Typical hours: Monday through Friday, 7:30 am to 8 pm.	N/A.	Floor Details: Elevated wooden floor with carpet. Tile in rooms: 108A, 110, 111, C103, 112, 112B, 112A. Slab Condition: Unknown.	Floor Drains: RM 112B, C103. Other Conduits: RM 108A--sink drain; RM110 and RM111--toilet and sink drain; RM 107B-- communication lines (however none observed to penetrate the floor).	HVAC system is a zoned heating/cooling system. HVAC vents in all offices and commons. HVAC recirculates unknown percentage. Off at night after 8 pm by temperature control. Air intake from out roof. Three roof mounted AC units: AC unit #1: west side of building, AC unit #2: south side of building, AC unit #3: north and east side of building. Jacobs (facilities) maintains and manages HVAC system operation. Other ventilation: Exhaust fans located in two bathrooms. Open windows. Heating System: Natural Gas.	Nov./Dec. 2016: New roof being installed (possibly painting after roof install). Carpet to be replaced after roof completion.	Chemicals: cleaning chemicals: C103 and 108A; white board cleaner: 107; purely: 112. There is office furniture made of plywood located throuout the building. ppbRAE: readings were 475 to 5359 ppb. Elevated ppbRAE readings are due to roofing activities during building survey. AC unit numbers 1 and 2 off during roofing activities. Highest ppbRAE readings found around vents from AC unit 3.
M566	Office Building - Fire department admin. Staff (normal business hours) and college inters (seasonal, mostly summer) only part of the building is occupied (1 floor; approximately 6,000 square feet)	Vasper - RMs 111, 112, and 113: occupied Monday through Friday, 9 am to 5 pm with occasional weekend use. Five9 - RMs 100, 101, 102, 106C, 106E, 107, 109, and 110: occupied Monday through Friday, 8 am to 5 pm.	N/A.	Floor Details: Carpet except kitchen, RM 101, 102, and D105A where there is tile. Slab Condition: Unknown.	Floor Drains: RMs R101 and R102, RM J103--sink. Other Conduits (not penetrating slab): U101--electrical conduits; RMs C103, 106, and 103--electrical outlets located in floor.	HVAC system is not a zoned heating/cooling system. The HVAC system is run continuously. The intake of outside air is from the NE corner of the building. One AC unit mounted in center of the roof (not in use). HVAC vents in: RM C101, 100, 101, 102, 104, 103, 106A, 106B, 106C, 106, 107, C103, 106E, 108, 109, 110, 111, 112, 113, 114, R101, R102. Jacobs (facilities) maintains and manages HVAC system operation. Other ventilation: Restroom Fans. Open windows. Heating System: Electric water heater.	N/A	Chemicals: Cleaners: RM J103 and kitchen (C104) Dry cleaning is done for fire uniforms. ppbRAE: all readings in building were 0 ppb.
M567	Warehouse (1 floor; approximately 9,000 square feet)	Monday through Friday, 7:30 am to 4 pm. Occasional weekend work.	N/A.	Floor Details: Concrete slab. Slab Conditions: Cracks and seams are present.	Floor Drains: RM R101 (located in the bathroom). Other Conduits: RM 105, RM R101 (pipe), former bollard locations (4 x bollard per roll up door) near bay doors are still open with depth approximately 2.5 feet below floor.	No HVAC system used in building. Open air ventilation. Window mounted AC unit in enclosed office located in RM 102. Air felt stagnant on north end of RM 102 and south end of RM 103. Other ventilation: Mechanical Fans, Open Windows, Restroom Fans, Roll up doors. Heating System: Natural gas heater for air and water.	N/A.	Chemicals in outdoor Haz locker: Cleaners: RM 101, R101. Paint: RM 101. Non-haz waste in RM 104. Uniforms are dry-cleaned. ppbRAE: readings ranged from 16 to 27 ppb.

Abbreviations

AC = air conditioning
Bldg = building
bgs = below ground surface
DTW = Depth to water
DX = direct exchange
HP = horse power
HVAC = heating, ventilation and air conditioning
N/A = not applicable
PID = photoionization detector
RM = room

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 2	Date: 11/28/16
Building Contact: Bryan Henshaw	Phone:
email: bryan.n.henshaw@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: gymnasium

General Building Description, Construction Materials: steel frame, concrete floor hardwood in basketball ct.

What type of basement does the building have?

None Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A

Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: Concrete Other (specify): N/A

Foundation Walls: Poured concrete Other (specify):

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

Concrete Carpeted Tiled Stone Other (specify):

Cracks Seams Other (specify):

Hardwood basketball ct., tile bathroom

Are drains or sumps present? (Y/N) Y

Record location (Room #) and information on contents for each drain/sump:

Rm. 103, 104, 101B, 101C, 111A, 111B

Are elevator shafts present? (Y/N) Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

101A: Cleaning supplies

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Rm 103: mens ~~locker~~ rest room w/ toilets & sink) Rm 104: gas line (boiler room) RM ~~101B~~/101C: Showers RM 104: laundry pipes 111A: showers 111B: sinks/toilets
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ~~N~~ ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ~~N~~ ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
Is the HVAC system a zone cooling/heating system? (Y/N)
If not, what type of HVAC system is used in this building? No HVAC How many?
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
Other HVAC items (specify and describe): AC unit, room 110
Does the HVAC system have an exhaust capability? (Y/N)
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) Other (specify): Rest room fans, basket ball ct. fans
Who maintains and manages HVAC system operation?

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air: N/A
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day? 1030 – 7 m/F
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
No carpet

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) ~~N~~ Yes, office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? glue traps in 2016

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	101A	N
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	101A	N
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map. N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map. roads / parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) Y
Describe: asbestos tank in room 104

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 28 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 2

TIME	bbp	Room Number	Comments
1030	0	100	Court
1032	0	104	Storage / GAS HEATER
1033	0	103	Mens ~~locker~~ ~~rm~~ Restroom
1034	0	102	Mens locker rm
1035	0	101B	shower
1035	0	101C	shower
1036	0	C102	
1036	0	101A	Storage / janitor closet
1040	0	C101	Hall
1040	0	109	OFFICE
1041	0	110	LAUNDRY RM
1042	0	111	locker rm
1043	0	111A	SHOWER
1044	0	111B	Restroom

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 3	Date: 11/28/16
Building Contact: Scott Raeside	Phone:
email: Scott.f.raeside@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories

Building Use: Conference center / cafiteria

General Building Description, Construction Materials:
Brick / concrete covered w/ stucco, some wood paneling

What type of basement does the building have? under 105/127
None Full basement Other (specify): partial crawl space ~3', ramp to door

How is the basement used? (Circle all that apply.)
Not used Office Space Storage (Utilities) Other (specify):

What are the characteristics of the basement? (Circle all the apply.) wood wall, carpet over
Basement floor: (Concrete) Other (specify):
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted Tiled Stone Other (specify):
Cracks Seams Other (specify):
Raised wood panel over 105/127

Are drains or sumps present? (Y/N) Yes Area outs: 111B, R103W, R101M, R105W, R100M
Record location (Room #) and information on contents for each drain/sump:
~~R101W~~ Drains: R101W, R103W, R101M, R105W, R100M, 107

Are elevator shafts present? (Y?N) Describe each:
N

Are there locations where chemicals were or are used or stored? (Y/N) Y
List chemicals, storage location and use; attach addition sheets as necessary.
"Meat cooler": Kitchen cleaning supplies
J123: Janatorial supplies
Kitchen: Carbon dioxide

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Kitchen: sinks, 107: sinks Rest room plumbing (sinks/ toilets): R101W, R103W, R101M, 5123, R105W, R101M
Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe:
Was vapor barrier installed under the floor slab? (Y/N) Describe:
Were any other liners installed under the floor slab? (Y/N) Describe:
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe:
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe:

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) Zone
If not, what type of HVAC system is used in this building? How many? 5, 20 ton AC units
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: All HVAC equip on roof, air supply on roof Exhaust fans in: R101W, 111, Kitchen, 111B, C105, 112, R101M, C110, 125, 127, 128, 126A R105W, R106M, 124, 125, C113, 101A, 108, 105, 104, 101B
Other HVAC items (specify and describe): cool air blowers in kitchen ~~floor~~ → air supply from roof
Does the HVAC system have an exhaust capability? (Y/N) N
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans Open windows Other (specify):
Who maintains and manages HVAC system operation?

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24/7 ac
The intake of outside air: yes
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends:
None for HVAC, Kitchen fans off

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity (Steam) Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day? 8-5 M-F
Is the building or portions of the building occupied/utilized on weekends? (Y/N) for events only
If yes, is the HVAC system operational on weekends? (Y/N) yes
Provide details on weekend use.
HVAC on 24/7, Kitche blowers on for events
HVAC in use + blo

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
table cloths / linnen for events are dry cleaned

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
unknown

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
?

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
N, furnature

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
Yes, table cloths/linens dry cleaned

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? not in past year
glue traps
How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners	R101W, R103W	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner / Kitchen Cleaner	"meat ~~locker~~ cooler" J123	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): Carbon Dioxide	Kitchen	
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.
N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.
parking / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:
N

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 25 / 14

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 3

TIME	bbp	Room Number	Comments
1125	0	L101	ENTRANCE
1126	0	120	~~RECEPTION~~ RM Fireside
1132	0	→	BALLELONA KITCHEN
1140	0	113	STORAGE
1140	0	~~116~~ 115	Storage
1141	0	MEAT COOLER	STORAGE, UTENSILS, Cleaning product, Ajax, Bleach.
1141	0		Dry goods storage
1142	0		HALL NEAR STORAGE
1143	0	R101W	restroom
1147	0	111	OFFICE IN Kitchen
1150	0	C105	
1151	0	122	BALLROOM
1152	0	R103W	WOMANS restroom
1153	0	C107	Breezeway
1153	0	C103	HALLWAY
1155	0	R101M	MENS restroom
1157	0	C106	Hallway
1158	0	C110	Breezeway
1158	0	C111	HALLWAY
1159	0	125	MACON RM
1200	16	C123	janitor closet
1201	0	126	SNACK machine area / other door locked.
1202	0	128A	OFFICE
1204	0	127	North wing
1207	0	R105W	womens restroom
1209	0	R105M	Mens restroom
1210	0	G113	HALLWAY
1210	0	101A	HELLANING RM
1211	0	0112	HALLWAY / showroom
1212	0	018	Showroom
1214	18	124	STORAGE / CHAIRS etc.
1217	23	102	
1218	22	103	

2 of 2

Date: 11 / 28 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V

COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 3

TIME	bbp	Room Number	Comments
1218	33	107A	
1219	27	105	
1220	21	106/109	BAR
1221	55	102	CAFE
1223	16	C108	Entrance to Kitchen

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 10	Date: 11/28/16
Building Contact: Daniel mendolla	Phone: (605) 604-5961
email: daniel.v.mendolla@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: ?

No. of Stories 1

Building Use: Decomissioned, not use/occupied former boiler plant

General Building Description, Construction Materials:
Steel frame, stucco interior, concrete foundation high cealings, boiler ~~equipment still there~~ removed April 2014

What type of basement does the building have? tunnel to hangar 1

None Full basement Other (specify):

How is the basement used? (Circle all that apply.)

Not used Office Space Storage Utilities Other (specify): former utilities

What are the characteristics of the basement? (Circle all the apply.) Floor cracks & seams

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify): Pipes through tunnels

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.) Grates over pipe tunnel

Concrete Carpeted Tiled Stone Other (specify): N104

Cracks Seams Other (specify): diamond cover over ~~pipe tunnel~~ trench in mp

N102 tile over concrete slab ~~N101~~ mp

Are drains or sumps present? (Y/N) Y

Record location (Room #) and information on contents for each drain/sump:
drain N 106, N101 drain

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.
~~Pb~~ misc. abandoned calibration solutions in N106

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) • sinks N109 Describe each: • Yes, steam room lines in N104 N161 : water line) • toilet/sink N106 • utility trench, N101
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: N ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) N
If not, what type of HVAC system is used in this building? How many? No HVAC
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N) N/A
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) Other (specify):
Who maintains and manages HVAC system operation? N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air: N/A
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.) N/A
Solar Natural gas Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: ~~None~~ misc. Calibration Solutions N/OS

What are the hours during which a majority of the workers are in the building during a work day?
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
N/A, not in use / occupied

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N/A

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
No Carpet

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) ~~N/A~~ Y, office furnatur

Are there any new upholstery, drapes, or textiles in the building? (Y/N) N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): misc. calibration solutions	N108	N
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.
N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.
road + parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) Y
Describe: water catchment system in N101, drains to tunnel

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 28 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 10

TIME	bbp	Room Number	Comments
0940	0	N104	
0943	1	101	
0944	2	R106	Restroom
0945	0	109	Break Rm
0946	0	103	
0948	0	102	
0950	0	103	

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 12	Date: 11/30/16
Building Contact: Youngboon Hicks	Phone: 650-603-9982
email: youngboon.hicks@deca.mil	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 1953 No. of Stories 2

Building Use: military Commissary - grocery/ware house 1st floor, offices 2nd flo

General Building Description, Construction Materials:
Raised floor throughout building w/ crawl space
Steal frame

What type of basement does the building have?
(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A
Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify): Crawl space/Raised floor
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
Concrete Carpeted (Tiled Stone) Other (specify):
Cracks Seams Other (specify):
RM 101: concrete
RM 109, 109E & 114A carpet
115, 116
tile throughout

Are drains or sumps present? (Y/N) Y
Record location (Room #) and information on contents for each drain/sump:
RM: 110, 109 (sump), 113, 104 B/C, 117, 101 (sump)

Are elevator shafts present? (Y?N) Describe each: 112: elevator, not sure if operational
Y, 109 A/B not in use shaft still there

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
114: cleaners for meat Kitchen
104: chemical (cleaners) storage
109: Sealed cleaners, batteries, air fresheners, etc th market

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: Rest rooms: 113, 101, 104 B/C
sinks: 117, 118, 104 ~~B~~, 104D
Fire supression main: 109 Electrical conduits: 110, 117

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)

Is the HVAC system a zone cooling/heating system? (Y/(N))

If not, what type of HVAC system is used in this building?
How many? Central air

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
4 x 3 ton AC units (not all in use), 1 x 10 ton heater - roof mounted
6 x exhaust fans on roof

Other HVAC items (specify and describe):
NO HVAC in 101

Does the HVAC system have an exhaust capability? (Y/N)
~~N~~ Yes

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans Open windows restroom fans
Other (specify):

Who maintains and manages HVAC system operation?
Jacobs (FSM)

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24 / 7
The intake of outside air: Yes
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends:
None

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity Steam Other (specify):
→ water heater → space heaters

Are any other fuels or chemicals used in this building? (Y/N)
Describe: Cleaners, meat dept

What are the hours during which a majority of the workers are in the building during a work day? 24/7 except night
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
HVAC on 24/7

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
meat coats dry cleaned

Was there any recent remodeling or painting done in the buildings? (Y/N)
decripting / new tiles 2013 N

When and where was the most recent carpeting applied in the building?
N

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture on 2nd floor

Are there any new upholstery, drapes, or textiles in the building? (Y/N)

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? Glue traps

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	104	
Lubricants		
Air fresheners	Restrooms	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	restrooms, 109 (not opened)	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Y, parking lot, road, deliveries

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 30 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 12

TIME	bbp	Room Number	Comments
0829	232	109C	CASHIER AREA / OFFICE
0830	250	109D	OFFICE
0831	285	109E	OFFICE / server
0832	207	109F	WALK-IN FREEZER
0833	212	109	STORE
0835	472	114A	
0835	427	115	OFFICE
0836	411	MENS R/R 111B	111BM 111B
0836	403	WOMENS R/R 111A	111A = 111A
0844	284	117	Storage /
0845	270	C102	WALK-IN /
0846	126	C102 / OFFICE	OFFICE
0847	75	113	MEAT / BUTCHER
0849	35	C101	
0850	173	104D	Employee lunch rm
0851	216	104C	restroom
0852	136	104B	restroom
0853	109	101	MALE HAIR
0855	101	105	Produce dept
0855	250	104A	OFFICE
0955	54	110	Boiler RM / ASBESTOS TILE
0956	66	111	Entry to restroom
0957	79	112	Elevator shaft
0959	180	116	OFFICE

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 13	Date: 11/30/16
Building Contact: Youngboon Hicks	Phone: 650-603-9982
email: Youngboon.hicks@deca.mil	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: | No. of Stories: 1

Building Use: warehouse

General Building Description, Construction Materials: steel frame, concrete foundation

What type of basement does the building have? crawl space under 102

None Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A

Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify):

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

(Concrete) Carpeted Tiled Stone Other (specify): elevated slab over 102

Cracks Seams Other (specify):

Are drains or sumps present? (Y/N) N

Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) Describe each: N

Are there locations where chemicals were or are used or stored? (Y/N) Yes

List chemicals, storage location and use; attach addition sheets as necessary.

Rm 102: sealed cans of hair spray, cleaners, deodorant, air freshner

Rm 102: paint, foam, gas/diesel cans

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Room 102: electrical conduit Room 103: water main + electrical conduits
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) NO HVAC
If not, what type of HVAC system is used in this building? How many? NONE
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N) N/A
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans Open windows Other (specify):
Who maintains and manages HVAC system operation? N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: ~~24/7~~ NO HVAC
The intake of outside air:
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: NO

What are the hours during which a majority of the workers are in the building during a work day?
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
~~Use~~. Ware house open 24/7, no permanant occupancy, people in/out 24/7 as needed

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
N/A - no carpet

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) Pallets

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? Glue traps

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners	102	
Gasoline-powered equipment		
Gasoline storage cans / Diesel	102	
Cleaning solvents		
Lubricants		
Air fresheners	102	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray	102	
Nail polish, nail polish remover		
Bathroom cleaner	102	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): expanding foam	102	
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N) Describe the sources and show locations on the area map.
Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N) Describe the sources and show the locations on the area map.
Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 30 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: ______ V

COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 13

TIME	bbp	Room Number	Comments
0812	0.0	101	Warehouse
0813	0.0	102	Warehouse
0815	0.0	103	Warehouse

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Environmental Engineering and Science

BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 14	Date: 11/29/16
Building Contact: Cynthia Carbon-Norman	Phone: 650-604-0905/408-242-89
email: Cynthia.Carbon@NASA.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 1930's No. of Stories 1

Building Use: offices/storage 2 tennants
2 tennants: Sky Train & Virgin America

General Building Description, Construction Materials:
Concrete / cynder block

What type of basement does the building have? Crawl space ~~over~~ under entire bldg except rooms 119/120
None Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A
Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify):
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.) ~12"
Concrete Carpeted ~~Tiled Stone~~ Other (specify):
Cracks Seams Other (specify):
Carpet / tile floor over concrete floor through building except 119/120

Are drains or sumps present? (Y/N)
Record location (Room #) and information on contents for each drain/sump:
N

Are elevator shafts present? (Y?N) Describe each:
N

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Kitchen
Work shop
Rest rooms

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FORMER NAS MOFFETT FIELD, CALIFORNIA

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Communication Conduits in N. side of Bldg steam/water pipes in rest rooms + C101 boiler area
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N/A
Is the HVAC system a zone cooling/heating system? (Y/N) N/A
If not, what type of HVAC system is used in this building? How many? NO HVAC
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): None on Sky train side VA side: window AC units
Does the HVAC system have an exhaust capability? (Y/N) N/A
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) room fans Other (specify): AC units on V.A. side
Who maintains and manages HVAC system operation? N/A

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FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air: N/A
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day? Varies
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
Sky Train: week days 9-5 ish, when working
Virgin America: rarely, backup station only

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
~~Y V.A. side, 3 years ago N Sky Train side~~ N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building? Sky Train side, no new carpets
Yes, V.A. side had new carpets ~3 years ago

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
Carpet Glue

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner /Kitchen Cleaner	R101W, R102M, R103, R104, 105	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): Rubbing alcohol	101	
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 29 / 18

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0715

BUILDING MONITORING RECORD

BUILDING NUMBER: 14

TIME	bbp	Room Number	Comments
0935	0	101	
0935	0	104	
0936	0	105	Kitchen
0937	0	C101	Storage
0938	0	R102M	Men's R/R
0940	0	C103	WALKWAY
0940	0	R101W	Womens R/R
0941	0	103	Storage
0941	0	102	T-Shirt Storage
0944	0	106	new carpet / Paint
0944	0	107	
0945	0	108	
0945	0	109	Server rm / storage
0945	0	110	
0946	0	111	
0946	0	112	
0947	0	113	
0948	0	C102	
0950	0	C104	
0951	0	R103W	
0952	0	R104M	
0953	0	115	
0953	0	117	
0954	0	C101	
0955	0	116	
0956	0	118	

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 15	Date: 12/1/16
Building Contact: Michael Disanto / Dirk Meier	Phone: 650-604-3843
email: michael.a.disanto@nasa.gov / dirk.c.meier@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed:

No. of Stories: 1 + loft (not in use)

Building Use: NASA Security

General Building Description, Construction Materials:

Concrete foundation / tile + carpet floor

What type of basement does the building have?

None Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A

Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify): N/A

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

Concrete Carpeted Tiled Stone Other (specify):

Cracks Seams Other (specify):

Are drains or sumps present? (Y/N)

Record location (Room #) and information on contents for each drain/sump:

Restrooms, N104, 117A, N163

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

waste oil (N163 + N106)

Shredder oil

restrooms: Cleaners + air freshners Janitor closet: cleaners

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Restrooms, N105, N163
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) Y
If not, what type of HVAC system is used in this building? How many?
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: Chiller in 118 2 x Air handler: A/H-1 Room 163, A/H-2 Room 105 Air intake outside of mechanical room ~8' above ground 5 exhaust fans
Other HVAC items (specify and describe): window AC unit in 111, 112
Does the HVAC system have an exhaust capability? (Y/N) Y, exhaust fans
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) Rest room fans Other (specify):
Who maintains and manages HVAC system operation? FCM

Describe the control sequencing and operation of the HVAC system with respect to: 24/7
Hours of operation:
The intake of outside air:
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity Steam Other (specify):
Hotwater

Are any other fuels or chemicals used in this building? (Y/N)
Describe: Cleaners, oils

What are the hours during which a majority of the workers are in the building during a work day? 24/7
Is the building or portions of the building occupied/utilized on weekends? (Y/N) Yes
If yes, is the HVAC system operational on weekends? (Y/N) Y
Provide details on weekend use.
Majority of staff 8-hr/day, staffed 24/7

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
Yes, uniforms

Was there any recent remodeling or painting done in the buildings? (Y/N)

When and where was the most recent carpeting applied in the building?
N

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? buy spray / pest control
How often were they applied? unknown where sprayed

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners	Rest rooms	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	restrooms, 117A, J148	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): shredder oil	163, C107	
Other (specify): waste oil	N106, N163	
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Y, parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: 15

TIME	bbp	Room Number	Comments
0759	116	C107	HALLWAY
0809	38	128	OFFICE
0810	0	123	Conference
0811	0	120	Office
0812	0	Coffee rm	
0813	0	N103	Boiler rm
0814	0	R104M	restroom
0814	0	R107W	restroom
0815	0	J114	Storage
0816	0	126	OFFICE
0817	0	133	OFFICE
0818	0	133A	OFFICE
0818	0	C101	HALL
0819	0	135A	Lunch room
0819	0	135D	Office
0820	0	150	Mens locker rm
0821	0	161	OFFICE
0822	0	N163	HVAC
0822	0	C107	2nd test
0824	177	R155	Men r/r / air freshner
0825	0	C106	HALL
0825	0	117	Coffee rm
0825	0	114	Office
0827	0	111	Office
0829	0	104	Computer / Storage
0834	0	117 Janitor rm	Closet
0840	0	E134	

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 16	Date: 11/29/16
Building Contact: Tom Dashiell	Phone: 650-772-1468
email: thomas.l.dashiell@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 84 years old, ~1932 — No. of Stories 2

Building Use: Occupied by maintenance contractor Facilities Maintenance

General Building Description, Construction Materials: stucco exterior, concrete slab

What type of basement does the building have?

(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A

Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.) N/A

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify):

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

(Concrete) Carpeted Tiled Stone Other (specify):

Cracks Seams Other (specify):

Are drains or sumps present? (Y/N) R101, R102, SE corner of R111

Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N — Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

Y, outside: Diesal fuel (NE of 118)

inside: Room 115, calibration gas

Room 111, lubricants

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: Y, R101, R102 (→ pipes), 118 (→ server conduits)

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: N, not in 60 years

Was vapor barrier installed under the floor slab? (Y/N)
Describe: N

Were any other liners installed under the floor slab? (Y/N)
Describe: N

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: N

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: N

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N

Is the HVAC system a zone cooling/heating system? (Y/N)
none zone cooling / heating, forced air

If not, what type of HVAC system is used in this building?
How many? N/A

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
Rooms w/ HVAC ventilation: 114, 112, 116, 117, 119, 110A, 111, 110, 108, 106.2, R102, 106.1, 104, 105, 103, R101

Other HVAC items (specify and describe):
Boiler currently not working, but blower on

Does the HVAC system have an exhaust capability? (Y/N)
N

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans — Open windows
Other (specify): office space heaters

Who maintains and manages HVAC system operation?
Plant Facilities

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to: Constant, 24/7
Hours of operation: 24/7
The intake of outside air: From roof
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends:
None

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: Yes, shop chemicals (lubricants), calibration solutions, cal. gas

What are the hours during which a majority of the workers are in the building during a work day? 6am – 4pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N) plus swing shift crew
If yes, is the HVAC system operational on weekends? (Y/N) Y ~2 people
Provide details on weekend use.

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
Yes, uniform dry cleaning

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
N

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) Y, wood shop + office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? No spray Glue traps

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants	111	
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray	R102	
Nail polish, nail polish remover		
Bathroom cleaner	115, R102, R101, upstairs	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): Calibration Gas	(Yes) 115	
Other (specify): Pipe dope	114	
Other (specify): Dry cleaned clothes	119	
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N) Y

Describe the sources and show locations on the area map.

Wood shavings from woodshop (vented outside)

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)

Describe the sources and show the locations on the area map.

Generator + transformer (NE of 118), parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)

Describe: Boilers down, ventilation working

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 29 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V

COMMENTS Calibrated @ 0715

BUILDING MONITORING RECORD

BUILDING NUMBER: 16

TIME	bbp	Room Number	Comments
0807	21	102	OFFICE
0808	2	101	
0808	0	C101	
0808	0	103	OFFICE
0809	2	C102	
0810	0	C103	
0810	3	R101	Mens restroom. cleaning chemicals, GAS HEATER WATER
0812	0	104	OFFICE
0813	0	105	OFFICE
0813	0	106	Conference rm
0814	0	R102	Women's restroom
0818	3	C104	
0819	34	106	OFFICE, electrical Heater, toaster oven.
0820	642	108	OFFICE, dust sprayed disinfectant few min before coming in.
0822	66	Ad-on	Office accross from 108
0825	47	Wood Shop -	Wood Shop Area Table saw etc.
0826	44	119	
0827	60	115	
0827	38	114	
0830	0	116	
0832	36	111	
0832	46	112	
0833	40	V101	
0833	26	110	
0834	36	110A	
0834	0	117	
0836	17	115	2nd test
0837	316	108	2nd test

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 29	Date: 11/30/16
Building Contact: Jim Malone	Phone: 650-444-4770
email:	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 1940s

No. of Stories: 1 w/ basement

Building Use: Bicycle Repair

General Building Description, Construction Materials:
All Concrete floor except 106 (wooden)

What type of basement does the building have?
None (Full basement) Other (specify):

How is the basement used? (Circle all that apply.)
Not used Office Space (Storage) (Utilities) Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: (Concrete) Other (specify):
Foundation Walls: (Poured concrete) Other (specify):
Moisture: (Dry) Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
Concrete Carpeted Tiled Stone Other (specify):
(Cracks) (Seams) Other (specify):

Are drains or sumps present? (Y/N) Y

Record location (Room #) and information on contents for each drain/sump:
basement below 106, room 102 (rest room) floor + shower drain

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.
Restroom Cleaners: 102

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: 102: Sink / toilet 103: conduit Basement: conduit
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) NO HVAC
Is the HVAC system a zone cooling/heating system? (Y/N) N/A
If not, what type of HVAC system is used in this building? How many? N/A
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N) N/A
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans ~~Open windows~~ Other (specify): gas heater, Restroom vent fan
Who maintains and manages HVAC system operation? N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air: NO HVAC
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas (Electricity) Steam Other (specify):
↳ space / water

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day?
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
Occupied ~3 hours/day starting @ 0600, M-F

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building? ?

What adhesives were used to attach the carpeting to the floor slab? (Y/N) N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
Furniture, room 106 is a loft constructed from particleboard

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	102	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): propane	Basement	
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

road / parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

N

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 30 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 24

TIME	bbp	Room Number	Comments
1422	10	100	Office
1423	20	102	Bathroom / shower / sink
1424	26	103	Storage / weight rm
1426	0	106	Table shop
1426	0	106 BASEMENT	Basement

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 45	Date: 11/30/16
Building Contact: Rusty Hunt	Phone: 650 417 5179
email: rusty.hunt@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: UAV testing

General Building Description, Construction Materials:
concrete w/ 2 ~~sets~~ sets of large venting systems to the S and W walls (not in service)

What type of basement does the building have?
(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.)
Not used Office Space Storage Utilities Other (specify): N/A

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify): N/A
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted (Tiled) Stone Other (specify): Tile in 105 + 106 A/B
(Cracks) (Seams) Other (specify):

Are drains or sumps present? (Y/N) N
Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Cleaners – 106A
105 - to hold chemicals in future

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each:
Room 101 and 101A; utility conduits, utility corridor in floor E-W of building
Room 102, utility conduit Room 106A/B; sink / toilets

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
No HVAC

Is the HVAC system a zone cooling/heating system? (Y/N)
N/A

If not, what type of HVAC system is used in this building?
How many? N/A

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:

Other HVAC items (specify and describe):

Does the HVAC system have an exhaust capability? (Y/N)

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans (circled) Open windows (circled) restroom vent fans
Other (specify):

Who maintains and manages HVAC system operation?
N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air:
Minimum: N/A
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day?
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
few day/week during testing for a few hours

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N) Paint 106 A/B & 106
026 – demoed wall between 101/101A, demoed 102A, 102 - all open

When and where was the most recent carpeting applied in the building? demoed wall between 105/105A
N/A

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	106A	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map. N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) to install AC unit into 105, to turn
Describe: 105 into Soldering station
105 will be chemical storage

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 30 / 10

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V

COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 45

TIME	bbp	Room Number	Comments
1242	0	101	
1242	0	101A	
1243	0	102	no longer
1248	0	106	
1248	0	106 B	Toilet
1243	0	106 A	elevator
1249	0	105	office
1250	0	105A	Storage
1251	49	103	storage
1252	0	104	storage
1252	0	104A	Old boiler rm

10 am - 5pm

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 67	Date: 12/1/16
Building Contact: Margie Ortiz	Phone: 650-208-7691
email:	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed:	No. of Stories 1

Building Use: US post office

General Building Description, Construction Materials:
Footer / slab foundation
Stucco sides

What type of basement does the building have?
(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.)
Not used Office Space Storage Utilities Other (specify): N/A

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify):
Foundation Walls: Poured concrete Other (specify): N/A
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted (Tiled) Stone Other (specify):
Cracks Seams Other (specify): All tile floor

Are drains or sumps present? (Y/N)
Record location (Room #) and information on contents for each drain/sump:
Y, Rest rooms Rm 102

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
~~RM 102~~ RM101: Air freshner, Perfume, Bathroom cleaners, car cleaners tire cleaner, motor oil

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: 101, 102 - rest rooms (toilets / sinks)
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) NO HVAC
Is the HVAC system a zone cooling/heating system? (Y/N) N/A
If not, what type of HVAC system is used in this building? How many? N/A
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N)
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) Rest room fans, home fans Other (specify): Window A/C unit, electric heaters w/ fans
Who maintains and manages HVAC system operation? N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air:
Minimum: N/A
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas (Electricity) Steam Other (specify):
↳ space / water

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day? 0830 - 1530
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N) N/A
Provide details on weekend use.
Monday - Saturday Saturday only 3 hours

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
New roof ~1 year ago

When and where was the most recent carpeting applied in the building?
N/A

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
Y plywood furniture, boxes

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?

How often were they applied? N

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	103	
Lubricants		
Air fresheners	101	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover	101	
Bathroom cleaner	103 / 101	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes	101	
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.	101	
Other (specify): motor oil	101	
Other (specify): tire cleaner	101	
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map. N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.
Parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe: N

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: 67

TIME	bbp	Room Number	Comments
0352	0	104	
0352	0	103	
0353	0	R102	Mens r/r
0354	6505	R101	Womens r/r air freshener / Perfume
0356	0	R101	Closet
0357	0	105	SAFE RM
0358	0	L101	Customer Counter / MAIN AREA

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 76	Date: 12/1/2016
Building Contact: Michael Disanto / Dirk Meier	Phone: 650-604-3843
email: michael.a.disanto@nasa.gov / dirk.c.meier@nasa.gov	
Plant Engineering Contact:	Phone
email: ARC-DL-locksmop@mail.nasa.gov	

Year Building Constructed: No. of Stories 1

Building Use: Lock Shop

General Building Description, Construction Materials:

Concrete foundation, stucco sides

What type of basement does the building have?

None Full basement Other (specify):

How is the basement used? (Circle all that apply.)

Not used Office Space Storage Utilities Other (specify): N/A

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify): N/A

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

Concrete Carpeted Tiled Stone Other (specify): Tile in restrooms

Cracks Seams Other (specify): Carpet removed in 2014

Are drains or sumps present? (Y/N)

Record location (Room #) and information on contents for each drain/sump:

R102, drain

Are elevator shafts present? (Y?N) Describe each:

N

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

Orange degreaser: 101

restroom cleaner: R102

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: R102 : toilet / sink
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) NO HVAC
Is the HVAC system a zone cooling/heating system? (Y/N) N/A
If not, what type of HVAC system is used in this building? How many? N/A
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: N/A
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N) N/A
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans (Open windows) window mounted heating / cooling unit for room 101 Other (specify):
Who maintains and manages HVAC system operation? N/A

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air:
Minimum: N/A
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas (Electricity) Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day? 8am - 5pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N):
If yes, is the HVAC system operational on weekends? (Y/N): Keep A/C unit on 24/7
Provide details on weekend use.
no weekend work

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
removed - 2014

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	101	Y
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	R 102	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

road / parking

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

N

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett   Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825   CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene   LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: ______V

COMMENTS Calibrated @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: 76

TIME	bbp	Room Number	Comments
0333	140	101	Lock shop / orange degreaser
0333	40	~~40~~ 103	Entry way
0334	0	~~0~~ R102	restroom

POSTED 5/20/08

MATERIAL SAFETY DATA SHEET

LPS PreSolve Orange Degreaser

Section 1 • Product and Company Identification

Manufacturer's Name: LPS Laboratories

Trade Name: LPS PreSolve Orange Degreaser

Part Numbers: 01420 (aerosol), 01422, 01428, 01405, 01455

Address:
4647 Hugh Howell Road
Tucker, GA USA 30085-5052

Chemical Family: d-Limonene, Aliphatic Hydrocarbons

Telephone Number: 770-243-8800

Emergency Telephone Number:
1-800-424-9300 Chemtrec;
Outside U.S.: (703) 527-3887

Website: http://www.lpslabs.com

PLAIN LANGUAGE HAZARD SUMMARY

Material Safety Data Sheets can be confusing. Federal and State laws require us to include a great deal of technical information that probably won't help the non-professional. LPS includes this "PLAIN LANGUAGE HAZARD SUMMARY" to address the questions and concerns of the average worker. If you have additional health, safety or product questions, don't hesitate to call us at 800/241-8334.

Worker Toxicity

LPS PRESOLVE ORANGE DEGEREASER is designed to remove grease, grime, oil and other oil-based contaminants from a variety of substrates, including automotive and miscellaneous metallic parts. It contains d-limonene and aliphatic hydrocarbons that can be irritating to skin. We suggest you wear gloves and avoid extended exposure to unprotected skin. Don't get it in your eyes (it stings), or breath large amounts of the vapor, (it will dry out your nasal passages and if you breathe large amounts in poorly ventilated areas it can make you dizzy and even sick). Don't spray LPS PRESOLVE ORANGE DEGREASER for extended periods without adequate ventilation. If you're going to perform work involving a lot of product in a poorly ventilated area, use of a respirator or even a self-contained breathing apparatus may be necessary. For more exposure and first aid information, refer to MSDS Sections 2, 8 and 11.

Flammability

LPS PRESOLVE ORANGE DEGREASER generates a "flame extension" when sprayed into an ignition source (flame, arc, etc.), but in having a flash point above 100°F, it is generally safe to use for most industrial applications. Store product away from heat sources and do not spray into live electrical equipment.

Disposal

If you spill LPS PRESOLVE ORANGE DEGREASER, notify the proper environmental or safety department at your company right away. If LPS PRESOLVE ORANGE DEGREASER becomes contaminated with another substance and is rendered unusable for cleaning, the resulting mixture will fall under at least one hazardous classification. See section 13 for more details.

1502

Section 2 • Hazards Identification

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency Overview: Aerosol: DANGER: Flammable. Aerosol contents under pressure.
Bulk: WARNING: Flammable liquid and vapor.

Primary route(s) of entry: Skin and Eye contact. Inhalation.

Potential Acute Health Effects:

Eyes Irritating to eyes

Skin Repeated exposure may cause skin dryness or cracking.

Inhalation: Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache.

Ingestion: Product has a low order of acute oral toxicity, but ingestion of large quantities may cause nausea, vomiting, and gastrointestinal irritation. May cause injury if aspirated into lungs.

Potential Chronic Health Effects:

Carcinogenic Effects: NTP: No **IARC:** No **OSHA:** No

Mutagenic Effects: None

Teratogenic Effects: None

Medical conditions aggravated by exposure: Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

Signs and Symptoms

Stinging in eyes. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects.

Section 3 • Composition / Information on Ingredients

Component	CASRN	Percent by Weight
Solvent Naphtha (petroleum), medium aliphatic	64742-88-7	40 - 60
d-limonene	5989-27-5	40 - 60
Carbon dioxide (aerosol only)	124-38-9	1 - 5

Section 4 • First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Do not use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Clean affected area thoroughly with mild soap and water. Do not use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, seek medical attention immediately.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Do not leave victim unattended. Seek medical attention immediately.

Section 5 • Fire Fighting Measures

Products of Combustion: Carbon monoxide and carbon dioxide. **NFPA Class:** II Liquid

Firefighting media: SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosions.

Sensitivity to Impact: None. **Sensitivity to Static Discharge:** None.

Protection Clothing (Fire): Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.

Special Remarks on Explosion Hazards: Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Section 6 • Accidental Release Measures

Small Spill and Leak: Absorb with an inert material and dispose of properly.

Large Spill and Leak: For large spills, secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

Section 7 • Handling and Storage

Handling: DO NOT spray into or around ignition sources. After handling, always wash hands thoroughly with soap and water. Use only with adequate ventilation. Avoid breathing vapors or spray mists.

Storage: Keep container in a cool, well-ventilated area. Avoid all sources of ignition (spark or flame). Store below 120°F.

Precautions to be taken in handling and storage: ***Store aerosols as Level 3 Aerosol (NFPA 30B).*** Store all materials in dry, well-ventilated area. Avoid breathing vapors.

Section 8 • Exposure Controls / Personal Protection

Ingredients	CASRN	OSHA PEL-TWA	ACGIH-TLV	ACGIH - STEL
Solvent Naphtha (petroleum), medium aliphatic	64742-88-7	100 ppm	100 ppm	Not Established
d-limonene	5989-27-5	Not Established	Not Established	Not Established
Carbon dioxide (aerosol only)	124-38-9	5,000 ppm	5,000 ppm	30,000 ppm

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.

Personal Protection:

Eyes: Safety glasses.

Respiratory : Use organic vapor cartridge type respirator if ventilation is inadequate.

Hands: Use nitrile gloves.

General Hygiene Considerations: Wash thoroughly after handling. Have eye-wash facilities immediately available.

Section 9 • Physical and Chemical Properties

Appearance:	Liquid.	**Color:**	Colorless / water-white
Odour/Taste:	Orange.	**Rule 1171 PPc:**	<5 mmHg at 20°C
Solubility Description:	Less than 0.1%	**Total Composite Vapor Pressure :**	<5 mmHg at 20°C
Boiling Point (°C):	157°C (315°F) @ 760mmHg	**Evaporation Rate:**	0.15 (BuAc=1)
Specific Gravity (Water=1):	0.80-0.82 @ 20 °C	**Flash Point (°C):**	40°C (104°F)
Vapour Density (air=1):	4.8	**Flash Point Method:**	Tag-Closed Cup.
V.O.C. Content: Per C.A.R.B / O.T.C. and S.C.A.Q.M.D. Rule 102	100%, 810 g/L, 6.75 #/gal.	**Auto Ignition Temperature (°C):**	Not Established
Flammable limits (estimated):	LOWER: 0.7% UPPER: 6%	**Partition Coefficient (octanol/water):**	<1
Viscosity:	<3 cSt @ 25°C	**Volatiles:**	100%
pH:	Not applicable	**Auto Ignition Temperature (°C):**	Not Established

Section 10 • Stability and Reactivity

Stability and Reactivity: The product is stable.

Incompatibility with Various Substances: Extremely reactive or incompatible with oxidizing agents.

Hazardous decomposition products: These products are carbon oxides (CO, CO2)

Hazardous polymerization: Will not occur.

Section 11 • Toxicological Information

Acute and Chronic Toxicity

A: General Product Information

Following exposure to vapors, this material can produce central nervous system depression. High atmospheric concentrations can result in eye, nasal and respiratory tract irritation. However, if handled in accordance with good industrial hygiene practice, this product will not present a significant hazard in the workplace.

Ingredients	CASRN	LC-50	LD-50
Solvent Naphtha (petroleum), medium aliphatic	64742-88-7	>5500 mg/m^3 rat 4 hours	> 5000 mg/kg (oral, rat) 3000 mg/kg (dermal, rat)
d-limonene	5989-27-5	Not established	>5000 mg/kg (oral, rabbit) >5000 mg/kg (dermal, rabbit)
Carbon Dioxide (aerosol only)	124-38-9	Not available	Not appropriate

Section 12 • Ecological Information

Component Data: Acute Aquatic Toxicity

Component	CASRN	Test	Species	Results
Solvent Naphtha (petroleum), medium aliphatic	64742-88-7	Not Available		
d-limonene	5989-27-5	4-day LC50	Oncorhynchus mykiss	35,000 µg/L
		96-hour EC_{50}	Pimephales promelas	1,490,000 µg/L

Section 13 • Disposal Considerations

Waste Status: In its purchased form, this material is a RCRA hazardous waste carrying waste codes D001 and D003 (aerosols only)

Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

Section 14 • Transport Information

Aerosols Only

Mode	Shipping Name	Hazard Class	Subclass	UN Number	Technical Name	Hazard Label	Packing Group	Emergency Response Guide
D.O.T. Ground	Consumer Commodity	ORM-D	NA	1950	NA	ORM-D	NA	NA
IATA	Aerosols, flammable	2.1	NA	1950	NA	Flammable Gas	NA	NA
IMDG (Regular)	AEROSOL	2.1	NA	1950	NA	Flammable Gas	NA	F-D, S-U
IMDG (Special)	Dangerous Goods in Limited quantities of Class 2	NA	NA	1950	NA	NA	NA	F-D, S-U

Non-Aerosol Packaging

Mode	Shipping Name	Hazard Class	Number	Technical Name	Label	Packing Group	Emergency Response Guide
D.O.T. Ground	Not Regulated	NA	NA	NA	NA	NA	NA
IATA	Flammable liquid, n.o.s.	3	Un 1993	Naphtha Petroleum	Flammable Liquid	III	NA
IMDG (Regular)	Flammable liquid, n.o.s.	3	UN 1993	Naphtha Petroleum	Flammable Liquid	III	F-E, S-E

If shipped by air (IATA), part # 01422 will need to be repacked. Contact LPS Technical for additional information.

Section 15 • Regulatory information

U.S. Federal Regulations:

TSCA 8(b) inventory: All of the ingredients are listed on the TSCA inventory or are exempt.

RCRA Hazardous Waste No.: D003 (aerosols only), D001.

CERCLA Sections 102a/103 Hazardous Substances (40 CFR part 370) Reportable Quantity: none

SARA TITLE III Sections 311/312 hazardous Categorization (40 CFR part 370): Sudden Release of Pressure (aerosol only), Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard.

SARA TITLE III Section 313: No

Hazardous Air Pollutants (U.S. EPA): None

State Regulations:

New Jersey RTK: Solvent Naphtha (petroleum), medium aliphatic (CASRN: 64742-88-7), d-limonene (CASRN: 5989-27-5), Carbon Dioxide aerosol propellant (CASRN: 124-38-9)

California Proposition 65: None.

California and OTC States: This product is not acceptable for consumer use – not for retail sale.

MATERIAL SAFETY DATA SHEET

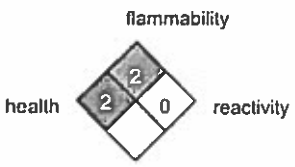
LPS PreSolve Orange Degreaser

Section 16 • Other Information

MSDS#11420
Responsible Name: Ed Williams
Technical Manager

HMIS	
Health:	2
Flammability:	2
Reactivity:	0

NFPA



Notice to Reader:
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Ed Williams, Technical Manager
LPS Laboratories
A division of Illinois Tool Works

Form #2686

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Environmental Engineering and Science

BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 107	Date: 11/28/16
Building Contact: Gary Munekawa	Phone: 650-603-9834
email: gary.munekawa@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: ROICC office

General Building Description, Construction Materials:

Concrete / Brick

What type of basement does the building have?

(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.)

Not used Office Space Storage Utilities Other (specify): N/A

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: Concrete Other (specify):

Foundation Walls: Poured concrete Other (specify): N/A

Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

(Concrete) (Carpeted) Tiled Stone Other (specify):

Cracks Seams Other (specify):

Are drains or sumps present? (Y/N) N

Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

Room 101, cleaners

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Room 101, bathroom (sink / toilet pipes) 107, Kitchen (sink pipe)
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ~~N~~ ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
Is the HVAC system a zone cooling/heating system? (Y/N) Non zone, 1 temp for entire building
If not, what type of HVAC system is used in this building? How many? N/A
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: Roof inlet for HVAC vents in rooms: 105, 106, 104, 103, 102, & 101
Other HVAC items (specify and describe): N/A
Does the HVAC system have an exhaust capability? (Y/N) N
What other type of mechanical ~~ventilation~~ systems are present and/or currently operating in the building? Mechanics fans Open windows office fans Other (specify):
Who maintains and manages HVAC system operation? NASA Facilities

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24/7
The intake of outside air: Roof
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends:
N/A

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):
water water Space heating by HVAC

Are any other fuels or chemicals used in this building? (Y/N)
Describe:
N

What are the hours during which a majority of the workers are in the building during a work day? M-F 730a-500p
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
2 occupants, HVAC on 24/7

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
Not since 2000

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
N

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	101	N/A
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

N

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe: water catch system in room 104

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 28 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V
COMMENTS Calibrated @ 1700

BUILDING MONITORING RECORD

BUILDING NUMBER: 107

TIME	bbp	Room Number	Comments
1437	29	105	Conference rm
1438	30	102	Storage
1439	30	106	Office split
1439	18	104	Printer office
1440	19	103	OFFICE
1441	27	C107	Common Area
1441	27	C107	" "
1441	27	102	office
1443	24	100	OFFICE
1443	35	101	OFFICE
1441	27	107	Common
1444	28	R107	restroom

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 126	Date: 11/30/16
Building Contact: Herb Parsons / Cyndy Carbon-Wurman	Phone:
email: herbadi@sbcglobal.net / Cynthia.l.carbon@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed:	No. of Stories: 1

Building Use: Moffett Historical Society Museum

General Building Description, Construction Materials:
3 buildings, metal sidings

What type of basement does the building have?
None Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A
Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify):
Foundation Walls: Poured concrete Other (specify): N/A
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
Concrete Carpeted Tiled Stone Other (specify):
Cracks Seams Other (specify):

Concrete: 101, 102
Carpet: 103
Tile: 106, 106A, 105, 104, 105A

Are drains or sumps present? (Y/N) Y Drains: 105 & 104
Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Cleaning / painting solvents

Cleaners: 105 & 104
Paints / solvents: 102

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each:
Pipes: 106, 105A, 104 Server conduit: 104, 106A, running through vaide space (map)

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N

Is the HVAC system a zone cooling/heating system? (Y/N)
yes

If not, what type of HVAC system is used in this building?
How many?

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
HVAC only in main building, rooms 103, 104, 105, 106, & 106A (Building 1, map)

Other HVAC items (specify and describe):
Heating in 102/101

Does the HVAC system have an exhaust capability? (Y/N)
N

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans ~~Open windows~~ restroom vent fans
Other (specify):

Who maintains and manages HVAC system operation?
Jacobs (FCM)

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: set point- temp
The intake of outside air: yes
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends: NONE

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) (Electricity) Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day? w- sat 10am-
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N) operational, set point temp
Provide details on weekend use.
workers: 0930 - 1600, w-sat
Tuesday: maintenance/clean up

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N, Historical uniforms dry cleaned (RM 101)

Was there any recent remodeling or painting done in the buildings? (Y/N)
outside painting ~2012

When and where was the most recent carpeting applied in the building?
original carpet, 2004

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners	102	
Gasoline-powered equipment		
Gasoline storage cans /Diesel	102	
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	105, 105A, 104	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

road / parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

N

Photograph and mark potential sample locations on the attached floor plan.

Date: 11 / 30 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☐ FRESH AIR (ZERO)
☐ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS _____

BUILDING MONITORING RECORD

BUILDING NUMBER: 126

TIME	bbp	Room Number	Comments
1042	0.0	105	
1043	0.0	104	
1043	0.0	105A	
1044	0.0	106A	
1046	0.0	103	
1048	0.0	102	
1049	0.0	101	
1050	19	101	Storage area for dry cleaned units

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 510	Date: 11/28/16
Building Contact: Chris Perry / Ken Goodman	Phone: 650 604 4708
email: Chris.l.perry@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: Maintenance Contractor Admin Building

General Building Description, Construction Materials:

What type of basement does the building have?
(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A
Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify): N/A
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.) Tile: 102, 105, 101, 103, 111
(Concrete) (Carpeted) (Tiled Stone) Other (specify):
Cracks Seams Other (specify):
concrete slab w/ carpet over

Are drains or sumps present? (Y/N) Y, S102, 101, R103 Floor drains
Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N) 101: glade 103: shale
List chemicals, storage location and use; attach addition sheets as necessary.
Yes, boiler water (water + iron) Room 107
J102, cleaners (windex + commpl +

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Yes Room 105 (sink) J 102 (water heater), 103 & 101 (toilet + sink)
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: N
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) Yes Zone (zone 1, rooms 109 & 112 zone 2, rest of building)
If not, what type of HVAC system is used in this building? How many? N/A
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: Two Roof mounted A/C units Zone 1: rooms 109 + 112 (on when occupied) Zone 2: rest of buildings (always on)
Other HVAC items (specify and describe): Floor heaters
Does the HVAC system have an exhaust capability? (Y/N) N
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans Open windows Other (specify): Floor heaters
Who maintains and manages HVAC system operation? Plant operations

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:

Hours of operation: ~~24 Hr a day (2 ppl) most: 6am-5pm~~ Zone 2: 24 hr a day → Zone 1: when occupied

The intake of outside air: from roof

Minimum:

Maximum:

Relative percentage of outside air: 100 %.

Differences between day and evening operation of weekdays and weekends:

See above

What type(s) of fuel(s) for space heating and water heating are used in this building?

(Circle all that apply.)

Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)

Describe: N

What are the hours during which a majority of the workers are in the building during a work day?

Is the building or portions of the building occupied/utilized on weekends? (Y/N) room 108A occupied 24/

If yes, is the HVAC system operational on weekends? (Y/N)

Provide details on weekend use.

24 Hr a day (2 ppl) most: 6am 5 pm

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N) N

Was there any recent remodeling or painting done in the buildings? (Y/N) N

When and where was the most recent carpeting applied in the building?

R.112 in 2016

What adhesives were used to attach the carpeting to the floor slab? (Y/N)

Carpet glue unknown specific

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) Y, office furnature

Are there any new upholstery, drapes, or textiles in the building? (Y/N) N

Has the building been treated with any insectoids/pesticides? (Y/N)

If so, what chemicals were used? N

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	J102, storage of under, comm/t	N
Lubricants		
Air fresheners	101 + 103 glade	
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): Boiler water	Room 107	water + iron/N
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.
N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map. Yes
Parking lot / street

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) N
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11/28/16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)
☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 510

TIME	bbp	Room Number	Comments
0840	1	110	N/A
0845	2	108B	N/A
0845	2	112	N/A
0846	5	109	N/A
0847	1	107	Boiler water in HALLWAY TUB / WATER / IRON
0847	6	105	N/A
0850	9	J102	JANITOR CLOSET / LINDER, COMET, DEODORIZER
0851	181	R101	MENS RESTROOM, AIR FRESHENER GLADE
0854	62	R103	WOMENS RR, AIR FRESHENER GLADE
0859	13	104	COMPUTER / SERVER RM
0900	18	108A	OCCUPIED 24/7
0901	12	111	ALARM SYSTEM RM

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 555	Date: 11/29/16
Building Contact: Mark Newfield	Phone: 650-604-4893
email: mark.e.newfield@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: office building

General Building Description, Construction Materials: concrete foundation

What type of basement does the building have?
None Full basement Other (specify):

How is the basement used? (Circle all that apply.)
Not used Office Space Storage Utilities Other (specify): N/A

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify): N/A
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.) Tile in rooms: 108A, 110, 111, C103, 112, 112B, 112A
Concrete Carpeted Tiled Stone Other (specify):
Cracks Seams Other (specify):
elevated wooden floor w/ carpet

Are drains or sumps present? (Y/N) Y, C103
Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y/N) Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Cleaning chemicals: C103, 108A
white board cleaner: 107
Purell: 112

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: 108A: kitchen sink 107B: conduits, none penetrated floor observed
R110/R111: toilets/sinks

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: N

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: N

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N

Is the HVAC system a zone cooling/heating system? (Y/N)
Y

If not, what type of HVAC system is used in this building?
How many?
N/A

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: Hvac vents in all offices, rummons, a
AC #1: west side of bldg - off during ~~work~~ roofing
AC#2: South " " " " - south AC working during ~~roof~~ roofing
AC#3: north " " " - off during roofing

Other HVAC items (specify and describe):
N/A

Does the HVAC system have an exhaust capability? (Y/N)
looks like they re-circulate not sure about vating

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans Open windows Restroom vent fans
Other (specify):

Who maintains and manages HVAC system operation?
Jacobs

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: off at night after 8 → temp control
The intake of outside air: roof
Minimum:
Maximum:
Relative percentage of outside air: ?, ~~could circulate~~ HVAC recirculates, unknown %
Differences between day and evening operation of weekdays and weekends:
HVAC off on weekends

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day? 7:30 am – 8pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N) N
If yes, is the HVAC system operational on weekends? (Y/N) ~~Temper~~ off on weekends
Provide details on weekend use.

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
new roof being installed, painting in 2013, possibly after roof insta

When and where was the most recent carpeting applied in the building?
original carpet over tile, replace after roof (fra

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? N

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner /Kitchen	108A C103	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): purell	112	
Other (specify): white board cleaner	107	
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map. N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) New roof being installed, finishing by mid December, HVAC currently of
Describe: Currently roofing using henrys tar & Toluene & Stabond U148-A

Photograph and mark potential sample locations on the attached floor plan.

~~Email mark chain of command for VI results~~

~~Lin Sullivin~~

see attached sheet on roofing

except South si

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 29 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0715

BUILDING MONITORING RECORD

BUILDING NUMBER: 555

	TIME	bbp	Room Number	Comments
	1403	2403	107	Conference room / leak in ceiling / rain catcher.
	1411	3052	107A	OFFICE
	1411	4051	107B	Server / Storage
	1412	3091	103	OFFICE
	1412	3173	109B	OFFICE
	1413	3064	103A	Kitchen
	1414	840	109	Storage
	1415	3557	C103	Hallway
	1416	3352	112B	JANITOR CLOSET
	1417	3961	112A	Print RM
	1418	5355	113	OFFICE
	1420	3067	C101	Open area
	1422	943	101	office
	1423	799	102	office
	1424	2577	100	office
	1425	3005	100A	storage inside 100
	1426	1120	101	office
	1426	732	104	office
	1427	756	105	Meeting RM
	1429	645	105B	office
	1430	475	105A	storage
	1430	731	103A	
	1431	924	107	OFFICE
*	1431	4438	113	2nd test.
*	1432	4186	112	2nd test.
*	1434	4242	C103	2nd test

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 566	Date: 11-29-16
Building Contact: Ana Grundy-Hiser / Chris Tanner	Phone: ~~408~~ 650 604 6754 Chris Tanner
email: ana.l.grundy-hiser@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: Fire Dep	No. of Stories
Building Use: Admin staff Fire Department, office building, Multiple tenants
General Building Description, Construction Materials: Concrete Foundation
What type of basement does the building have? (None) Full basement Other (specify):
How is the basement used? (Circle all that apply.) N/A Not used Office Space Storage Utilities Other (specify):
What are the characteristics of the basement? (Circle all the apply.) Basement floor: Concrete Other (specify): Foundation Walls: Poured concrete Other (specify): N/A Moisture: Dry Damp Wet Other (specify):
What are the characteristics of the floor slab? (Circle all that apply.) (Concrete) (Carpeted) (Tiled) Stone Other (specify): carpeted except: Kitchen, R101, R102, and D105A Cracks Seams Other (specify):
Are drains or sumps present? (Y/N) Y Floor drains R101, R102 Record location (Room #) and information on contents for each drain/sump:
Are elevator shafts present? (Y?(N)) Describe each:
Are there locations where chemicals were or are used or stored? (Y/N) List chemicals, storage location and use; attach addition sheets as necessary. 5103: cleaners Kitchen (C104): cleaners

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: rest rooms: R101 & R102
Senator sink: S103
multipul comm/elec lines running through slab, nothing Penetrating slab

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N

Is the HVAC system a zone cooling/heating system? (Y/N)
non-zone cooling/heating

If not, what type of HVAC system is used in this building?
How many? N/A

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
HVAC Vents in: L101, 100, 101, 102, 104, 105, 106A, 106B, 106C, 106, 107
C103, 106F, 108, 109, 110, 111, 112, 113, 114, R101, R102

Other HVAC items (specify and describe): one HVAC system on roof (not in use)
None one HVAC system at NE corner of building (in use)

Does the HVAC system have an exhaust capability? (Y/N) N

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans (Open windows) Restroom fan
Other (specify):

Who maintains and manages HVAC system operation?
Jacobs, contractor (FMC for all facilities)

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24/7
The intake of outside air: ~~roof~~ NE corner of buildings
Minimum:
Maximum:
Relative percentage of outside air: 100 %
Differences between day and evening operation of weekdays and weekends:
None

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas (Electricity) Steam Other (specify): water heater

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N

What are the hours during which a majority of the workers are in the building during a work day? 9am – 5pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N) No weekend work
If yes, is the HVAC system operational on weekends? (Y/N) HVAC 24/7
Provide details on weekend use.
Fire department normal business hours
other tenants seasonal, mostly summer

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
Yes, Fire uniforms

Was there any recent remodeling or painting done in the buildings? (Y/N)
~~N~~ Painting – 2014, office area

When and where was the most recent carpeting applied in the building?
N

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used? N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner / Kitchen cleaner	J103 C101 (Kitchen)	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Parking lot / road, Parking lot on NE corner of building

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

N

Photograph and mark potential sample locations on the attached floor plan.

Date: 11 / 29 / 2016

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3 B-566

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS _____

BUILDING MONITORING RECORD

BUILDING NUMBER: 566

TIME	bbp	Room Number	Comments
1301	0	L101	Entry
1312	0	100	OFFICE
1313	0	C104	HALLWAY
1313	0	101	OFFICE
1314	0	102	STORAGE / FILE
1315	0	105	WAITING / Coffee Area
1316	0	D105A	UTILITY CLOSET / Phone / Internet / Server RM
1316	0	106A	OFFICE / MEETING RM
1317	0	106B	OFFICE
1317	0	106C	OFFICE
1318	0	C105	Hallway
1318	0	106E	office
1318	0	106	
1320	0	C103	HALL
1321	0	107	Assembly rm
1321	0	106F	OFFICE
1322	0	111	LRG OFFICE
1323	0	112	> OFFICE
1323	0	113	
1324	0	D103	JANITORIAL CLOSET
1325	0	114	OFFICE
1326	0	R102	MENS R/R
1321	0	R101	WOMANS R/R

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. 567	Date: 11/30/16
Building Contact: Steve Edwards	Phone:
email: steve.edwards@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: No. of Stories 1

Building Use: ~~steel frame~~ ware house

General Building Description, Construction Materials:
steel frame, metal siding

What type of basement does the building have?
(None) Full basement Other (specify):

How is the basement used? (Circle all that apply.) N/A
Not used Office Space Storage Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: Concrete Other (specify): N/A
Foundation Walls: Poured concrete Other (specify):
Moisture: Dry Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted Tiled Stone Other (specify):
(Cracks) (Seams) Other (specify):

Are drains or sumps present? (Y/N) yes drain R101
Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
cleaners, Haz locker outside

room 101: cleaners, paint non-haz waste in 104
room R101: cleaners

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each:
Conduits for com 105 4x bullard per roll up door, 2.5' depp
pipe R101

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N/A

Is the HVAC system a zone cooling/heating system? (Y/N)
NO HVAC

If not, what type of HVAC system is used in this building?
How many?
N/A

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
N/A

Other HVAC items (specify and describe):
N/A

Does the HVAC system have an exhaust capability? (Y/N)
N/A

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics ~~fans~~ Open windows open roll up doors, shop fans
Other (specify):
rest room fan

Who maintains and manages HVAC system operation?
N/A

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air: N/A
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):
↳ Heater for air and water

Are any other fuels or chemicals used in this building? (Y/N)
Describe: N, chemicals kept in outside HAZ Locker

What are the hours during which a majority of the workers are in the building during a work day? 730am - 4pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N) M-F
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
Occasional weekend work (~5 times/year)

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
Y, uniforms

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
N/A

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) Yes, plywood sheets and office furnature

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners	101	
Gasoline-powered equipment		
Gasoline storage cans	101	
Cleaning solvents	101, R101	
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map. N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.
Load/unloading Parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 11 / 30 / 11

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS Calibrated @ 0745

BUILDING MONITORING RECORD

BUILDING NUMBER: 567

TIME	bbp	Room Number	Comments
1344	23	FL101	BATHROOM
1345	18	104	MAKE HOUSE
1346	27	106	
1347	13	105	
1349	16	101	MAKE HOUSE

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. N210	Date: 11/30/16
Building Contact: Wardell Lovett	Phone: 650-604-6215
email: wardell.lovett@NASA.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 1932	No. of Stories 3
Building Use: Former aircraft hanger converted to office space	
General Building Description, Construction Materials: 2/3 of hi-bay flr converted to 2-story office, 1/3 is still hi bay 2 story office E, S, W, perimter of buildings	
What type of basement does the building have? ~~None~~ Full basement Other (specify): small basement under hanger bay "Pit"	
How is the basement used? (Circle all that apply.) Not used Office Space Storage Utilities Other (specify): Utilities for C and C shop in Hanger space ~~N/A~~	
What are the characteristics of the basement? (Circle all the apply.) Basement floor: Concrete Other (specify): Foundation Walls: Poured concrete Other (specify): ~~N/A~~ Moisture: Dry Damp Wet Other (specify):	
What are the characteristics of the floor slab? (Circle all that apply.) Concrete ~~Carpeted~~ Tiled Stone Other (specify): Raised floor on concrete slab ~~Cracks~~ ~~Seams~~ Other (specify):	
Are drains or sumps present? (Y/N) Y Basement sump Record location (Room #) and information on contents for each drain/sump: Basement, Restrooms (~~some~~ MR137 showers) - Drains - Q134	
Are elevator shafts present? (Y/N) Yes, U101 Describe each:	
Are there locations where chemicals were or are used or stored? (Y/N) List chemicals, storage location and use; attach addition sheets as necessary. ~~RM 134~~ RM 148: Cleaners, paint, HAZ waste (resin), Heat transfer fluid	

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Y: see map Drain/clean outs! restrooms and J140 + C190B Hangar pit, Q134, 135, C117A, 117, 148	
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N	
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?	
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?	
Were any other liners installed under the floor slab? (Y/N) Describe: ?	
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?	
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?	

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)	
Is the HVAC system a zone cooling/heating system? (Y/N)	
If not, what type of HVAC system is used in this building? How many?	
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: 4x Dx supply cooling to penthouse - air supply through stairwell 3 HVAC units w/ outside air suply 1 & 2nd floor offices, air handler 5HD on east roof, 2 air handlers in attic space, 8 roof exhaust fans	
Other HVAC items (specify and describe):	
Does the HVAC system have an exhaust capability? (Y/N)	
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans Open windows rest room fans Other (specify):	
Who maintains and manages HVAC system operation? FMC	

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation:
The intake of outside air:
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building? ~~9am-6pm~~
(Circle all that apply.)
Solar (Natural gas) Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day? 9am-6pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N) rarely
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
day shift only
HVAC set pt. temp

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
7+ years ago

What adhesives were used to attach the carpeting to the floor slab? (Y/N)

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	14 & J140	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify): resin	14 &	
Other (specify): Heat transfer fluid	14 &	
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

N

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map. PARKing lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

N

Photograph and mark potential sample locations on the attached floor plan.

Date: 11/30/16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring N210

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS N210

BUILDING MONITORING RECORD

BUILDING NUMBER: _____

TIME	bbp	Room Number	Comments
1114	0	BASEMENT	HANGER
1116	0	L139	ENTRACE
1116	0	130	OFFICE
1117	0	R137	restroom Mens
1122	0	138A	~~OFFICE~~ Coffee rm
1122	0	138B	OFFICE
1123	0	138E	OFFICE
1124	0	0134	A/C equipment rm
1125	0	L139A	stairwell
1126	0	C117A	HALLWAY
1127	0	V131	elevator
1128	0	143	
1125	0	Area 4 YN210-1	10F
1131	0	C117	HALLWAY
1132	0	117	Coffee rm
1135	0	C100B	HALLWAY
1137	0	L140A	JANITOR
1138	0	R140D	MENS R/R
1141	0	C100A	HALLWAY
1155	0	142	
1155	0	142B	Server rm
1156	0	142A	OFFICE
1157	0	141	conference rm
1159	0	131	Storage
1200	0	143A	Server / Blower in Floor
1200	0	143B	server
1201	0	144	Office
1202	0	59A	OFFICE
1205	0	135	Electrical
1205	0	136	Boiler Rm

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. N239	Date: 11-29-16
Building Contact: Shaina Sethna	Phone: 650-604-3986
email: shaina.v.sethna@nasa.gov	
Plant Engineering Contact: Kevin Febor	Phone 690-604-1949
email: Kevin.a.febor@nasa.gov	

Year Building Constructed:

No. of Stories 3, 4th Floor penthouse greenhouse on 3rd floor + basement

Building Use: life science building

General Building Description, Construction Materials:
Concrete foundation and exterior

What type of basement does the building have?
None (Full basement) Other (specify):

How is the basement used? (Circle all that apply.)
Not used (Office Space) (Storage) (Utilities) Other (specify): HVAC in basement

What are the characteristics of the basement? (Circle all the apply.) Sump pump in S3A
Basement floor: (Concrete) Other (specify):
Foundation Walls: (Poured concrete) Other (specify):
Moisture: (Dry) Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted Tiled Stone Other (specify):
(Cracks) (Seams) Other (specify):

Are drains or sumps present? (Y/N) Sumps in B53A & B11 & N84
Record location (Room #) and information on contents for each drain/sump:
~~Elevators: V001 & V002~~ Drains in restrooms

Are elevator shafts present? (Y?N) Describe each: Yes
Elevators: V001 & V002

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Yes: see attached sheets

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: Conduites: U101, U102, N076A, N076B, N076
sewers/sinks: all restrooms

Utilities run through U101, U102 up to upper floors to U301, U302

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: N

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
N, maybe Code 3 JCM Decision Kelly Kasser or Lauren

Is the HVAC system a zone cooling/heating system? (Y/N)
Yes

If not, what type of HVAC system is used in this building?
How many? 2 main HVAC units, 100% air intake, no recycling

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
~~Two 60 Hp~~ See attached

Other HVAC items (specify and describe): Hood fans, see attached

Does the HVAC system have an exhaust capability? (Y/N)

What other type of mechanical ventilation systems are present and/or currently operating in the building?
Mechanics fans ~~Open windows~~ Restroom fans
Other (specify):
Hood fans

Who maintains and manages HVAC system operation?
Code JCM

Describe the control sequencing and operation of the HVAC system with respect to:

Hours of operation: on 24/7

The intake of outside air: intake from roof

Minimum:

Maximum:

Relative percentage of outside air: 100 %

Differences between day and evening operation of weekdays and weekends: None

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)

Solar Natural gas Electricity Steam Other (specify):

Are any other fuels or chemicals used in this building? (Y/N)

Describe:

Ask Cinn calpatrie → chemicals used

What are the hours during which a majority of the workers are in the building during a work day? 6am-6pm

Is the building or portions of the building occupied/utilized on weekends? (Y/N) plus swing shift*

If yes, is the HVAC system operational on weekends? (Y/N) Yes

Provide details on weekend use.

* building could be occupied at any time due to needs of timed lab experments

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)

lab coats? Airmark service

Was there any recent remodeling or painting done in the buildings? (Y/N)

3 years ago, 1 wall in basement. roofing in progress (see maps)

When and where was the most recent carpeting applied in the building?

Carpeting installed in 160 - 2 years ago 138 - 2016 new carpet

What adhesives were used to attach the carpeting to the floor slab? (Y/N)

Carpet glue

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) office furnature

Are there any new upholstery, drapes, or textiles in the building? (Y/N)

N

Has the building been treated with any insectoids/pesticides? (Y/N)

If so, what chemicals were used?

No

How often were they applied?

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates: see attached lists

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner	Janitor Closets	
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.
Parking lot / street, generator on N.E side of building

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N) Y, due to roofing currently happening
Describe: about 5 rooms are shut down (HVAC) at a time through december

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

1 of 2

Date: 11 / 21 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS calibrated @ 0715

BUILDING MONITORING RECORD

BUILDING NUMBER: N231 1st floor

TIME	bbp	Room Number	Comments
1052	0	S101	
1054	0	170	LAB
1054	0	178A	
1054	0	104	
1055	0	178	LAB
1058	0	180	LAB
1056	0	U196	Battery recycling
1055	0	139V	
1100	0	139U	
1100	0	139W	
1101	0	RL05	
1101	0	178T	
1102	0	138W	
1103	0	C106	
	0	138S	
	0	138C	
	0	178T	
1106	0	U194	Laundry
1107	0	128	LAB
1110	0	112	LAB
1111	0	MACHINE SHOP	NEXT TO 112 inside lab.
1114	0	104 102	
1138	0	139	office

2 of 2

Date: 11 / 29 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V

COMMENTS Calibrated @ 0715

BUILDING MONITORING RECORD

BUILDING NUMBER: N239 BASEMENT

TIME	bbp	Room Number	Comments
1117	4	B036	LAB
1118	0	B017	Shop
1119	0	B015	Shop
1119	0	B013	LAB
1119	0	B012B	Shop
1120	0	B012B storage	-
1120	19	HALLWAY	~~REPEAT~~
1121	186	B036	high due to open Acetone / LAB
1123	0	B030	LAB
1123	0	B015	storage
1124	0	B015D	STORAGE
1125	0	B030	LAB COATS
1126	0	B037	OFFICE / Utility
1127	0	B037A	LAB / DARKM
1128	0	B049	LAB / OFFICE
1128	0	B047	LAB
1130	0	B053	LIBRARY, Break room new carpet
	0		

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. N239A	Date: 12/1/16
Building Contact: Joeseph Dwyer / Jay Styles	Phone: 650-604-1844
email: Joseph.d.dwyer@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed:	No. of Stories

Building Use:
Offices & Centrifuge

General Building Description, Construction Materials:
Concrete foundation + exterior

What type of basement does the building have?
None Full basement (Other (specify): Two large open vaults in hi-bay

How is the basement used? (Circle all that apply.)
Not used Office Space (Storage) Utilities Other (specify):

What are the characteristics of the basement? (Circle all the apply.)
Basement floor: (Concrete) Other (specify):
Foundation Walls: (Poured concrete) Other (specify):
Moisture: (Dry) Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)
(Concrete) Carpeted (Tiled/Stone) Other (specify):
(Cracks) (Seams) Other (specify):

Are drains or sumps present? (Y/N) Sump: 144 8' below floor, 2x 120 in "Pit" area (May
Record location (Room #) and information on contents for each drain/sump:
Drain: 120, R121, R102, 145, 142, 141

Are elevator shafts present? (Y?N) Describe each:
Yes x2

Are there locations where chemicals were or are used or stored? (Y/N)
List chemicals, storage location and use; attach addition sheets as necessary.
Yes, RM 120: paint, lab supplies, Flammable Lockers
RM 125: paint, solvents, lubricants

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: ~~U102~~ Utility conduits: U102, 120, 104, 144, 145, 142, 141 D
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) N
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?.
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?.
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?.
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?.

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N
Is the HVAC system a zone cooling/heating system? (Y/N) Yes
If not, what type of HVAC system is used in this building? How many?
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: Unknown
Other HVAC items (specify and describe):
Does the HVAC system have an exhaust capability? (Y/N)
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics fans Open windows Restroom fans Other (specify): A/C units Rm 125 & 122, rest rooms vent from 120 A/C unit from 141 into 144
Who maintains and manages HVAC system operation? Subcon

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24/7
The intake of outside air: ~~2~~
Minimum:
Maximum:
Relative percentage of outside air:
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar (Natural gas) Electricity (Steam) Other (specify):
↳ space

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day? 6am–4pm
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
M-F, rare weekend work

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
Lab coats?

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
N

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N) office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?

How often were they applied? N

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates:

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners	125	
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents	125, 120 (Flam locker)	
Lubricants	125, 131A	
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner	123	
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues	104 / 125	
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Y, parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____V
COMMENTS _____

BUILDING MONITORING RECORD

BUILDING NUMBER: N234A

TIME	bbp	Room Number	Comments
1357	0	120	HIGH BAY
1400	0	C101	ENTRY
1400	0	E101	Electrical Rm
1405	0	C102	Entry
1405	0	U102	Utility WALKWAY
1404	0	S102	STAIRWAY
1407	0	R102	MENS T/R
1408	0	C104	ENTRY
1448	0	143	LAB / OFFICE
1449	0	144	Centrifuge RM Centrifuge
1450	0	145	LAB
1451	0	142	Centrifuge RM
1455	0	PIT	
1456	0	104	LAB / STORAGE
1456	0	102	Storage
1457	0	103A	Storage
1459	0	100	
1502	0	175	

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Environmental Engineering and Science

BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. N243	Date: 12/1/16
Building Contact: Scott Reardon / Paul Brown	Phone: 650-604-1934 / 650-604-3870
email: Scott.reardon@nasa.gov / Paul.s.brown@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed: 1962 - 1964

No. of Stories: 2+ basement & 3rd floor penthouse

Building Use: Flight Guidance and simulator lab

General Building Description, Construction Materials: Concrete Foundation and Exterior

What type of basement does the building have?

None Full basement (Other (specify): basement ~5' bgs, multi level)

How is the basement used? (Circle all that apply.)

Not used (Office Space) (Storage) (Utilities) Other (specify): labs

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: (Concrete) Other (specify):

Foundation Walls: (Poured concrete) Other (specify):

Moisture: (Dry) Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

(Concrete) ~~Carpeted~~ Tiled Stone Other (specify): New carpet on S. part of 1st floor

(Cracks) (Seams) Other (specify): Some Carpet

Are drains or sumps present? (Y/N) Sumps: N032

Record location (Room #) and information on contents for each drain/sump:

Drains: N032(3), 034, bathrooms, 117, 174

Are elevator shafts present? (Y/N) Describe each: Y, 2 elevators

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

Rooms 50, 59, 189, 201

See list of chemicals (attached)

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N)
Describe each: elec. Conduits: N032, 034, E034, 052, simulators
sewer/water: all rest rooms, break rooms (attached maps)

Were foundation design specification and as-built drawings for the facility obtained? (Y/N)
N

Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N)
Describe: ?

Was vapor barrier installed under the floor slab? (Y/N)
Describe: ?

Were any other liners installed under the floor slab? (Y/N)
Describe: ?

Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N)
Describe: ?

Were other techniques used to restrict vapor migration through the floor slab? (Y/N)
Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N) N

Is the HVAC system a zone cooling/heating system? (Y/N) Y

If not, what type of HVAC system is used in this building?
How many?

Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets:
Main intake on W. side of bldg near 113A
Active intake on roof.
Air handlers in basement. Air handler in 034 active, others are broken/off

Other HVAC items (specify and describe):
~~open~~

Does the HVAC system have an exhaust capability? (Y/N)

What other type of mechanical ventilation systems are present and/or currently operating in the building?
~~Mechanics fans~~ Open windows Rest room fans
Other (specify): open bay doors

Who maintains and manages HVAC system operation?
FCM

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Describe the control sequencing and operation of the HVAC system with respect to:

Hours of operation: 24 / 7

The intake of outside air:

Minimum:

Maximum:

Relative percentage of outside air:

Differences between day and evening operation of weekdays and weekends:
Air handler in Lab may be turned off due to noise
few air handlers broken

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity Steam Other (specify):
boiler → heat

Are any other fuels or chemicals used in this building? (Y/N)
Describe: chemicals; motion simulators / shops use oil, gas, glues, etc

What are the hours during which a majority of the workers are in the building during a work day? 6am - 6pm - M-F
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.
Some weekend work, some late / night work

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N, small roof patch

When and where was the most recent carpeting applied in the building?
Recarpeting in 136 area ~2 months ago (1st floor)

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
Carpet glue

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?
N

How often were they applied?

NOREAS
Environmental Engineering and Science

BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates: see attached list

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)

Describe the sources and show locations on the area map.

Yes. generators in simulator rooms (should vent outside) gas powered tools used in building

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)

Describe the sources and show the locations on the area map.

Yes, parking lot / road

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)

Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

HSG Chemical Inventory

12/401

RTK

	Description	Manufacturer	Part# or FSN	MSDS	NFPA H	F	R
1	Adhesive	Chemence	FSN 8040-00142-9193	yes	2	2	2
2	Adhesive	Conros	FSN 8040-00-754-2483	yes		no	
3	Aero-Duster	Miller-Stephenson	MS-222	yes		no	
4	AeroShell Grease 17	SHELL	70017	yes	1	1	0
5	Aluminum Black	Birchwood Labs	PAB17	yes	2	0	0
6	Antistat	TEXWIPE	TX105	yes	1	2	0
7	Antistatic Screen Cleaner	Texwipe	AX1261	yes	1	3	0
8	Ball Point Pens/Refills	Gillette	N/A	yes		no	
9	Batteries, Alkaline	Duracell	All	yes		no	
10	Batteries, Alkaline	Rayovac	All	yes		no	
11	Brayco Micronic 882	Castrol	Brayco Micronic 882 (red)	yes	1	1	0
12	Brushing Lacquer #4	Kodak	Discontinued/Obsolete	no		no	
13	CLEAN All-Purpose Cleaner	LBH	FSN 7930-00-357-7386	yes		no	
14	Detergent, General Purpose	LBH	FSN 7930-00-926-5280	yes		no	
15	DPL Lubricant	Chemtronics	CD-14	yes	2	2	0
16	Fellows Dusting Gas	Fellows	FSN 8830-01-406-9819	yes	1	0	0
17	Flux-Off ® No Clean	Chemtronics	ES1692	yes	1	1	0
18	Flux-Off ® Heavy Duty	Chemtronics	ES1631	yes	2	1	1
19	Freez-It	Chemtronics	ES120	yes	1	0	1
20	Genesolv ® Defluxer/Degreaser	Micro Care	MCC-2004	yes	2	0	1
21	Genesolv 2010 Solvent	Micro Care	Mcc-2010 (Discontinued)	yes		no	
22	Glass Cleaner	Skilcraft	FSN 7930-01-326-8110	yes		no	
23	Gold Wipes	Texwipe	TX809	yes	3	1	1
24	Grease, General Purpose	Fiske Brothers	FSN 9150-00-663-1770	yes	1	0	0

	Description	Manufacturer	Part# or FSN	MSDS	NFPA H	F	R
25	Grease, High Temp	Dow Corning	44	yes	1	0	0
26	Isopropanol	AAPER	70%	yes	1	3	0
27	Isopropyl Alcohol	Cumberland-Swan	99%		1	3	0
28	Kontact Restorer	Chemtronics		yes	1	1	0
29	Liquid Paper Correction Fluid	Gillette	LPCF-19-1	yes	no		
30	LPS 1 Greaseless Lubricant	LPS Laboratories	116	yes	1	2	0
31	LPS NoFlash Contact Cleaner	LPS Laboratories	4016	yes	2	1	0
32	Markerboard Cleaner	Weber Castello	FSN 6850-01-186-0859	yes	1	0	0
33	Mobil DTE Oil Heavy	Mobil		yes	0	1	0
34	Mobil DTE Oil BB	Mobil		yes	0	1	0
35	Mobil DTE 24	Mobil		yes	0	1	0
36	Mobil DTE 25	Mobil		yes	0	1	0
37	Mobil DTE 26	Mobil		yes	0	1	0
38	PC Duster 2	Texwipe	FSN 6830-01-387-8480	yes	2	0	0
39	Photo Mount	3M	6094	yes	2	4	0
40	Plast-In-Glas	Chemtronics	ES1668	yes	1	1	0
41	POW-R-WASH NX	Chemtronics	ES1602	yes	1	1	0
42	Rubber Cement -Discontinued 7/1/97	Sanford	490	no	no		
43	Rubber Cement, NoWrinkle	Elmer's Products	E904	yes	1	4	0
44	RTV Adhesive Sealant	Dow Corning	3-7132	yes	no		
45	Solder, Rosin Flux Cored	Kester Solder	"44" Core	yes	1	2	0
46	Sparkle Window Cleaner*	Baychem	* see #21 Glass Cleaner	no	no		
47	Spra-Ment	3M	6060	yes	3	4	0
48	Spray Mount	3M	6065	no	3	4	0

	Description	Manufacturer	Part# or FSN	MSDS	NFPA H	F	R
49	Super 77 Spray Adhesive	3M	62-4437-4930-4	yes	2	4	0
50	Texsolve	Texwipe	TX135	yes	1	2	0
51	Ultrajet & Ultrajet All-Way	Chemtronics	ES520	yes	1	0	1
52	Video Display Cleaner	Perfectdata	550087-18	yes	2	2	0
53	Wrought Iron Aluminum	Reynolds Metals	MSDS # 5105	yes	2	1	1
54	500 Flux	Thermacote-Welco		yes	3	1	1
55	5 Way Plus Penetrant	3M	62-4696-2730-1	yes	1	1	0

12/4/01

#1 of 2

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP
CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)
☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V
COMMENTS Calibrated @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: N243A, N243

TIME	bbp	Room Number	Comments
1002	0	136	Conference rm
1005	0	107	Conference rm
1007	0	102	OFFICE
1009	0	L101	Entrance / stairway
1011	0	R101	Men r/r shower
1011	0	111/113	Entrance way
1012	0	117	Brk room
1013	0	E123	ELEVATOR / STAIRWELL
1015	0	172/173	HALL
1016	0	170	Entry / HALL
1017	0	166	OFFICE
1018	0	131	OFFICE / B PARTS RM
1020	0	174	Coffee / Brk rm
1022	0	R101	Mens r/r shower
1023	0	180	Conference RM
1024	0	Elevator shaft	
1025	0	036	Office
1026	0	YYN243-B04	HALL
1028	0	31	Office
1030	0	039	SIMULATOR
1032	0	046	Mens r/r
1033	55	R50	General area
1034	138	R50	Oily waste
1035	0	59	Lunch rm / workshop
1036	0	56	OFFICE
1038	0	56P	room 56 pit
1038	0	054	VLLS TOWER
1039	0	052	Electrical RM
1040	0	057	
1041	0	47	Simulator

2 of 2

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☑ FRESH AIR (ZERO)

☑ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: ______ V

COMMENTS Calibrated @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: ~~N243A~~ N243

TIME	bbp	Room Number	Comments
1048	0	RSC	PRINT rm
1049	0	~~[illegible]~~ 5001	STAIRS
1050	0	001	HALL
1051	0	32	Mech room
1053	0	YYN243-B-02	location

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BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Building No. N243 A	Date: 12/1/16
Building Contact: Paul Brown / Scott Reardon	Phone: 650-604-3870 / 650-604-1931
email: Paul.s.brown@nasa.gov / Scott.reardon@nasa.gov	
Plant Engineering Contact:	Phone
email:	

Year Building Constructed:

No. of Stories: 2 + basement

Building Use: welding / machine shop

General Building Description, Construction Materials:

Concrete walls / foundation

What type of basement does the building have?

None Full basement (Other (specify): Utility tunnel to N243)

How is the basement used? (Circle all that apply.)

Not used Office Space Storage (Utilities) Other (specify):

What are the characteristics of the basement? (Circle all the apply.)

Basement floor: (Concrete) Other (specify):

Foundation Walls: (Poured concrete) Other (specify):

Moisture: (Dry) Damp Wet Other (specify):

What are the characteristics of the floor slab? (Circle all that apply.)

(Concrete) Carpeted Tiled Stone Other (specify):

Cracks Seams Other (specify):

Are drains or sumps present? (Y/(N))

Record location (Room #) and information on contents for each drain/sump:

Are elevator shafts present? (Y?N) N Describe each:

Are there locations where chemicals were or are used or stored? (Y/N)

List chemicals, storage location and use; attach addition sheets as necessary.

Room 102A, see inventory form

Are plumbing pipes or utility conduits present that penetrate the floor slab? (Y/N) Describe each: Electrical Conduits per utility map
Were foundation design specification and as-built drawings for the facility obtained? (Y/N) Y
Was soil beneath the floor slab treated with lime or cement prior to placing the slab? (Y/N) Describe: ?
Was vapor barrier installed under the floor slab? (Y/N) Describe: ?
Were any other liners installed under the floor slab? (Y/N) Describe: ?
Were fibers or additional rebar added to the concrete floor slab to minimize cracking? (Y/N) Describe: ?
Were other techniques used to restrict vapor migration through the floor slab? (Y/N) Describe: ?

Heating, Ventilation and Air Conditioning System (HVAC)

Where HVAC as-build drawings for the facility obtained? (Y/N)
Is the HVAC system a zone cooling/heating system? (Y/N)
If not, what type of HVAC system is used in this building? How many?
Describe and delineate HVAC zones in the facility and corresponding rooftop HVAC air inlets: 2nd floor offices have HVAC
Other HVAC items (specify and describe):
Does the HVAC system have an exhaust capability? (Y/N)
What other type of mechanical ventilation systems are present and/or currently operating in the building? Mechanics ~~fans~~ Open windows Other (specify): open windows / bay doors
Who maintains and manages HVAC system operation? Scobs

Describe the control sequencing and operation of the HVAC system with respect to:
Hours of operation: 24/7
The intake of outside air:
Minimum:
Maximum:
Relative percentage of outside air: 100%
Differences between day and evening operation of weekdays and weekends:

What type(s) of fuel(s) for space heating and water heating are used in this building?
(Circle all that apply.)
Solar Natural gas Electricity (Steam) Other (specify):
to mechanic fans for space

Are any other fuels or chemicals used in this building? (Y/N)
Describe:

What are the hours during which a majority of the workers are in the building during a work day?
Is the building or portions of the building occupied/utilized on weekends? (Y/N)
If yes, is the HVAC system operational on weekends? (Y/N)
Provide details on weekend use.

M-F 6am - 5pm

Do the occupants of the building frequently have their cloths dry-cleaned? (Y/N)
N

Was there any recent remodeling or painting done in the buildings? (Y/N)
N

When and where was the most recent carpeting applied in the building?
N/A

What adhesives were used to attach the carpeting to the floor slab? (Y/N)
N/A

Are there any pressed wood products in the building (e.g. hardwood plywood wall paneling, particleboard, fiberboard)? (Y/N)
office furniture

Are there any new upholstery, drapes, or textiles in the building? (Y/N)
N

Has the building been treated with any insectoids/pesticides? (Y/N)
If so, what chemicals were used?

How often were they applied?
N

NOREAS
Environmental Engineering and Science

BUILDING SURVEY FORM
FORMER NAS MOFFETT FIELD, CALIFORNIA

Sources of Chemical Contaminates: See attached inventory form

Which of these chemicals/mixtures are present in the building? (check all that apply.)

Potential Chemical Source	Source Location	SDS Obtained? (Y/N)
Lacquers, paints, or paint thinners		
Gasoline-powered equipment		
Gasoline storage cans		
Cleaning solvents		
Lubricants		
Air fresheners		
Oven cleaners		
Carpet/ upholstery cleaners		
Hairspray		
Nail polish, nail polish remover		
Bathroom cleaner		
Appliance cleaner		
Furniture/floor polish		
Moth balls		
Fuel tanks		
Wood stove		
Fireplace		
Perfumes/colognes		
Photographic darkroom chemicals		
Glues		
Scented trees, wreaths, potpourii, etc.		
Other (specify):		
Other (specify):		
Other (specify):		
Other (specify):		

Outdoor sources of contamination

Is there any stationary emission source in the vicinity of the building? (Y/N)
Describe the sources and show locations on the area map.

Are there any mobile emission sources (e.g. highway, bus stops, high-traffic) in the vicinity of the building? (Y/N)
Describe the sources and show the locations on the area map.

Y, Road / parking lot

Is there any other information about the structural features of this building, the habits of the occupants or potential sources of chemical contaminants to the indoor air that may be of importance in the facilitating the evaluation of the indoor air quality? (Y/N)
Describe:

Photograph and mark potential sample locations on the attached floor plan.

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

BUILDING LAYOUT NOT SHOWN

FOR SECURITY PURPOSES

1 of 1

Date: 12 / 1 / 16

Ppb RAE CALIBRATION AND AIR MONITORING FORM

Project # NAVFAC 018 Moffett Project Location/Site Moffett

Work Activity Building Monitoring

INSTRUMENT SERIAL NUMBER 594-903825 CALIBRATED BY MP

CALIBRATION GASES USED: ☒ FRESH AIR (ZERO)

☒ 10 PPM Isobutylene LOT # LAP-248-10-3

INSTRUMENT BATTERY VOLTAGE: _____ V

COMMENTS Cal. brate @ 0730

BUILDING MONITORING RECORD

BUILDING NUMBER: 243 A

TIME	bbp	Room Number	Comments
~~1055~~	~~0~~	~~WRONG ROOM~~ KILL	
1056	0	101	SHOP
1057	0	104	MECH RM
1100	0	~~236~~ 001	BASEMENT

APPENDIX B

SAMPLING LOCATION MAPS

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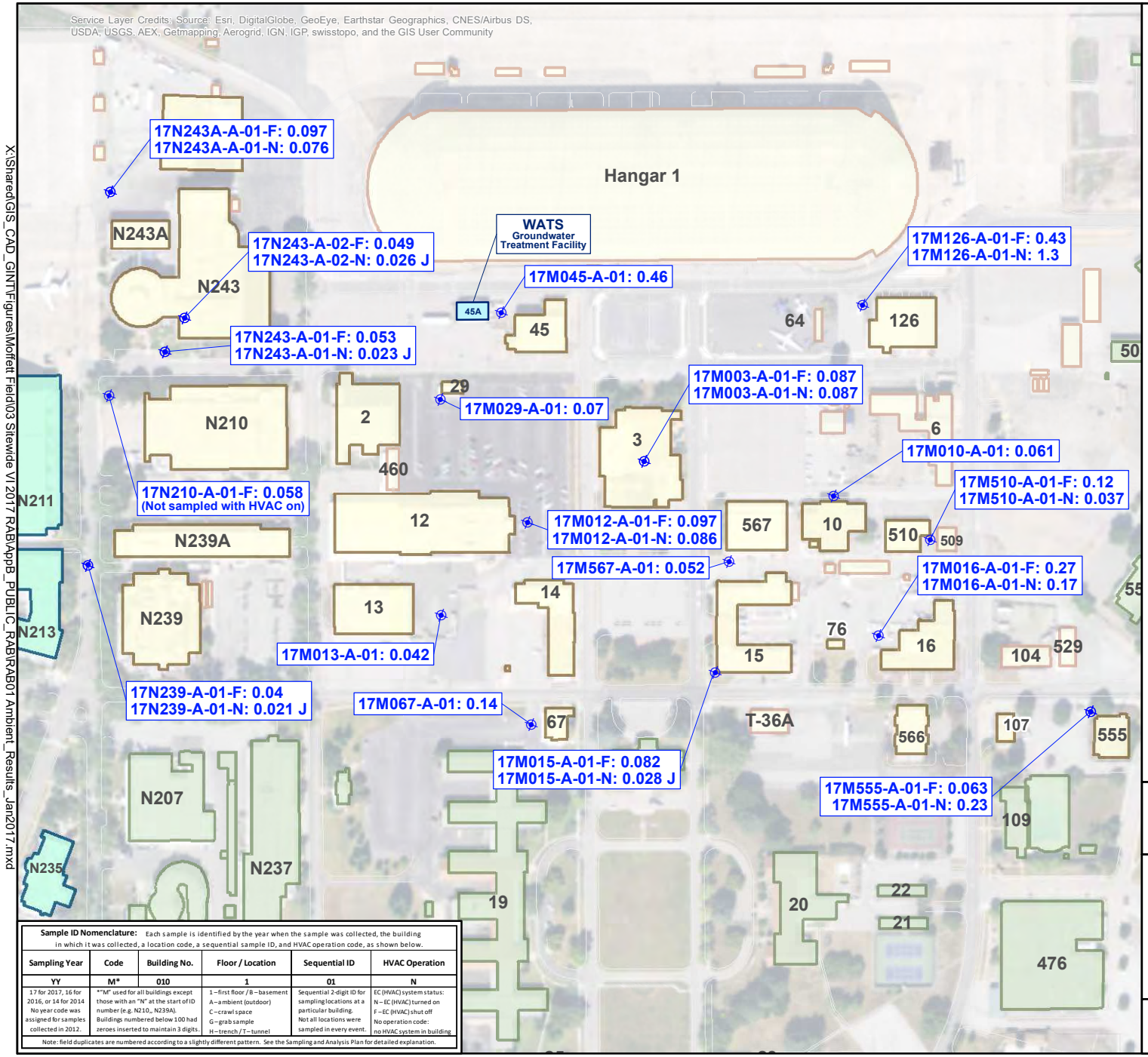

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Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Ambient Air Sampling Location

Buildings by Area of Responsibity

- NAVY BUILDINGS
- NAVY (not sampled)
- MEW (not sampled)
- NASA BUILDINGS
- WATS (West-Side Aquifers Treatment System)
- Curb Line

NOTES:

Air sampling was conducted January 2017.
TCE Concentrations shown in µg/m^3.
Indoor Air Screening Level for TCE: 5 µg/m^3

Ambient (outdoor) air was sampled in selected areas. In the vicinity of buildings with HVAC systems, air was sampled with the system on and with it turned off. See table at lower left for explanation of sample ID nomenclature.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
TCE -- Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 150 300 600
Feet

DEPARTMENT OF THE NAVY
SAN DIEGO, CALIFORNIA
NAVFAC Naval Facilities Engineering Command

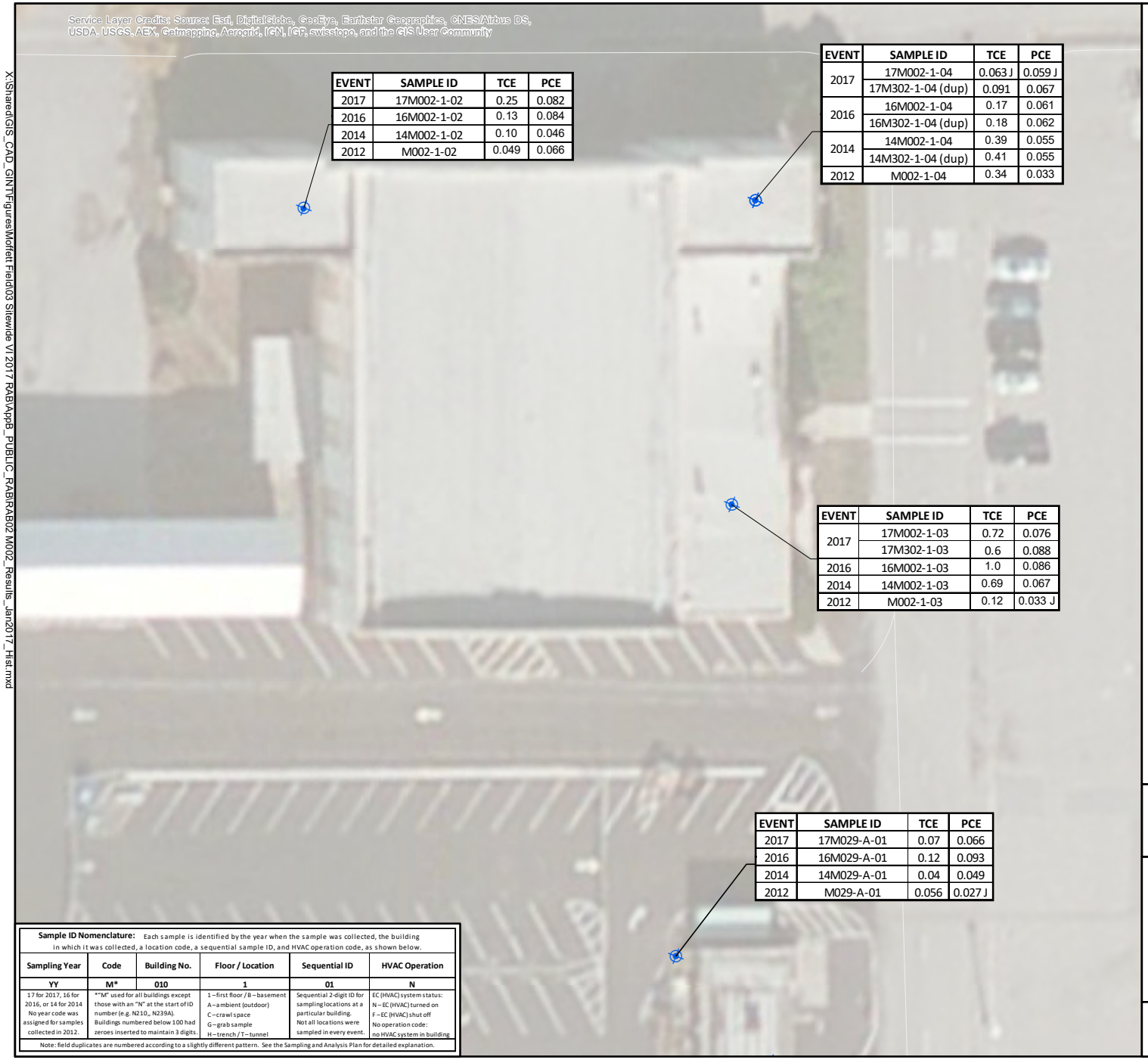
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B1

AMBIENT AIR SAMPLING LOCATIONS AND TCE CONCENTRATIONS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17M002-1-02	0.25	0.082
2016	16M002-1-02	0.13	0.084
2014	14M002-1-02	0.10	0.046
2012	M002-1-02	0.049	0.066

EVENT	SAMPLE ID	TCE	PCE
2017	17M002-1-04	0.063 J	0.059 J
	17M302-1-04 (dup)	0.091	0.067
2016	16M002-1-04	0.17	0.061
	16M302-1-04 (dup)	0.18	0.062
2014	14M002-1-04	0.39	0.055
	14M302-1-04 (dup)	0.41	0.055
2012	M002-1-04	0.34	0.033

EVENT	SAMPLE ID	TCE	PCE
2017	17M002-1-03	0.72	0.076
	17M302-1-03	0.6	0.088
2016	16M002-1-03	1.0	0.086
2014	14M002-1-03	0.69	0.067
2012	M002-1-03	0.12	0.033 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M029-A-01	0.07	0.066
2016	16M029-A-01	0.12	0.093
2014	14M029-A-01	0.04	0.049
2012	M029-A-01	0.056	0.027 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted if present.

Indoor Air Screening Level for PCE: 2 $\mu g/m^3$
Indoor Air Screening Level for TCE: 5 $\mu g/m^3$

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 20 40 80

Feet

DEPARTMENT OF THE NAVY

SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B2

BUILDING 2 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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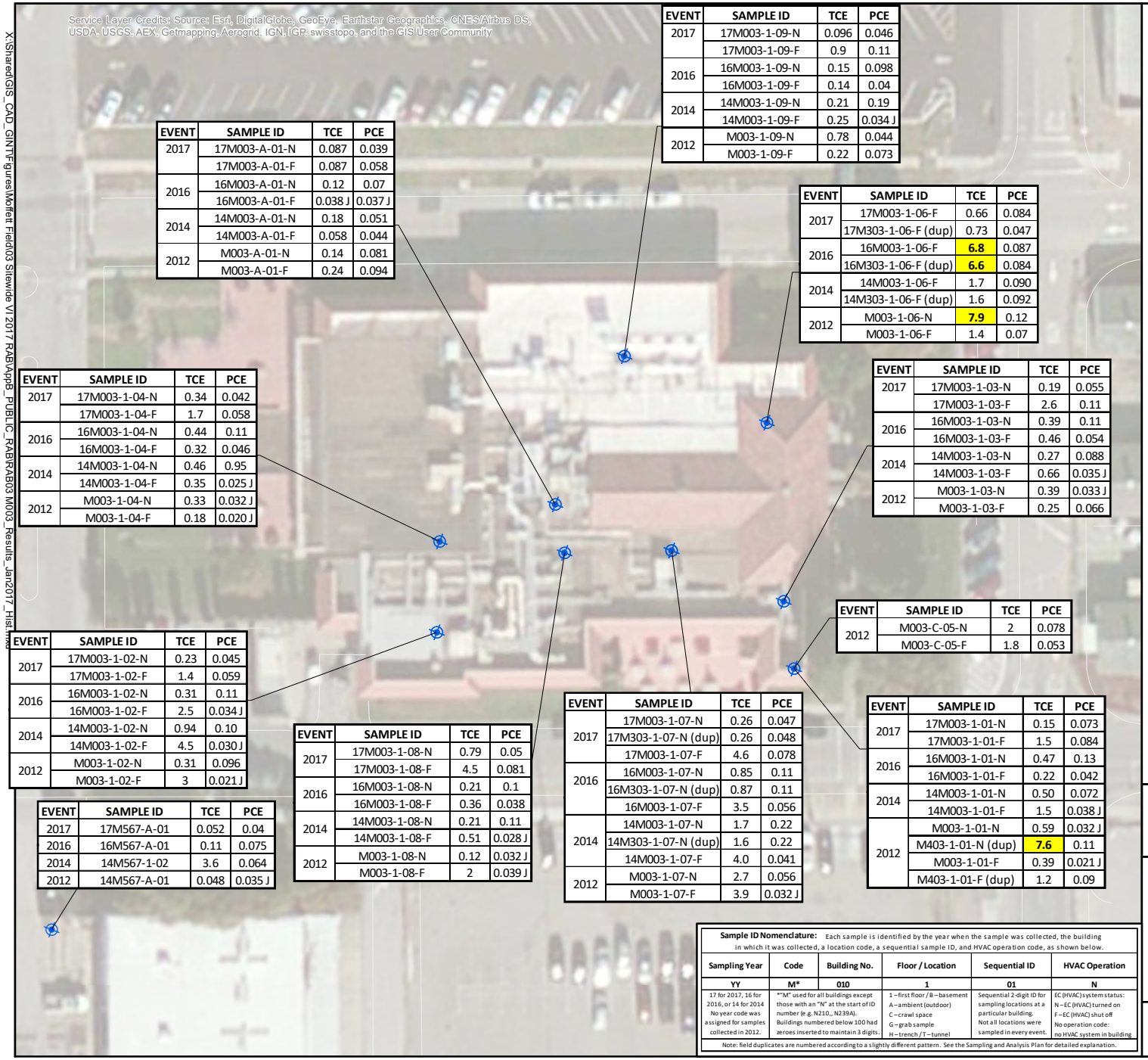

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EVENT	SAMPLE ID	TCE	PCE
2017	17M003-A-01-N	0.087	0.039
	17M003-A-01-F	0.087	0.058
2016	16M003-A-01-N	0.12	0.07
	16M003-A-01-F	0.038 J	0.037 J
2014	14M003-A-01-N	0.18	0.051
	14M003-A-01-F	0.058	0.044
2012	M003-A-01-N	0.14	0.081
	M003-A-01-F	0.24	0.094

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-09-N	0.096	0.046
	17M003-1-09-F	0.9	0.11
2016	16M003-1-09-N	0.15	0.098
	16M003-1-09-F	0.14	0.04
2014	14M003-1-09-N	0.21	0.19
	14M003-1-09-F	0.25	0.034 J
2012	M003-1-09-N	0.78	0.044
	M003-1-09-F	0.22	0.073

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-06-F	0.66	0.084
	17M303-1-06-F (dup)	0.73	0.047
2016	16M003-1-06-F	**6.8**	0.087
	16M303-1-06-F (dup)	**6.6**	0.084
2014	14M003-1-06-F	1.7	0.090
	14M303-1-06-F (dup)	1.6	0.092
2012	M003-1-06-N	**7.9**	0.12
	M003-1-06-F	1.4	0.07

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-04-N	0.34	0.042
	17M003-1-04-F	1.7	0.058
2016	16M003-1-04-N	0.44	0.11
	16M003-1-04-F	0.32	0.046
2014	14M003-1-04-N	0.46	0.95
	14M003-1-04-F	0.35	0.025 J
2012	M003-1-04-N	0.33	0.032 J
	M003-1-04-F	0.18	0.020 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-03-N	0.19	0.055
	17M003-1-03-F	2.6	0.11
2016	16M003-1-03-N	0.39	0.11
	16M003-1-03-F	0.46	0.054
2014	14M003-1-03-N	0.27	0.088
	14M003-1-03-F	0.66	0.035 J
2012	M003-1-03-N	0.39	0.033 J
	M003-1-03-F	0.25	0.066

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-02-N	0.23	0.045
	17M003-1-02-F	1.4	0.059
2016	16M003-1-02-N	0.31	0.11
	16M003-1-02-F	2.5	0.034 J
2014	14M003-1-02-N	0.94	0.10
	14M003-1-02-F	4.5	0.030 J
2012	M003-1-02-N	0.31	0.096
	M003-1-02-F	3	0.021 J

EVENT	SAMPLE ID	TCE	PCE
2012	M003-C-05-N	2	0.078
	M003-C-05-F	1.8	0.053

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-08-N	0.79	0.05
	17M003-1-08-F	4.5	0.081
2016	16M003-1-08-N	0.21	0.1
	16M003-1-08-F	0.36	0.038
2014	14M003-1-08-N	0.21	0.11
	14M003-1-08-F	0.51	0.028 J
2012	M003-1-08-N	0.12	0.032 J
	M003-1-08-F	2	0.039 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-07-N	0.26	0.047
	17M303-1-07-N (dup)	0.26	0.048
	17M003-1-07-F	4.6	0.078
2016	16M003-1-07-N	0.85	0.11
	16M303-1-07-N (dup)	0.87	0.11
	16M003-1-07-F	3.5	0.056
2014	14M003-1-07-N	1.7	0.22
	14M303-1-07-N (dup)	1.6	0.22
	14M003-1-07-F	4.0	0.041
2012	M003-1-07-N	2.7	0.056
	M003-1-07-F	3.9	0.032 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M003-1-01-N	0.15	0.073
	17M003-1-01-F	1.5	0.084
2016	16M003-1-01-N	0.47	0.13
	16M003-1-01-F	0.22	0.042
2014	14M003-1-01-N	0.50	0.072
	14M003-1-01-F	1.5	0.038 J
2012	M003-1-01-N	0.59	0.032 J
	M403-1-01-N (dup)	**7.6**	0.11
	M003-1-01-F	0.39	0.021 J
	M403-1-01-F (dup)	1.2	0.09

EVENT	SAMPLE ID	TCE	PCE
2017	17M567-A-01	0.052	0.04
2016	16M567-A-01	0.11	0.075
2014	14M567-1-02	3.6	0.064
2012	14M567-A-01	0.048	0.035 J

LEGEND

- Indoor Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower right for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

Indoor Air Screening Level for PCE: 2 µg/m^3
Indoor Air Screening Level for TCE: 5 µg/m^3

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B3

BUILDING 3 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

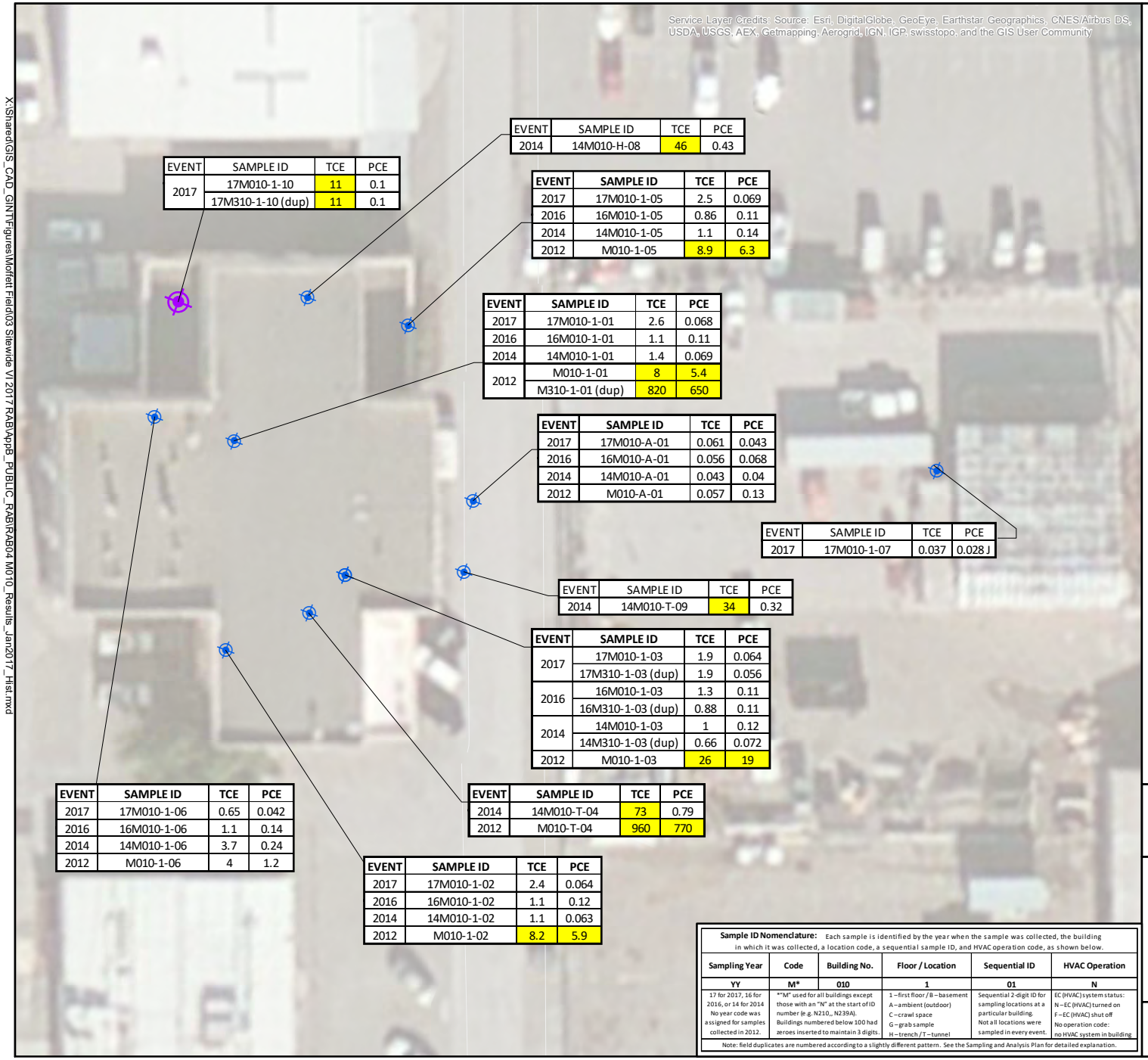
Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building.

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



X:\Shared\GIS_CAD_GIN\TFigures\Moffett Field\03 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB04 M010_Results_Jan2017_Hist.mxd

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-10	11	0.1
	17M310-1-10 (dup)	11	0.1

EVENT	SAMPLE ID	TCE	PCE
2014	14M010-H-08	46	0.43

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-05	2.5	0.069
2016	16M010-1-05	0.86	0.11
2014	14M010-1-05	1.1	0.14
2012	M010-1-05	8.9	6.3

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-01	2.6	0.068
2016	16M010-1-01	1.1	0.11
2014	14M010-1-01	1.4	0.069
2012	M010-1-01	8	5.4
	M310-1-01 (dup)	820	650

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-A-01	0.061	0.043
2016	16M010-A-01	0.056	0.068
2014	14M010-A-01	0.043	0.04
2012	M010-A-01	0.057	0.13

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-07	0.037	0.028 J

EVENT	SAMPLE ID	TCE	PCE
2014	14M010-T-09	34	0.32

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-03	1.9	0.064
	17M310-1-03 (dup)	1.9	0.056
2016	16M010-1-03	1.3	0.11
	16M310-1-03 (dup)	0.88	0.11
2014	14M010-1-03	1	0.12
	14M310-1-03 (dup)	0.66	0.072
2012	M010-1-03	26	19

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-06	0.65	0.042
2016	16M010-1-06	1.1	0.14
2014	14M010-1-06	3.7	0.24
2012	M010-1-06	4	1.2

EVENT	SAMPLE ID	TCE	PCE
2014	14M010-T-04	73	0.79
2012	M010-T-04	960	770

EVENT	SAMPLE ID	TCE	PCE
2017	17M010-1-02	2.4	0.064
2016	16M010-1-02	1.1	0.12
2014	14M010-1-02	1.1	0.063
2012	M010-1-02	8.2	5.9

LEGEND

- TCE Detected Above Indoor Air Screening Level in January 2017
- Air Sampling Location (2012-2017)
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower right for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 20 40 80

Feet

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building.

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

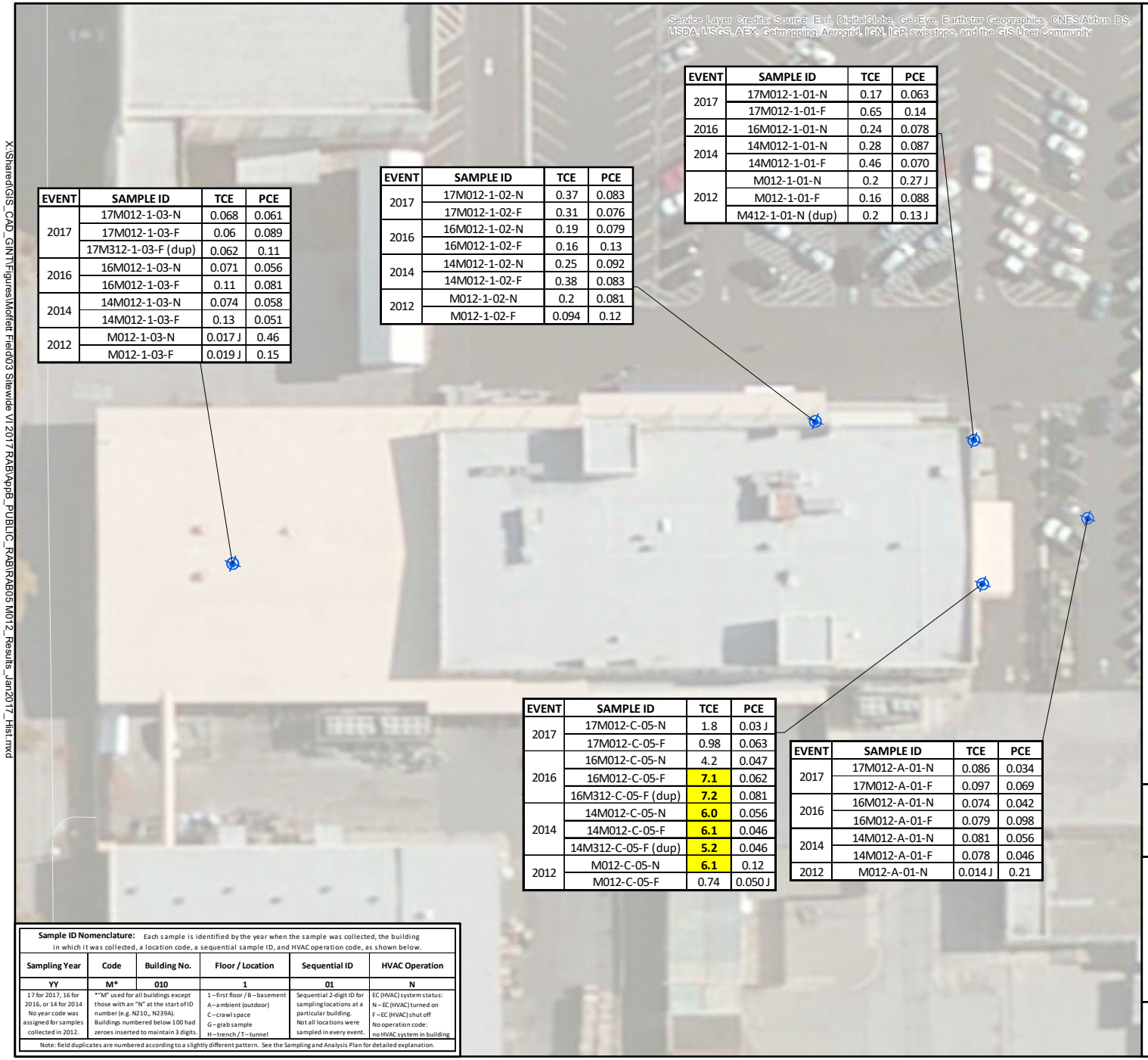
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B4

BUILDING 10 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17M012-1-03-N	0.068	0.061
	17M012-1-03-F	0.06	0.089
	17M312-1-03-F (dup)	0.062	0.11
2016	16M012-1-03-N	0.071	0.056
	16M012-1-03-F	0.11	0.081
2014	14M012-1-03-N	0.074	0.058
	14M012-1-03-F	0.13	0.051
2012	M012-1-03-N	0.017 J	0.46
	M012-1-03-F	0.019 J	0.15

EVENT	SAMPLE ID	TCE	PCE
2017	17M012-1-02-N	0.37	0.083
	17M012-1-02-F	0.31	0.076
2016	16M012-1-02-N	0.19	0.079
	16M012-1-02-F	0.16	0.13
2014	14M012-1-02-N	0.25	0.092
	14M012-1-02-F	0.38	0.083
2012	M012-1-02-N	0.2	0.081
	M012-1-02-F	0.094	0.12

EVENT	SAMPLE ID	TCE	PCE
2017	17M012-1-01-N	0.17	0.063
	17M012-1-01-F	0.65	0.14
2016	16M012-1-01-N	0.24	0.078
2014	14M012-1-01-N	0.28	0.087
	14M012-1-01-F	0.46	0.070
2012	M012-1-01-N	0.2	0.27 J
	M012-1-01-F	0.16	0.088
	M412-1-01-N (dup)	0.2	0.13 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M012-C-05-N	1.8	0.03 J
	17M012-C-05-F	0.98	0.063
2016	16M012-C-05-N	4.2	0.047
	16M012-C-05-F	**7.1**	0.062
	16M312-C-05-F (dup)	**7.2**	0.081
2014	14M012-C-05-N	**6.0**	0.056
	14M012-C-05-F	**6.1**	0.046
	14M312-C-05-F (dup)	**5.2**	0.046
2012	M012-C-05-N	**6.1**	0.12
	M012-C-05-F	0.74	0.050 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M012-A-01-N	0.086	0.034
	17M012-A-01-F	0.097	0.069
2016	16M012-A-01-N	0.074	0.042
	16M012-A-01-F	0.079	0.098
2014	14M012-A-01-N	0.081	0.056
	14M012-A-01-F	0.078	0.046
2012	M012-A-01-N	0.014 J	0.21

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014. No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Indoor Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B5

BUILDING 12 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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X:\Shared\GIS_CAD_GIN\TFigures\Moffett Field\03 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB06 M013_Results_Jan2017_Hist.mxd

EVENT	SAMPLE ID	TCE	PCE
2017	17M013-1-01	0.038	0.037
2016	16M013-1-01	0.077	0.053
2014	14M013-1-01	0.39	0.057
2012	M013-1-01	0.093	0.024 J
	M313-1-01 (dup)	0.099	0.18 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M013-A-01	0.042	0.03 J
2016	16M013-A-01	0.055	0.038
2014	14M013-A-01	0.061	0.043

EVENT	SAMPLE ID	TCE	PCE
2017	17M013-1-02	0.049	0.034 J
	17M313-1-02	0.039	0.032 J
2016	16M013-1-02	0.46	0.056
2014	14M013-1-02	0.19	0.046

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Indoor Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 15 30 60

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

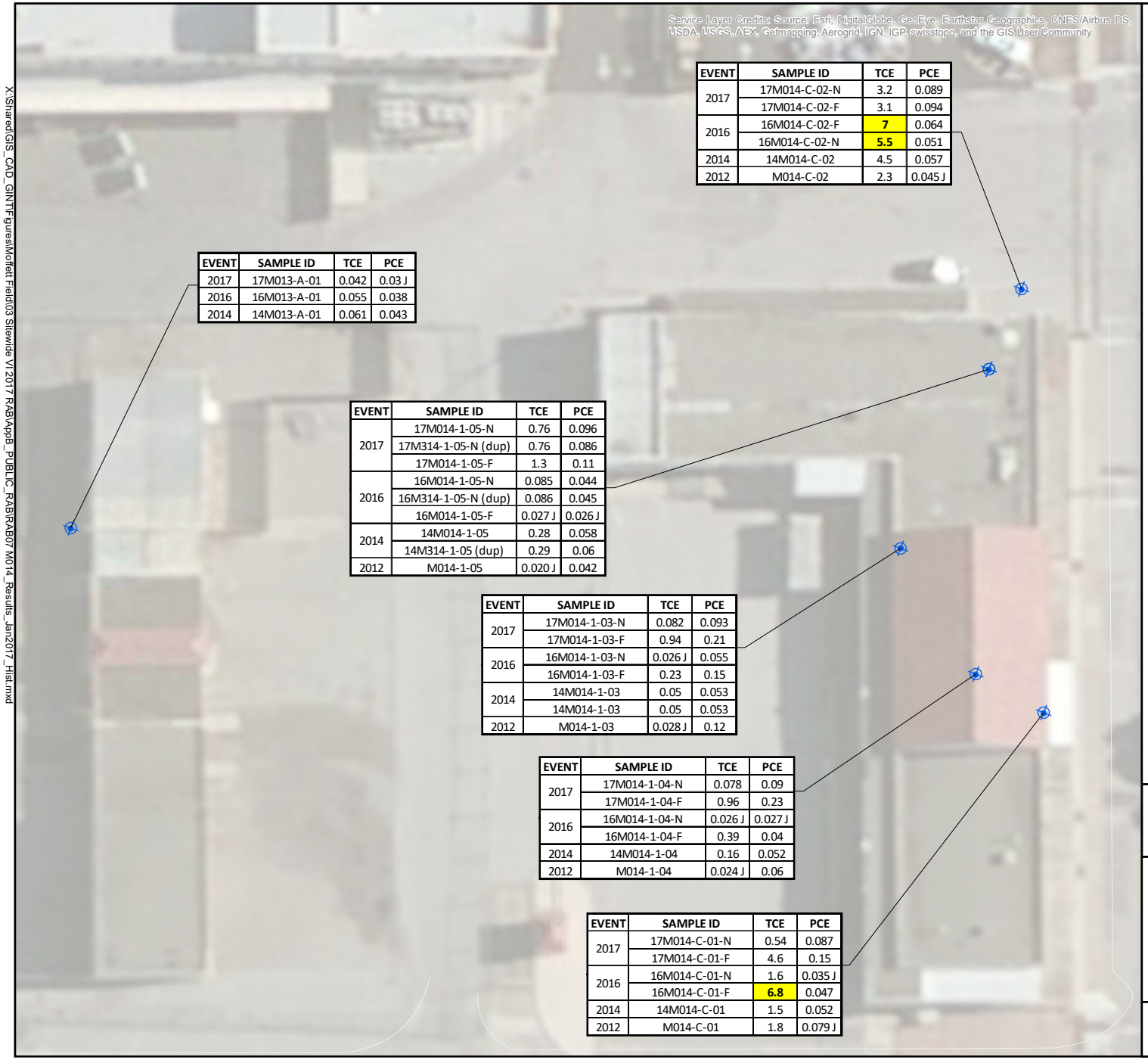
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B6

BUILDING 13 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17M013-A-01	0.042	0.03 J
2016	16M013-A-01	0.055	0.038
2014	14M013-A-01	0.061	0.043

EVENT	SAMPLE ID	TCE	PCE
2017	17M014-C-02-N	3.2	0.089
	17M014-C-02-F	3.1	0.094
2016	16M014-C-02-F	7	0.064
	16M014-C-02-N	5.5	0.051
2014	14M014-C-02	4.5	0.057
2012	M014-C-02	2.3	0.045 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M014-1-05-N	0.76	0.096
	17M314-1-05-N (dup)	0.76	0.086
	17M014-1-05-F	1.3	0.11
2016	16M014-1-05-N	0.085	0.044
	16M314-1-05-N (dup)	0.086	0.045
	16M014-1-05-F	0.027 J	0.026 J
2014	14M014-1-05	0.28	0.058
	14M314-1-05 (dup)	0.29	0.06
2012	M014-1-05	0.020 J	0.042

EVENT	SAMPLE ID	TCE	PCE
2017	17M014-1-03-N	0.082	0.093
	17M014-1-03-F	0.94	0.21
2016	16M014-1-03-N	0.026 J	0.055
	16M014-1-03-F	0.23	0.15
2014	14M014-1-03	0.05	0.053
	14M014-1-03	0.05	0.053
2012	M014-1-03	0.028 J	0.12

EVENT	SAMPLE ID	TCE	PCE
2017	17M014-1-04-N	0.078	0.09
	17M014-1-04-F	0.96	0.23
2016	16M014-1-04-N	0.026 J	0.027 J
	16M014-1-04-F	0.39	0.04
2014	14M014-1-04	0.16	0.052
2012	M014-1-04	0.024 J	0.06

EVENT	SAMPLE ID	TCE	PCE
2017	17M014-C-01-N	0.54	0.087
	17M014-C-01-F	4.6	0.15
2016	16M014-C-01-N	1.6	0.035 J
	16M014-C-01-F	6.8	0.047
2014	14M014-C-01	1.5	0.052
2012	M014-C-01	1.8	0.079 J

LEGEND

- Indoor Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 20 40 80

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

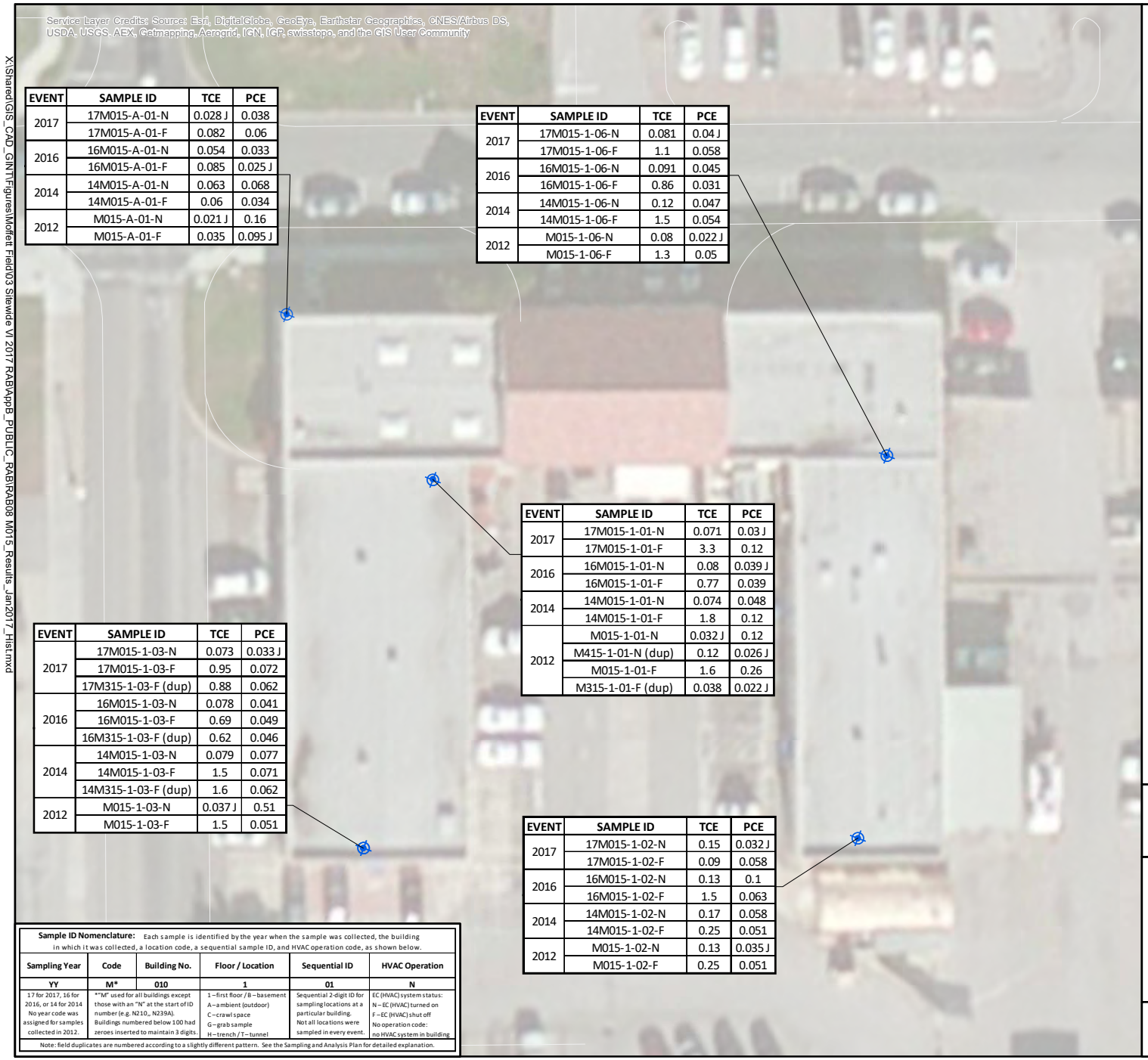
FIGURE B7

BUILDING 14 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

X:\Shared\GIS_CAD_GIN\TFigures\Moffett Field\03 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB07 M014_Results_Jan2017_Hist.mxd



EVENT	SAMPLE ID	TCE	PCE
2017	17M015-A-01-N	0.028 J	0.038
	17M015-A-01-F	0.082	0.06
2016	16M015-A-01-N	0.054	0.033
	16M015-A-01-F	0.085	0.025 J
2014	14M015-A-01-N	0.063	0.068
	14M015-A-01-F	0.06	0.034
2012	M015-A-01-N	0.021 J	0.16
	M015-A-01-F	0.035	0.095 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M015-1-06-N	0.081	0.04 J
	17M015-1-06-F	1.1	0.058
2016	16M015-1-06-N	0.091	0.045
	16M015-1-06-F	0.86	0.031
2014	14M015-1-06-N	0.12	0.047
	14M015-1-06-F	1.5	0.054
2012	M015-1-06-N	0.08	0.022 J
	M015-1-06-F	1.3	0.05

EVENT	SAMPLE ID	TCE	PCE
2017	17M015-1-01-N	0.071	0.03 J
	17M015-1-01-F	3.3	0.12
2016	16M015-1-01-N	0.08	0.039 J
	16M015-1-01-F	0.77	0.039
2014	14M015-1-01-N	0.074	0.048
	14M015-1-01-F	1.8	0.12
2012	M015-1-01-N	0.032 J	0.12
	M415-1-01-N (dup)	0.12	0.026 J
	M015-1-01-F	1.6	0.26
	M315-1-01-F (dup)	0.038	0.022 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M015-1-03-N	0.073	0.033 J
	17M015-1-03-F	0.95	0.072
	17M315-1-03-F (dup)	0.88	0.062
2016	16M015-1-03-N	0.078	0.041
	16M015-1-03-F	0.69	0.049
	16M315-1-03-F (dup)	0.62	0.046
2014	14M015-1-03-N	0.079	0.077
	14M015-1-03-F	1.5	0.071
	14M315-1-03-F (dup)	1.6	0.062
2012	M015-1-03-N	0.037 J	0.51
	M015-1-03-F	1.5	0.051

EVENT	SAMPLE ID	TCE	PCE
2017	17M015-1-02-N	0.15	0.032 J
	17M015-1-02-F	0.09	0.058
2016	16M015-1-02-N	0.13	0.1
	16M015-1-02-F	1.5	0.063
2014	14M015-1-02-N	0.17	0.058
	14M015-1-02-F	0.25	0.051
2012	M015-1-02-N	0.13	0.035 J
	M015-1-02-F	0.25	0.051

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 20 40 80

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

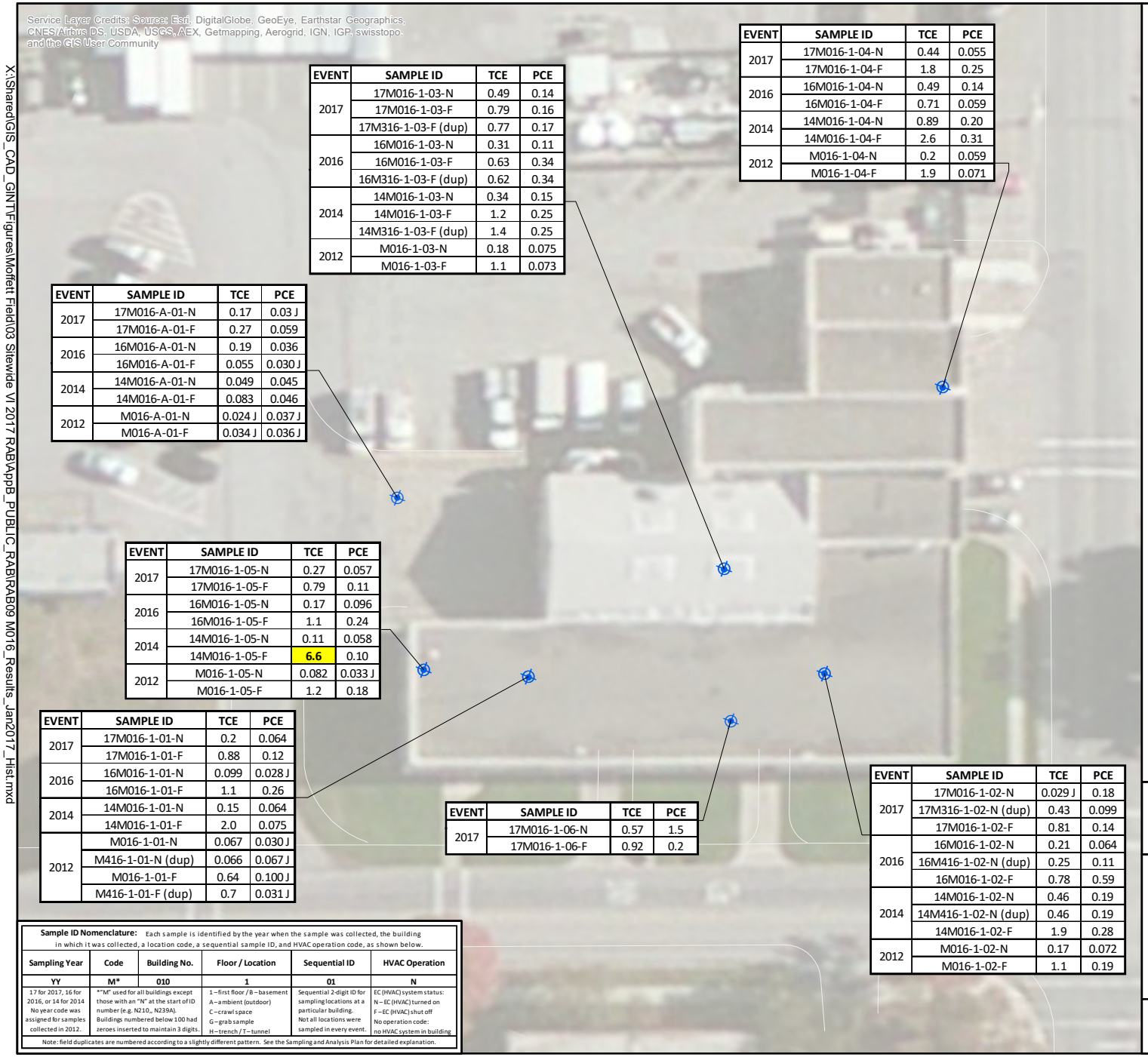
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B8

BUILDING 15 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



X:\Shared\GIS_CAD_GINT\Figures\Moffett Field\03 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB09 M016_Results_Jan2017_Hist.mxd

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-03-N	0.49	0.14
	17M016-1-03-F	0.79	0.16
	17M316-1-03-F (dup)	0.77	0.17
2016	16M016-1-03-N	0.31	0.11
	16M016-1-03-F	0.63	0.34
	16M316-1-03-F (dup)	0.62	0.34
2014	14M016-1-03-N	0.34	0.15
	14M016-1-03-F	1.2	0.25
	14M316-1-03-F (dup)	1.4	0.25
2012	M016-1-03-N	0.18	0.075
	M016-1-03-F	1.1	0.073

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-04-N	0.44	0.055
	17M016-1-04-F	1.8	0.25
2016	16M016-1-04-N	0.49	0.14
	16M016-1-04-F	0.71	0.059
2014	14M016-1-04-N	0.89	0.20
	14M016-1-04-F	2.6	0.31
2012	M016-1-04-N	0.2	0.059
	M016-1-04-F	1.9	0.071

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-A-01-N	0.17	0.03 J
	17M016-A-01-F	0.27	0.059
2016	16M016-A-01-N	0.19	0.036
	16M016-A-01-F	0.055	0.030 J
2014	14M016-A-01-N	0.049	0.045
	14M016-A-01-F	0.083	0.046
2012	M016-A-01-N	0.024 J	0.037 J
	M016-A-01-F	0.034 J	0.036 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-05-N	0.27	0.057
	17M016-1-05-F	0.79	0.11
2016	16M016-1-05-N	0.17	0.096
	16M016-1-05-F	1.1	0.24
2014	14M016-1-05-N	0.11	0.058
	14M016-1-05-F	**6.6**	0.10
2012	M016-1-05-N	0.082	0.033 J
	M016-1-05-F	1.2	0.18

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-01-N	0.2	0.064
	17M016-1-01-F	0.88	0.12
2016	16M016-1-01-N	0.099	0.028 J
	16M016-1-01-F	1.1	0.26
2014	14M016-1-01-N	0.15	0.064
	14M016-1-01-F	2.0	0.075
2012	M016-1-01-N	0.067	0.030 J
	M416-1-01-N (dup)	0.066	0.067 J
	M016-1-01-F	0.64	0.100 J
	M416-1-01-F (dup)	0.7	0.031 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-06-N	0.57	1.5
	17M016-1-06-F	0.92	0.2

EVENT	SAMPLE ID	TCE	PCE
2017	17M016-1-02-N	0.029 J	0.18
	17M316-1-02-N (dup)	0.43	0.099
	17M016-1-02-F	0.81	0.14
2016	16M016-1-02-N	0.21	0.064
	16M416-1-02-N (dup)	0.25	0.11
	16M016-1-02-F	0.78	0.59
2014	14M016-1-02-N	0.46	0.19
	14M416-1-02-N (dup)	0.46	0.19
	14M016-1-02-F	1.9	0.28
2012	M016-1-02-N	0.17	0.072
	M016-1-02-F	1.1	0.19

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014. No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 20 40 80

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B9

BUILDING 16 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

EVENT	SAMPLE ID	TCE	PCE
2017	17M029-B-01	0.35	0.26
2016	16M029-B-01	0.15	0.093
2014	14M029-B-01	0.063	0.06
2012	M029-B-01	0.13	0.19

EVENT	SAMPLE ID	TCE	PCE
2017	17M029-1-01	0.39	0.29
2016	16M029-1-01	0.17	0.091
2014	14M029-1-01	0.069	0.061
2012	M029-1-01	0.18	0.23

EVENT	SAMPLE ID	TCE	PCE
2017	17M029-A-01	0.07	0.066
2016	16M029-A-01	0.12	0.093
2014	14M029-A-01	0.04	0.049
2012	M029-A-01	0.056	0.027 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 10 20 40

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B10

BUILDING 29 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

EVENT	SAMPLE ID	TCE	PCE
2017	17M045-A-01	0.46	0.3
2016	16M045-A-01	0.35	0.15
2014	14M045-A-01	0.38	0.072

EVENT	SAMPLE ID	TCE	PCE
2017	17M045-1-02	4.7	**2.6**
2016	16M045-1-02	3.9	**2.6**
2014	14M045-1-02	0.8	0.26
2012	M045-1-02	0.44	0.068

EVENT	SAMPLE ID	TCE	PCE
2017	17M045-1-01	4.8	**2.6**
2016	16M045-1-01	**7.0**	**5.0**
2014	14M045-1-01	0.62	0.12
2012	M045-1-01	0.37	0.04
	M345-1-01 (dup)	0.37	0.037 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

*Former Rooms 101, 101A, 102, and 102A are currently part of Room 101

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

Indoor Air Screening Level for PCE: 2 µg/m^3
Indoor Air Screening Level for TCE: 5 µg/m^3

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 10 20 40

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B11

BUILDING 45 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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EVENT	SAMPLE ID	TCE	PCE
2017	17M067-1-01	0.34	0.072
2016	16M067-1-01	0.18	0.068
2014	14M067-1-01	0.086	0.042
2012	M067-1-01	0.086	0.039
	M367-1-01 (dup)	0.021 J	0.034 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M067-A-01	0.14	0.069
2016	16M067-A-01	0.055	0.056
2014	14M067-A-01	0.049	0.06
2012	M067-A-01	0.023 J	0.078 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 5 10 20

Feet

DEPARTMENT OF THE NAVY

SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B12

BUILDING 67 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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EVENT	SAMPLE ID	TCE	PCE
2017	17M016-A-01-N	0.17	0.03 J
	17M016-A-01-F	0.27	0.059
2016	16M016-A-01-N	0.19	0.036
	16M016-A-01-F	0.055	0.030 J
2014	14M016-A-01-N	0.049	0.045
	14M016-A-01-F	0.083	0.046
2012	M016-A-01-N	0.024 J	0.037 J
	M016-A-01-F	0.034 J	0.036 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M076-1-01	0.27	0.067
2016	16M076-1-01	0.36	0.12
2014	14M076-1-01	0.14	0.06
2012	M076-1-01	0.12	0.052
	M076-1-01-N	0.15	0.055

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 10 20 40

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

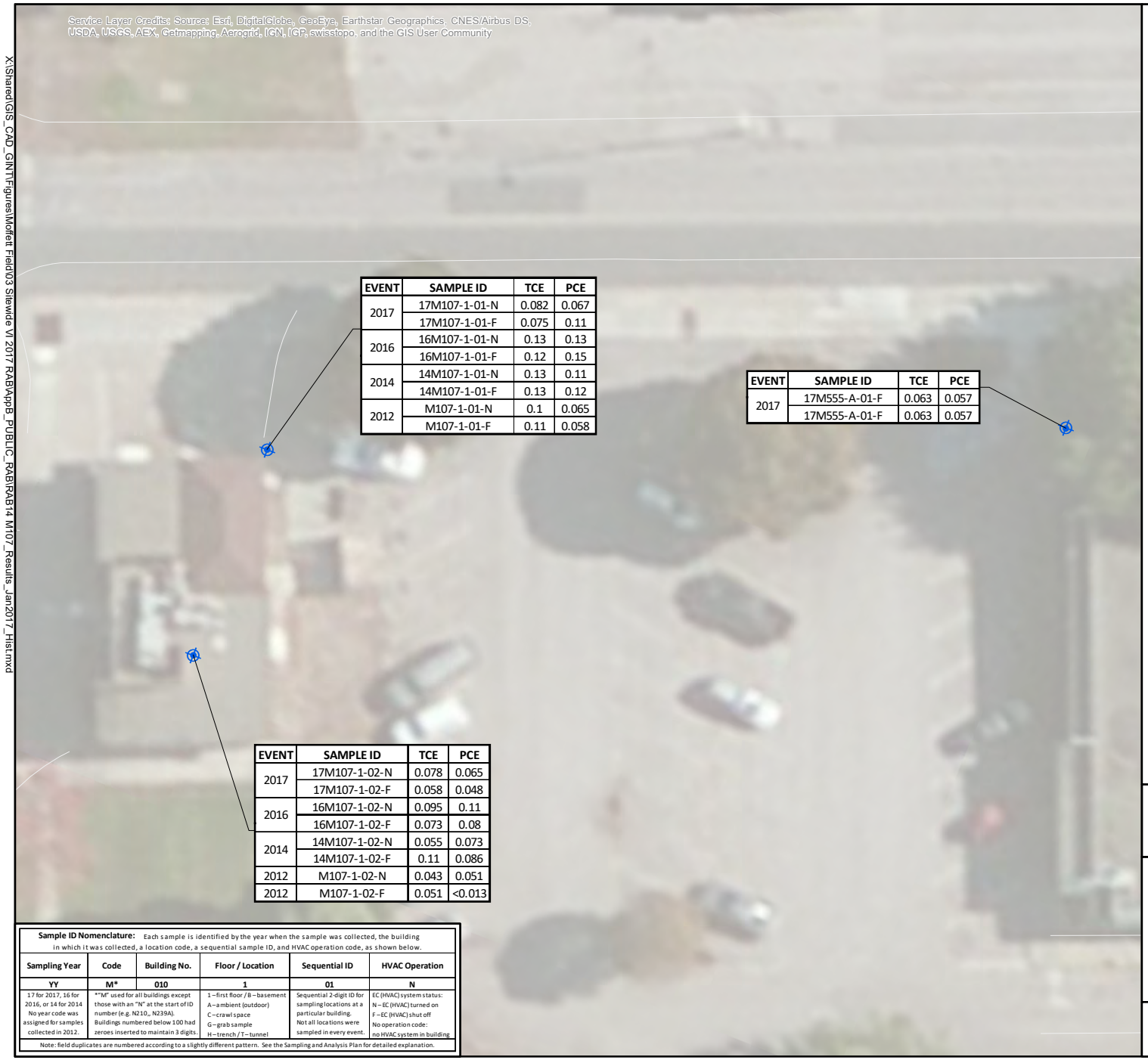
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B13

BUILDING 76 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



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EVENT	SAMPLE ID	TCE	PCE
2017	17M107-1-01-N	0.082	0.067
	17M107-1-01-F	0.075	0.11
2016	16M107-1-01-N	0.13	0.13
	16M107-1-01-F	0.12	0.15
2014	14M107-1-01-N	0.13	0.11
	14M107-1-01-F	0.13	0.12
2012	M107-1-01-N	0.1	0.065
	M107-1-01-F	0.11	0.058

EVENT	SAMPLE ID	TCE	PCE
2017	17M555-A-01-F	0.063	0.057
	17M555-A-01-F	0.063	0.057

EVENT	SAMPLE ID	TCE	PCE
2017	17M107-1-02-N	0.078	0.065
	17M107-1-02-F	0.058	0.048
2016	16M107-1-02-N	0.095	0.11
	16M107-1-02-F	0.073	0.08
2014	14M107-1-02-N	0.055	0.073
	14M107-1-02-F	0.11	0.086
2012	M107-1-02-N	0.043	0.051
2012	M107-1-02-F	0.051	<0.013

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

Indoor Air Screening Level for PCE: 2 $\mu g/m^3$
Indoor Air Screening Level for TCE: 5 $\mu g/m^3$

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 15 30 60

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

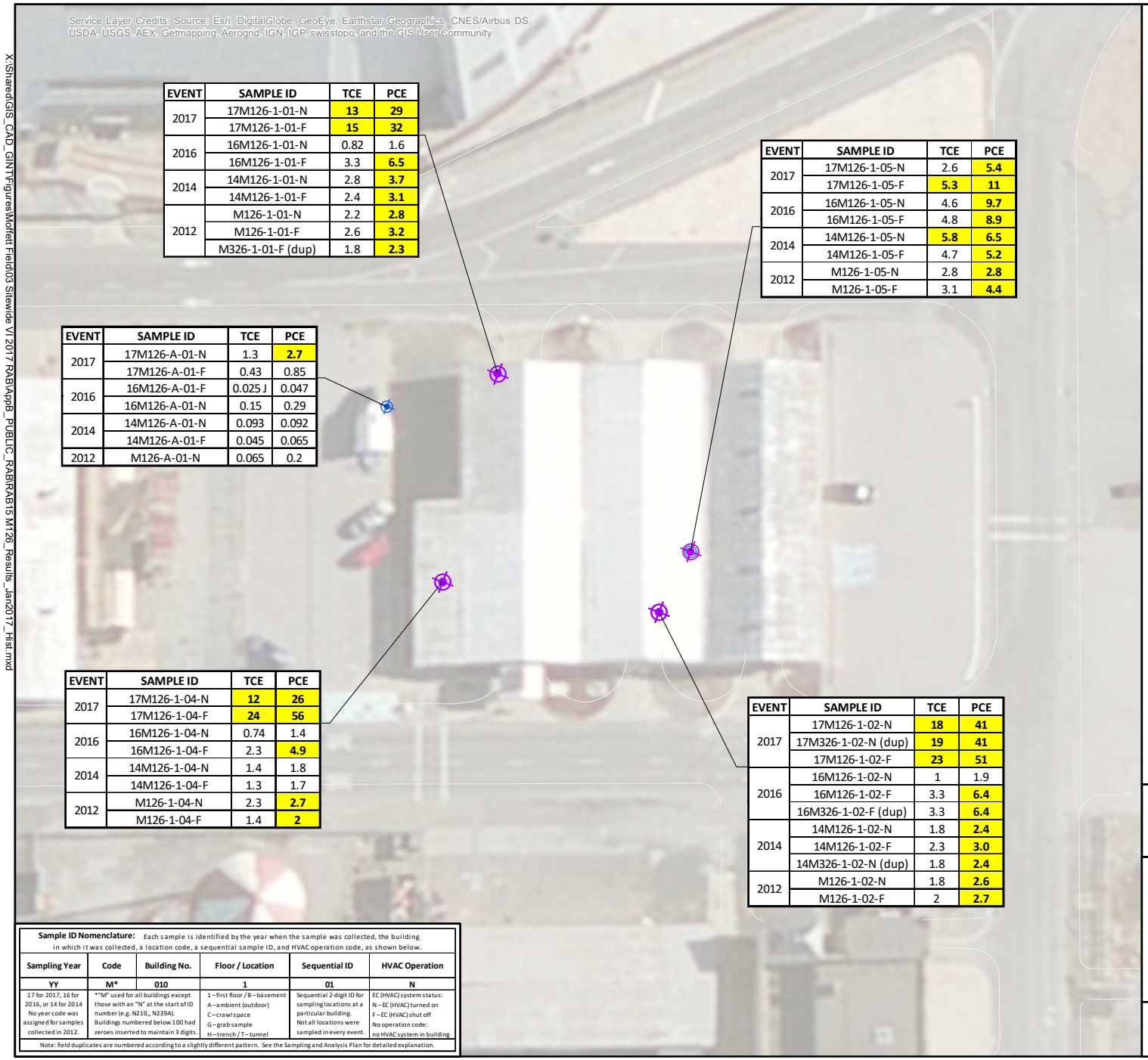
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B14

BUILDING 107 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



X:\Shared\GIS_CAD_GIN\TFigures\Moffett Field\03 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB15\M126_Results_Jan2017_Hist.mxd

EVENT	SAMPLE ID	TCE	PCE
2017	17M126-1-01-N	**13**	**29**
	17M126-1-01-F	**15**	**32**
2016	16M126-1-01-N	0.82	1.6
	16M126-1-01-F	3.3	**6.5**
2014	14M126-1-01-N	2.8	**3.7**
	14M126-1-01-F	2.4	**3.1**
2012	M126-1-01-N	2.2	**2.8**
	M126-1-01-F	2.6	**3.2**
	M326-1-01-F (dup)	1.8	**2.3**

EVENT	SAMPLE ID	TCE	PCE
2017	17M126-1-05-N	2.6	**5.4**
	17M126-1-05-F	**5.3**	**11**
2016	16M126-1-05-N	4.6	**9.7**
	16M126-1-05-F	4.8	**8.9**
2014	14M126-1-05-N	**5.8**	**6.5**
	14M126-1-05-F	4.7	**5.2**
2012	M126-1-05-N	2.8	**2.8**
	M126-1-05-F	3.1	**4.4**

EVENT	SAMPLE ID	TCE	PCE
2017	17M126-A-01-N	1.3	**2.7**
	17M126-A-01-F	0.43	0.85
2016	16M126-A-01-F	0.025 J	0.047
	16M126-A-01-N	0.15	0.29
2014	14M126-A-01-N	0.093	0.092
	14M126-A-01-F	0.045	0.065
2012	M126-A-01-N	0.065	0.2

EVENT	SAMPLE ID	TCE	PCE
2017	17M126-1-04-N	**12**	**26**
	17M126-1-04-F	**24**	**56**
2016	16M126-1-04-N	0.74	1.4
	16M126-1-04-F	2.3	**4.9**
2014	14M126-1-04-N	1.4	1.8
	14M126-1-04-F	1.3	1.7
2012	M126-1-04-N	2.3	**2.7**
	M126-1-04-F	1.4	**2**

EVENT	SAMPLE ID	TCE	PCE
2017	17M126-1-02-N	**18**	**41**
	17M326-1-02-N (dup)	**19**	**41**
	17M126-1-02-F	**23**	**51**
2016	16M126-1-02-N	1	1.9
	16M126-1-02-F	3.3	**6.4**
	16M326-1-02-F (dup)	3.3	**6.4**
2014	14M126-1-02-N	1.8	**2.4**
	14M126-1-02-F	2.3	**3.0**
	14M326-1-02-N (dup)	1.8	**2.4**
2012	M126-1-02-N	1.8	**2.6**
	M126-1-02-F	2	**2.7**

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- TCE Detected Above Indoor Air Screening Level in January 2017
- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

Indoor Air Screening Level for PCE: 2 $\mu g/m^3$
Indoor Air Screening Level for TCE: 5 $\mu g/m^3$

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

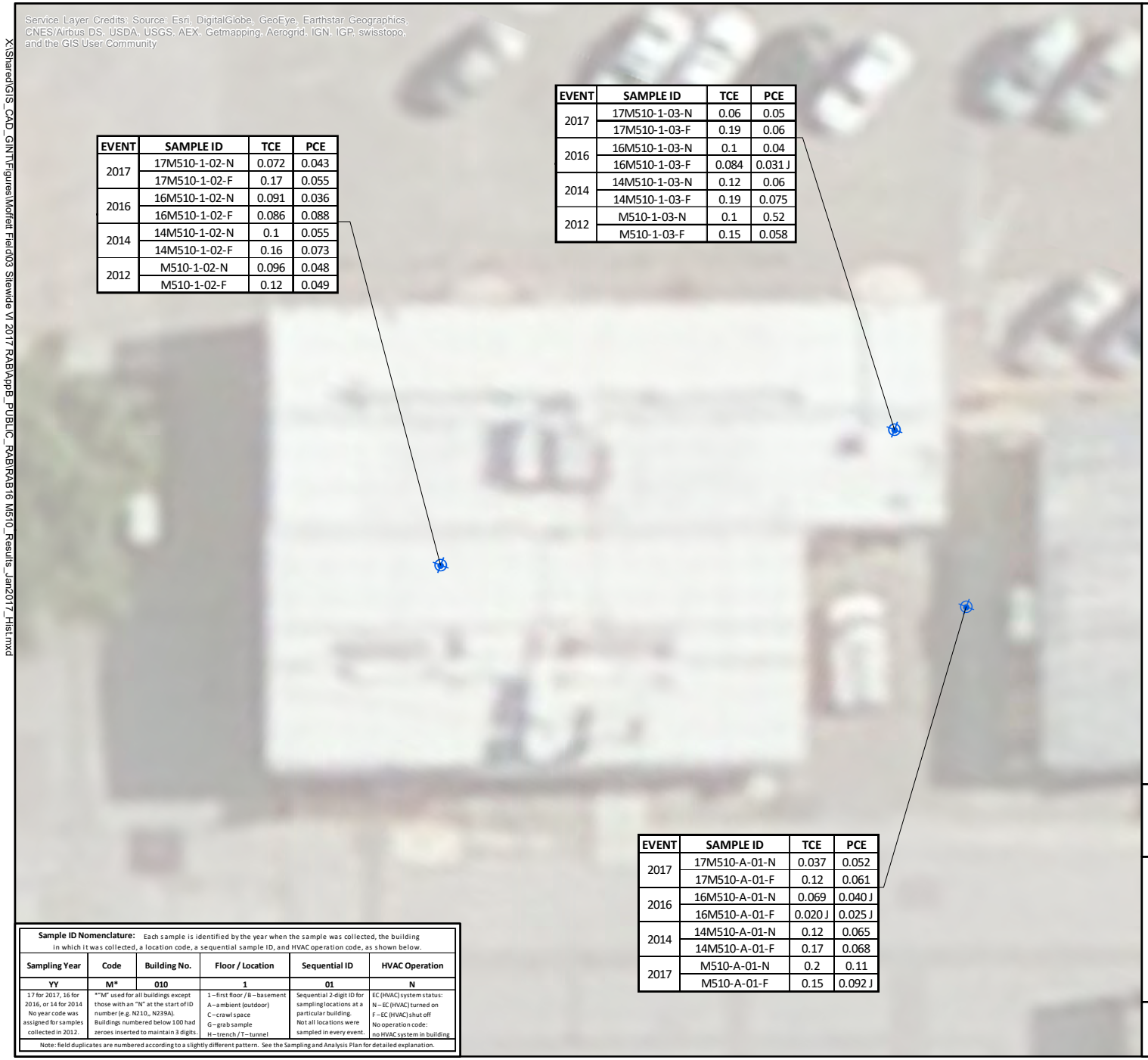
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B15

BUILDING 126 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17M510-1-02-N	0.072	0.043
	17M510-1-02-F	0.17	0.055
2016	16M510-1-02-N	0.091	0.036
	16M510-1-02-F	0.086	0.088
2014	14M510-1-02-N	0.1	0.055
	14M510-1-02-F	0.16	0.073
2012	M510-1-02-N	0.096	0.048
	M510-1-02-F	0.12	0.049

EVENT	SAMPLE ID	TCE	PCE
2017	17M510-1-03-N	0.06	0.05
	17M510-1-03-F	0.19	0.06
2016	16M510-1-03-N	0.1	0.04
	16M510-1-03-F	0.084	0.031 J
2014	14M510-1-03-N	0.12	0.06
	14M510-1-03-F	0.19	0.075
2012	M510-1-03-N	0.1	0.52
	M510-1-03-F	0.15	0.058

EVENT	SAMPLE ID	TCE	PCE
2017	17M510-A-01-N	0.037	0.052
	17M510-A-01-F	0.12	0.061
2016	16M510-A-01-N	0.069	0.040 J
	16M510-A-01-F	0.020 J	0.025 J
2014	14M510-A-01-N	0.12	0.065
	14M510-A-01-F	0.17	0.068
2017	M510-A-01-N	0.2	0.11
	M510-A-01-F	0.15	0.092 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

Air Sampling Location

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 10 20 40

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B16

BUILDING 510 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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EVENT	SAMPLE ID	TCE	PCE
2017	17M555-A-01-N	0.23	0.032 J
	17M555-A-01-F	0.063	0.057
2016	16M555-A-01-N	0.043	0.035 J
	16M555-A-01-F	0.018 J	0.024 J
2014	14M555-A-01-N	0.044	0.044
	14M555-A-01-F	0.033 J	0.04
2012	M555-A-01-N	0.026 J	0.078
	M555-A-01-F	0.019 J	0.018 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M555-1-03-N	0.19	0.061
	17M555-1-03-F	0.86	0.13
2016	16M555-1-03-N	0.032 U	0.027 J
	16M355-1-03-N (dup)	0.056	0.024 J
	16M555-1-03-F	0.14	0.031 J
2014	14M555-1-03-N	0.14	0.068
	14M355-1-03-N (dup)	0.13	0.062
	14M555-1-03-F	0.46	0.047
2012	N555-1-03-N	0.23	0.04
	N555-1-03-F	1.3	0.11

EVENT	SAMPLE ID	TCE	PCE
2017	17M555-1-01-N	0.21	0.059
	17M355-1-01-N (dup)	0.16 J	0.27 U
	17M555-1-01-F	0.76	0.12
2016	16M555-1-01-N	0.057	0.027 J
	16M555-1-01-F	0.14	0.031 J
2014	14M555-1-01-N	0.16	0.049 J
	14M555-1-01-F	0.42	0.044
2012	N555-1-01-N	0.17	0.036 J
	N555-1-01-F	0.85	0.038

-01

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 15 30 60

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B17

BUILDING 555 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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EVENT	SAMPLE ID	TCE	PCE
2017	17M016-A-01-N	0.17	0.03 J
	17M016-A-01-F	0.27	0.059
2016	16M016-A-01-N	0.19	0.036
	16M016-A-01-F	0.055	0.030 J
2014	14M016-A-01-N	0.049	0.045
	14M016-A-01-F	0.083	0.046
2012	M016-A-01-N	0.024 J	0.037 J
	M016-A-01-F	0.034 J	0.036 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M566-1-01-N	0.14	0.039 J
	17M566-1-01-F	0.14	0.047
2016	16M566-1-01-N	0.17	0.099
	16M566-1-01-F	0.075	0.028 J
2014	14M566-1-01-N	0.043	0.069
	14M566-1-01-F	0.16	0.16
2012	M566-1-01-N	0.013 J	0.030 J
	M566-1-01-F	0.04	0.028 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M566-1-02-N	0.15	0.04 J
	17M566-1-02-F	0.17	0.047
2016	16M566-1-02-N	0.17	0.11
	16M566-1-02-F	0.13	0.029 J
2014	14M566-1-02-N	0.062	0.078
	14M566-1-02-F	0.13	0.06
2012	M566-1-02-N	0.012 J	0.033 J
	M566-1-02-F	0.065	0.019 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 20 40 80

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

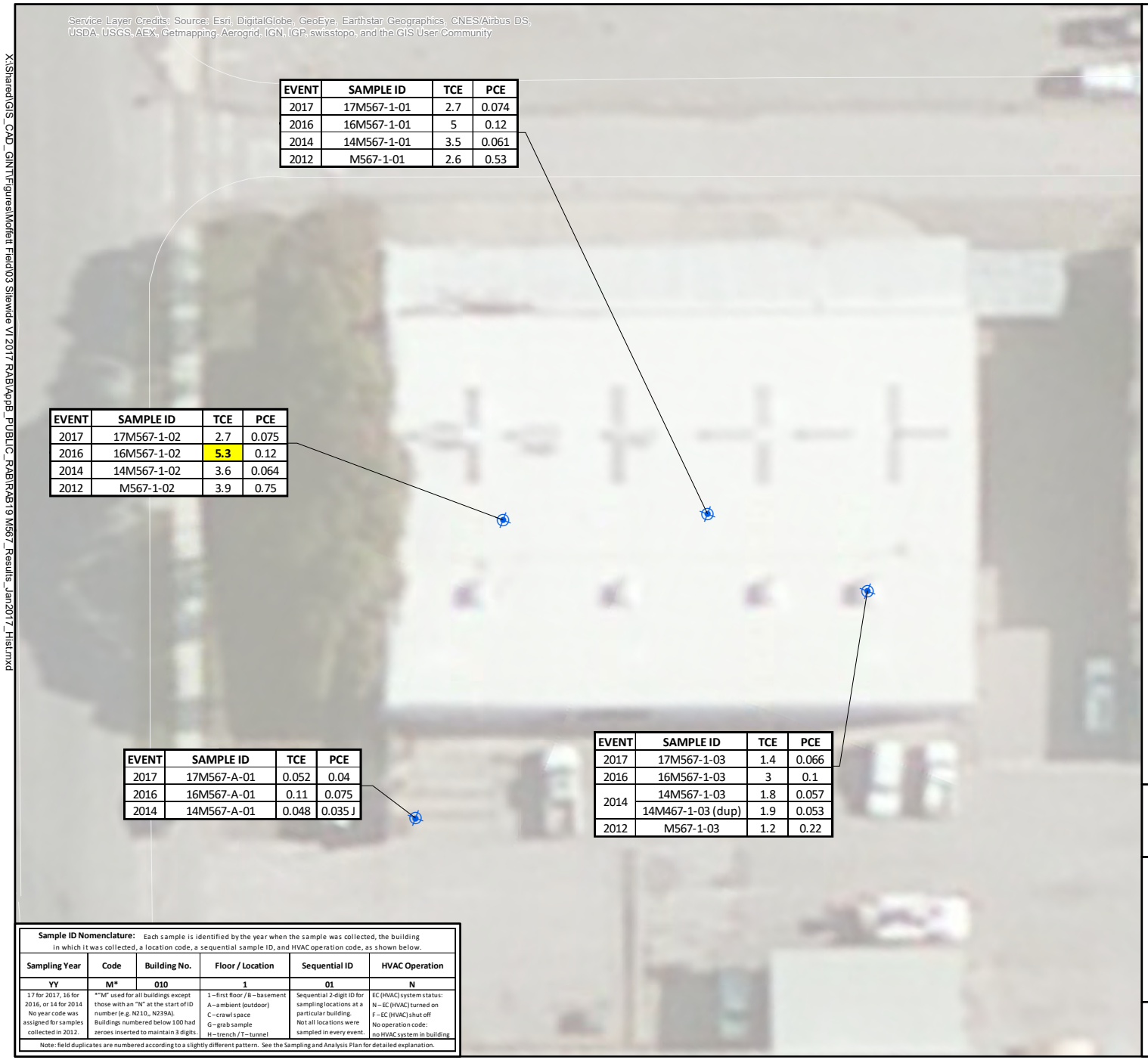
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B18

BUILDING 566 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



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EVENT	SAMPLE ID	TCE	PCE
2017	17M567-1-01	2.7	0.074
2016	16M567-1-01	5	0.12
2014	14M567-1-01	3.5	0.061
2012	M567-1-01	2.6	0.53

EVENT	SAMPLE ID	TCE	PCE
2017	17M567-1-02	2.7	0.075
2016	16M567-1-02	**5.3**	0.12
2014	14M567-1-02	3.6	0.064
2012	M567-1-02	3.9	0.75

EVENT	SAMPLE ID	TCE	PCE
2017	17M567-A-01	0.052	0.04
2016	16M567-A-01	0.11	0.075
2014	14M567-A-01	0.048	0.035 J

EVENT	SAMPLE ID	TCE	PCE
2017	17M567-1-03	1.4	0.066
2016	16M567-1-03	3	0.1
2014	14M567-1-03	1.8	0.057
	14M467-1-03 (dup)	1.9	0.053
2012	M567-1-03	1.2	0.22

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 15 30 60

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

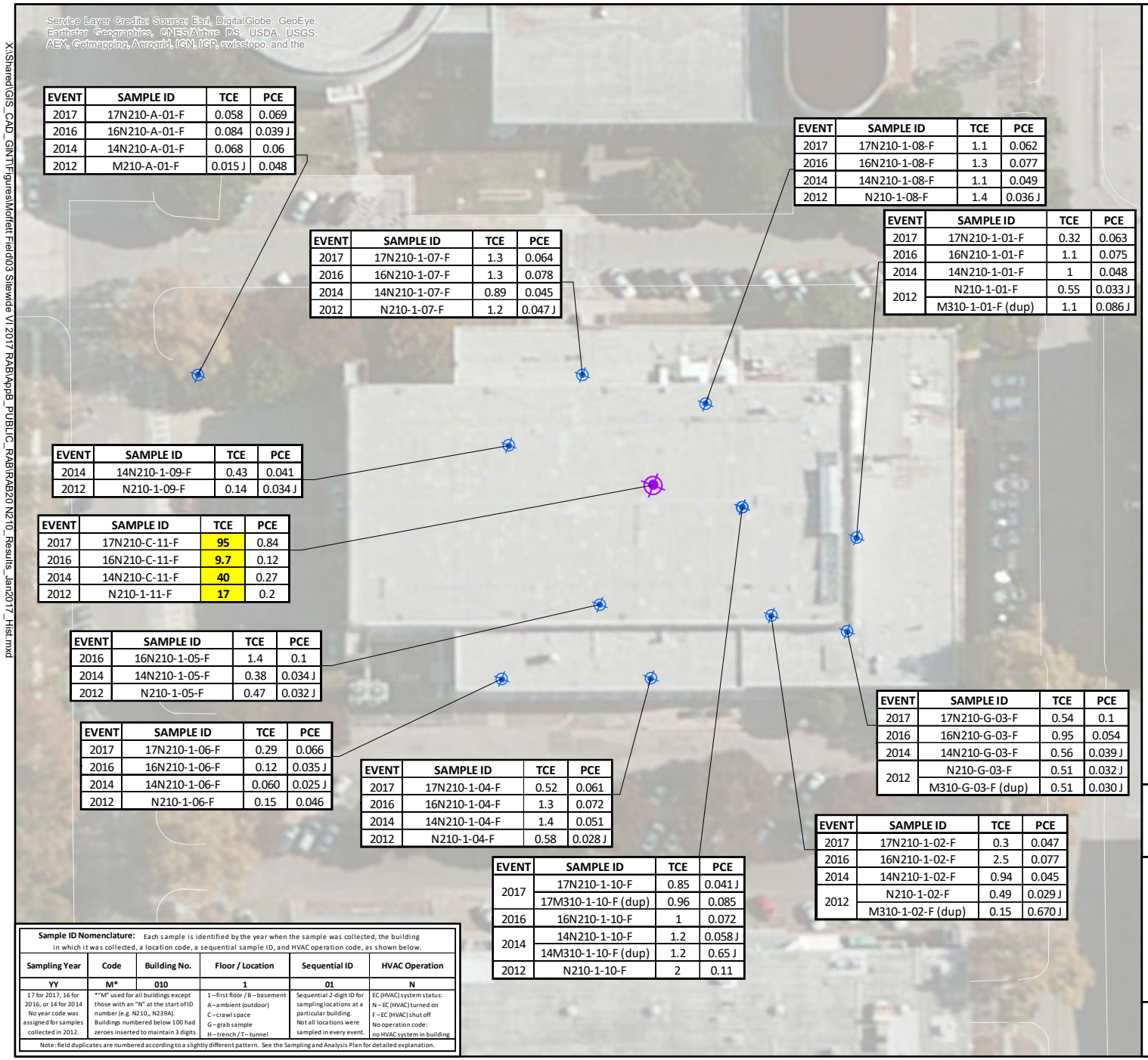
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B19

BUILDING 567 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17N210-A-01-F	0.058	0.069
2016	16N210-A-01-F	0.084	0.039 J
2014	14N210-A-01-F	0.068	0.06
2012	M210-A-01-F	0.015 J	0.048

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-07-F	1.3	0.064
2016	16N210-1-07-F	1.3	0.078
2014	14N210-1-07-F	0.89	0.045
2012	N210-1-07-F	1.2	0.047 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-08-F	1.1	0.062
2016	16N210-1-08-F	1.3	0.077
2014	14N210-1-08-F	1.1	0.049
2012	N210-1-08-F	1.4	0.036 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-01-F	0.32	0.063
2016	16N210-1-01-F	1.1	0.075
2014	14N210-1-01-F	1	0.048
2012	N210-1-01-F	0.55	0.033 J
	M310-1-01-F (dup)	1.1	0.086 J

EVENT	SAMPLE ID	TCE	PCE
2014	14N210-1-09-F	0.43	0.041
2012	N210-1-09-F	0.14	0.034 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-C-11-F	95	0.84
2016	16N210-C-11-F	9.7	0.12
2014	14N210-C-11-F	40	0.27
2012	N210-1-11-F	17	0.2

EVENT	SAMPLE ID	TCE	PCE
2016	16N210-1-05-F	1.4	0.1
2014	14N210-1-05-F	0.38	0.034 J
2012	N210-1-05-F	0.47	0.032 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-06-F	0.29	0.066
2016	16N210-1-06-F	0.12	0.035 J
2014	14N210-1-06-F	0.060	0.025 J
2012	N210-1-06-F	0.15	0.046

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-04-F	0.52	0.061
2016	16N210-1-04-F	1.3	0.072
2014	14N210-1-04-F	1.4	0.051
2012	N210-1-04-F	0.58	0.028 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-10-F	0.85	0.041 J
	17M310-1-10-F (dup)	0.96	0.085
2016	16N210-1-10-F	1	0.072
2014	14N210-1-10-F	1.2	0.058 J
	14M310-1-10-F (dup)	1.2	0.65 J
2012	N210-1-10-F	2	0.11

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-G-03-F	0.54	0.1
2016	16N210-G-03-F	0.95	0.054
2014	14N210-G-03-F	0.56	0.039 J
2012	N210-G-03-F	0.51	0.032 J
	M310-G-03-F (dup)	0.51	0.030 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N210-1-02-F	0.3	0.047
2016	16N210-1-02-F	2.5	0.077
2014	14N210-1-02-F	0.94	0.045
2012	N210-1-02-F	0.49	0.029 J
	M310-1-02-F (dup)	0.15	0.670 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- TCE Detected Above Indoor Air Screening Level in January 2017
- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in $\mu g/m^3$. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
$\mu g/m^3$ - micrograms per cubic meter

N

0 30 60 120

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

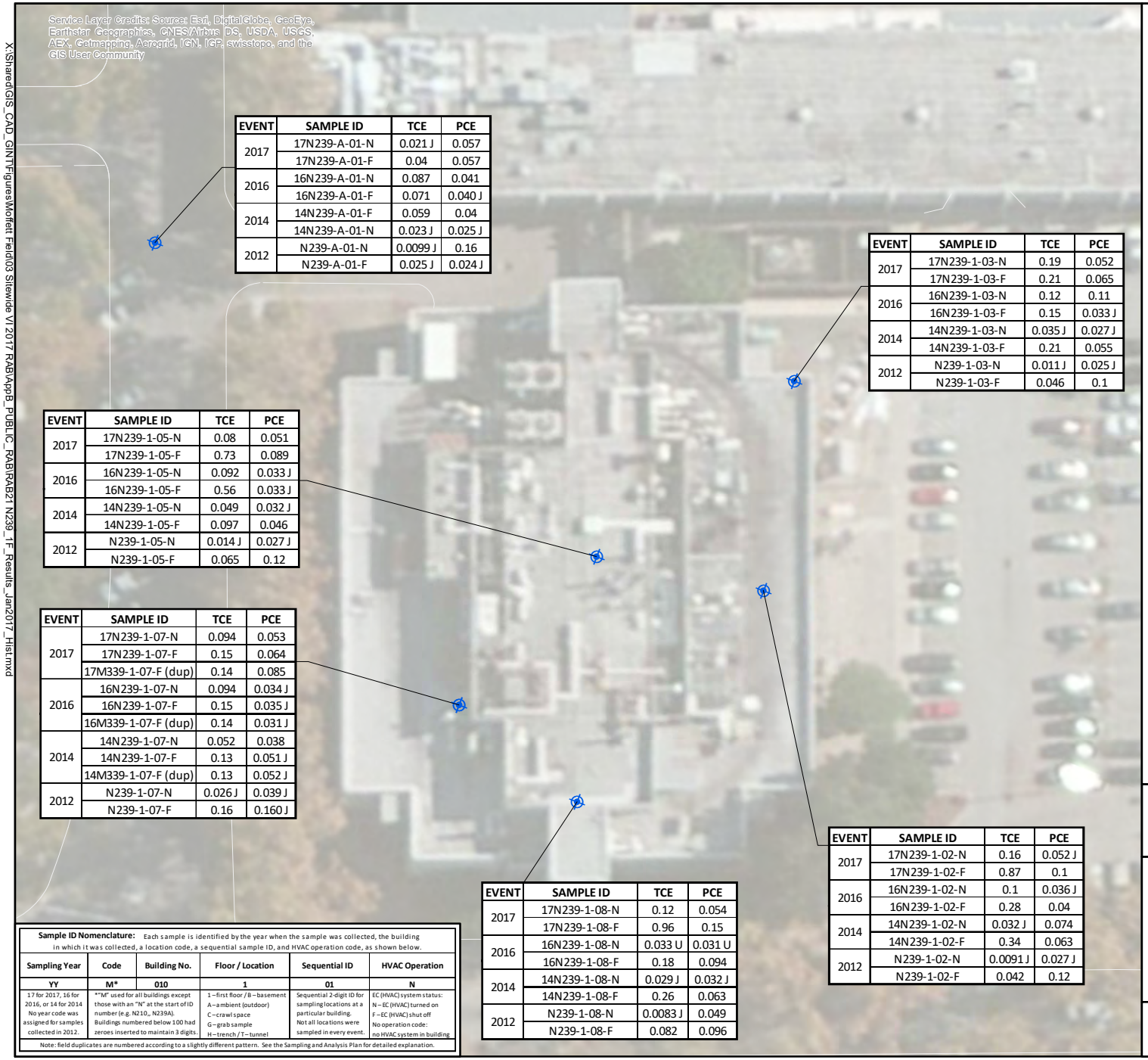
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B20

BUILDING N210 INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



EVENT	SAMPLE ID	TCE	PCE
2017	17N239-A-01-N	0.021 J	0.057
	17N239-A-01-F	0.04	0.057
2016	16N239-A-01-N	0.087	0.041
	16N239-A-01-F	0.071	0.040 J
2014	14N239-A-01-F	0.059	0.04
	14N239-A-01-N	0.023 J	0.025 J
2012	N239-A-01-N	0.0099 J	0.16
	N239-A-01-F	0.025 J	0.024 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-1-03-N	0.19	0.052
	17N239-1-03-F	0.21	0.065
2016	16N239-1-03-N	0.12	0.11
	16N239-1-03-F	0.15	0.033 J
2014	14N239-1-03-N	0.035 J	0.027 J
	14N239-1-03-F	0.21	0.055
2012	N239-1-03-N	0.011 J	0.025 J
	N239-1-03-F	0.046	0.1

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-1-05-N	0.08	0.051
	17N239-1-05-F	0.73	0.089
2016	16N239-1-05-N	0.092	0.033 J
	16N239-1-05-F	0.56	0.033 J
2014	14N239-1-05-N	0.049	0.032 J
	14N239-1-05-F	0.097	0.046
2012	N239-1-05-N	0.014 J	0.027 J
	N239-1-05-F	0.065	0.12

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-1-07-N	0.094	0.053
	17N239-1-07-F	0.15	0.064
	17M339-1-07-F (dup)	0.14	0.085
2016	16N239-1-07-N	0.094	0.034 J
	16N239-1-07-F	0.15	0.035 J
	16M339-1-07-F (dup)	0.14	0.031 J
2014	14N239-1-07-N	0.052	0.038
	14N239-1-07-F	0.13	0.051 J
	14M339-1-07-F (dup)	0.13	0.052 J
2012	N239-1-07-N	0.026 J	0.039 J
	N239-1-07-F	0.16	0.160 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-1-08-N	0.12	0.054
	17N239-1-08-F	0.96	0.15
2016	16N239-1-08-N	0.033 U	0.031 U
	16N239-1-08-F	0.18	0.094
2014	14N239-1-08-N	0.029 J	0.032 J
	14N239-1-08-F	0.26	0.063
2012	N239-1-08-N	0.0083 J	0.049
	N239-1-08-F	0.082	0.096

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-1-02-N	0.16	0.052 J
	17N239-1-02-F	0.87	0.1
2016	16N239-1-02-N	0.1	0.036 J
	16N239-1-02-F	0.28	0.04
2014	14N239-1-02-N	0.032 J	0.074
	14N239-1-02-F	0.34	0.063
2012	N239-1-02-N	0.0091 J	0.027 J
	N239-1-02-F	0.042	0.12

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B21

BUILDING N239 - FIRST FLOOR
INDOOR AIR SAMPLING
LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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EVENT	SAMPLE ID	TCE	PCE
2017	17N239-A-01-N	0.021 J	0.057
	17N239-A-01-F	0.04	0.057
2016	16N239-A-01-N	0.087	0.041
	16N239-A-01-F	0.071	0.040 J
2014	14N239-A-01-F	0.059	0.04
	14N239-A-01-N	0.023 J	0.025 J
2012	N239-A-01-N	0.0099 J	0.16
	N239-A-01-F	0.025 J	0.024 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-B-02-N	0.032 J	0.057 J
	17N239-B-02-F	1.4	0.067
2016	16N239-B-02-N	0.11	0.037 J
	16N239-B-02-F	0.27	0.05
2014	14N239-B-02-N	0.028 J	0.029 J
	14N239-B-02-F	0.63	0.063
2012	N239-B-02-N	0.0092 J	0.17
	N239-B-02-F	0.3	0.098

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-B-06-N	0.14	0.12
	17N239-B-06-F	1.1	0.33
2016	16N239-B-06-N	0.098	0.051
	16N239-B-06-F	0.18	0.033 J
2014	14N239-B-06-N	0.027 J	0.025 J
	14N239-B-06-F	0.34	0.10
2012	N239-B-06-N	0.0077 J	0.025 J
	N239-B-06-F	0.29	0.096

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-B-01-N	0.14	0.053
	17M339-B-01-N (dup)	0.14	0.053
	17N239-B-01-F	**11**	0.1
2016	16N239-B-01-N	0.1	0.035 J
	16M339-B-01-N (dup)	0.1	0.035 J
	16N239-B-01-F	1.20	0.039 J
2014	14N239-B-01-N	0.025 J	0.026 J
	14M339-B-01-N (dup)	0.029 J	0.040
	14N239-B-01-F	**5.8**	0.061
2012	N239-B-01-N	0.0098 J	0.032 J
	N239-B-01-F	3.8	0.056 J
	M339-B-01-F (dup)	3.6	0.940 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-B-05-N	0.13	0.089
	17N239-B-05-F	0.95	0.37
2016	16N239-B-05-N	0.2	0.14
	16N239-B-05-F	2.1	0.15
2014	14N239-B-05-N	0.038 J	0.080
	14N239-B-05-F	0.78	0.33
2012	N239-B-05-N	0.0093 J	0.25
	N239-B-05-F	0.13	0.55

EVENT	SAMPLE ID	TCE	PCE
2017	17N239-G-04-F	0.81	0.2
2016	16N239-G-04-F	0.17	0.026 J
2014	14N239-G-04-F	0.41	0.11
2012	N239-G-04-N	0.13	0.093
	N239-G-04-F	1	0.14

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- TCE Detected Above Indoor Air Screening Level in January 2017
- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B22

BUILDING N239 - BASEMENT
INDOOR AIR SAMPLING
LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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EVENT	SAMPLE ID	TCE	PCE
2017	17N239-A-01-N	0.021 J	0.057
	17N239-A-01-F	0.04	0.057
2016	16N239-A-01-N	0.087	0.041
	16N239-A-01-F	0.071	0.040 J
2014	14N239-A-01-F	0.059	0.04
	14N239-A-01-N	0.023 J	0.025 J
2012	N239-A-01-N	0.0099 J	0.16
	N239-A-01-F	0.025 J	0.024 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-03-N	3.6	0.069
	17N239A-1-03-F	0.47	0.11
2016	16N239A-1-03-N	2.6	0.086
	16N239A-1-03-F	0.72	0.081
2014	14N239A-1-03-N	0.66	0.056
	14N239A-1-03-F	1.1	0.19
2012	N239A-1-03-N	1.7	0.11
	N239A-1-03-F	1.4	0.088

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-09-N	0.47	0.038
	17N239A-1-09-F	0.51	0.082
2016	16N239A-1-09-N	**8.7**	0.1
	16N239A-1-09-F	1.1	0.064
2014	14N239A-1-09-N	0.73	0.032 J
	14N239A-1-09-F	0.62	0.067 J
2012	N239A-1-09-N	0.22	0.024 J
	N239A-1-09-F	0.31	0.064 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-05-N	0.92	0.035 J
	17N239A-1-05-F	0.071	0.054
2014	14N239A-1-05-N	0.10	0.027 J
	14N239A-1-05-F	0.088	0.049 J
2012	N239A-1-05-F	0.025 J	0.021 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-B-01-N	0.73	0.045
	17N239A-B-01-F	0.29	0.088
2016	16N239A-B-01-N	0.76	0.075
	16N239A-B-01-F	0.79	0.12
2014	14N239A-B-01-N	0.33	0.056
	14N239A-B-01-F	0.55	0.13
2012	N239A-B-01-N	0.34	0.083
	N239A-B-01-F	1.2	0.42

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-10-N	**12**	0.19
	17M339A-1-10-N (dup)	**13**	0.24
	17N239A-1-10-F	0.95	0.11
	17M339A-1-10-F (dup)	0.85	0.12
2016	16N239A-1-10-N	**14**	0.22
	16M339A-1-10-N (dup)	**12**	0.2
	16N239A-1-10-F	1	0.099
	16M339A-1-10-F (dup)	1	0.088
2014	14N239A-1-10-N	**39**	0.13
	14M339A-1-10-N (dup)	**40**	0.13
	14N239A-1-10-F	0.38	0.11
	14M339A-1-10-F (dup)	0.40	0.13

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-08-N	3.3	0.048
	17N239A-1-08-F	**10**	0.1
2016	16N239A-1-08-N	1.2	0.056
	16N239A-1-08-F	0.93	0.092
2014	14N239A-1-08-N	1.2	0.099
	14N239A-1-08-F	0.37	0.087
2012	N239A-1-08-N	1.5	0.040 J
	N239A-1-08-F	1.9	0.1

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-06-N	**7**	0.05
	17N239A-1-06-F	0.095	0.075
2016	16N239A-1-06-N	3.5	0.054
	16N239A-1-06-F	0.35	0.051
2014	14N239A-1-06-N	**5.6**	0.046
	14N239A-1-06-F	0.15	0.055
2012	N239A-1-06-N	1.8	0.032 J
	N239A-1-06-F	**6.8**	0.052

EVENT	SAMPLE ID	TCE	PCE
2017	17N239A-1-11-N	**8.8**	0.074
	17N239A-1-11-F	0.68	0.11
2016	16N239-A-1-11-N	2.4	0.076
	16N239A-1-11-F	0.99	0.091
2014	14N239A-1-11-N	1.5 J	0.10 J
	14N239A-1-11-F	0.67	0.12

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- TCE Detected Above Indoor Air Screening Level in January 2017
- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 25 50 100

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

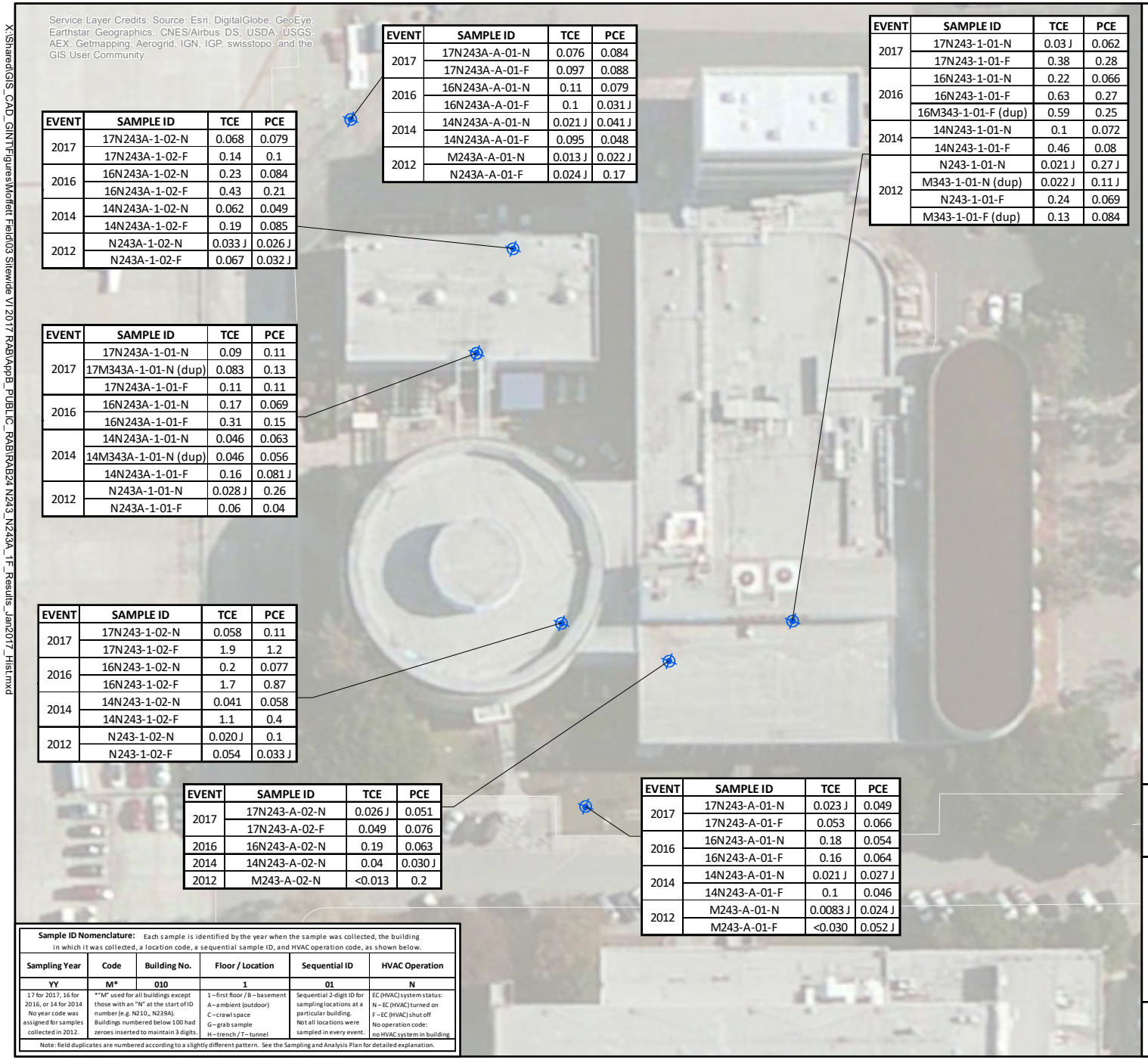
IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B23

BUILDING N239A - FIRST FLOOR AND BASEMENT INDOOR AIR SAMPLING LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009



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EVENT	SAMPLE ID	TCE	PCE
2017	17N243A-1-02-N	0.068	0.079
	17N243A-1-02-F	0.14	0.1
2016	16N243A-1-02-N	0.23	0.084
	16N243A-1-02-F	0.43	0.21
2014	14N243A-1-02-N	0.062	0.049
	14N243A-1-02-F	0.19	0.085
2012	N243A-1-02-N	0.033 J	0.026 J
	N243A-1-02-F	0.067	0.032 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N243A-1-01-N	0.09	0.11
	17M343A-1-01-N (dup)	0.083	0.13
	17N243A-1-01-F	0.11	0.11
2016	16N243A-1-01-N	0.17	0.069
	16N243A-1-01-F	0.31	0.15
2014	14N243A-1-01-N	0.046	0.063
	14M343A-1-01-N (dup)	0.046	0.056
	14N243A-1-01-F	0.16	0.081 J
2012	N243A-1-01-N	0.028 J	0.26
	N243A-1-01-F	0.06	0.04

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-1-02-N	0.058	0.11
	17N243-1-02-F	1.9	1.2
2016	16N243-1-02-N	0.2	0.077
	16N243-1-02-F	1.7	0.87
2014	14N243-1-02-N	0.041	0.058
	14N243-1-02-F	1.1	0.4
2012	N243-1-02-N	0.020 J	0.1
	N243-1-02-F	0.054	0.033 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N243A-A-01-N	0.076	0.084
	17N243A-A-01-F	0.097	0.088
2016	16N243A-A-01-N	0.11	0.079
	16N243A-A-01-F	0.1	0.031 J
2014	14N243A-A-01-N	0.021 J	0.041 J
	14N243A-A-01-F	0.095	0.048
2012	M243A-A-01-N	0.013 J	0.022 J
	N243A-A-01-F	0.024 J	0.17

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-1-01-N	0.03 J	0.062
	17N243-1-01-F	0.38	0.28
2016	16N243-1-01-N	0.22	0.066
	16N243-1-01-F	0.63	0.27
	16M343-1-01-F (dup)	0.59	0.25
2014	14N243-1-01-N	0.1	0.072
	14N243-1-01-F	0.46	0.08
2012	N243-1-01-N	0.021 J	0.27 J
	M343-1-01-N (dup)	0.022 J	0.11 J
	N243-1-01-F	0.24	0.069
	M343-1-01-F (dup)	0.13	0.084

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-A-02-N	0.026 J	0.051
	17N243-A-02-F	0.049	0.076
2016	16N243-A-02-N	0.19	0.063
2014	14N243-A-02-N	0.04	0.030 J
2012	M243-A-02-N	<0.013	0.2

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-A-01-N	0.023 J	0.049
	17N243-A-01-F	0.053	0.066
2016	16N243-A-01-N	0.18	0.054
	16N243-A-01-F	0.16	0.064
2014	14N243-A-01-N	0.021 J	0.027 J
	14N243-A-01-F	0.1	0.046
2012	M243-A-01-N	0.0083 J	0.024 J
	M243-A-01-F	<0.030	0.052 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted if present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 30 60 120

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B24

BUILDINGS N243 AND N423A
FIRST FLOOR INDOOR AIR SAMPLING
LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

X:\Shared\GIS_CAD_GIN\Figures\Moffett Field\003 Sitewide VI 2017 RAB\AppB_PUBLIC_RAB\RAB25 N243_N243A_Bsmt_Results_Jan2017_Hist.mxd

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-B-07-N	0.45	0.32
	17N243-B-07-F	0.75	0.44
	17M343-B-07-F (dup)	0.81	0.44
2016	16N243-B-07-N	0.34	0.094
2014	14N243-B-07-F	0.35	0.1
2012	N243-B-07-N	0.6	0.35

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-B-06-N	0.37	0.18
	17N243-B-06-F	1.2	0.59
2016	16N243-B-06-N	0.71	0.2
	16N243-B-06-F	0.68	0.26
2014	14N243-B-06-N	0.84	0.037
	14M343-B-06-F (dup)	1.3	0.32
	14N243-B-06-F	1.3	0.32
2012	N243-B-06-N	0.027 J	0.033 J
	N243-B-06-F	1.6	0.21

EVENT	SAMPLE ID	TCE	PCE
2017	17N243A-B-01-N	0.082	0.1
	17N243A-B-01-F	0.12	0.11
2016	16N243A-B-01-N	0.2	0.082
	16N243A-B-01-F	0.33	0.16
2014	14N243A-B-01-F	0.15	0.072
	14N243A-B-01-N	0.053	0.053
2012	N243A-B-01-N	0.047 J	0.1
	M343A-B-01-N (dup)	0.043 J	0.098
	N243A-B-01-F	0.061	0.15
	M343A-B-01-F (dup)	0.062	0.15

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-B-04-N	0.065	0.21
	17N243-B-04-F	0.68	0.87
2016	16N243-B-04-N	0.21	0.082
	16N243-B-04-F	0.61	0.33
2014	14N243-B-04-N	0.039 J	0.043 J
	14N243-B-04-F	0.93	0.36
2012	N243-B-04-N	0.015 J	0.023 J
	N243-B-04-F	0.042 J	0.030 J

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-B-03-F	0.05	0.075
2016	16N243-B-03-F	0.12	0.053
2014	14N243-B-03-F	0.11	0.058
2012	N243-B-03-N	0.0075 J	0.066 J
	M343-B-03-N (dup)	0.0075 J	0.022 J
	N243-B-03-F	0.022 J	0.14

EVENT	SAMPLE ID	TCE	PCE
2017	17N243-B-02-N	0.12	0.061
	17N243-B-02-F	0.077	0.083
2016	16N243-B-02-N	0.21	0.07
	16N243-B-02-F	0.52	0.36
2014	14N243-B-02-N	0.085	0.074
	14N243-B-02-F	0.26	0.075
2012	N243-B-02-N	0.023 J	0.079
	N243-B-02-F	0.041 J	0.032 J

Sample ID Nomenclature: Each sample is identified by the year when the sample was collected, the building in which it was collected, a location code, a sequential sample ID, and HVAC operation code, as shown below.

Sampling Year	Code	Building No.	Floor / Location	Sequential ID	HVAC Operation
YY	M*	010	1	01	N
17 for 2017, 16 for 2016, or 14 for 2014 No year code was assigned for samples collected in 2012.	*"M" used for all buildings except those with an "N" at the start of ID number (e.g. N210_, N239A). Buildings numbered below 100 had zeroes inserted to maintain 3 digits.		1 – first floor / B – basement A – ambient (outdoor) C – crawl space G – grab sample H – trench / T – tunnel	Sequential 2-digit ID for sampling locations at a particular building. Not all locations were sampled in every event.	EC (HVAC) system status: N – EC (HVAC) turned on F – EC (HVAC) shut off No operation code: no HVAC system in building

Note: field duplicates are numbered according to a slightly different pattern. See the Sampling and Analysis Plan for detailed explanation.

LEGEND

- Air Sampling Location
- Curb Line

NOTES:

Indoor air sampling conducted January 2017. In buildings with HVAC systems, air was sampled with the system turned on and with it off.

Samples were collected on the first floor, and in basements or crawl spaces where applicable. Ambient (outdoor) air was sampled in selected areas. See table at lower left for explanation of sample ID nomenclature.

TCE and PCE concentrations in air samples are in µg/m^3. Concentrations exceeding indoor air screening levels are highlighted where present.

EC - Engineering Control
HVAC - Heating, Ventilation and Air Conditioning
PCE - Tetrachloroethene
TCE - Trichloroethene
µg/m^3 - micrograms per cubic meter

N

0 30 60 120

Feet

DEPARTMENT OF THE NAVY — SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

IR SITE 28
FORMER NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

FIGURE B25

BUILDINGS N243 AND N243A
BASEMENT INDOOR AIR SAMPLING
LOCATIONS AND TCE RESULTS

NOREAS Environmental Engineering and Science

DATE: JULY 2017
CONTRACT NO.: N62473-16-C-2003
DELIVERY ORDER NO.: 0000
DCN: NRS-2003-0000-0009

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APPENDIX C

LABORATORY ANALYTICAL REPORTS

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LABORATORY REPORT

January 29, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 16, 2017. For your reference, these analyses have been assigned our service request number P1700163.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 11:40 am, Jan 29, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700163

CASE NARRATIVE

The samples were received intact under chain of custody on January 16, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS
Service Request: P1700163
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/16/2017
Time Received: 09:50

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
17M003-1-01-N	P1700163-001	Air	1/10/2017	07:09	AC00748	0.18	3.53	X
17M003-1-02-N	P1700163-002	Air	1/10/2017	07:20	AS00924	-2.56	3.63	X
17M003-1-03-N	P1700163-003	Air	1/10/2017	07:10	SC02174	-3.22	3.69	X
17M003-1-04-N	P1700163-004	Air	1/10/2017	07:05	AS00925	-3.33	3.81	X
17M003-1-07-N	P1700163-005	Air	1/10/2017	07:12	AC01939	-3.05	3.60	X
17M003-1-08-N	P1700163-006	Air	1/10/2017	07:07	AS00438	-1.47	3.75	X
17M003-1-09-N	P1700163-007	Air	1/10/2017	07:06	AC01251	-3.17	3.71	X
17M303-1-07-N	P1700163-008	Air	1/10/2017	07:11	AC02223	-3.34	3.92	X
17M003-A-01-N	P1700163-009	Air	1/10/2017	07:23	AS00310	-0.08	4.26	X
17M012-1-01-N	P1700163-010	Air	1/10/2017	07:38	AC02119	-2.86	3.84	X
17M012-A-01-N	P1700163-011	Air	1/10/2017	07:42	AS00098	-0.04	3.90	X
17M012-1-03-N	P1700163-012	Air	1/10/2017	07:43	AS01079	-0.82	3.78	X
17N239A-B-01-N	P1700163-013	Air	1/10/2017	08:27	AC00584	-0.92	3.85	X
17N239A-1-09-N	P1700163-014	Air	1/10/2017	08:55	AC01584	-2.33	3.53	X
17N239A-1-03-N	P1700163-015	Air	1/10/2017	08:34	AC01590	-0.87	3.53	X
17N239A-1-05-N	P1700163-016	Air	1/10/2017	08:33	AC01093	-3.01	3.82	X
17N239A-1-06-N	P1700163-017	Air	1/10/2017	08:30	AS00851	-0.70	3.72	X
17N239A-1-08-N	P1700163-018	Air	1/10/2017	08:53	AS00857	0.26	3.52	X
17N239A-1-10-N	P1700163-019	Air	1/10/2017	08:57	AC02164	-2.42	4.00	X
17N239A-1-11-N	P1700163-020	Air	1/10/2017	08:29	AC01250	-1.82	3.80	X
17M339A-1-10-N	P1700163-021	Air	1/10/2017	08:58	AS00898	0.39	3.57	X
17M015-1-01-N	P1700163-022	Air	1/10/2017	07:52	AC01659	-7.33	4.83	X
17M015-1-03-N	P1700163-023	Air	1/10/2017	07:51	AC02178	-5.23	3.88	X
17M015-1-06-N	P1700163-024	Air	1/10/2017	07:54	AS00947	-3.20	3.76	X
17M015-1-02-N	P1700163-025	Air	1/10/2017	07:56	AS00772	-2.57	3.58	X

Revised COC 002 SKA 1/31/2017 *

N REAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 002
PAGE 1 of 2

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1708163
Project Location: Mcfiett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@NOREASINC.COM			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@NOREASINC.CO			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	PCB (TO-10A/TO-15)	VOC (TO-15 FULL)
1	17M0003-1-01-N	02376	FCA00960	1/10/17	0709	-29.35	-0.41	6L	10-hr	X				
2	17M0003-1-02-N	20452	FCA00894	1/10/17	0720	-30.41	-5.98	6L	10-hr	X				
3	17M0003-1-03-N	3555	FCA00965	1/10/17	0710	-29.79	-7.26	6L	10-hr	X				X
4	17M0003-1-04-N	20415	FCA00787	1/10/17	0705	-30.23	-7.51	6L	10-hr	X				
5	17M0003-1-07-N	13238	FCA00904	1/10/17	0712	-30.18	-6.93	6L	10-hr	X				X
6	17M0003-1-08-N	14212	FCA00880	1/10/17	0707	-30.26	-3.59	6L	10-hr	X				
7	17M0003-1-09-N	AC01251	F214111	1/10/17	0706	-30.17	-7.11	6L	10 hr	X				
8	17M303-1-07-N	16204	FCA00597	1/10/17	0711	-30.22	-7.47	6L	10-hr	X				
9	17M003-A-01-N	13682	FCA00952	1/10/17	0723	-30.23	-0.92	6L	24-hr	X				
10	17M0012-1-01-N	AC02119	FCA00993	1/10/17	0738	-30.17	-6.59	6L	24-hr	X				
11	17M012-A-01-N	5009	FCA00786	1/10/17	0742	-30.22	-0.78	6L	24-hr	X				
12	17M0012-1-03-N	19037	FCA00471	1/10/17	0743	-30.28	-2.38	6L	24-hr	X				

5 of 213

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016). Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: 24 HR 48 HR 72 HR X STANDARD OR _____

Sampler(s) Name(s):

Relinquished By (signature):	Date	Received By (signature)	Date 1/16/17
Company	Time	Company	Time 0950
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: Intact Broken

Custody Seal: Intact Broken Absent

* Please remove extra "0" from sample ID SKA

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 002
PAGE 2 of 3

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1700163
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@NOREASINC.COM			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@NOREASINC.CC			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M590	QC Level IV
13	17N239A-B-01-N	02000	FCA00837	1/10/17	0827	-30.4	-2.64	6L	24-hr	X				
14	17N239A-1-09-N	4290	FCA00630	1/10/17	0855	-30.05	-5.94	6L	24-hr	X				
15	17N239A-1-03-N	4293	FCA00757	1/10/17	0834	-30.04	-2.59	6L	24-hr	X				X
16	17N239A-1-05-N	2879	FCA00417	1/10/17	0833	-30.45	-6.89	6L	24-hr	X				
17	17N239A-1-06-N	17630	FCA00973	1/10/17	0830	-30.3	-2.19	6L	24-hr	X				
18	17N239A-1-08-N	17614	FCA01070	1/10/17	0853	-30.35	-0.57	6L	24-hr	X				
19	17N239A-1-10-N	2164	FCA00704	1/10/17	0857	-30.45	-6.09	6L	24-hr	X				X
20	17N239A-1-11-N	3285	FCA00809	1/10/17	0829	-30.45	-4.53	6L	24-hr	X				
21	17M339A-1-10-N	19145	FCA00569	1/10/17	0858	-30.05	-0.49	6L	24-hr	X				
22	17M015-1-01-N	4369	FCA00631	1/10/17	0752	-30.08	-15.76	6L	24-hr	X				
23	17M015-1-03-N	11583	FCA00460	1/10/17	0751	-30.2	-11.49	6L	24-hr	X				
24	17M015-1-06-N	20405	FCA00731	1/10/17	0754	-30.2	-7.42	6L	24-hr	X				

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/13/17	Received By (signature) 1/16/17	Date 0950
Company NOREAS	Time 1600	Company	Time
Relinquished By (signature):	Date	Received By (signature) KK 1/17/17 @ 0939	Date
Company	Time	Company	Time

Samples -014, -017, -019 & -020 were received on 1/17/17. KK

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 002
PAGE 3 of 3

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1700163
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@NOREASINC.COM			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@NOREASINC.CO			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
25	17M015-1-02-N	17031	FCA01087	1/10/17	0756	-30.18	-6.03	6L	24-hr	X				X

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Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/13/17	Received By (signature)	Date 1/16/17
Company NOREAS	Time 1000	Company	Time 0950
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700163

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/16 - 17/17 Date opened: 1/16 - 17/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700163-001.01	6.0 L Ambient Can					AC00748 / Asset Tag#02376
P1700163-002.01	6.0 L Silonite Can					AS00924 / S/N 20452
P1700163-003.01	6.0 L Source Can					SC02174 / Asset Tag #3555
P1700163-004.01	6.0 L Silonite Can					AS00925 / S/N 20415
P1700163-005.01	6.0 L Ambient Can					AC01939 / S/N 13238
P1700163-006.01	6.0 L Silonite Can					AS00438 / S/N 14212
P1700163-007.01	6.0 L Ambient Can					AC01251
P1700163-008.01	6.0 L Ambient Can					AC02233 / S/N 16204
P1700163-009.01	6.0 L Silonite Can					AS00310 / S/N 13682
P1700163-010.01	6.0 L Ambient Can					AC02119
P1700163-011.01	6.0 L Silonite Can					AS00098 / S/N 5009
P1700163-012.01	6.0 L Silonite Can					AS01079 / S/N 19037
P1700163-013.01	6.0 L Ambient Can					AS00584 / Asset Tag #02000
P1700163-014.01	6.0 L Ambient Can					AC01584 / Asset Tag #4290
P1700163-015.01	6.0 L Ambient Can					AC01590 / Asset Tag #4293

Explain any discrepancies: (include lab sample ID numbers):

Samples -001 thru -013, -015, -016, -018, -021 thru -025 were received on 1/16/17; Samples -014, -017, -019 & -020 were received on 1/17/17.

Note: Sample ID for -009 is 17M003-A-01-N per client e-mail instructions.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700163

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/16 - 17/17 Date opened: 1/16 - 17/17 by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700163-016.01	6.0 L Ambient Can					AC01093 / Asset Tag #2879
P1700163-017.01	6.0 L Silonite Can					AS00851 / S/N 17630
P1700163-018.01	6.0 L Silonite Can					AS00857 / S/N 17614
P1700163-019.01	6.0 L Ambient Can					AC02164 / Can ID 2164
P1700163-020.01	6.0 L Ambient Can					AC01250 / Asset Tag #3389*
P1700163-021.01	6.0 L Silonite Can					AS00898 / S/N 19145
P1700163-022.01	6.0 L Ambient Can					AC01659 / Asset Tag #4369
P1700163-023.01	6.0 L Ambient Can					AC02178 / S/N 11583
P1700163-024.01	6.0 L Silonite Can					AS00947 / S/N 20405
P1700163-025.01	6.0 L Silonite Can					AS00772 / S/N 17031

Explain any discrepancies: (include lab sample ID numbers):

*Note the reference in the Canister ID column for sample -020 did not match the can ID or Asset Tag number. The correct ones are noted above and the sample tag attached to the can matched the COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-001

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00748
Initial Pressure (psig): 0.18 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.020**	0.031	0.025	0.0093	**J**
75-35-4	1,1-Dichloroethene	**0.012**	0.031	0.026	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.027**	0.031	0.026	0.0090	**J**
75-34-3	1,1-Dichloroethane	**0.023**	0.031	0.025	0.0075	**J**
156-59-2	cis-1,2-Dichloroethene	**0.037**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**0.15**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.073**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-02-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-002

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00924
Initial Pressure (psig): -2.56 Final Pressure (psig): 3.63

Canister Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	0.032	0.038	0.032	0.011	**U**
75-34-3	1,1-Dichloroethane	0.030	0.038	0.030	0.0092	**U**
156-59-2	cis-1,2-Dichloroethene	**0.016**	0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.23**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.045**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-03-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-003

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC02174
Initial Pressure (psig): -3.22 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.040	0.032	0.012	**J**
75-35-4	1,1-Dichloroethene	0.034	0.040	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.040	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.015**	0.040	0.032	0.0098	**J**
156-59-2	cis-1,2-Dichloroethene	**0.021**	0.040	0.034	0.015	**J**
79-01-6	Trichloroethene	**0.19**	0.040	0.034	0.014	
127-18-4	Tetrachloroethene	**0.055**	0.040	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-04-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-004

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00925
Initial Pressure (psig): -3.33 Final Pressure (psig): 3.81

Canister Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.015**	0.041	0.033	0.012	**J**
75-35-4	1,1-Dichloroethene	0.034	0.041	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.041	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.013**	0.041	0.033	0.0099	**J**
156-59-2	cis-1,2-Dichloroethene	**0.023**	0.041	0.034	0.015	**J**
79-01-6	Trichloroethene	**0.34**	0.041	0.034	0.014	
127-18-4	Tetrachloroethene	**0.042**	0.041	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-07-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-005

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01939
Initial Pressure (psig): -3.05 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.023**	0.039	0.031	0.012	**J**
75-35-4	1,1-Dichloroethene	0.033	0.039	0.033	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.033	0.039	0.033	0.011	**U**
75-34-3	1,1-Dichloroethane	0.031	0.039	0.031	0.0096	**U**
156-59-2	cis-1,2-Dichloroethene	**0.023**	0.039	0.033	0.014	**J**
79-01-6	Trichloroethene	**0.26**	0.039	0.033	0.013	
127-18-4	Tetrachloroethene	**0.047**	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-08-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-006

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00438
Initial Pressure (psig): -1.47 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.017**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.029	0.035	0.029	0.010	**U**
75-34-3	1,1-Dichloroethane	**0.014**	0.035	0.028	0.0085	**J**
156-59-2	cis-1,2-Dichloroethene	**0.046**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.79**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.050**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-09-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-007

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01251
Initial Pressure (psig): -3.17 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.029**	0.040	0.032	0.012	**J**
75-35-4	1,1-Dichloroethene	0.034	0.040	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.040	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	0.032	0.040	0.032	0.0098	**U**
156-59-2	cis-1,2-Dichloroethene	0.034	0.040	0.034	0.015	**U**
79-01-6	Trichloroethene	**0.096**	0.040	0.034	0.014	
127-18-4	Tetrachloroethene	**0.046**	0.040	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M303-1-07-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-008

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02223

Initial Pressure (psig): -3.34 Final Pressure (psig): 3.92

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.023**	0.041	0.033	0.012	**J**
75-35-4	1,1-Dichloroethene	0.034	0.041	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.041	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	0.033	0.041	0.033	0.010	**U**
156-59-2	cis-1,2-Dichloroethene	**0.023**	0.041	0.034	0.015	**J**
79-01-6	Trichloroethene	**0.26**	0.041	0.034	0.014	
127-18-4	Tetrachloroethene	**0.048**	0.041	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-A-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-009

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00310
Initial Pressure (psig): -0.08 Final Pressure (psig): 4.26

Canister Dilution Factor: 1.30

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.0099	**U**
75-35-4	1,1-Dichloroethene	0.027	0.033	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	0.027	0.033	0.027	0.0095	**U**
75-34-3	1,1-Dichloroethane	**0.014**	0.033	0.026	0.0079	**J**
156-59-2	cis-1,2-Dichloroethene	0.027	0.033	0.027	0.012	**U**
79-01-6	Trichloroethene	**0.087**	0.033	0.027	0.011	
127-18-4	Tetrachloroethene	**0.039**	0.033	0.027	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-010

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02119

Initial Pressure (psig): -2.86 Final Pressure (psig): 3.84

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.031	0.039	0.031	0.012	**U**
75-35-4	1,1-Dichloroethene	0.033	0.039	0.033	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.033	0.039	0.033	0.011	**U**
75-34-3	1,1-Dichloroethane	0.031	0.039	0.031	0.0096	**U**
156-59-2	cis-1,2-Dichloroethene	**0.015**	0.039	0.033	0.014	**J**
79-01-6	Trichloroethene	**0.17**	0.039	0.033	0.013	
127-18-4	Tetrachloroethene	**0.063**	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-A-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-011

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00098

Initial Pressure (psig): -0.04 Final Pressure (psig): 3.90

Canister Dilution Factor: 1.27

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0097	**U**
75-35-4	1,1-Dichloroethene	0.027	0.032	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	0.027	0.032	0.027	0.0093	**U**
75-34-3	1,1-Dichloroethane	0.025	0.032	0.025	0.0077	**U**
156-59-2	cis-1,2-Dichloroethene	0.027	0.032	0.027	0.012	**U**
79-01-6	Trichloroethene	**0.086**	0.032	0.027	0.011	
127-18-4	Tetrachloroethene	**0.034**	0.032	0.027	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-03-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-012

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01079

Initial Pressure (psig): -0.82 Final Pressure (psig): 3.78

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	0.028	0.033	0.028	0.0097	**U**
75-34-3	1,1-Dichloroethane	0.027	0.033	0.027	0.0081	**U**
156-59-2	cis-1,2-Dichloroethene	**0.014**	0.033	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.068**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.061**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-B-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-013

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00584
Initial Pressure (psig): -0.92 Final Pressure (psig): 3.85

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.034	0.027	0.010	**J**
75-35-4	1,1-Dichloroethene	**0.013**	0.034	0.028	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.013**	0.034	0.028	0.0099	**J**
75-34-3	1,1-Dichloroethane	**0.018**	0.034	0.027	0.0082	**J**
156-59-2	cis-1,2-Dichloroethene	**0.24**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**0.73**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.045**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-09-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-014

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01584
Initial Pressure (psig): -2.33 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.013**	0.037	0.031	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.029**	0.037	0.031	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.026**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.20**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.47**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.038**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-03-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-015

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01590
Initial Pressure (psig): -0.87 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.085**	0.033	0.026	0.010	
75-35-4	1,1-Dichloroethene	**0.075**	0.033	0.028	0.011	
156-60-5	trans-1,2-Dichloroethene	**0.025**	0.033	0.028	0.0096	**J**
75-34-3	1,1-Dichloroethane	**0.055**	0.033	0.026	0.0081	
156-59-2	cis-1,2-Dichloroethene	**1.4**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**3.6**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.069**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-05-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-016

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01093
Initial Pressure (psig): -3.01 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.023**	0.040	0.032	0.012	**J**
75-35-4	1,1-Dichloroethene	**0.019**	0.040	0.033	0.014	**J**
156-60-5	trans-1,2-Dichloroethene	0.033	0.040	0.033	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.018**	0.040	0.032	0.0096	**J**
156-59-2	cis-1,2-Dichloroethene	**0.36**	0.040	0.033	0.015	
79-01-6	Trichloroethene	**0.92**	0.040	0.033	0.013	
127-18-4	Tetrachloroethene	**0.035**	0.040	0.033	0.013	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-06-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-017

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00851

Initial Pressure (psig): -0.70 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.18**	0.033	0.026	0.010	
75-35-4	1,1-Dichloroethene	**0.16**	0.033	0.028	0.011	
156-60-5	trans-1,2-Dichloroethene	**0.039**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	**0.11**	0.033	0.026	0.0081	
156-59-2	cis-1,2-Dichloroethene	**3.1**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**7.0**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.050**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-08-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-018

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00857
Initial Pressure (psig): 0.26 Final Pressure (psig): 3.52

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.031	0.024	0.0093	**J**
75-35-4	1,1-Dichloroethene	**0.012**	0.031	0.026	0.010	**J**
156-60-5	trans-1,2-Dichloroethene	**0.014**	0.031	0.026	0.0089	**J**
75-34-3	1,1-Dichloroethane	**0.018**	0.031	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.26**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**3.3**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.048**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-10-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-019

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02164
Initial Pressure (psig): -2.42 Final Pressure (psig): 4.00

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.29**	0.038	0.030	0.012	
75-35-4	1,1-Dichloroethene	**0.27**	0.038	0.032	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.068**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.20**	0.038	0.030	0.0093	
156-59-2	cis-1,2-Dichloroethene	**5.4**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**12**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.19**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-11-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-020

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01250
Initial Pressure (psig): -1.82 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.22**	0.036	0.029	0.011	
75-35-4	1,1-Dichloroethene	**0.19**	0.036	0.030	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.050**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.13**	0.036	0.029	0.0088	
156-59-2	cis-1,2-Dichloroethene	**3.7**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**8.8**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.074**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M339A-1-10-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-021

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00898
Initial Pressure (psig): 0.39 Final Pressure (psig): 3.57

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.29**	0.030	0.024	0.0092	
75-35-4	1,1-Dichloroethene	**0.25**	0.030	0.025	0.010	
156-60-5	trans-1,2-Dichloroethene	**0.067**	0.030	0.025	0.0088	
75-34-3	1,1-Dichloroethane	**0.18**	0.030	0.024	0.0074	
156-59-2	cis-1,2-Dichloroethene	**5.2**	0.030	0.025	0.011	
79-01-6	Trichloroethene	**13**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.24**	0.030	0.025	0.0099	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-01-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-022

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01659

Initial Pressure (psig): -7.33 Final Pressure (psig): 4.83

Canister Dilution Factor: 2.65

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.053	0.066	0.053	0.020	**U**
75-35-4	1,1-Dichloroethene	0.056	0.066	0.056	0.023	**U**
156-60-5	trans-1,2-Dichloroethene	0.056	0.066	0.056	0.019	**U**
75-34-3	1,1-Dichloroethane	**0.024**	0.066	0.053	0.016	**J**
156-59-2	cis-1,2-Dichloroethene	0.056	0.066	0.056	0.024	**U**
79-01-6	Trichloroethene	**0.071**	0.066	0.056	0.023	
127-18-4	Tetrachloroethene	**0.030**	0.066	0.056	0.022	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-03-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-023

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02178
Initial Pressure (psig): -5.23 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.96

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.039	0.049	0.039	0.015	**U**
75-35-4	1,1-Dichloroethene	0.041	0.049	0.041	0.017	**U**
156-60-5	trans-1,2-Dichloroethene	0.041	0.049	0.041	0.014	**U**
75-34-3	1,1-Dichloroethane	0.039	0.049	0.039	0.012	**U**
156-59-2	cis-1,2-Dichloroethene	0.041	0.049	0.041	0.018	**U**
79-01-6	Trichloroethene	**0.073**	0.049	0.041	0.017	
127-18-4	Tetrachloroethene	**0.033**	0.049	0.041	0.016	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-06-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-024

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00947

Initial Pressure (psig): -3.20 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.032	0.040	0.032	0.012	**U**
75-35-4	1,1-Dichloroethene	0.034	0.040	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.013**	0.040	0.034	0.012	**J**
75-34-3	1,1-Dichloroethane	0.032	0.040	0.032	0.0098	**U**
156-59-2	cis-1,2-Dichloroethene	0.034	0.040	0.034	0.015	**U**
79-01-6	Trichloroethene	**0.081**	0.040	0.034	0.014	
127-18-4	Tetrachloroethene	**0.040**	0.040	0.034	0.013	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-02-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-025

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00772
Initial Pressure (psig): -2.57 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	0.032	0.038	0.032	0.011	**U**
75-34-3	1,1-Dichloroethane	**0.0093**	0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	0.032	0.038	0.032	0.014	**U**
79-01-6	Trichloroethene	**0.15**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.032**	0.038	0.032	0.012	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170119-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170120-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700163

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/10/17
Analyst: Cory Lewis Date(s) Received: 1/16 - 1/17/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/19 - 1/20/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170119-MB	**97**	**101**	**101**	70-130	
Method Blank	P170120-MB	**97**	**102**	**98**	70-130	
Lab Control Sample	P170119-LCS	**97**	**97**	**110**	70-130	
Lab Control Sample	P170120-LCS	**97**	**97**	**108**	70-130	
17M003-1-01-N	P1700163-001	**97**	**102**	**113**	70-130	
17M003-1-02-N	P1700163-002	**99**	**103**	**111**	70-130	
17M003-1-03-N	P1700163-003	**98**	**103**	**113**	70-130	
17M003-1-04-N	P1700163-004	**98**	**103**	**112**	70-130	
17M003-1-07-N	P1700163-005	**99**	**103**	**114**	70-130	
17M003-1-08-N	P1700163-006	**98**	**105**	**113**	70-130	
17M003-1-09-N	P1700163-007	**98**	**103**	**113**	70-130	
17M303-1-07-N	P1700163-008	**99**	**103**	**112**	70-130	
17M003-A-01-N	P1700163-009	**100**	**104**	**114**	70-130	
17M012-1-01-N	P1700163-010	**98**	**102**	**112**	70-130	
17M012-A-01-N	P1700163-011	**98**	**103**	**114**	70-130	
17M012-1-03-N	P1700163-012	**97**	**104**	**113**	70-130	
17M012-1-03-N	P1700163-012DUP	**98**	**104**	**113**	70-130	
17N239A-B-01-N	P1700163-013	**99**	**104**	**117**	70-130	
17N239A-1-09-N	P1700163-014	**99**	**102**	**114**	70-130	
17N239A-1-03-N	P1700163-015	**99**	**103**	**113**	70-130	
17N239A-1-05-N	P1700163-016	**99**	**104**	**114**	70-130	
17N239A-1-06-N	P1700163-017	**100**	**105**	**115**	70-130	
17N239A-1-08-N	P1700163-018	**97**	**103**	**114**	70-130	
17N239A-1-10-N	P1700163-019	**101**	**103**	**115**	70-130	
17N239A-1-11-N	P1700163-020	**101**	**104**	**109**	70-130	
17M339A-1-10-N	P1700163-021	**102**	**104**	**108**	70-130	
17M015-1-01-N	P1700163-022	**99**	**103**	**109**	70-130	
17M015-1-03-N	P1700163-023	**100**	**106**	**108**	70-130	
17M015-1-06-N	P1700163-024	**99**	**103**	**108**	70-130	
17M015-1-02-N	P1700163-025	**99**	**102**	**107**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170119-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.91**	**93**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.16**	**98**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.20**	**98**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.13**	**97**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.23**	**100**	70-121	
79-01-6	Trichloroethene	4.25	**3.98**	**94**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.96**	**93**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170120-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.82**	**91**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.13**	**97**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.18**	**98**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.20**	**99**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.20**	**99**	70-121	
79-01-6	Trichloroethene	4.25	**3.94**	**93**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.92**	**92**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17M012-1-03-N** ALS Project ID: P1700163
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700163-012DUP

Test Code: EPA TO-15 SIM Date Collected: 1/10/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01079

Initial Pressure (psig): -0.82 Final Pressure (psig): 3.78

Canister Dilution Factor: 1.33

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result **µg/m³**	Duplicate Sample Result ppbV	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	**-**	25	
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	**-**	25	
156-60-5	trans-1,2-Dichloroethene	ND	ND	ND	ND	-	**-**	25	
75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	-	**-**	25	
156-59-2	cis-1,2-Dichloroethene	0.0140	0.00353	0.0132	0.00334	0.0136	**6**	25	**J**
79-01-6	Trichloroethene	0.0681	0.0127	0.0652	0.0121	0.06665	**4**	25	
127-18-4	Tetrachloroethene	0.0610	0.00899	0.0579	0.00854	0.05945	**5**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700163

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01191704.D
Analyst: Cory Lewis Date Analyzed: 1/19/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 05:56
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170119-LCS	01191705.D	06:27
17M003-1-01-N	P1700163-001	01191707.D	08:17
17M003-1-02-N	P1700163-002	01191708.D	08:48
17M003-1-03-N	P1700163-003	01191709.D	09:20
17M003-1-04-N	P1700163-004	01191710.D	09:51
17M003-1-07-N	P1700163-005	01191711.D	10:22
17M003-1-08-N	P1700163-006	01191713.D	11:25
17M003-1-09-N	P1700163-007	01191714.D	11:56
17M303-1-07-N	P1700163-008	01191715.D	12:28
17M003-A-01-N	P1700163-009	01191716.D	12:59
17M012-1-01-N	P1700163-010	01191717.D	13:30
17M012-A-01-N	P1700163-011	01191718.D	14:01
17M012-1-03-N	P1700163-012	01191721.D	15:51
17M012-1-03-N (Lab Duplicate)	P1700163-012DUP	01191722.D	16:22
17N239A-B-01-N	P1700163-013	01191723.D	16:53
17N239A-1-09-N	P1700163-014	01191724.D	17:25
17N239A-1-03-N	P1700163-015	01191725.D	17:56
17N239A-1-05-N	P1700163-016	01191726.D	18:27
17N239A-1-06-N	P1700163-017	01191728.D	19:30
17N239A-1-08-N	P1700163-018	01191729.D	20:01
17N239A-1-10-N	P1700163-019	01191730.D	20:32

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700163

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01201703.D
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:26
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170120-LCS	01201704.D	02:58
17N239A-1-11-N	P1700163-020	01201706.D	20:32
17M339A-1-10-N	P1700163-021	01201707.D	04:32
17M015-1-01-N	P1700163-022	01201708.D	05:04
17M015-1-03-N	P1700163-023	01201709.D	05:36
17M015-1-06-N	P1700163-024	01201710.D	06:07
17M015-1-02-N	P1700163-025	01201711.D	06:39

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700163

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01191703.D

Analyst: Cory Lewis Date Analyzed: 1/19/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 05:24

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	57513		9.76	291707		11.71		45394		16.05	
	Upper Limit	80518		10.09	408390		12.04		63552		16.38	
	Lower Limit	34508		9.43	175024		11.38		27236		15.72	
	Client Sample ID											
01	Method Blank	56285		9.78	259848		11.72		42652		16.06	
02	Lab Control Sample	56636		9.75	287670		11.71		44760		16.05	
03	17M003-1-01-N	56784		9.75	290660		11.71		48569		16.05	
04	17M003-1-02-N	56108		9.76	277798		11.71		45422		16.05	
05	17M003-1-03-N	56665		9.75	291197		11.71		47505		16.05	
06	17M003-1-04-N	58236		9.76	294316		11.71		47878		16.05	
07	17M003-1-07-N	57343		9.76	287353		11.71		46654		16.06	
08	17M003-1-08-N	55661		9.76	278085		11.71		45585		16.05	
09	17M003-1-09-N	56509		9.76	279372		11.71		45766		16.05	
10	17M303-1-07-N	55190		9.76	270787		11.71		44467		16.05	
11	17M003-A-01-N	57063		9.76	291973		11.71		47758		16.05	
12	17M012-1-01-N	58111		9.76	291875		11.71		47962		16.05	
13	17M012-A-01-N	56667		9.76	281222		11.71		46724		16.05	
14	17M012-1-03-N	53193		9.76	260383		11.71		43361		16.05	
15	17M012-1-03-N (Lab Duplicate)	55219		9.76	271632		11.71		45437		16.05	
16	17N239A-B-01-N	59286		9.76	296113		11.71		48401		16.06	
17	17N239A-1-09-N	58812		9.76	304109		11.71		49446		16.05	
18	17N239A-1-03-N	60185		9.75	303686		11.71		49447		16.05	
19	17N239A-1-05-N	58502		9.76	291362		11.71		47847		16.05	
20	17N239A-1-06-N	55324		9.75	280118		11.71		45658		16.05	
21	17N239A-1-08-N	58941		9.77	296512		11.71		47975		16.05	
22	17N239A-1-10-N	59258		9.75	311655		11.71		50528		16.05	

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700163

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01201702.D

Analyst: Cory Lewis Date Analyzed: 1/20/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 01:55

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	55082		9.75	275080		11.71		42790		16.05	
	Upper Limit	77115		10.08	385112		12.04		59906		16.38	
	Lower Limit	33049		9.42	165048		11.38		25674		15.72	
	Client Sample ID											
01	Method Blank	54578		9.78	246137		11.72		40818		16.06	
02	Lab Control Sample	54838		9.76	276607		11.71		43344		16.05	
03	17N239A-1-11-N	52757		9.75	265289		11.71		44451		16.05	
04	17M339A-1-10-N	52911		9.75	269281		11.71		45111		16.05	
05	17M015-1-01-N	54848		9.76	268875		11.71		43838		16.05	
06	17M015-1-03-N	54314		9.76	265324		11.71		43821		16.05	
07	17M015-1-06-N	54858		9.76	271127		11.71		43821		16.05	
08	17M015-1-02-N	55439		9.76	277928		11.71		45229		16.05	
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 12:02:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	56665	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	291197	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	47505	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	95938	977.603 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.76%			
33) Toluene-d8 (SS2)	14.15	98	296544	1025.191 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.52%			
45) Bromofluorobenzene (SS3)	17.55	174	98131	1129.162 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.92%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	202491	1414.514 pg		100
3) Chloromethane	4.62	52	11956	280.337 pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	7995	56.766 pg		99
5) Vinyl Chloride	4.95	62	1362	9.952 pg		95
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.48	94	1188	21.580 pg		96
8) Chloroethane	5.70	64	651	15.461 pg		99
9) Acrolein	6.26	56	16432	549.373 pg		99
10) Acetone	6.40	58	246739	6380.253 pg		100
11) Trichlorofluoromethane	6.60	101	73980	755.585 pg		100
12) 1,1-Dichloroethene	7.35	96	103	N.D.		
13) Methylene Chloride	7.48	84	19017	285.687 pg		93
14) Trichlorotrifluoroethane	7.80	151	18558	303.246 pg		100
15) trans-1,2-Dichloroethene	8.51	96	288	N.D.		
16) 1,1-Dichloroethane	8.73	63	1089	9.282 pg		85
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.60	96	923	13.301 pg		100
19) Chloroform	9.89	83	11846	96.017 pg		99
21) 1,2-Dichloroethane	10.64	62	8668	91.269 pg		100
22) 1,1,1-Trichloroethane	10.91	97	963	8.409 pg		98
23) Benzene	11.37	78	80352	295.604 pg		97
24) Carbon Tetrachloride	11.52	117	25931	281.979 pg		100
26) 1,2-Dichloropropane	12.18	63	1002	13.509 pg		95
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	9031	119.287 pg		99
29) 1,4-Dioxane	12.38	88	1315	23.655 pg		76
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	13.73	75	271	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	145432	538.299 pg		99
35) Dibromochloromethane	14.66	129	194	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	2680	34.141 pg		99
39) Chlorobenzene	16.10	112	957	5.226 pg		76
40) Ethylbenzene	16.48	91	32411	120.018 pg		100
41) m,p-Xylene	16.65	91	84722	418.268 pg		99
42) Styrene	17.01	104	17242	121.500 pg		95
43) o-Xylene	17.12	106	22088	212.269 pg	#	67
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.38	105	12075	56.316 pg		98
47) 1,2,4-Trimethylbenzene	18.77	105	47130	223.941 pg		88
48) 1,3-Dichlorobenzene	18.92	146	267	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	2823	20.962 pg		98
50) 1,2-Dichlorobenzene	19.31	146	539	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	391	5.011 pg		79
53) Naphthalene	21.06	128	119373	481.808 pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 12:02:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

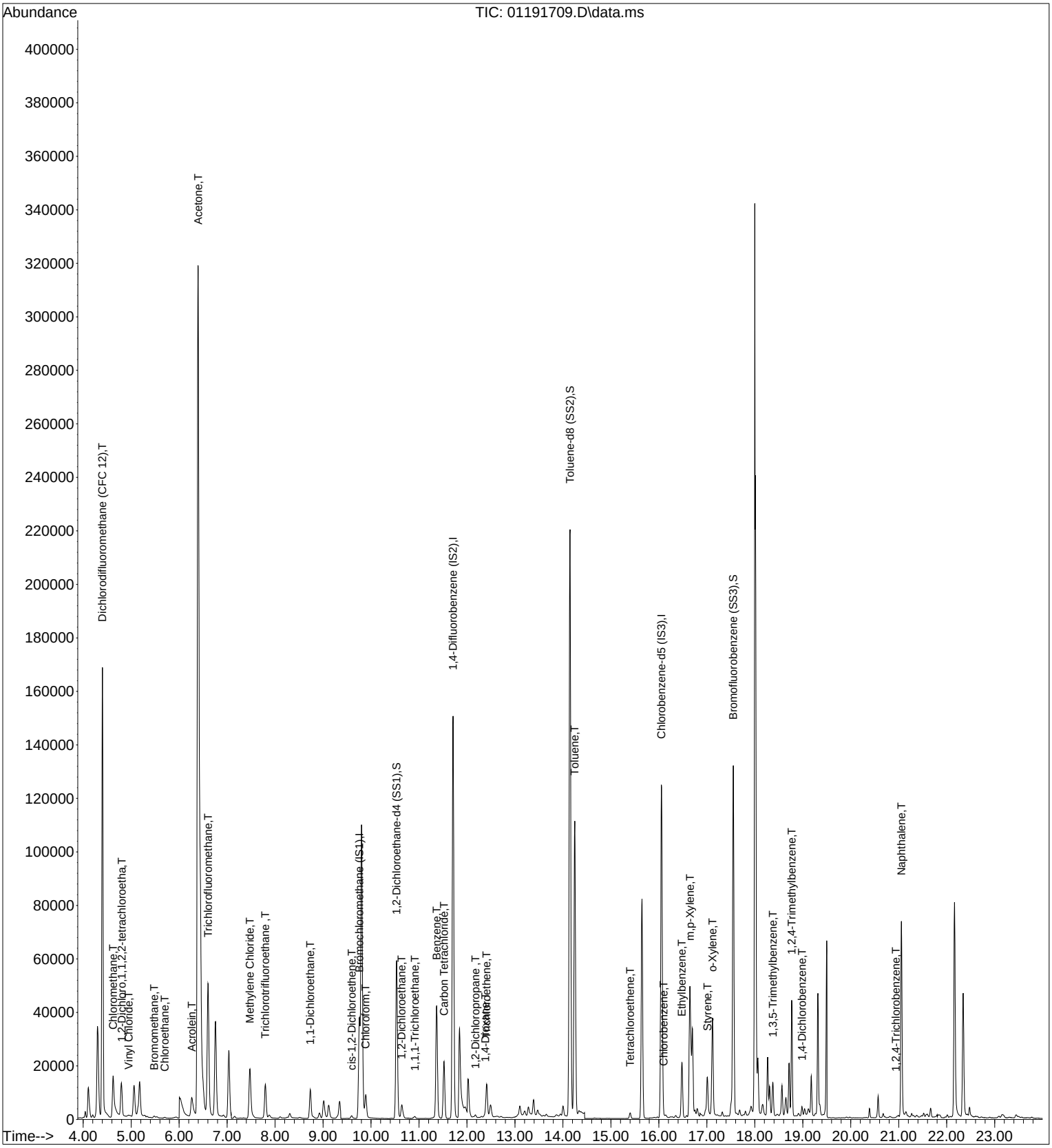
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

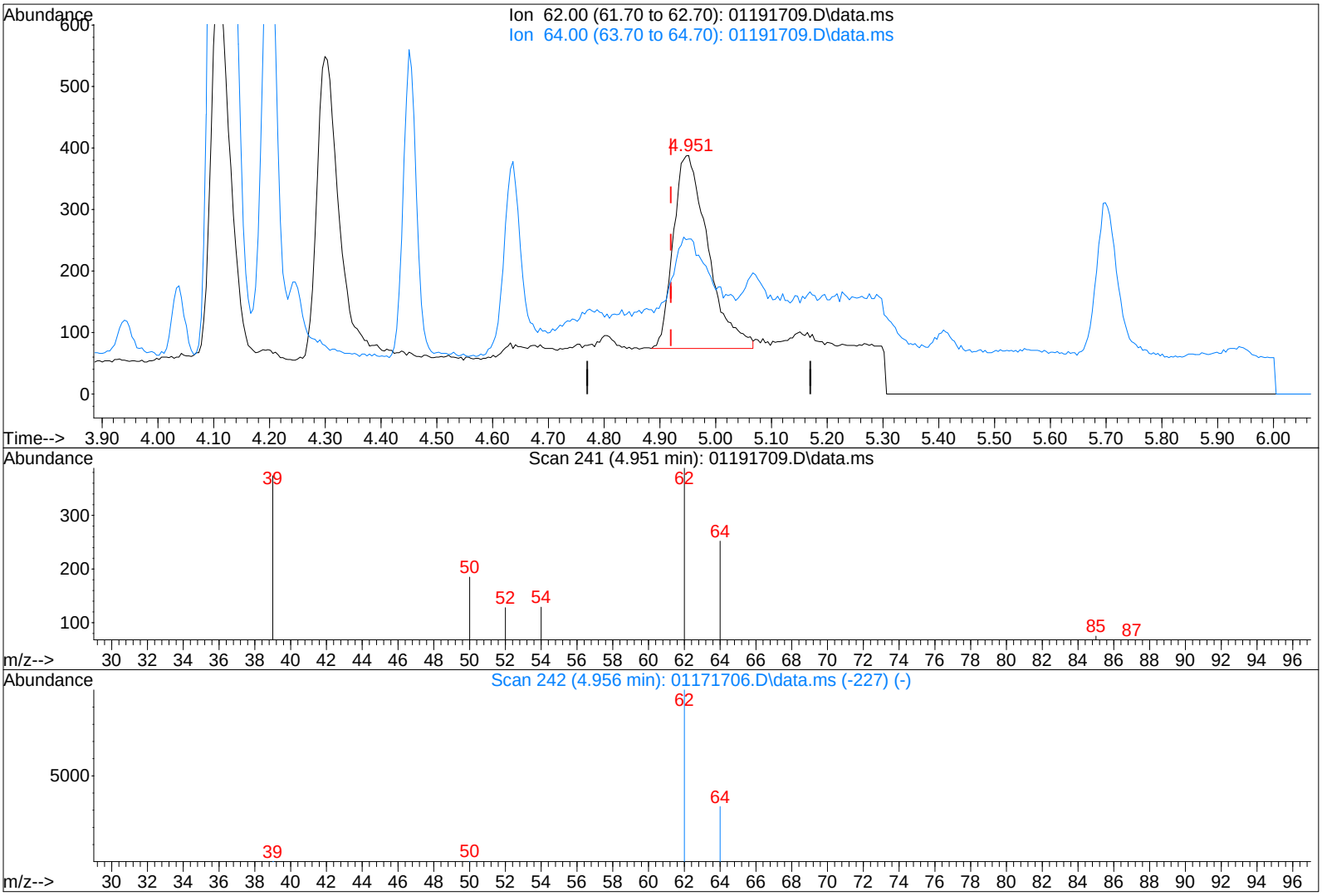
Quant Time: Jan 19 12:02:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 09:56:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191709.D\data.ms

(5) Vinyl Chloride (T)

4.951min (+0.031) 9.95pg

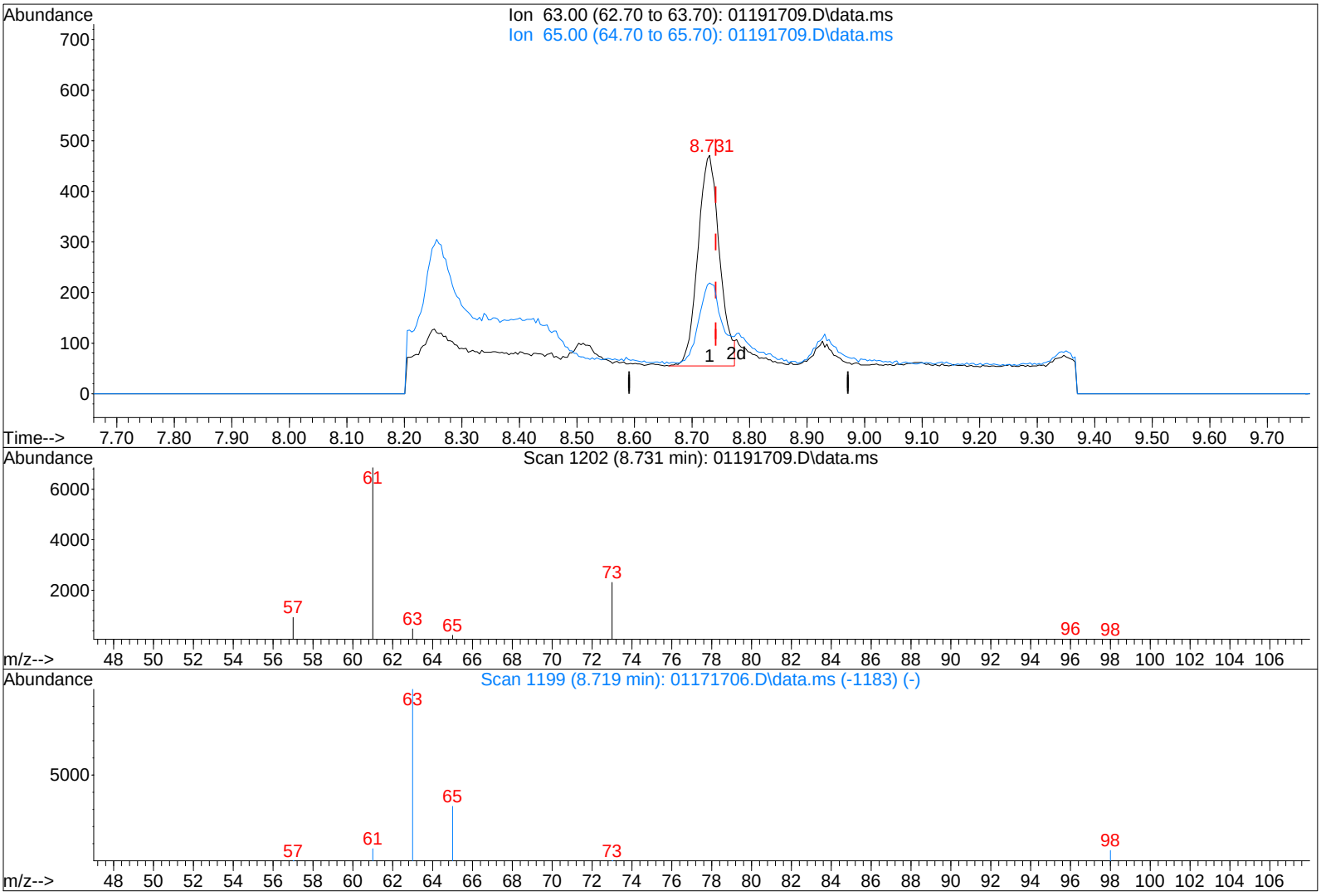
response 1362

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	34.43
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 09:56:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191709.D\data.ms

(16) 1,1-Dichloroethane (T)

8.731min (-0.010) 9.28pg

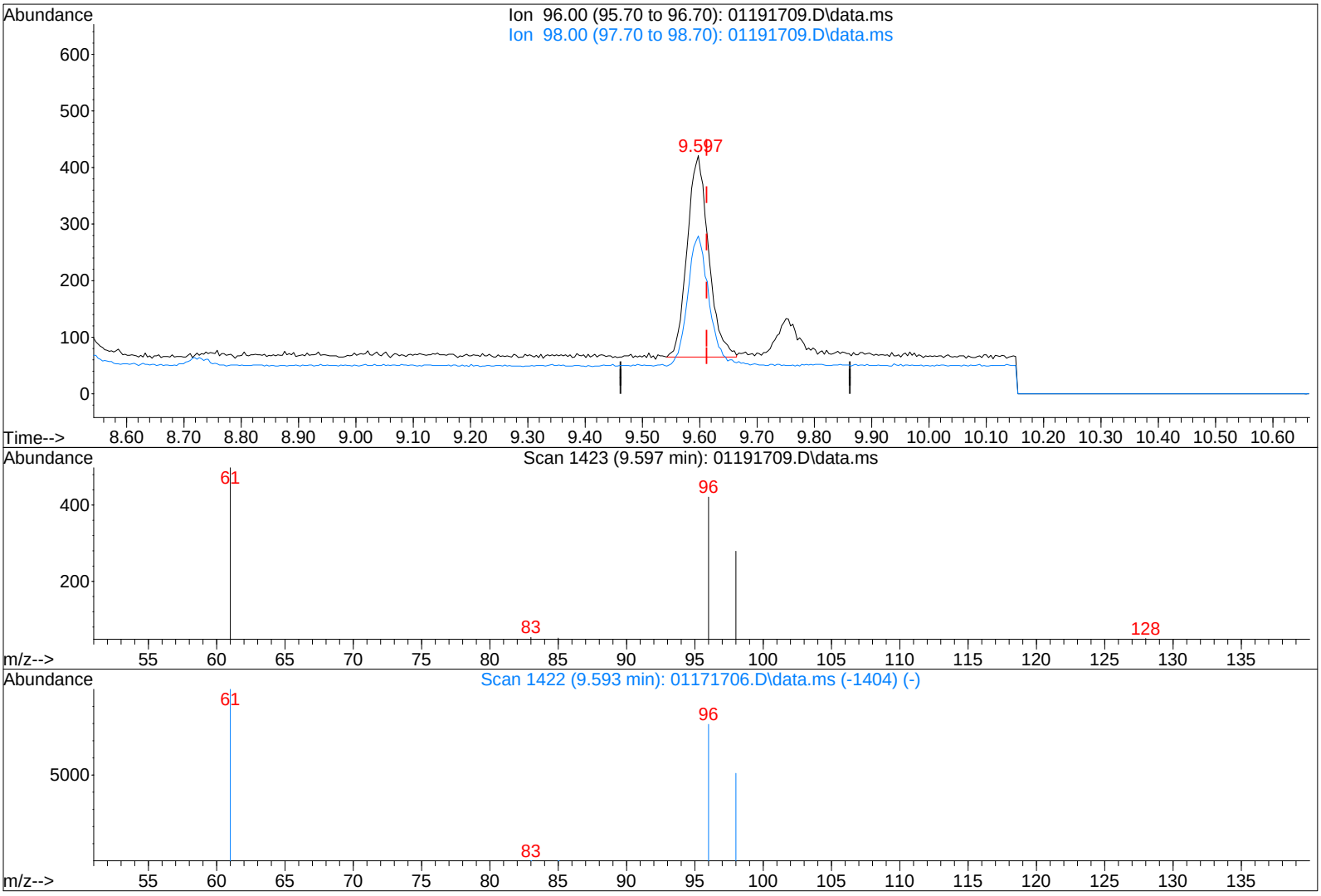
response 1089

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	39.76
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 09:56:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191709.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.597min (-0.015) 13.30pg

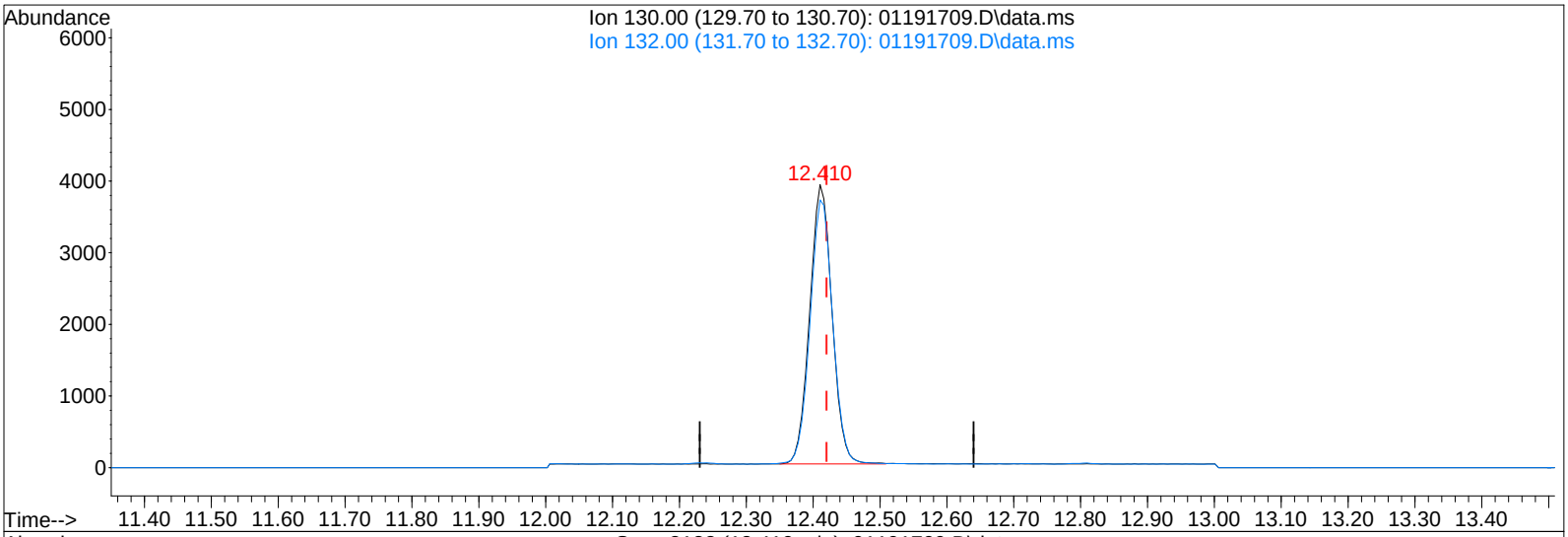
response 923

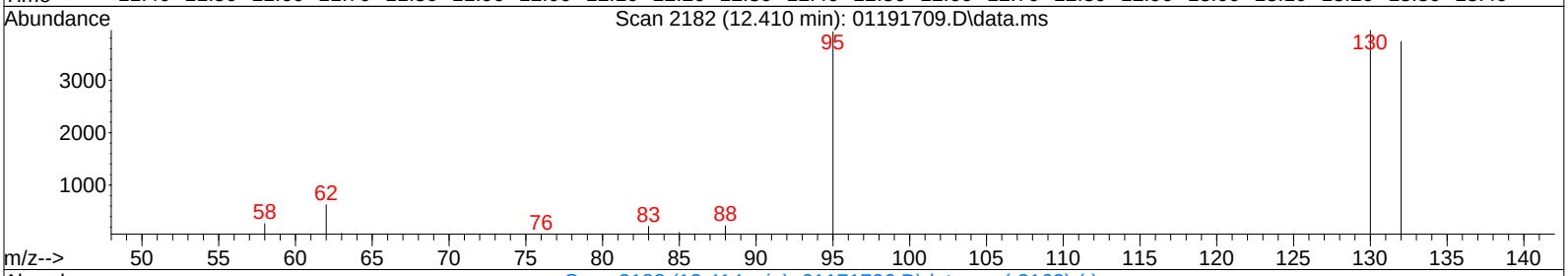
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.60
0.00	0.00	0.00
0.00	0.00	0.00

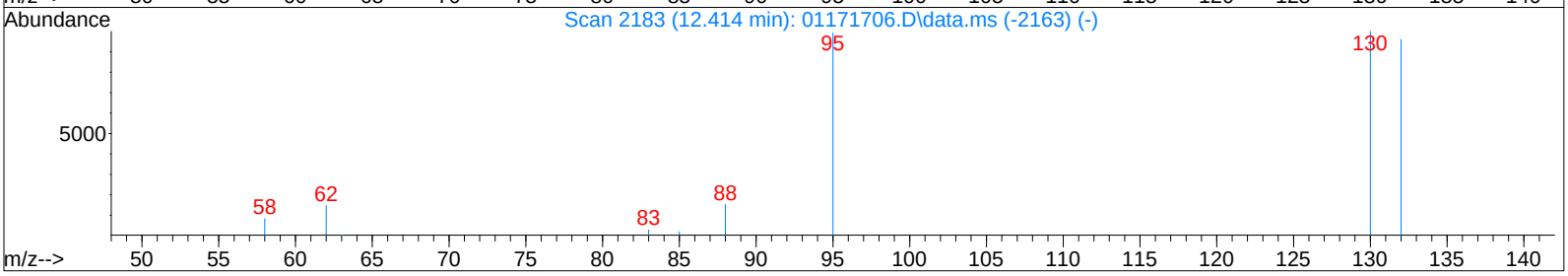
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 09:56:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191709.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 119.29pg

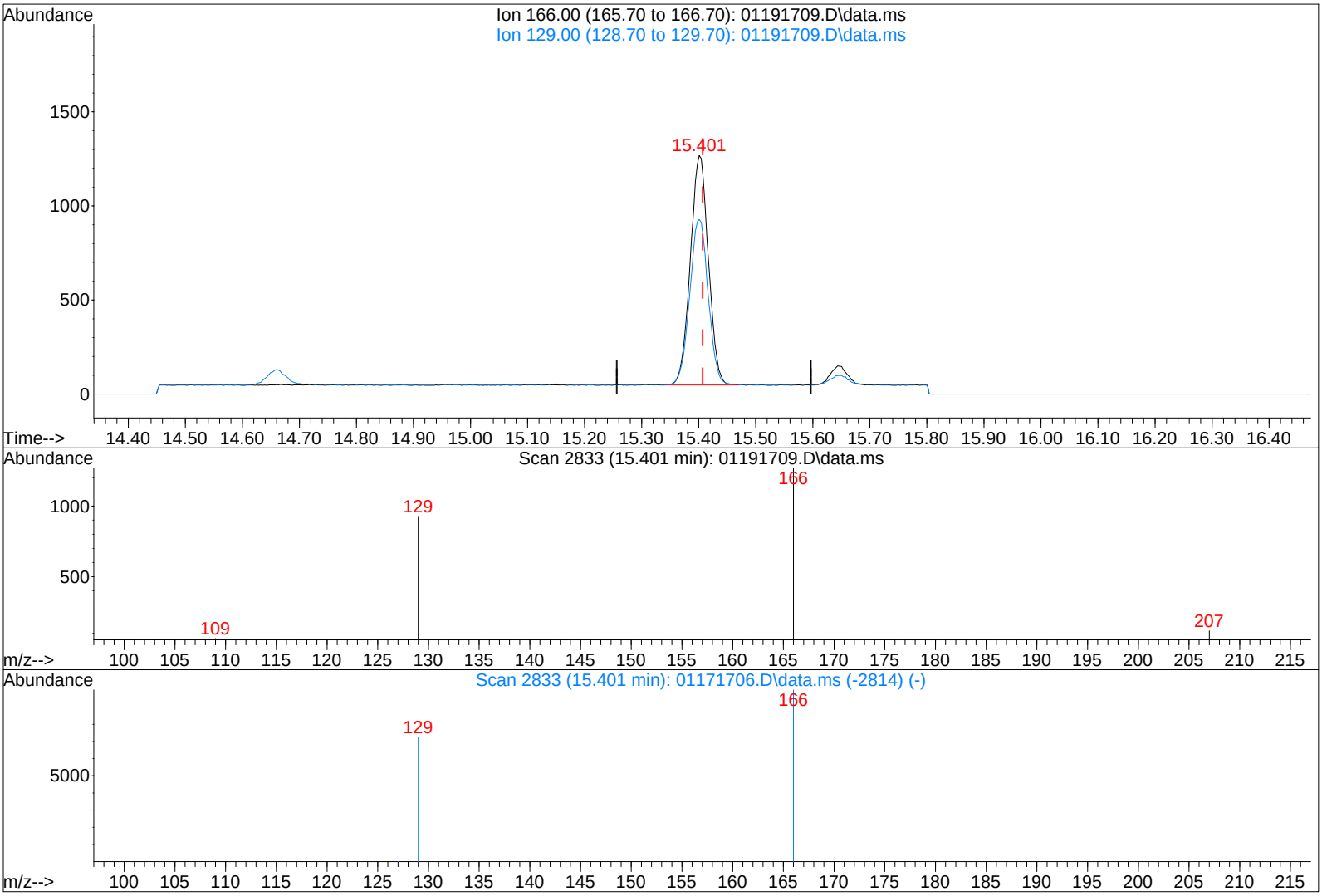
response 9031

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.38
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191709.D Vial: 4
Acq On : 19 Jan 2017 9:20 Operator: CL
Sample : P1700163-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 09:56:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191709.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 34.14pg

response 2680

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.54
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 12:06:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	57343	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	287353	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.06	54	46654	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	97997	986.777 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.68%		
33) Toluene-d8 (SS2)	14.15	98	294834	1032.915 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.29%		
45) Bromofluorobenzene (SS3)	17.55	174	97146	1138.217 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.82%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	214668	1481.847 pg	100
3) Chloromethane	4.65	52	11720	271.554 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8207	57.583 pg	100
5) Vinyl Chloride	4.95	62	1992	14.384 pg	96
6) 1,3-Butadiene	5.13	54	2344	28.468 pg	88
7) Bromomethane	5.46	94	1993	35.774 pg	98
8) Chloroethane	5.68	64	446	10.467 pg	96
9) Acrolein	6.27	56	6948	229.547 pg	99
10) Acetone	6.40	58	159865	4084.962 pg	96
11) Trichlorofluoromethane	6.60	101	78336	790.615 pg	100
12) 1,1-Dichloroethene	7.34	96	157	N.D.	
13) Methylene Chloride	7.48	84	18629	276.549 pg	99
14) Trichlorotrifluoroethane	7.80	151	19391	313.112 pg	99
15) trans-1,2-Dichloroethene	8.52	96	285	N.D.	
16) 1,1-Dichloroethane	8.72	63	620	5.222 pg	98
17) Methyl tert-Butyl Ether	8.80	73	739	N.D.	
18) cis-1,2-Dichloroethene	9.59	96	1022	14.553 pg	100
19) Chloroform	9.89	83	9436	75.578 pg	98
21) 1,2-Dichloroethane	10.64	62	6801	70.764 pg	99
22) 1,1,1-Trichloroethane	10.91	97	1360	11.735 pg	99
23) Benzene	11.37	78	81573	296.548 pg	100
24) Carbon Tetrachloride	11.52	117	27756	298.256 pg	100
26) 1,2-Dichloropropane	12.17	63	1041	14.223 pg	92
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	12421	166.259 pg	99
29) 1,4-Dioxane	12.39	88	1347	24.554 pg	97
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d	
32) 1,1,2-Trichloroethane	13.95	83	265	N.D.	
34) Toluene	14.25	91	117551	440.922 pg	99
35) Dibromochloromethane	14.66	129	305	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	2318	29.924 pg	99
39) Chlorobenzene	16.11	112	723	N.D.	
40) Ethylbenzene	16.48	91	24458	92.220 pg	99
41) m,p-Xylene	16.65	91	65596	329.751 pg	98
42) Styrene	17.01	104	9107	65.345 pg	98
43) o-Xylene	17.12	106	12394	121.281 pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	7732	36.718 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	25236	122.098 pg	88
48) 1,3-Dichlorobenzene	18.92	146	212	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	2586	19.552 pg	97
50) 1,2-Dichlorobenzene	19.31	146	236	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.94	182	173	N.D.	
53) Naphthalene	21.06	128	8962	36.832 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 12:06:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

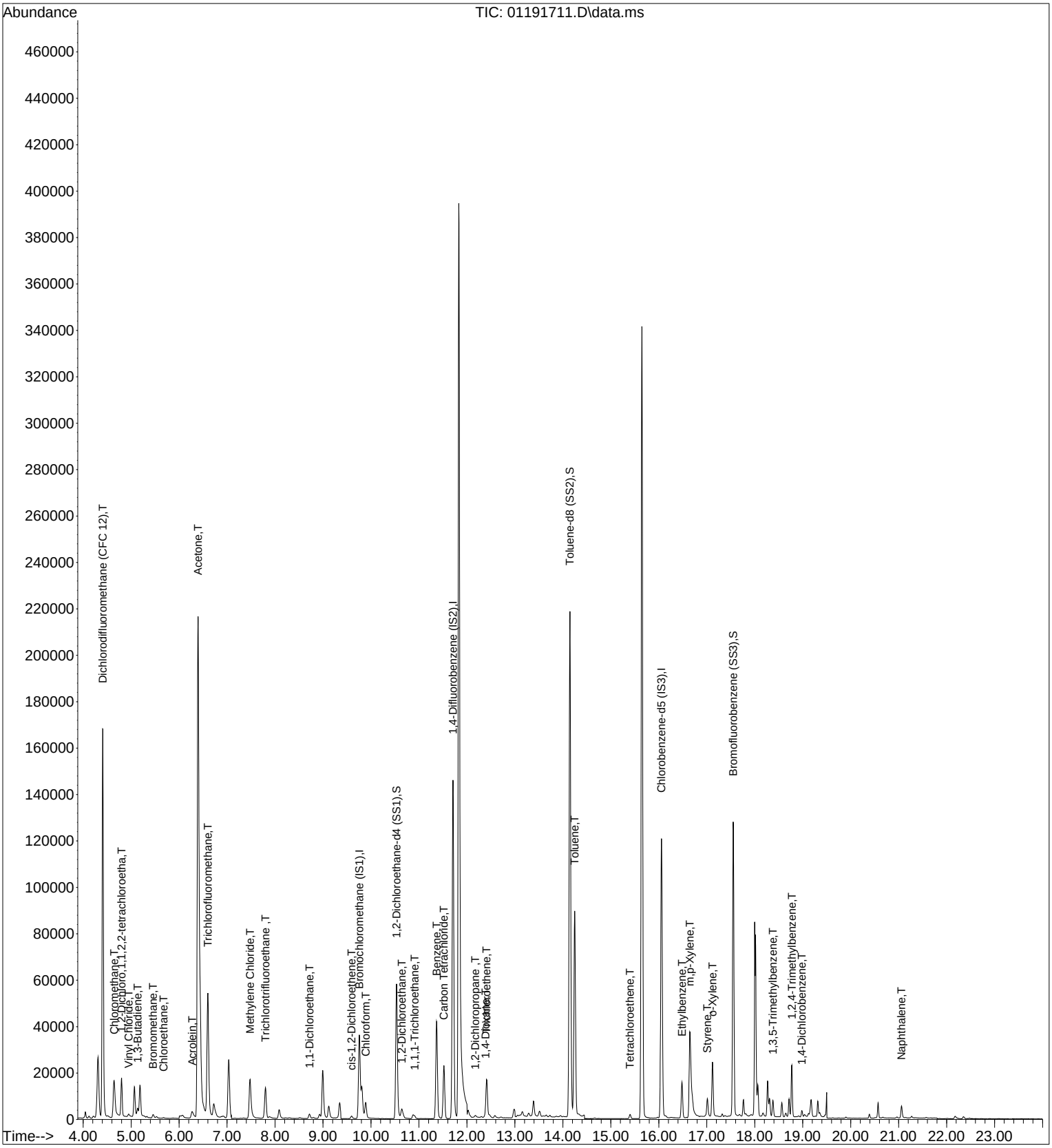
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

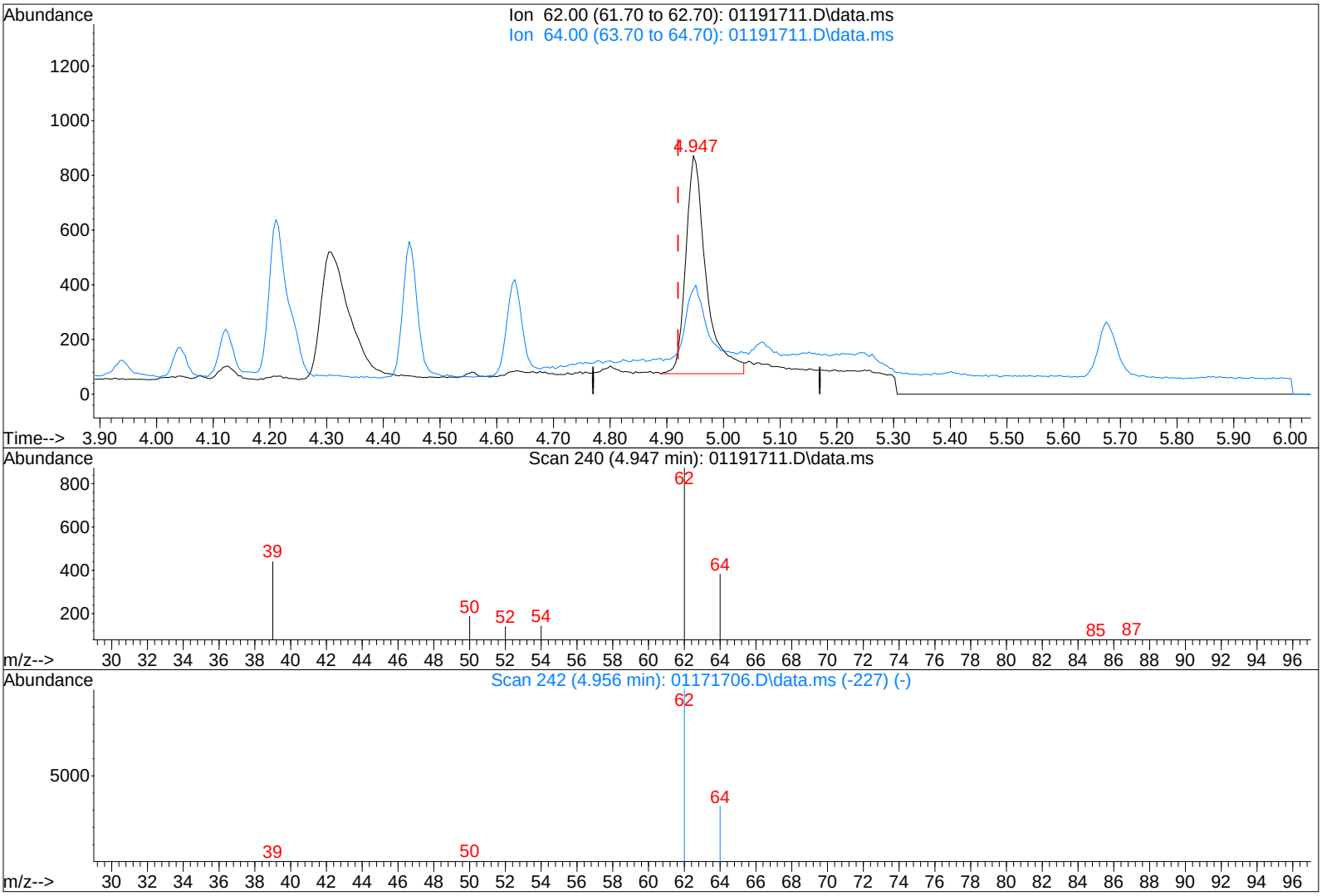
Quant Time: Jan 19 12:06:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 11:20:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191711.D\data.ms

(5) Vinyl Chloride (T)

4.947min (+0.027) 14.38pg

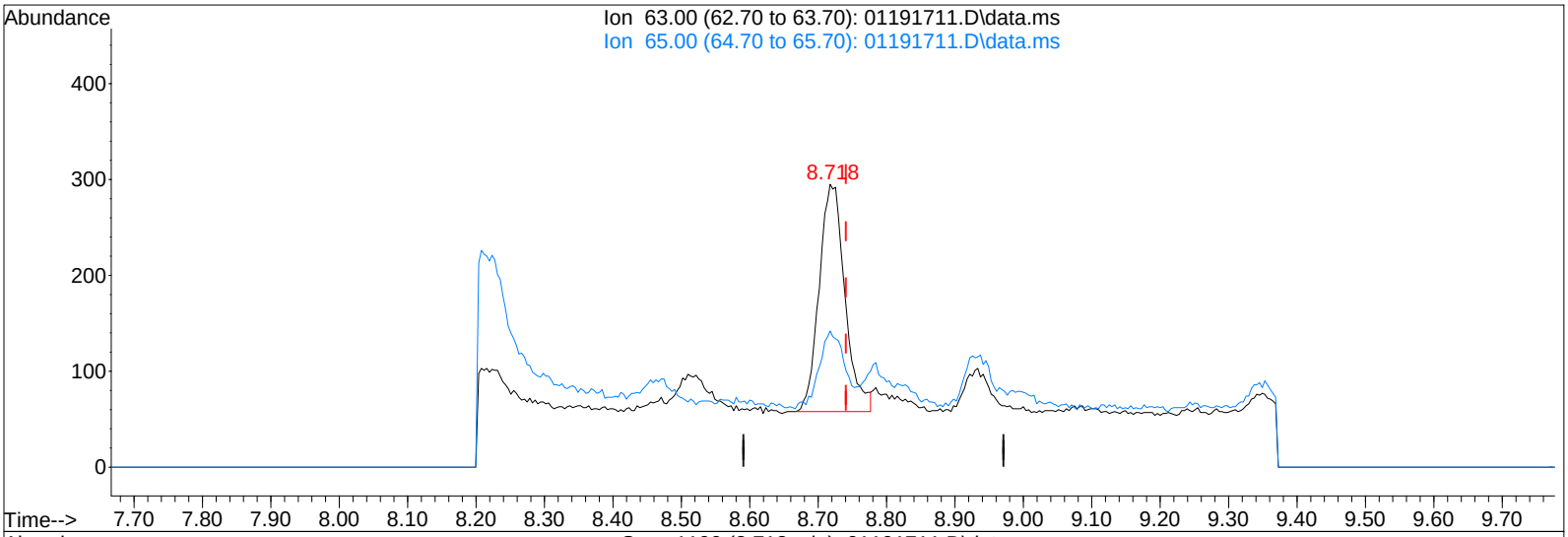
response 1992

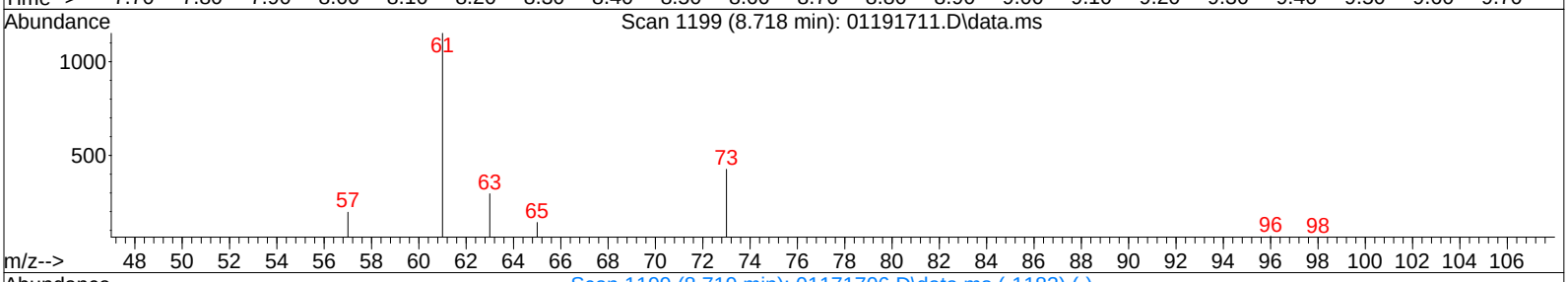
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	34.19
0.00	0.00	0.00
0.00	0.00	0.00

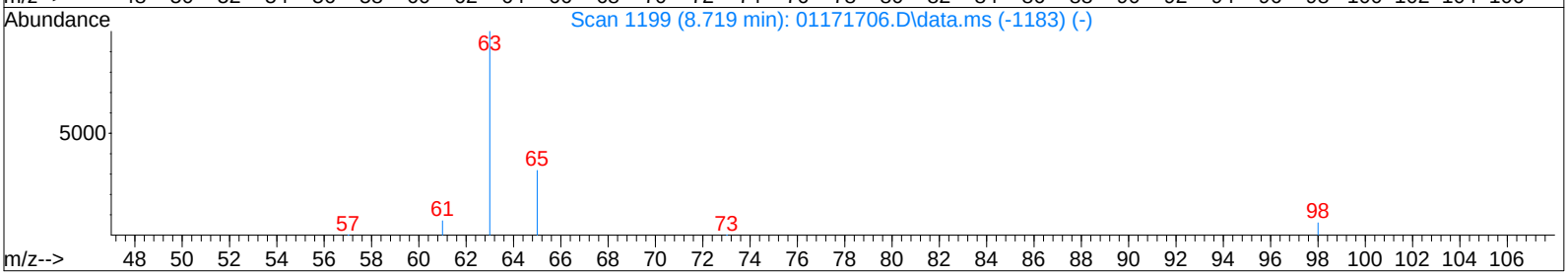
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 11:20:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191711.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.023) 5.22pg

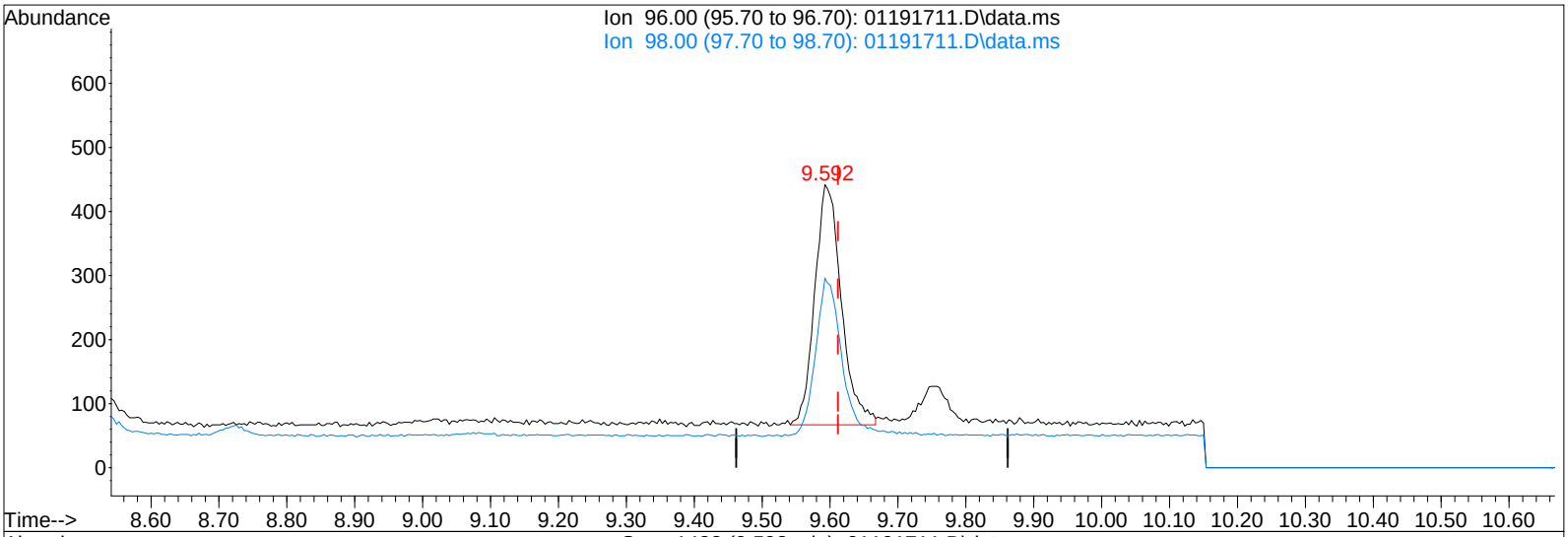
response 620

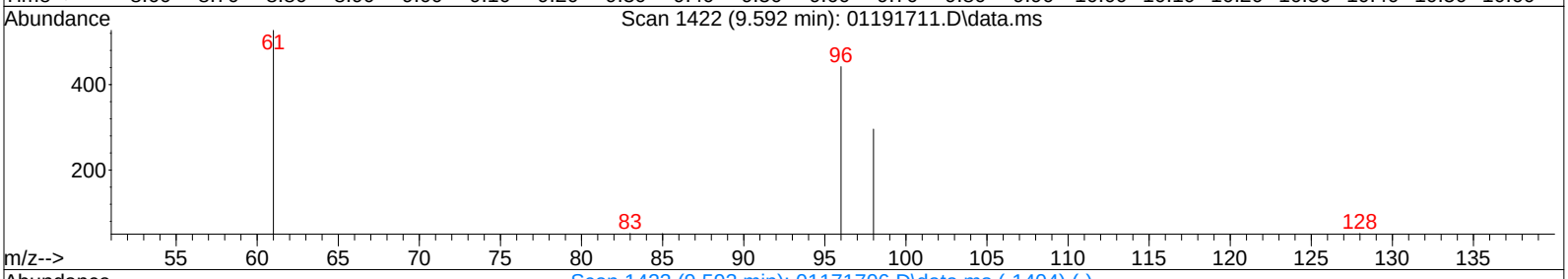
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	30.48
0.00	0.00	0.00
0.00	0.00	0.00

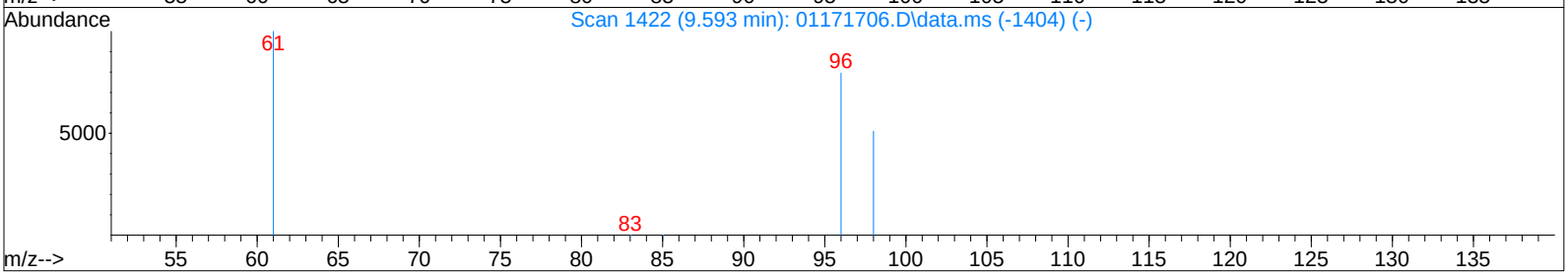
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 11:20:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191711.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.592min (-0.020) 14.55pg

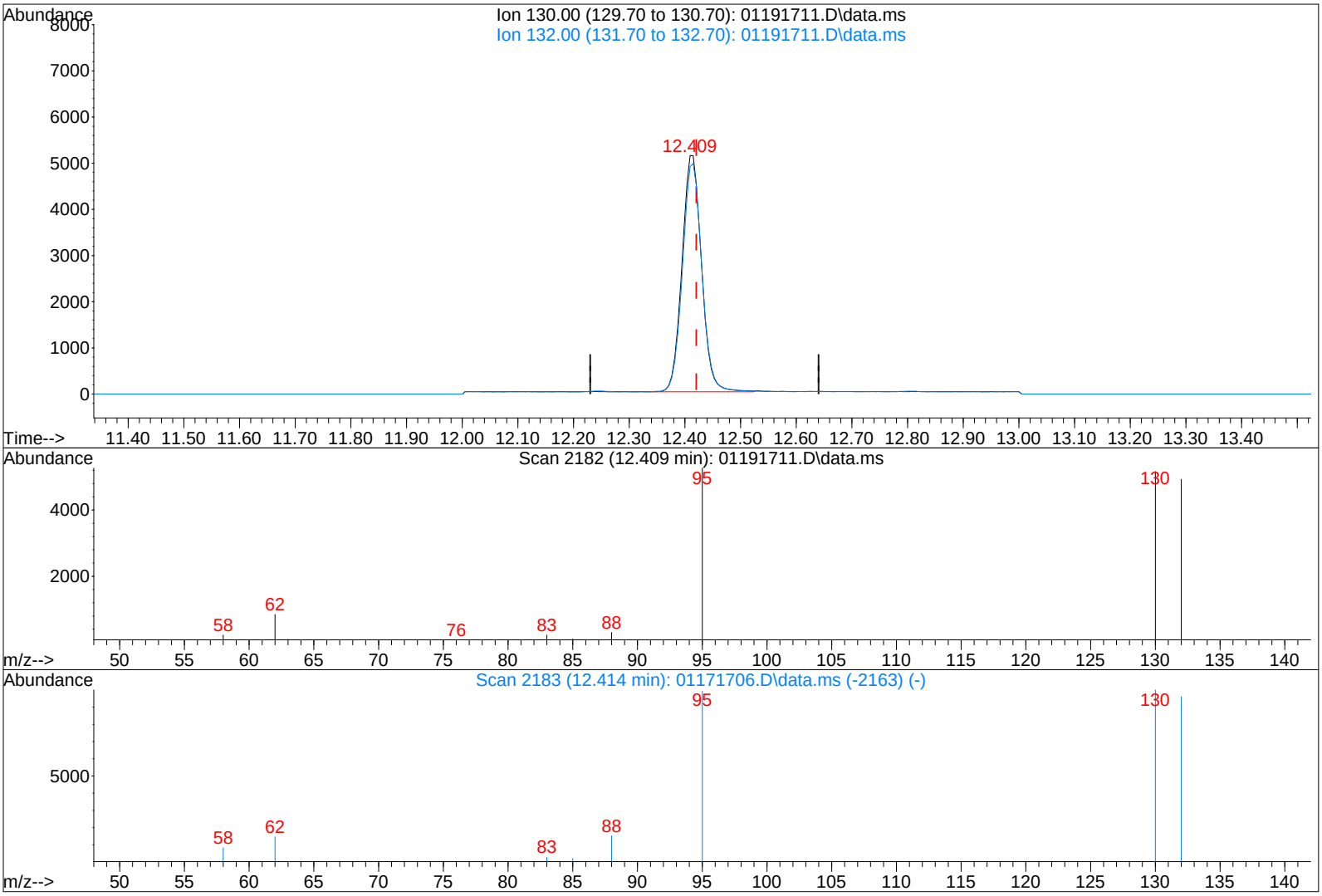
response 1022

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.70
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 11:20:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191711.D\data.ms

(28) Trichloroethene (T)

12.409min (-0.011) 166.26pg

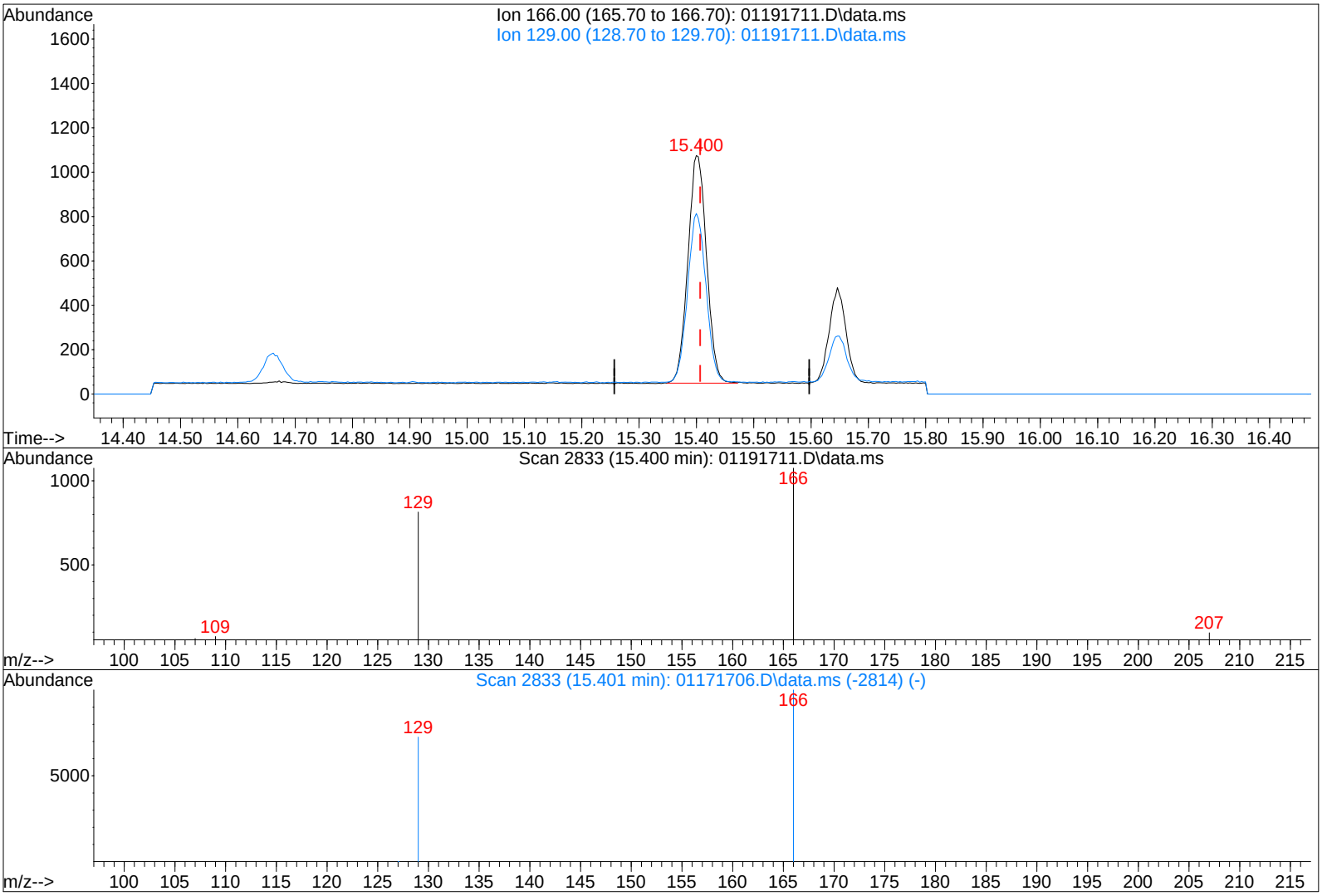
response 12421

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.71
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191711.D Vial: 6
Acq On : 19 Jan 2017 10:22 Operator: CL
Sample : P1700163-005 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 19 11:20:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191711.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.007) 29.92pg

response 2318

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.38
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	60185	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	303686	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	49447	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	102922	987.431	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.74%				
33) Toluene-d8 (SS2)	14.15	98	310553	1029.470	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.95%				
45) Bromofluorobenzene (SS3)	17.55	174	102273	1130.603	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.06%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	308868	2031.427	pg		100
3) Chloromethane	4.64	52	14896	328.845	pg		91
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	9613	64.263	pg		100
5) Vinyl Chloride	4.95	62	9320	64.119	pg		100
6) 1,3-Butadiene	5.13	54	4104	47.489	pg	#	68
7) Bromomethane	5.46	94	2666	45.594	pg		96
8) Chloroethane	5.67	64	937	20.952	pg		98
9) Acrolein	6.26	56	16724	526.434	pg		99
10) Acetone	6.38	58	685240	16682.819	pg		98
11) Trichlorofluoromethane	6.59	101	108836	1046.570	pg		100
12) 1,1-Dichloroethene	7.34	96	3694	56.699	pg		96
13) Methylene Chloride	7.47	84	85298	1206.463	pg		97
14) Trichlorotrifluoroethane	7.80	151	27489	422.912	pg		100
15) trans-1,2-Dichloroethene	8.51	96	1345	19.150	pg		100
16) 1,1-Dichloroethane	8.72	63	5147	41.305	pg		92
17) Methyl tert-Butyl Ether	8.79	73	1108	5.959	pg		84
18) cis-1,2-Dichloroethene	9.59	96	79961	1084.872	pg		100
19) Chloroform	9.89	83	93907	716.637	pg		99
21) 1,2-Dichloroethane	10.64	62	8862	87.855	pg		100
22) 1,1,1-Trichloroethane	10.91	97	2454	20.174	pg		98
23) Benzene	11.37	78	103985	360.173	pg		99
24) Carbon Tetrachloride	11.52	117	33142	339.315	pg		99
26) 1,2-Dichloropropane	12.18	63	2215	28.635	pg		99
27) Bromodichloromethane	12.36	83	19017	178.032	pg		99
28) Trichloroethene	12.41	130	216281	2739.290	pg		99
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.26	75	86	N.D.			
31) trans-1,3-Dichloropropene	13.74	75	78	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.25	91	347411	1233.018	pg		99
35) Dibromochloromethane	14.66	129	1361	17.444	pg		100
36) 1,2-Dibromoethane	14.92	107	71	N.D.			
37) Tetrachloroethene	15.40	166	4291	52.415	pg		100
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.48	91	43408	154.426	pg		100
41) m,p-Xylene	16.65	91	106910	507.080	pg		99
42) Styrene	17.01	104	16626	112.558	pg		99
43) o-Xylene	17.12	106	20758	191.653	pg		97
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	10538	47.217	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	35102	160.239	pg		88
48) 1,3-Dichlorobenzene	18.92	146	276	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	4571	32.609	pg		99
50) 1,2-Dichlorobenzene	19.31	146	495	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.94	182	249	N.D.			
53) Naphthalene	21.06	128	28442	110.288	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

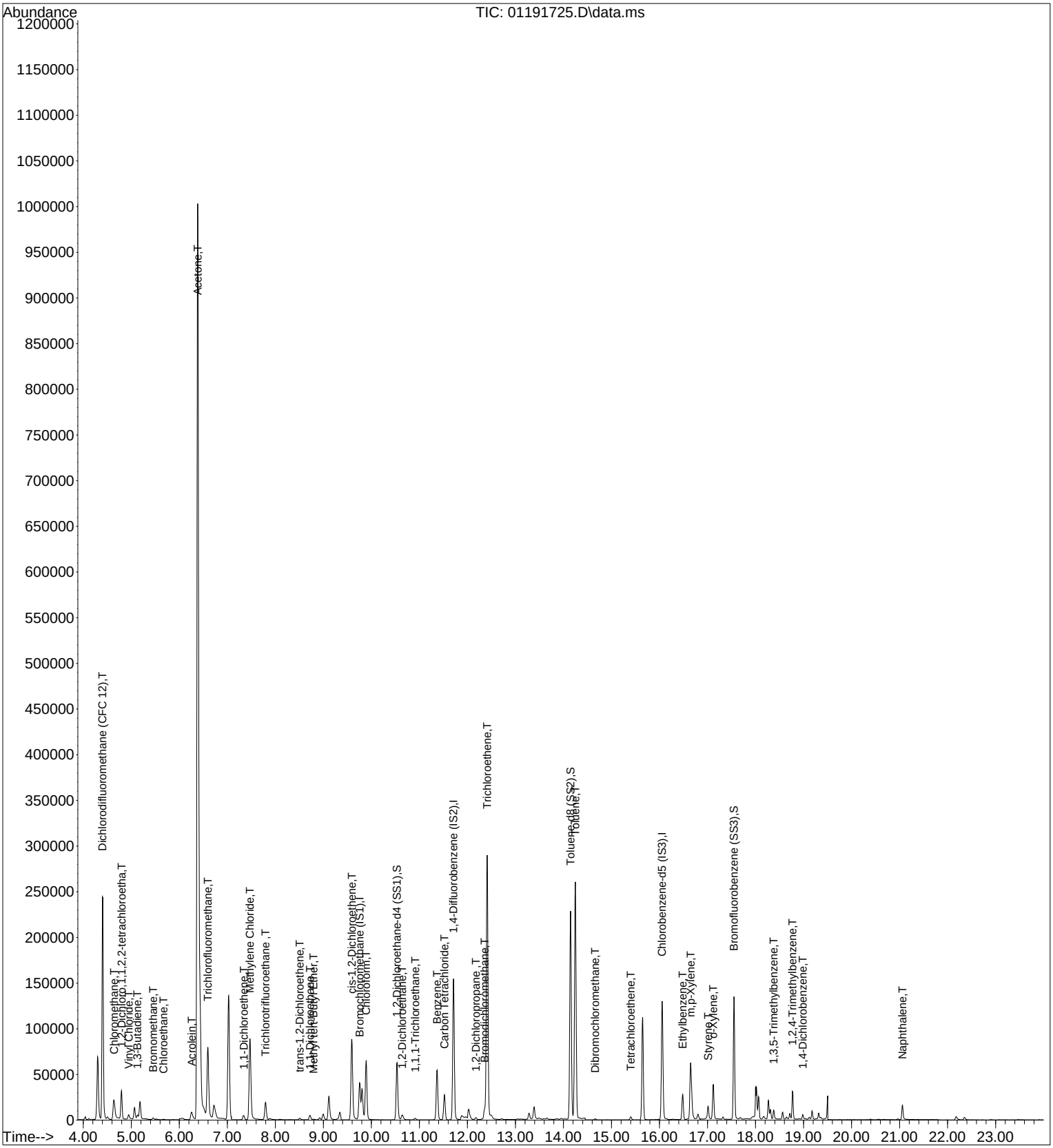
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	67	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

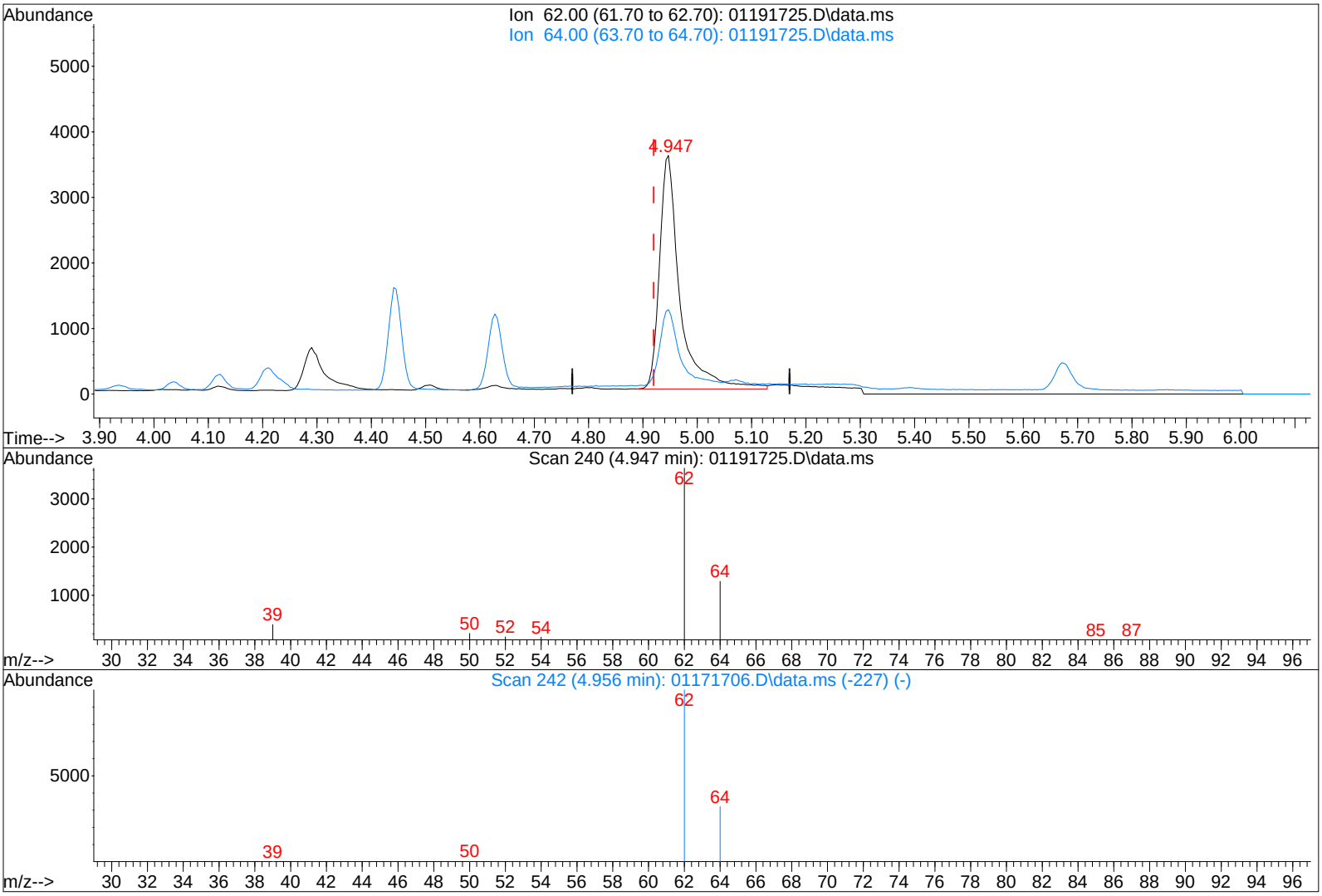
Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191725.D\data.ms

(5) Vinyl Chloride (T)

4.947min (+0.027) 64.12pg

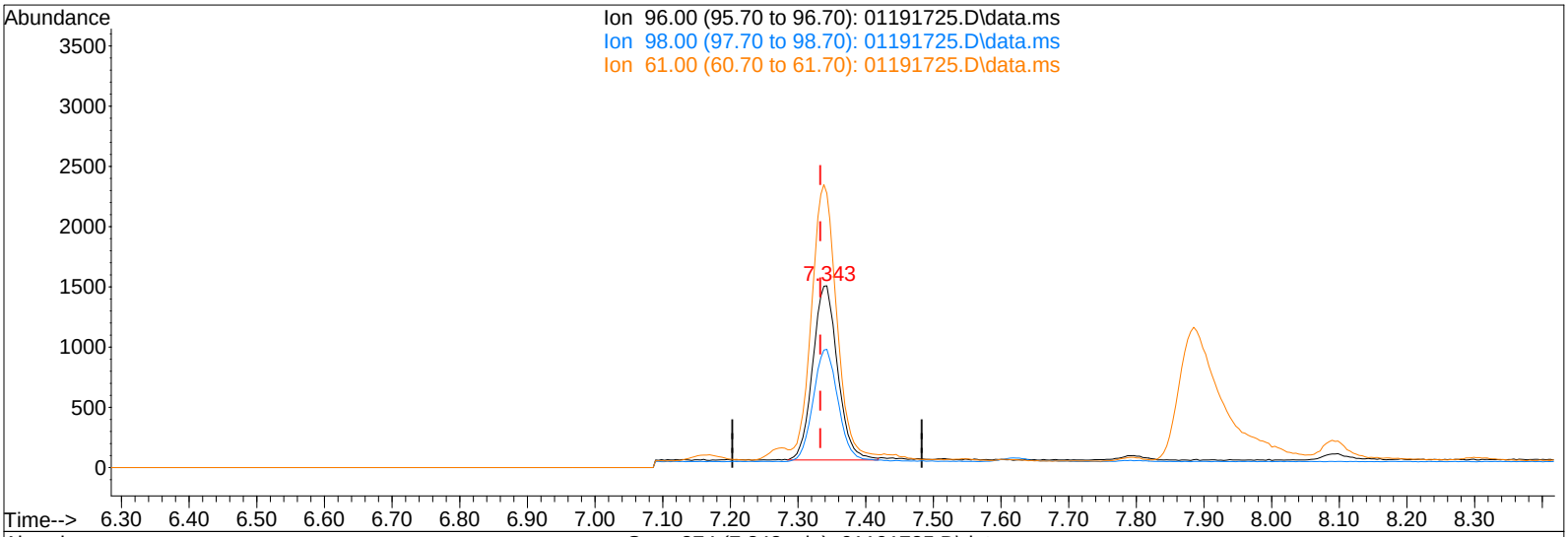
response 9320

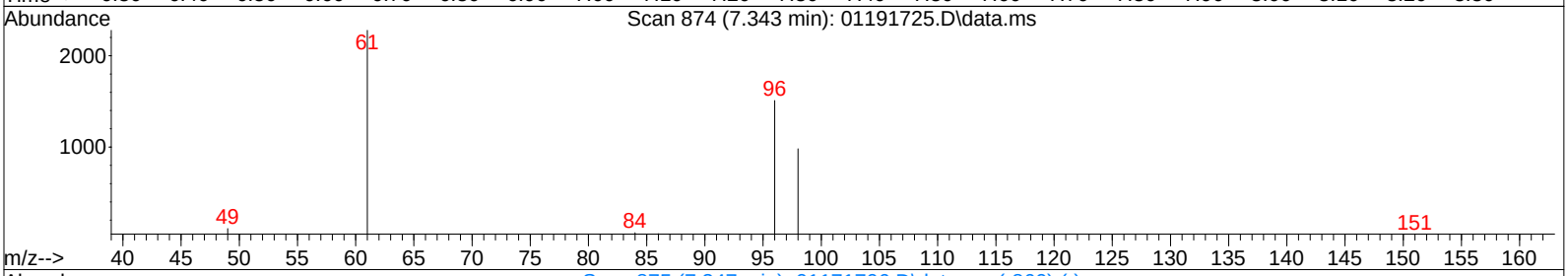
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	31.67
0.00	0.00	0.00
0.00	0.00	0.00

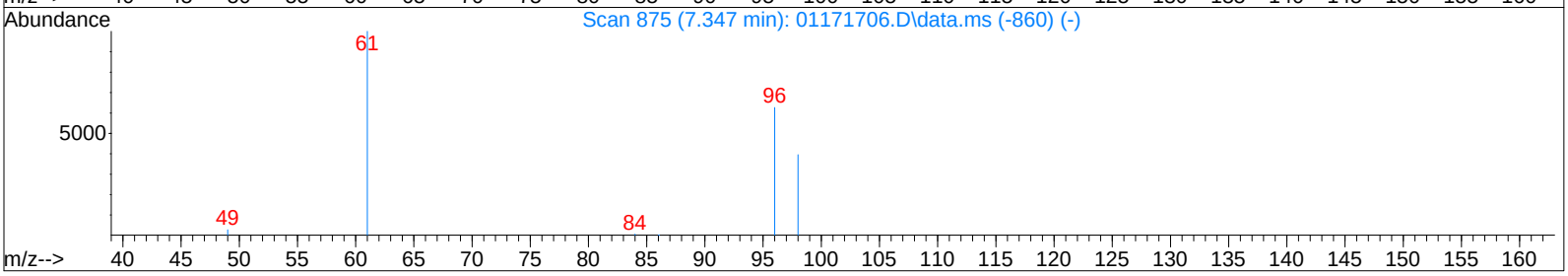
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191725.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 56.70pg

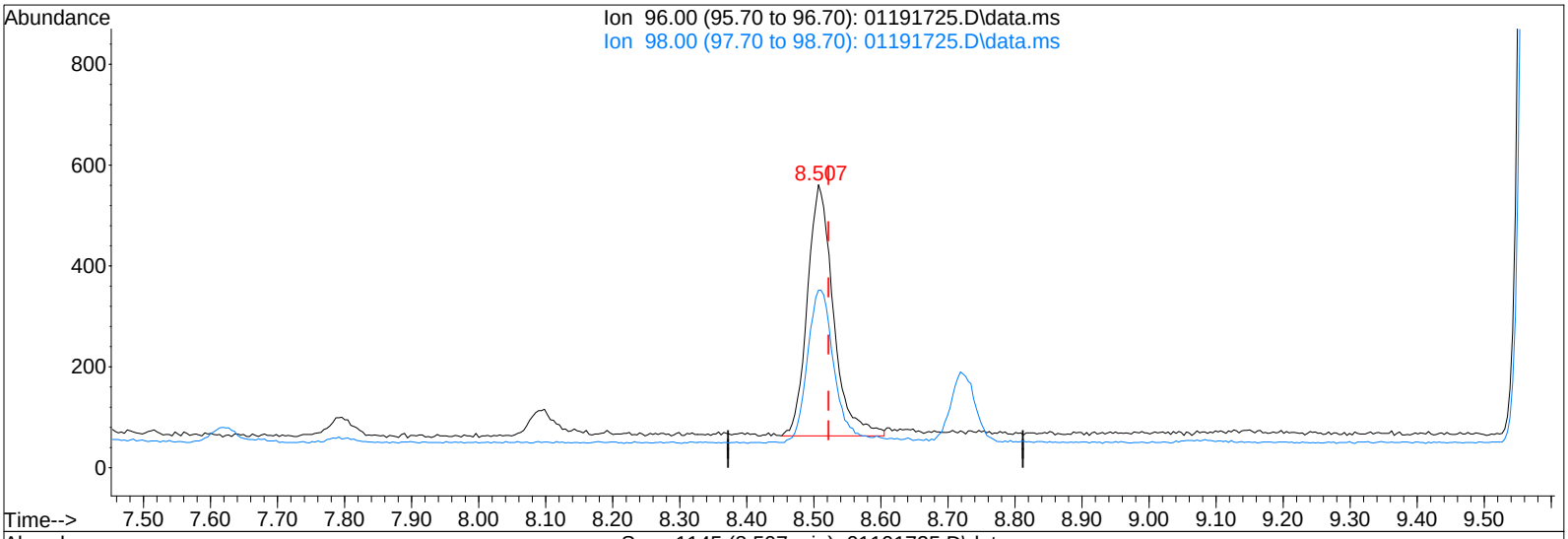
response 3694

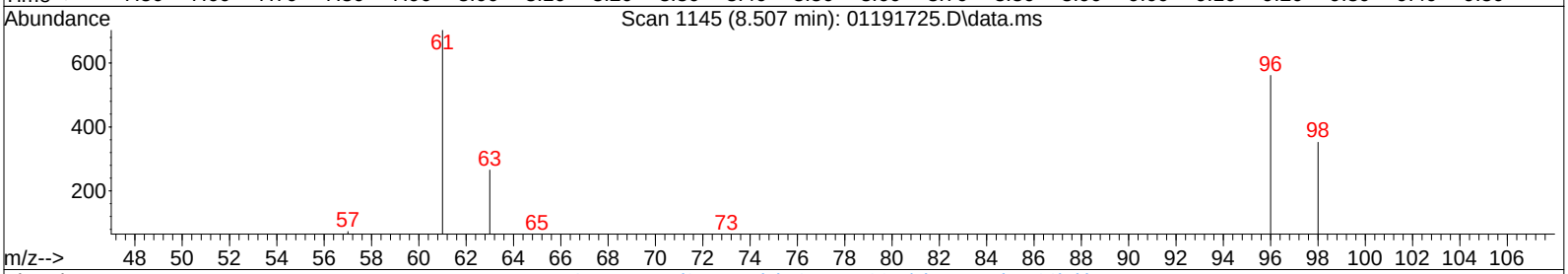
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	64.89
61.00	162.10	155.14
0.00	0.00	0.00

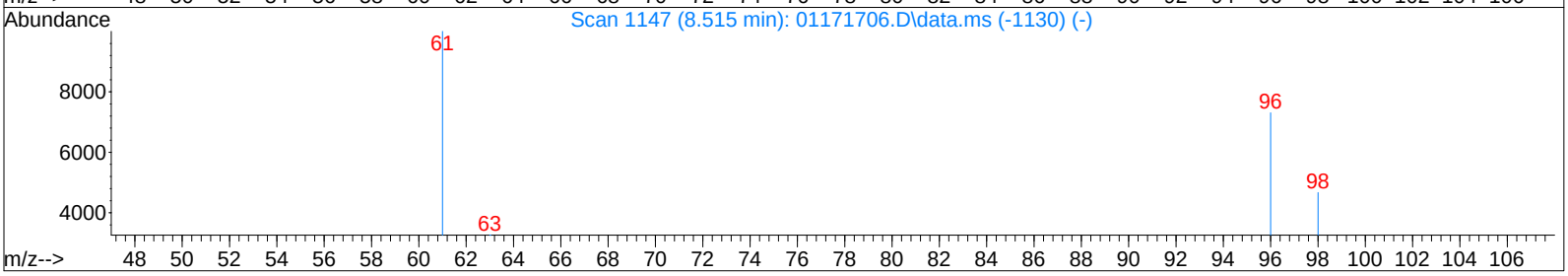
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191725.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 19.15pg

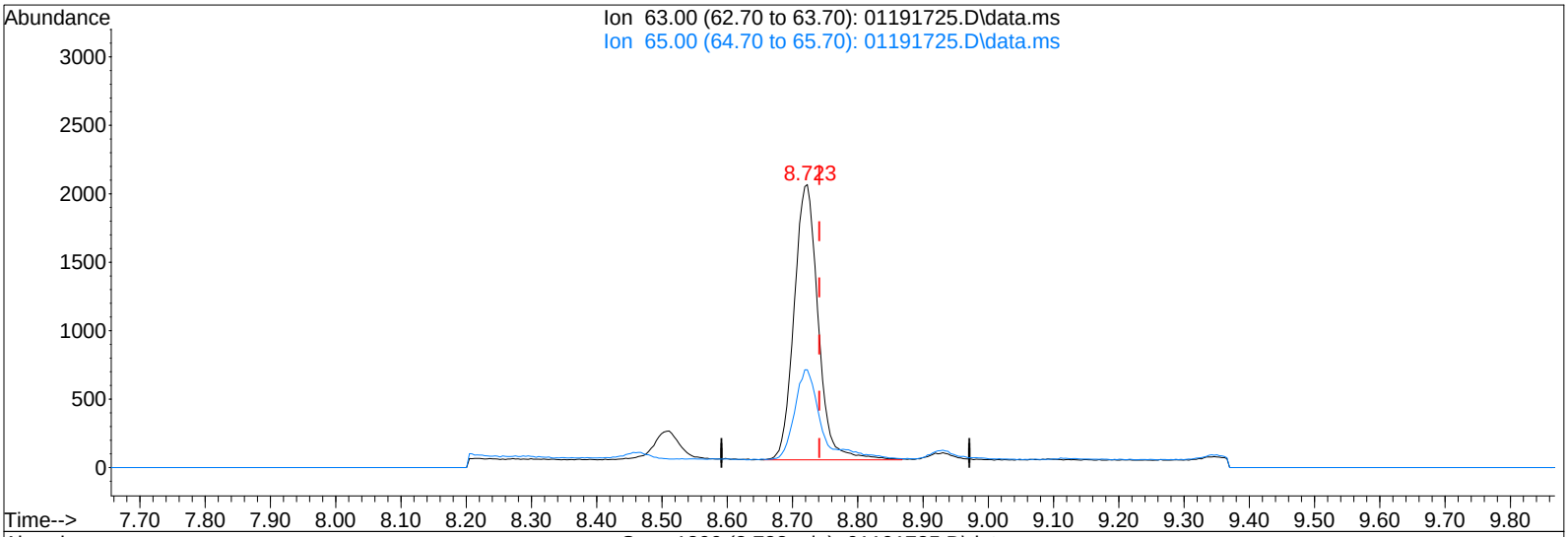
response 1345

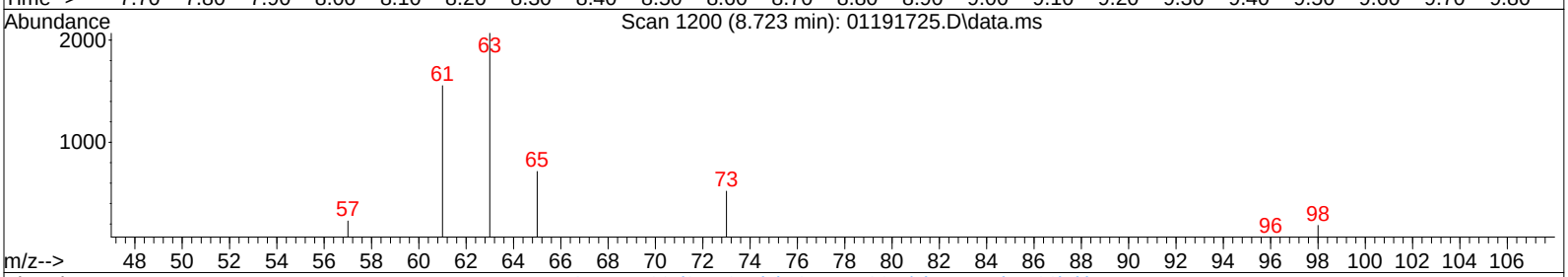
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	61.78
0.00	0.00	0.00
0.00	0.00	0.00

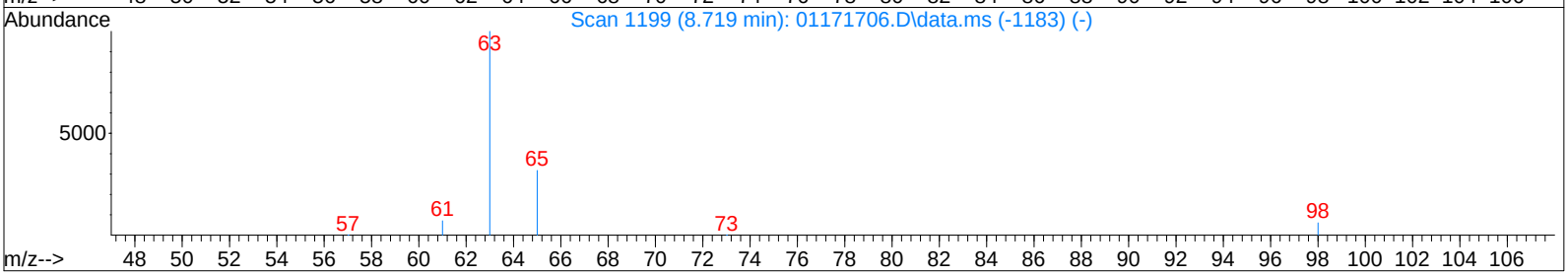
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191725.D\data.ms

(16) 1,1-Dichloroethane (T)

8.723min (-0.018) 41.30pg

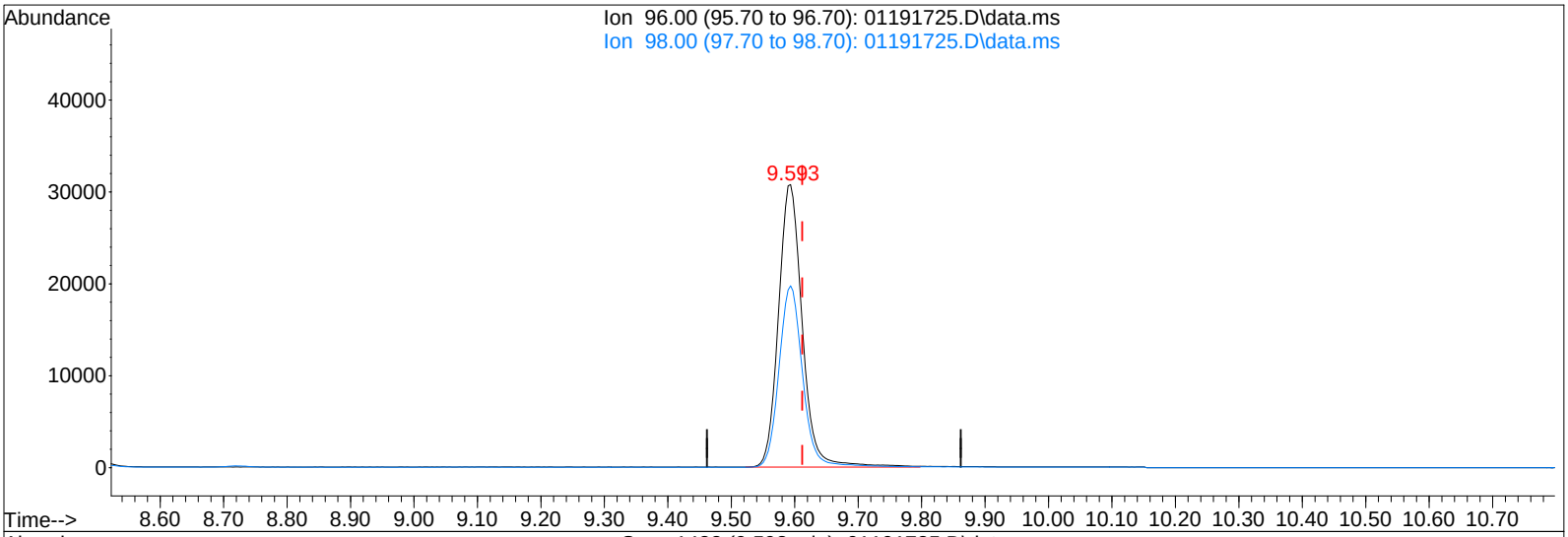
response 5147

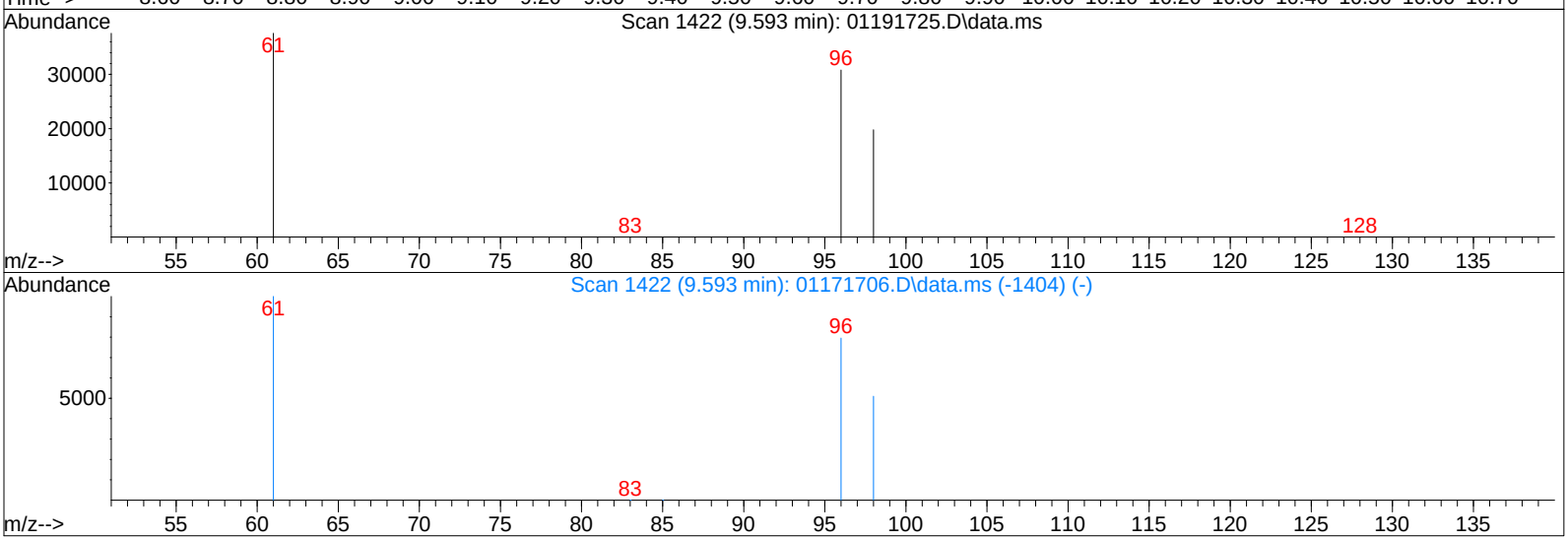
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	36.18
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01191725.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.593min (-0.019) 1084.87pg

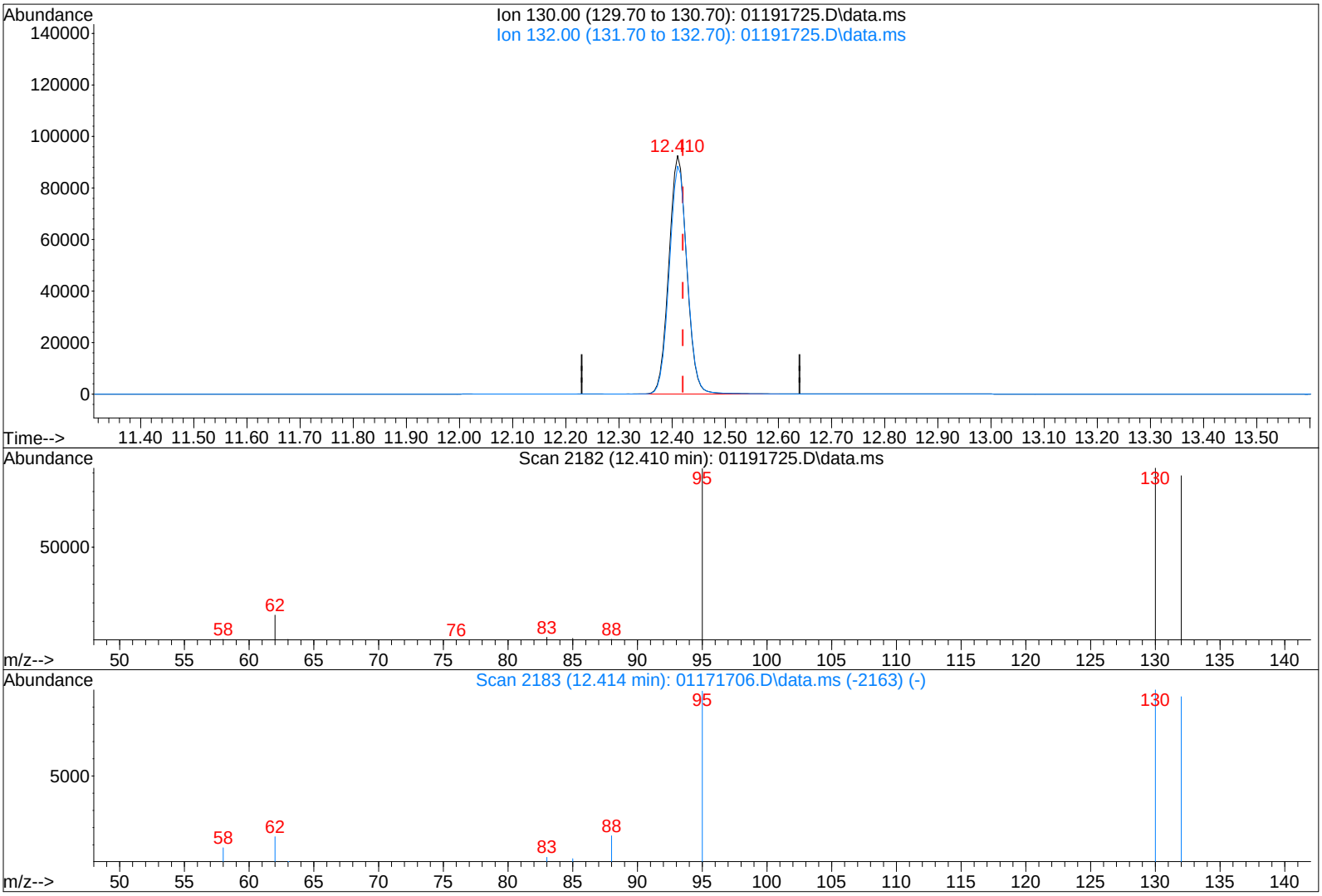
response 79961

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.05
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191725.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 2739.29pg

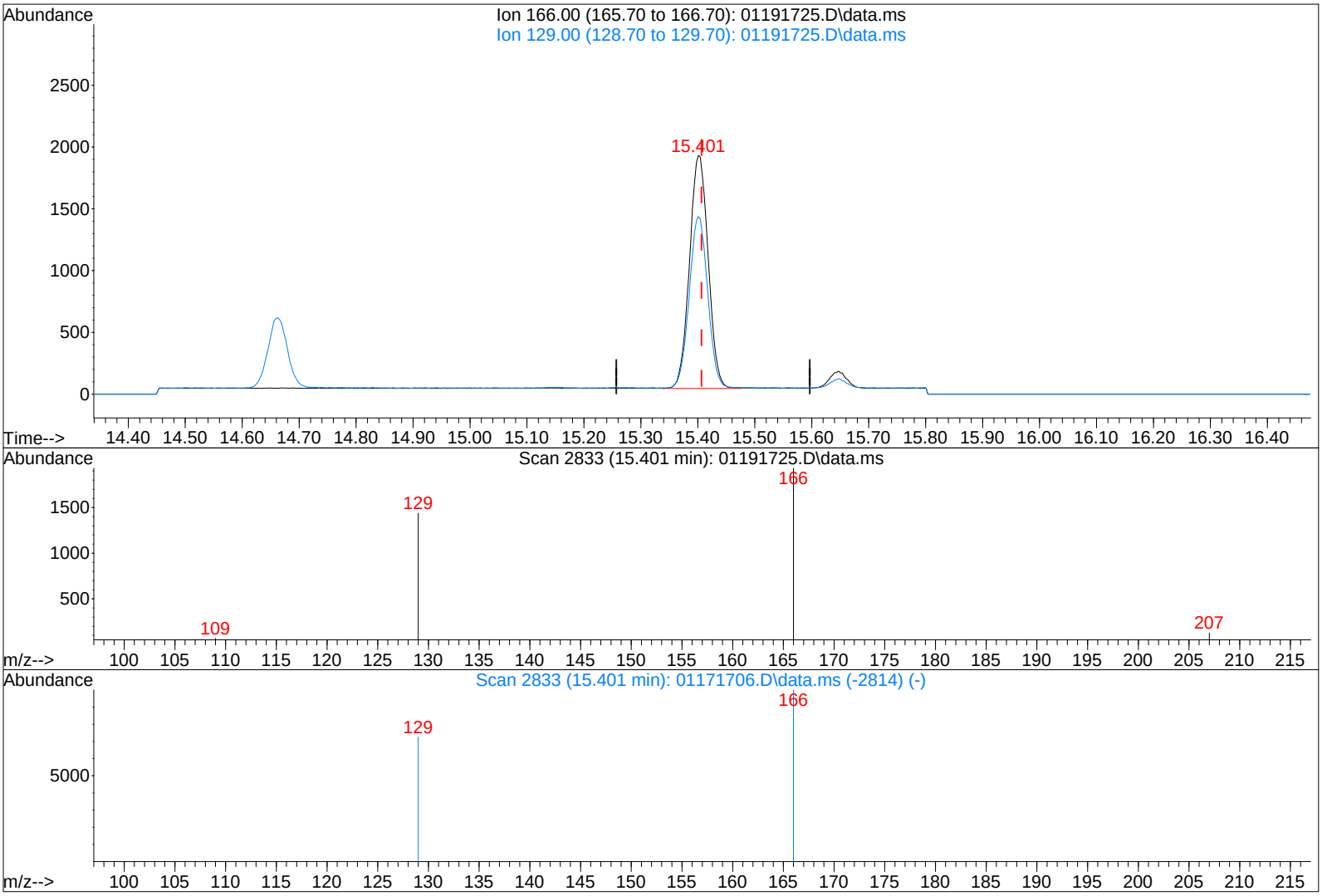
response 216281

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.94
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191725.D Vial: 1
Acq On : 19 Jan 2017 17:56 Operator: CL
Sample : P1700163-015 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:19:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191725.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 52.42pg

response 4291

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	72.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191730.D Vial: 6
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	59258	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	311655	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	50528	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	103114	1004.748	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.48%				
33) Toluene-d8 (SS2)	14.15	98	318656	1029.321	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.93%				
45) Bromofluorobenzene (SS3)	17.55	174	106103	1147.849	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.78%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	330282	2206.249	pg		100
3) Chloromethane	4.64	52	13174	295.379	pg		93
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8356	56.733	pg		100
5) Vinyl Chloride	4.94	62	27560	192.572	pg		98
6) 1,3-Butadiene	5.13	54	2449	28.782	pg		86
7) Bromomethane	5.45	94	1593	27.670	pg		97
8) Chloroethane	5.67	64	788	17.896	pg		97
9) Acrolein	6.25	56	21982	702.768	pg		99
10) Acetone	6.38	58	521993	12907.219	pg	#	83
11) Trichlorofluoromethane	6.59	101	87391	853.500	pg		100
12) 1,1-Dichloroethene	7.34	96	11525	179.664	pg		96
13) Methylene Chloride	7.47	84	41614	597.800	pg		97
14) Trichlorotrifluoroethane	7.80	151	29922	467.545	pg		100
15) trans-1,2-Dichloroethene	8.51	96	3113	45.015	pg		94
16) 1,1-Dichloroethane	8.71	63	16037	130.710	pg		96
17) Methyl tert-Butyl Ether	8.79	73	1456	7.953	pg		90
18) cis-1,2-Dichloroethene	9.59	96	257116	3542.995	pg		99
19) Chloroform	9.89	83	61458	476.344	pg		98
21) 1,2-Dichloroethane	10.64	62	7417	74.680	pg		99
22) 1,1,1-Trichloroethane	10.91	97	2298	19.187	pg		99
23) Benzene	11.36	78	80192	282.106	pg		100
24) Carbon Tetrachloride	11.52	117	29850	310.391	pg		99
26) 1,2-Dichloropropane	12.18	63	1262	15.898	pg		98
27) Bromodichloromethane	0.00	83	0	N.D. d			
28) Trichloroethene	12.41	130	660159	8147.398	pg		99
29) 1,4-Dioxane	0.00	88	0	N.D. d			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	13.73	75	138	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d			
34) Toluene	14.25	91	185636	642.006	pg		99
35) Dibromochloromethane	14.66	129	819	10.229	pg		98
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	10337	123.040	pg		100
39) Chlorobenzene	16.10	112	4808	24.684	pg		97
40) Ethylbenzene	16.48	91	32062	111.622	pg		100
41) m,p-Xylene	16.65	91	79296	368.059	pg		100
42) Styrene	17.01	104	11827	78.356	pg	#	80
43) o-Xylene	17.12	106	15880	143.479	pg		96
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d			
46) 1,3,5-Trimethylbenzene	18.38	105	7775	34.092	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	27161	121.336	pg		88
48) 1,3-Dichlorobenzene	18.92	146	160	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	3702	25.844	pg		100
50) 1,2-Dichlorobenzene	19.31	146	521	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	206	N.D.			
53) Naphthalene	21.06	128	16617	63.056	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191730.D Vial: 6
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

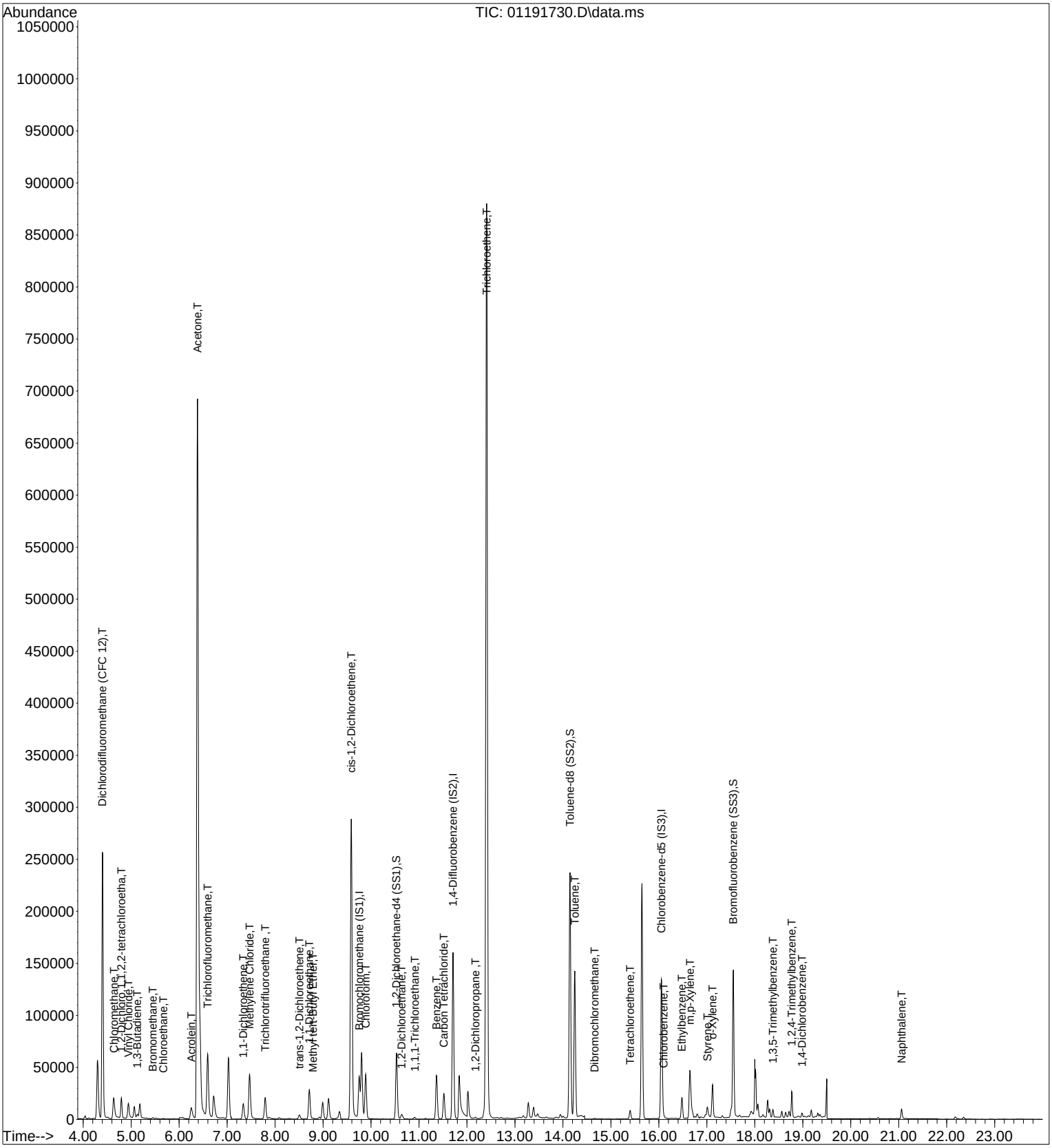
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191730.D Vial: 6
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL) Inst : MS19
Misc : S29-12201602

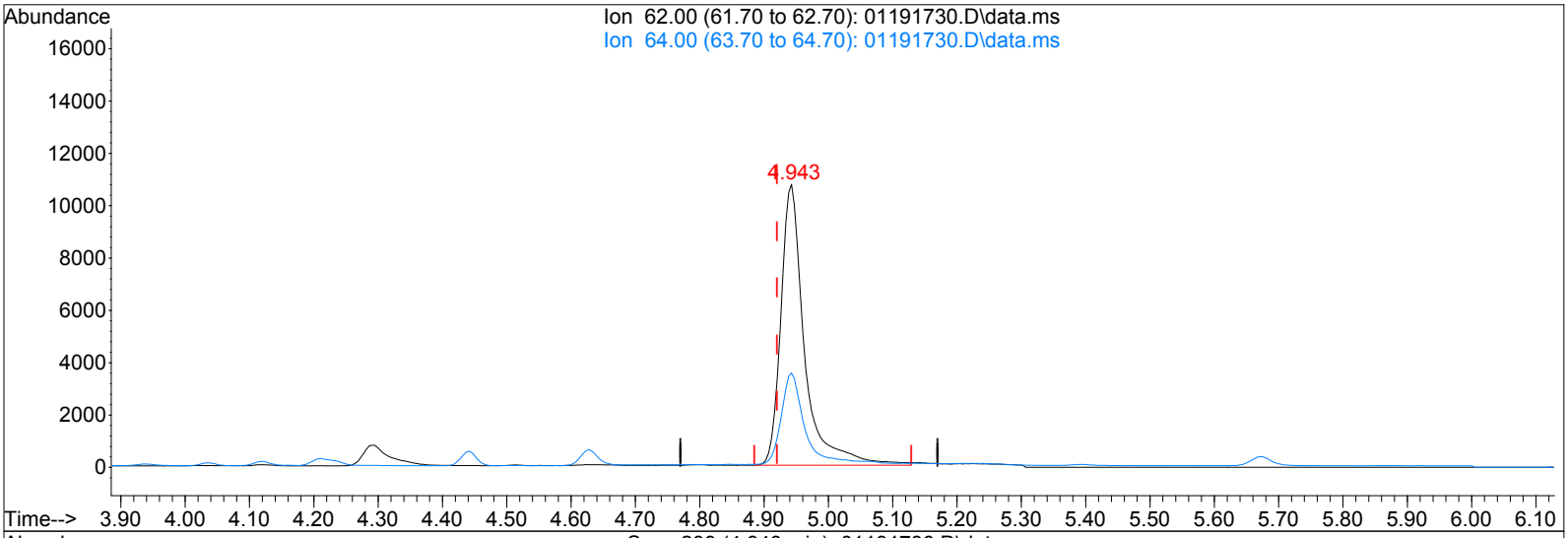
Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

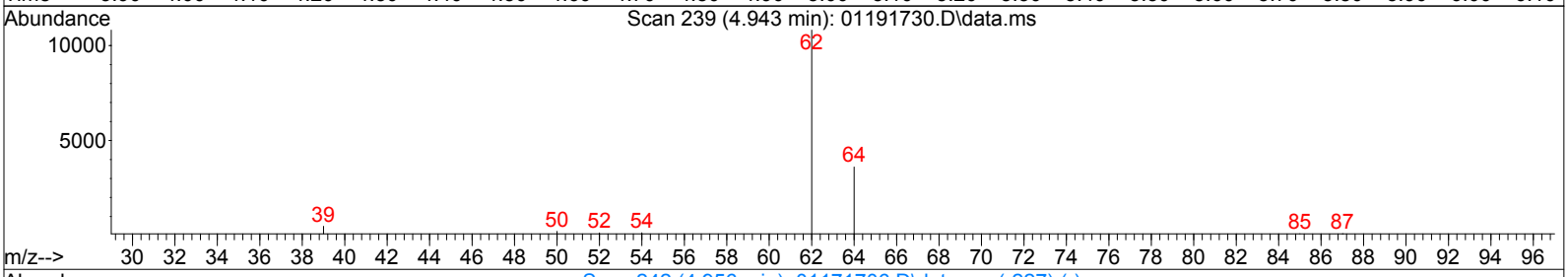


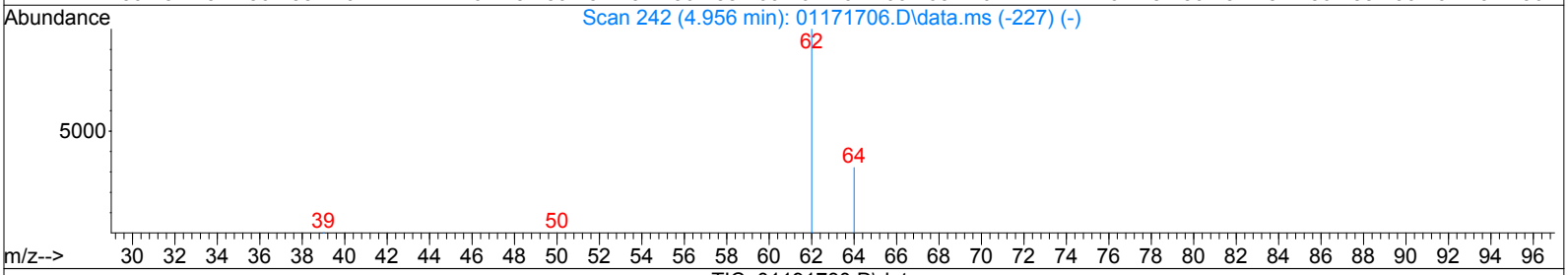
Quantitation Report (Qedit)

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(5) Vinyl Chloride (T)

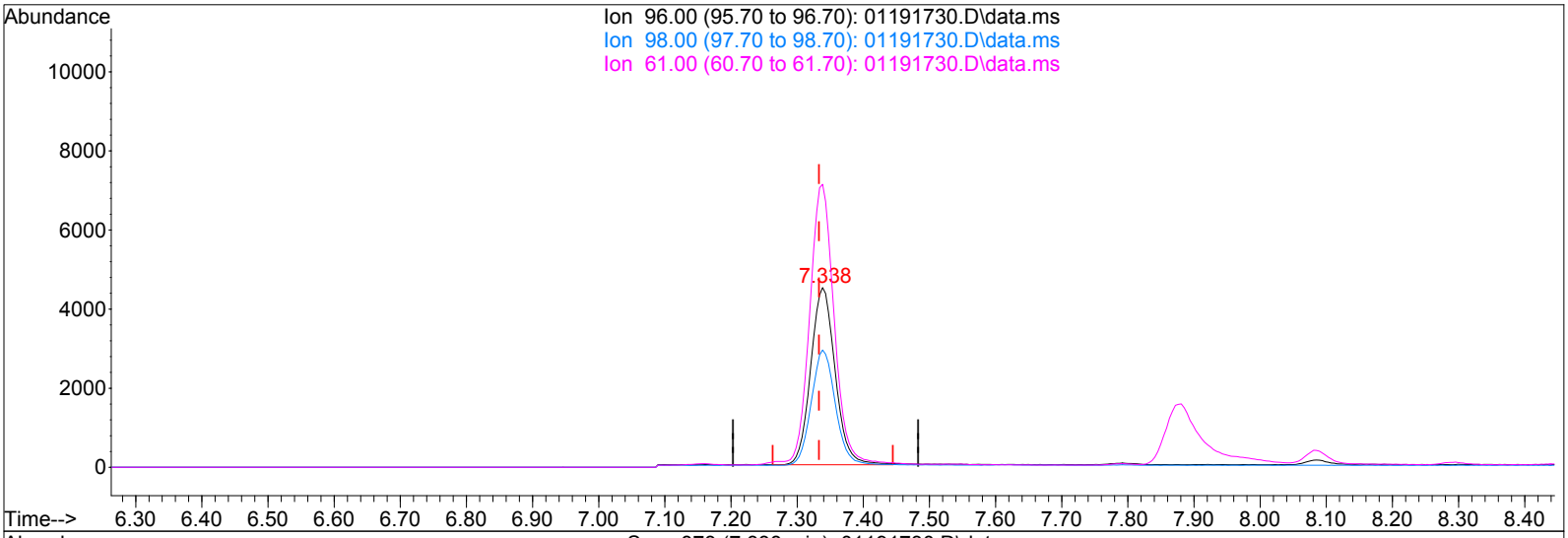
4.943min (+0.023) 192.57pg

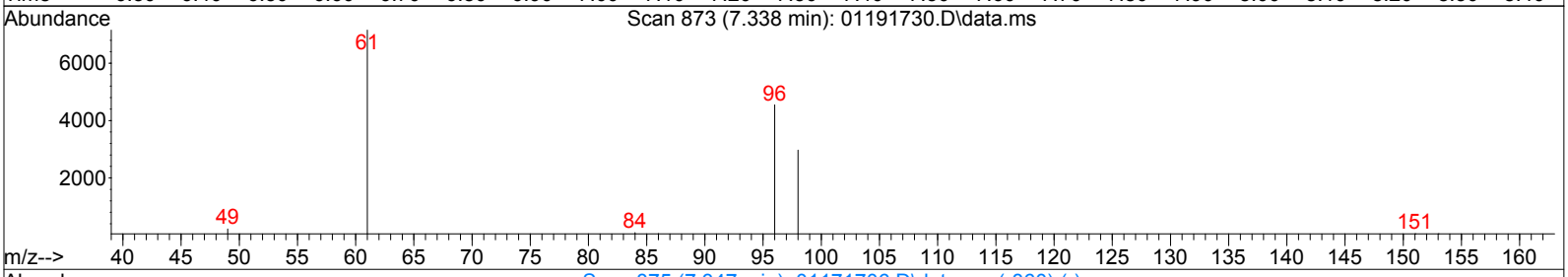
response 27560

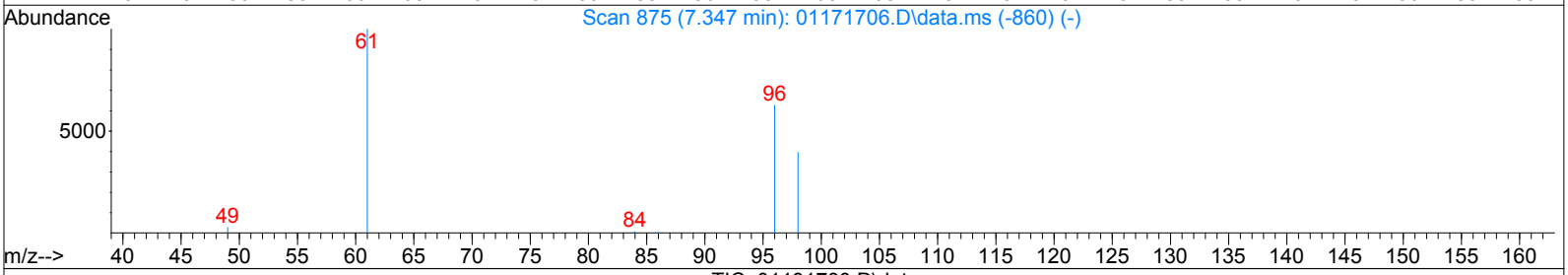
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	32.93
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(12) 1,1-Dichloroethene (T)

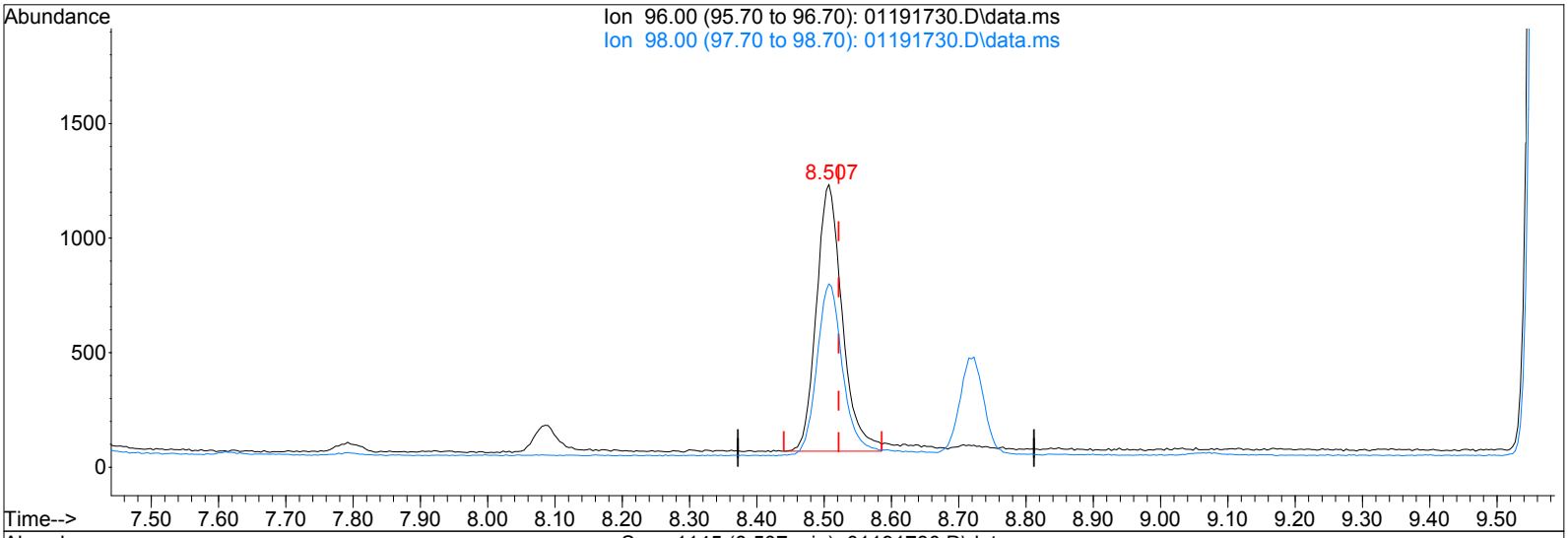
7.338min (+0.005) 179.66pg

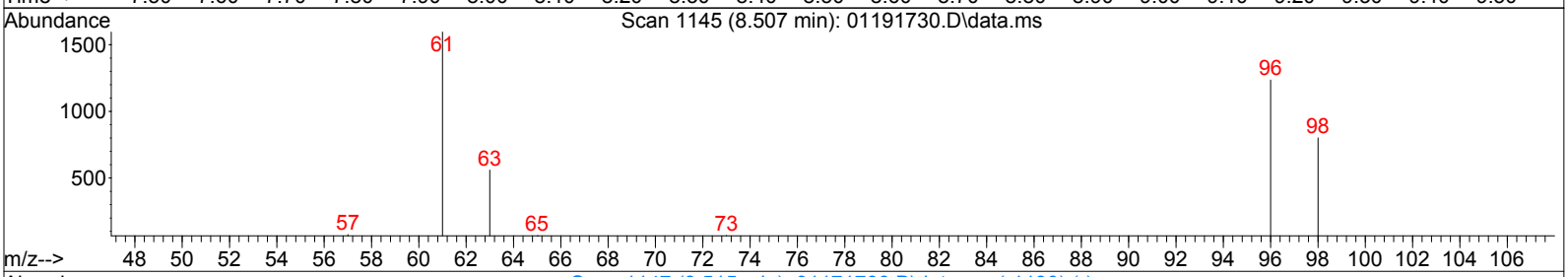
response 11525

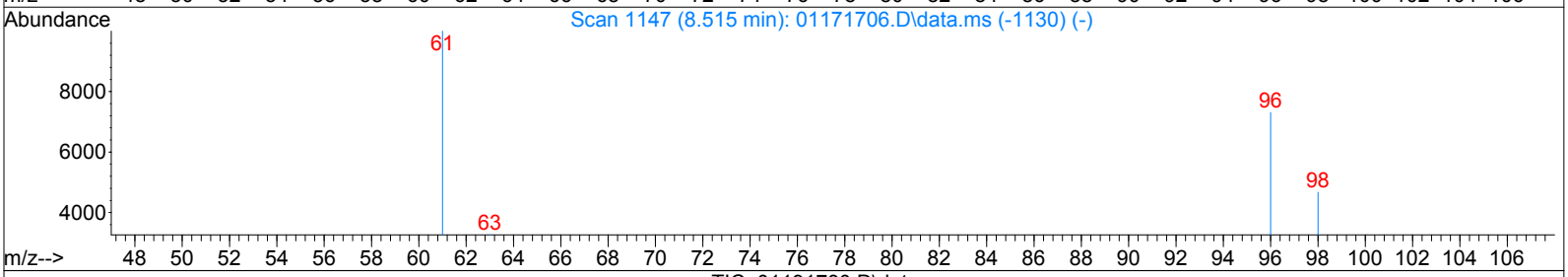
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	64.20
61.00	162.10	155.79
0.00	0.00	0.00

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 45.01pg

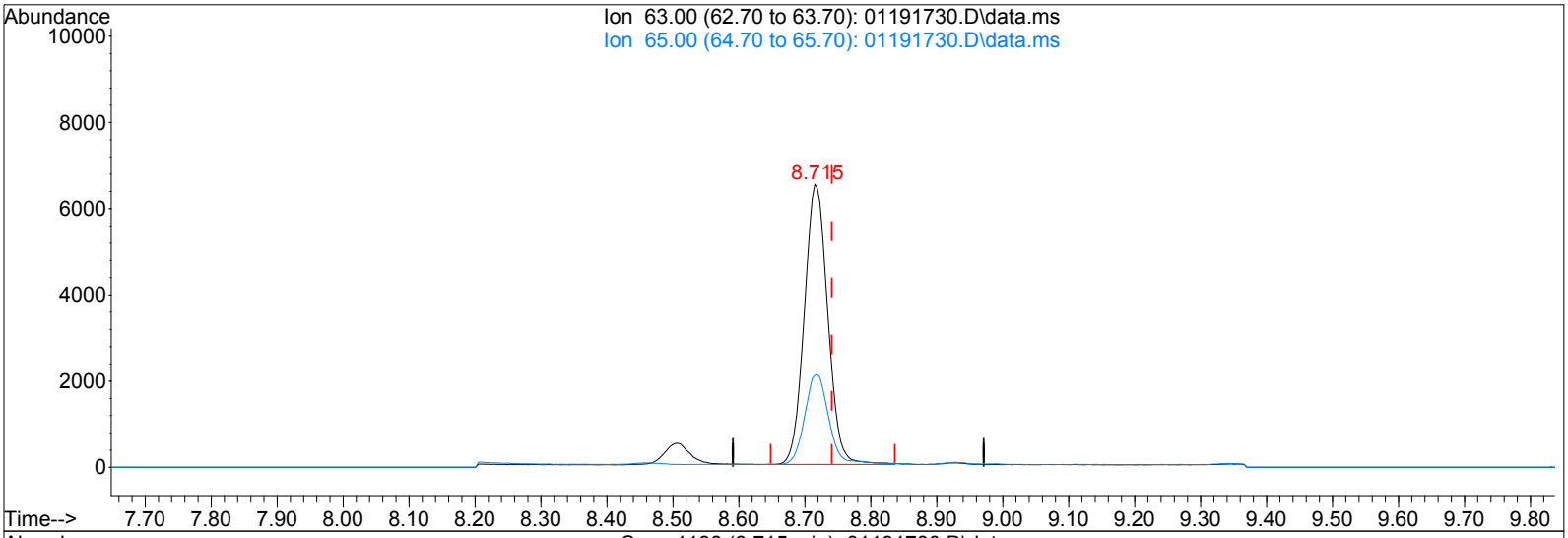
response 3113

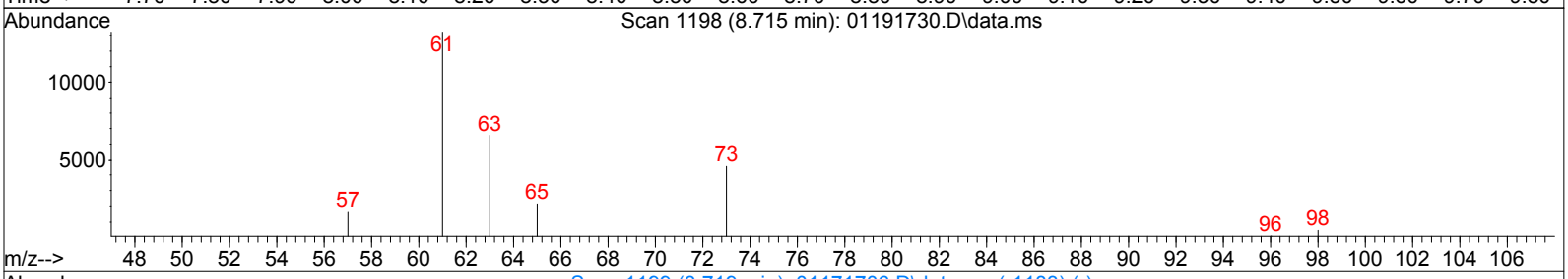
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	66.14
0.00	0.00	0.00
0.00	0.00	0.00

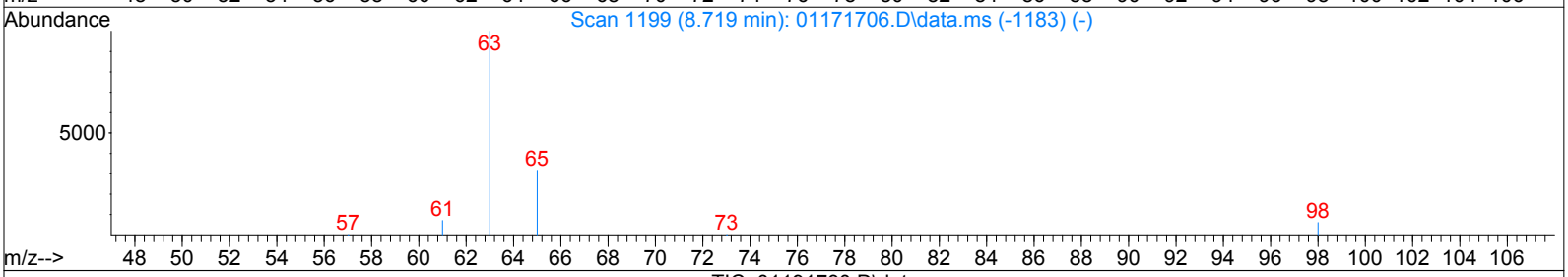
Quantitation Report (Qedit)

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 130.71pg

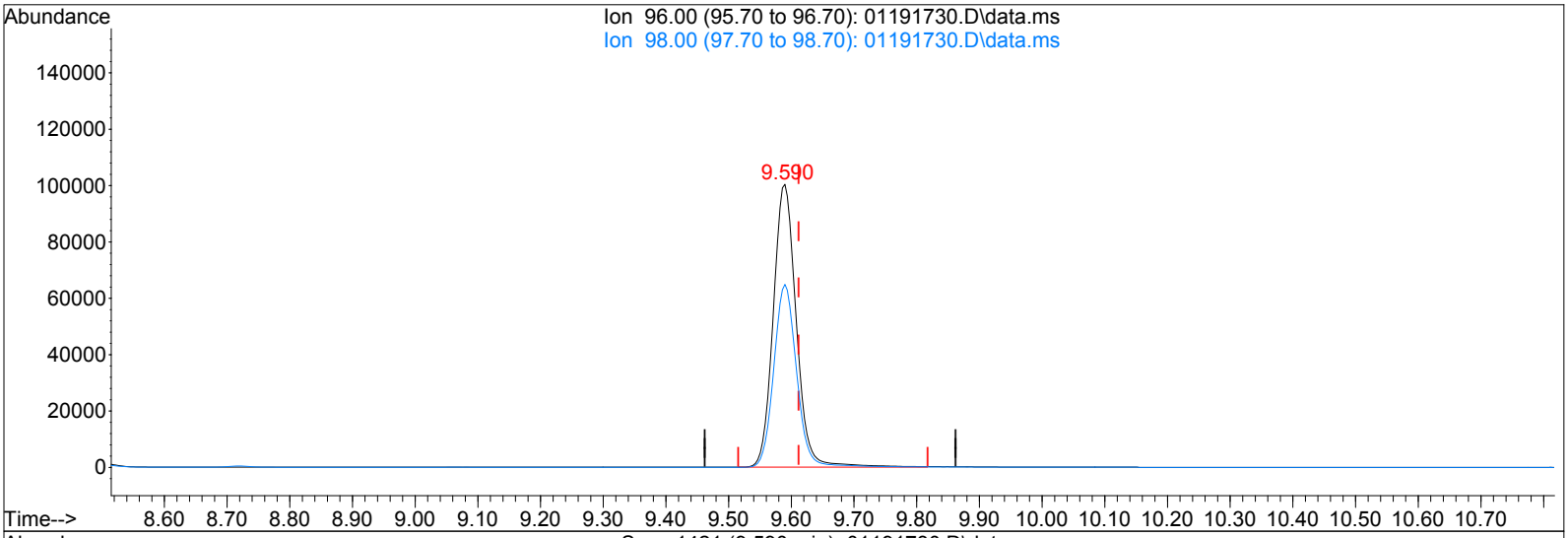
response 16037

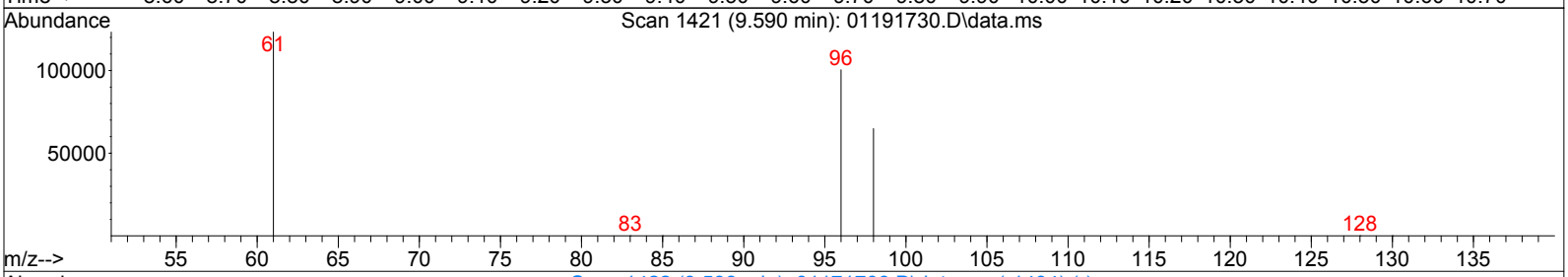
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.79
0.00	0.00	0.00
0.00	0.00	0.00

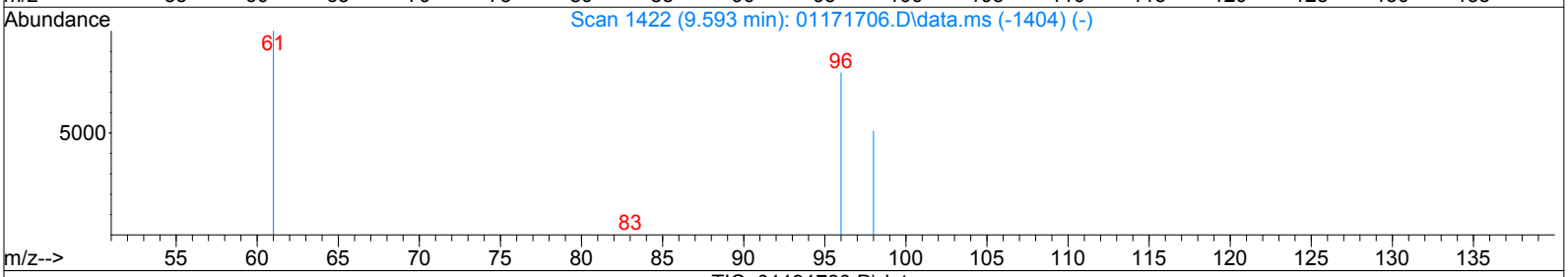
Quantitation Report (Qedit)

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.590min (-0.022) 3542.99pg

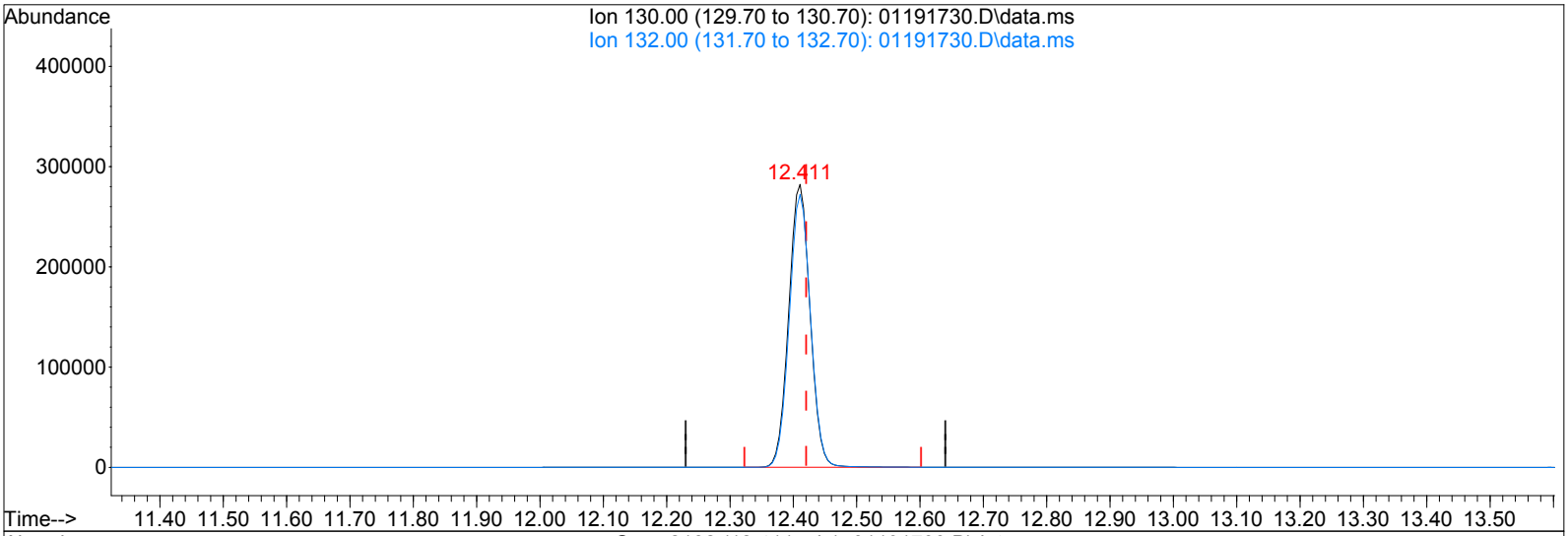
response 257116

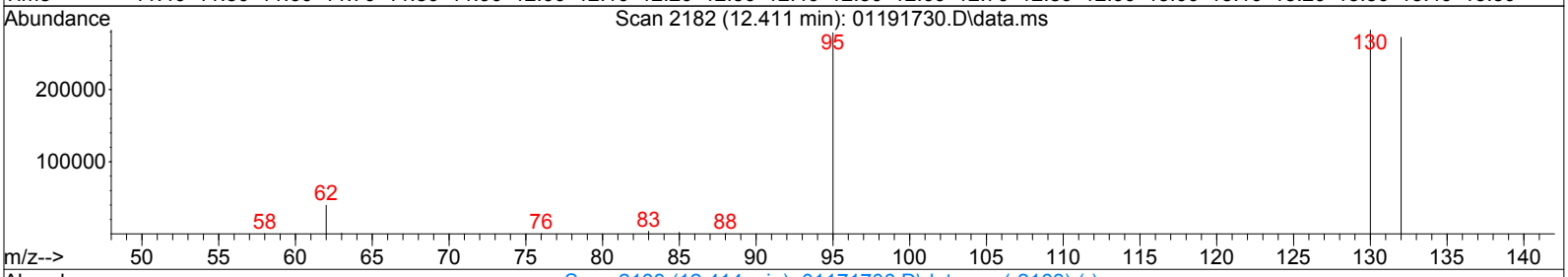
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.24
0.00	0.00	0.00
0.00	0.00	0.00

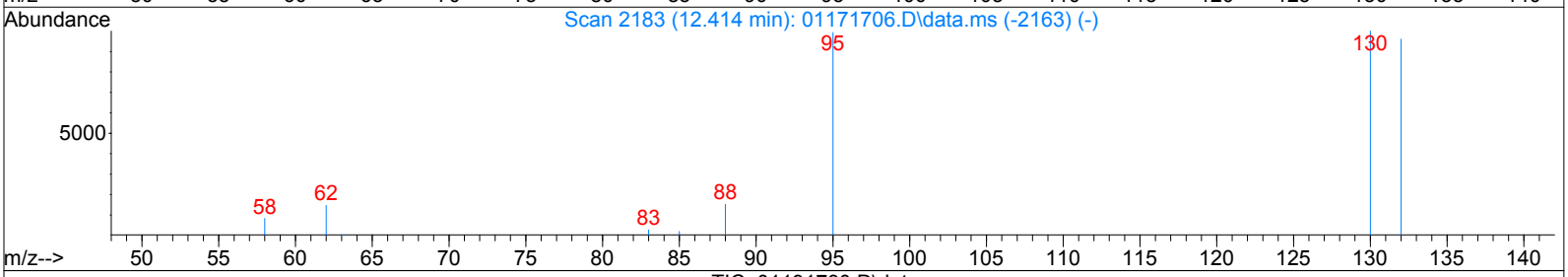
Quantitation Report (Qedit)

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 8147.40pg

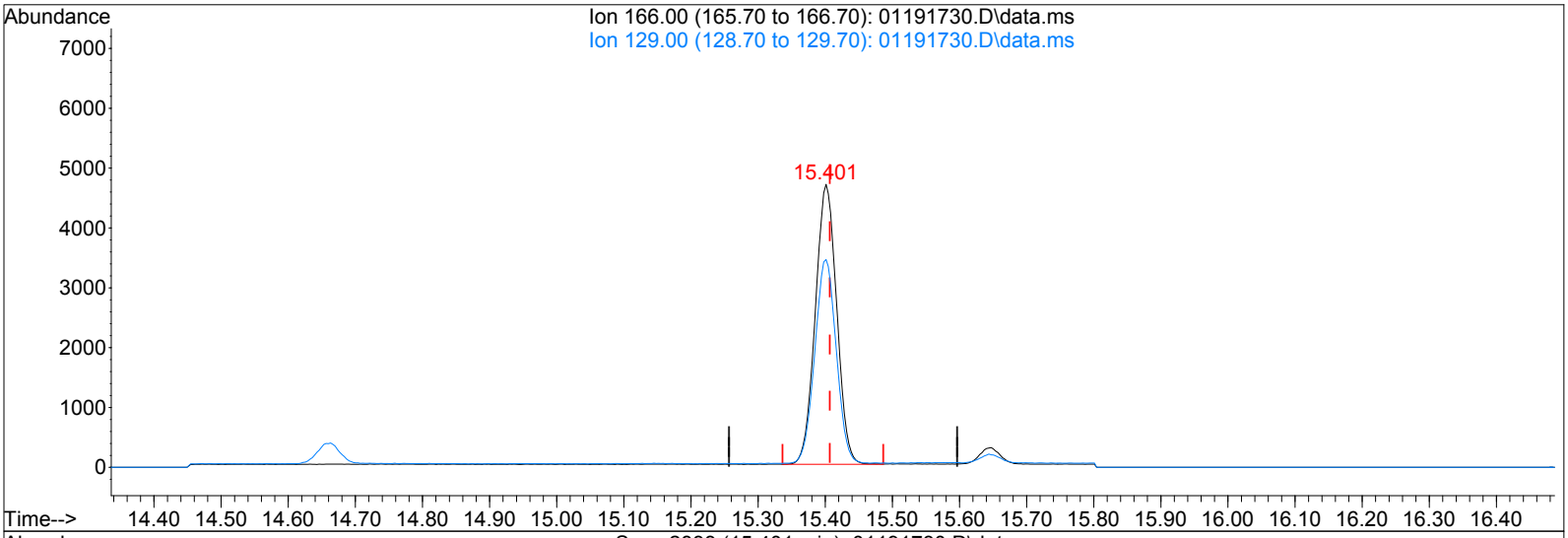
response 660159

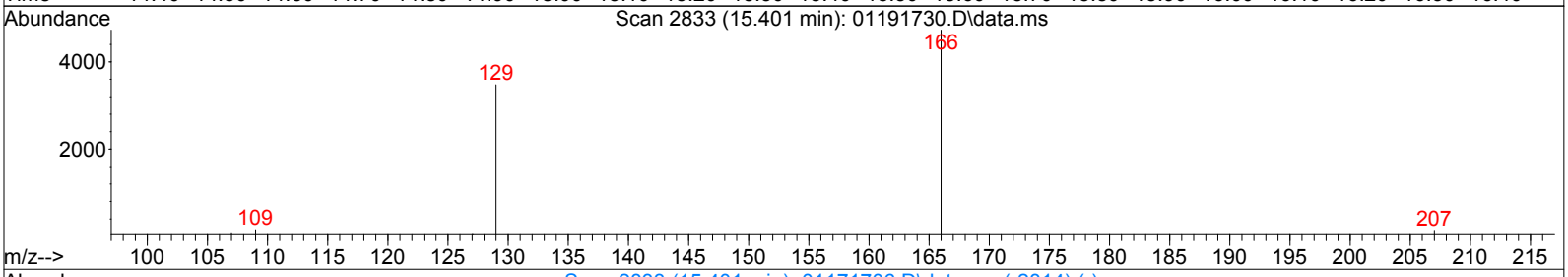
Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.18
0.00	0.00	0.00
0.00	0.00	0.00

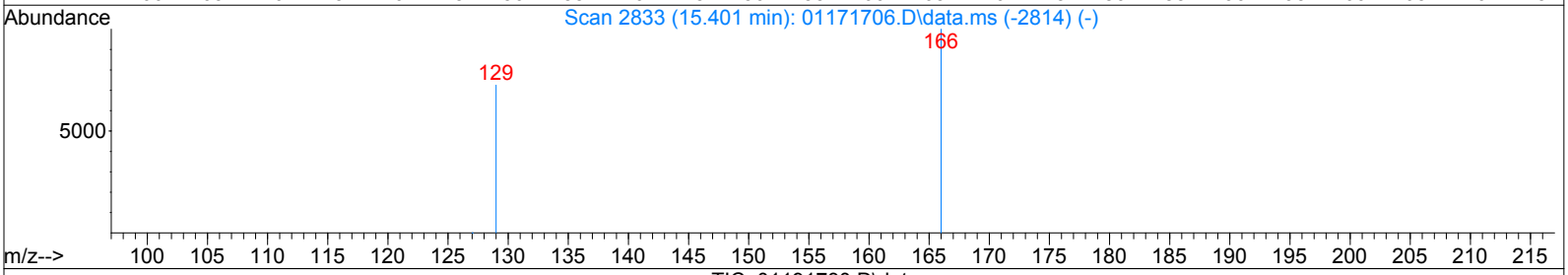
Quantitation Report (Qedit)

Data File: I:\MS19\DATA\2017 01\19\01191730.D
Acq On : 19 Jan 2017 20:32 Operator: CL
Sample : P1700163-019 (1000mL)
Misc : S29-12201602
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 20 10:37:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01191730.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 123.04pg

response 10337

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.05
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	55439	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	277928	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	45229	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	95233	991.879	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.19%				
33) Toluene-d8 (SS2)	14.15	98	282212	1022.224	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.22%				
45) Bromofluorobenzene (SS3)	17.55	174	88712	1072.148	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.22%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	209122	1493.141	pg		100
3) Chloromethane	4.61	52	11280	270.335	pg		93
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	7926	57.521	pg		99
5) Vinyl Chloride	4.91	62	404	N.D.			
6) 1,3-Butadiene	5.10	54	752	9.447	pg	#	85
7) Bromomethane	5.47	94	1022	18.975	pg		96
8) Chloroethane	5.69	64	561	13.619	pg		97
9) Acrolein	6.26	56	5595	191.195	pg		98
10) Acetone	6.38	58	715219	18903.344	pg		99
11) Trichlorofluoromethane	6.60	101	90993	949.897	pg		100
12) 1,1-Dichloroethene	7.33	96	110	N.D.			
13) Methylene Chloride	7.47	84	14954	229.618	pg		92
14) Trichlorotrifluoroethane	7.79	151	19434	324.583	pg		99
15) trans-1,2-Dichloroethene	8.51	96	320	N.D.			
16) 1,1-Dichloroethane	8.71	63	707	6.159	pg		72
17) Methyl tert-Butyl Ether	8.80	73	1019	5.949	pg		99
18) cis-1,2-Dichloroethene	9.59	96	445	6.554	pg		97
19) Chloroform	9.89	83	26622	220.554	pg		99
21) 1,2-Dichloroethane	10.64	62	8661	93.212	pg		99
22) 1,1,1-Trichloroethane	10.91	97	942	8.407	pg		99
23) Benzene	11.37	78	121693	457.592	pg		100
24) Carbon Tetrachloride	11.52	117	27977	310.955	pg		100
26) 1,2-Dichloropropane	12.18	63	1299	18.349	pg		98
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	7203	99.684	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.26	75	116	N.D.			
31) trans-1,3-Dichloropropene	13.77	75	228	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	178	N.D.			
34) Toluene	14.25	91	213382	827.516	pg		99
35) Dibromochloromethane	14.66	129	80	N.D.			
36) 1,2-Dibromoethane	14.92	107	113	N.D.			
37) Tetrachloroethene	15.40	166	1607	21.449	pg		99
39) Chlorobenzene	16.10	112	1746	10.014	pg		98
40) Ethylbenzene	16.48	91	37984	147.732	pg		100
41) m,p-Xylene	16.65	91	125017	648.261	pg		99
42) Styrene	17.01	104	13716	101.517	pg		95
43) o-Xylene	17.12	106	20177	203.662	pg		99
44) 1,1,2,2-Tetrachloroethane	17.12	83	401	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	8974	43.959	pg		97
47) 1,2,4-Trimethylbenzene	18.77	105	31083	155.125	pg		88
48) 1,3-Dichlorobenzene	18.92	146	284	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	1583	12.346	pg		98
50) 1,2-Dichlorobenzene	19.31	146	724	5.769	pg		99
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	258	N.D.			
53) Naphthalene	21.06	128	16305	69.121	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

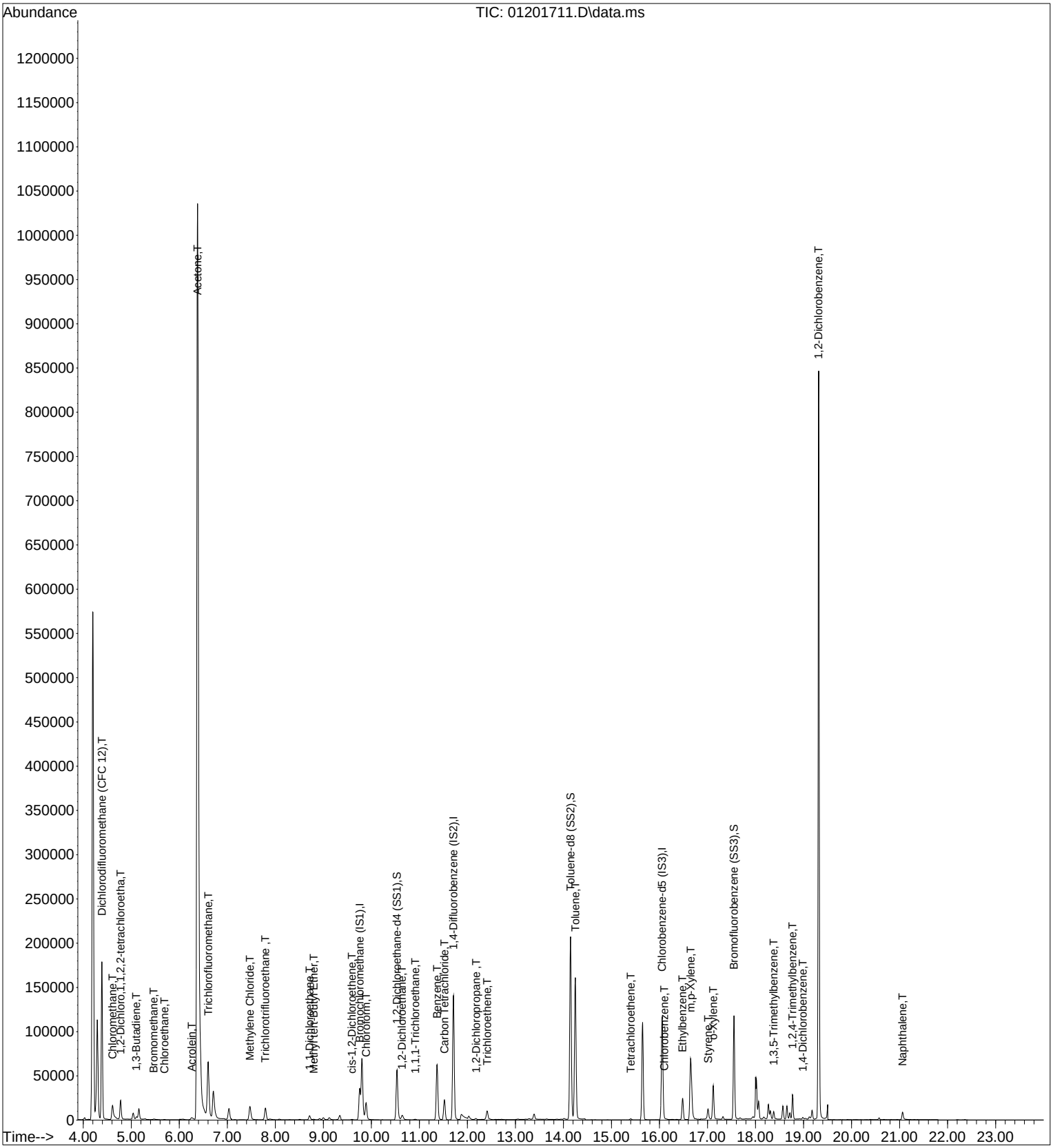
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

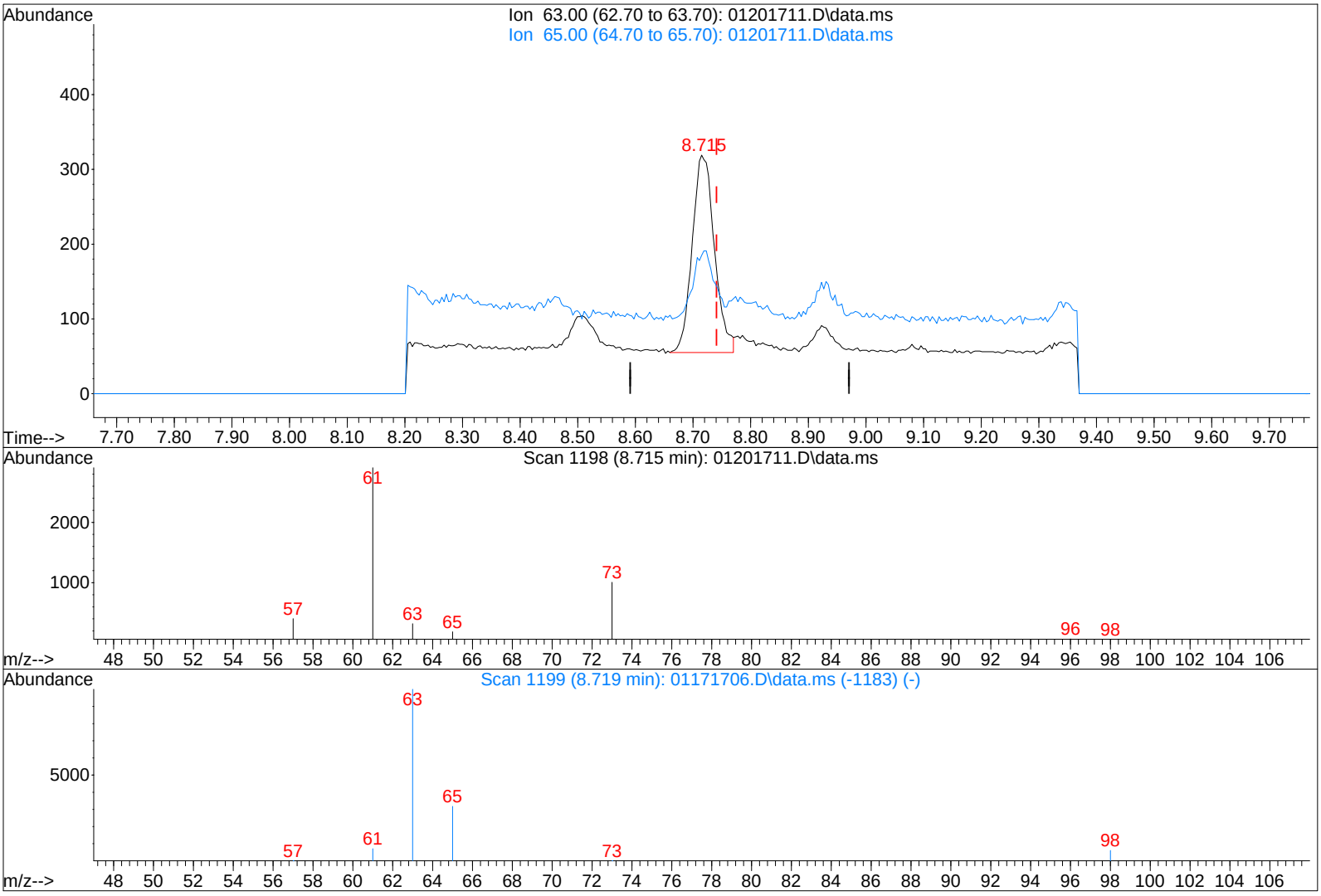
Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201711.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 6.16pg

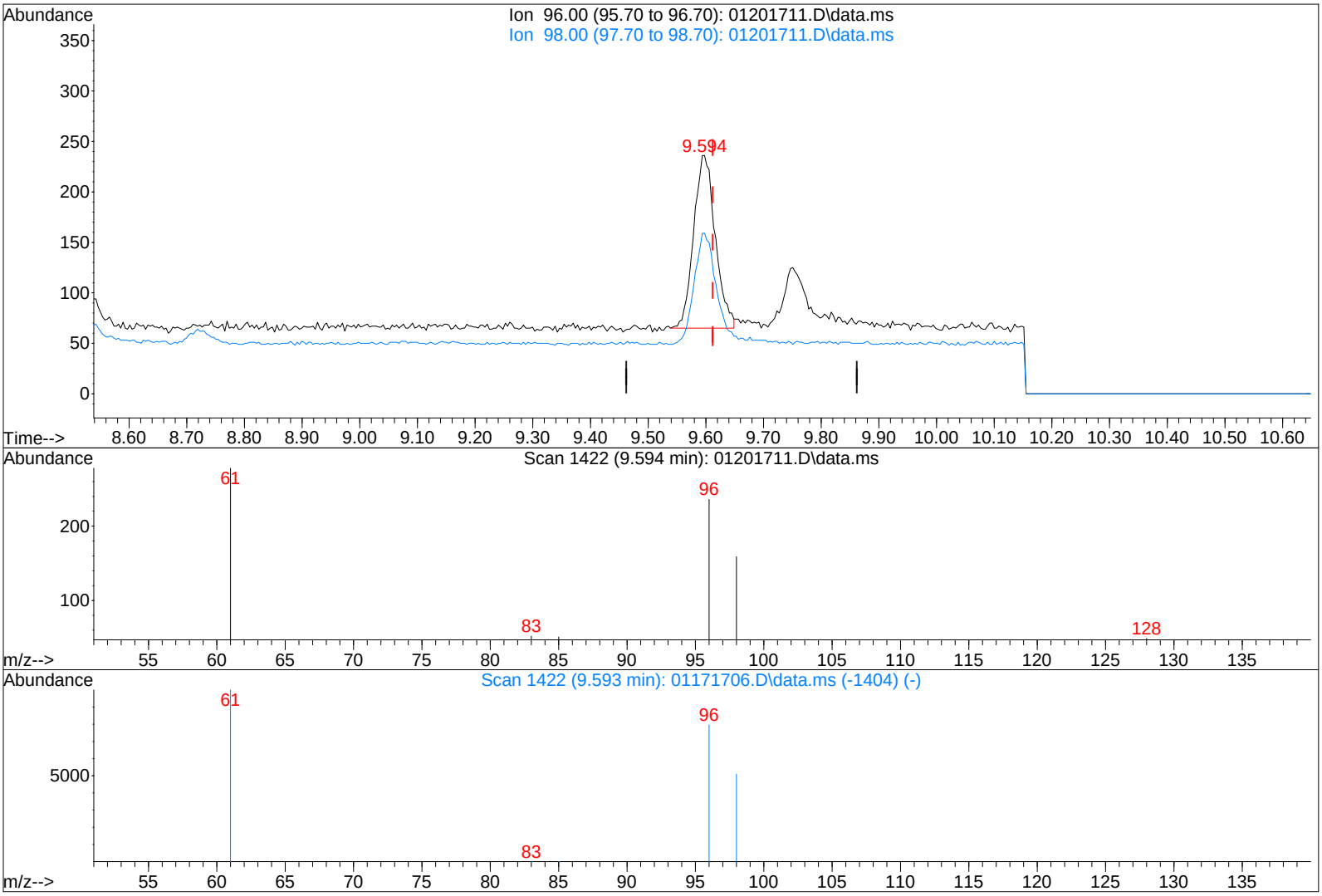
response 707

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	16.41
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201711.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 6.55pg

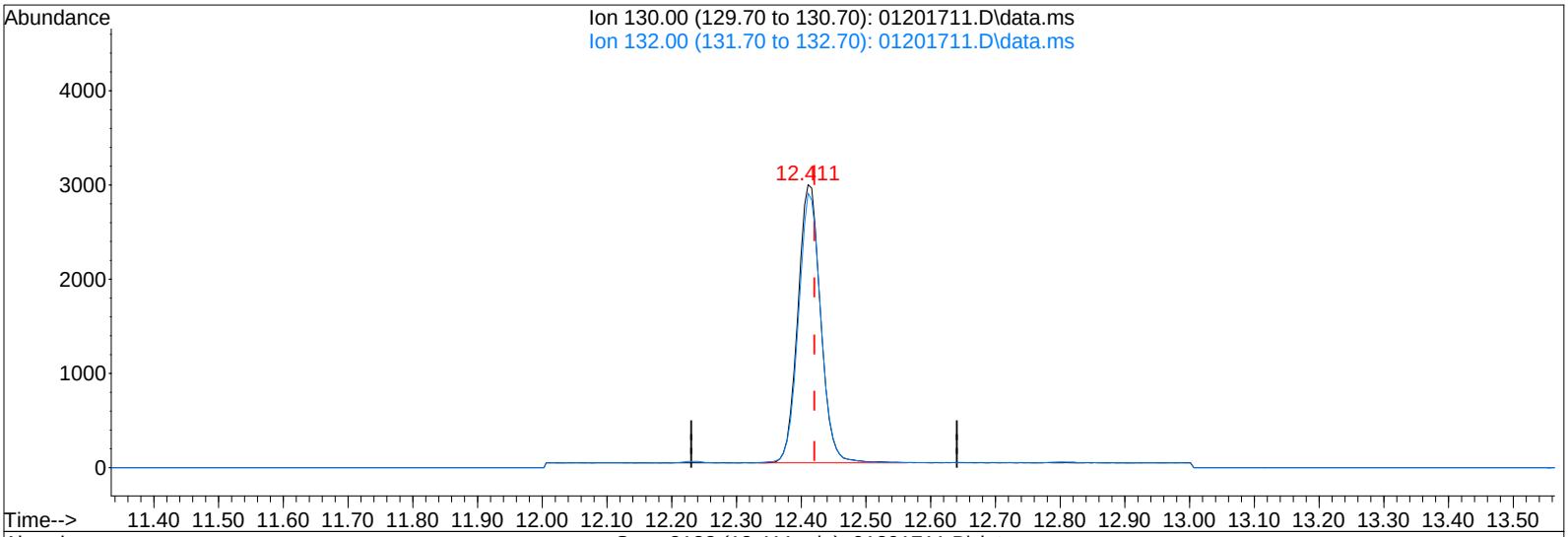
response 445

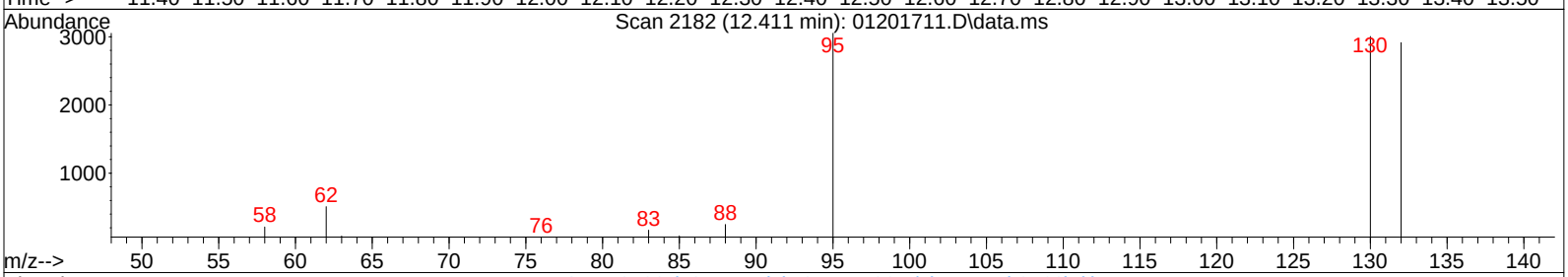
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.07
0.00	0.00	0.00
0.00	0.00	0.00

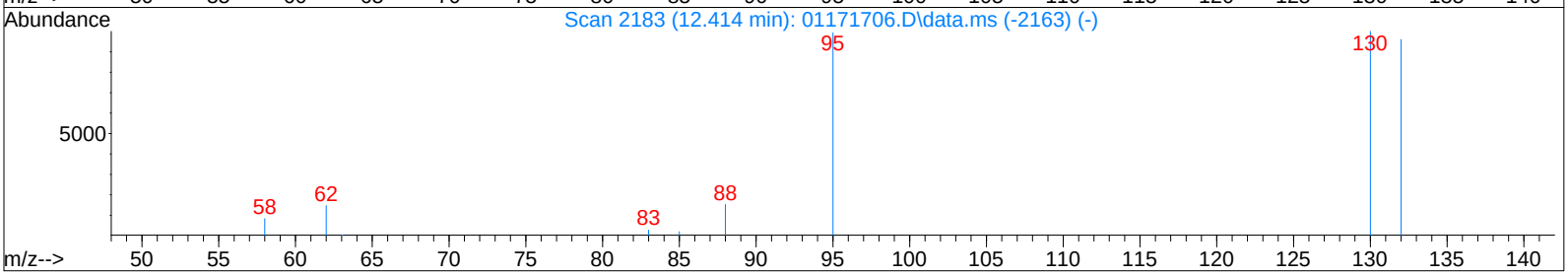
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01201711.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 99.68pg

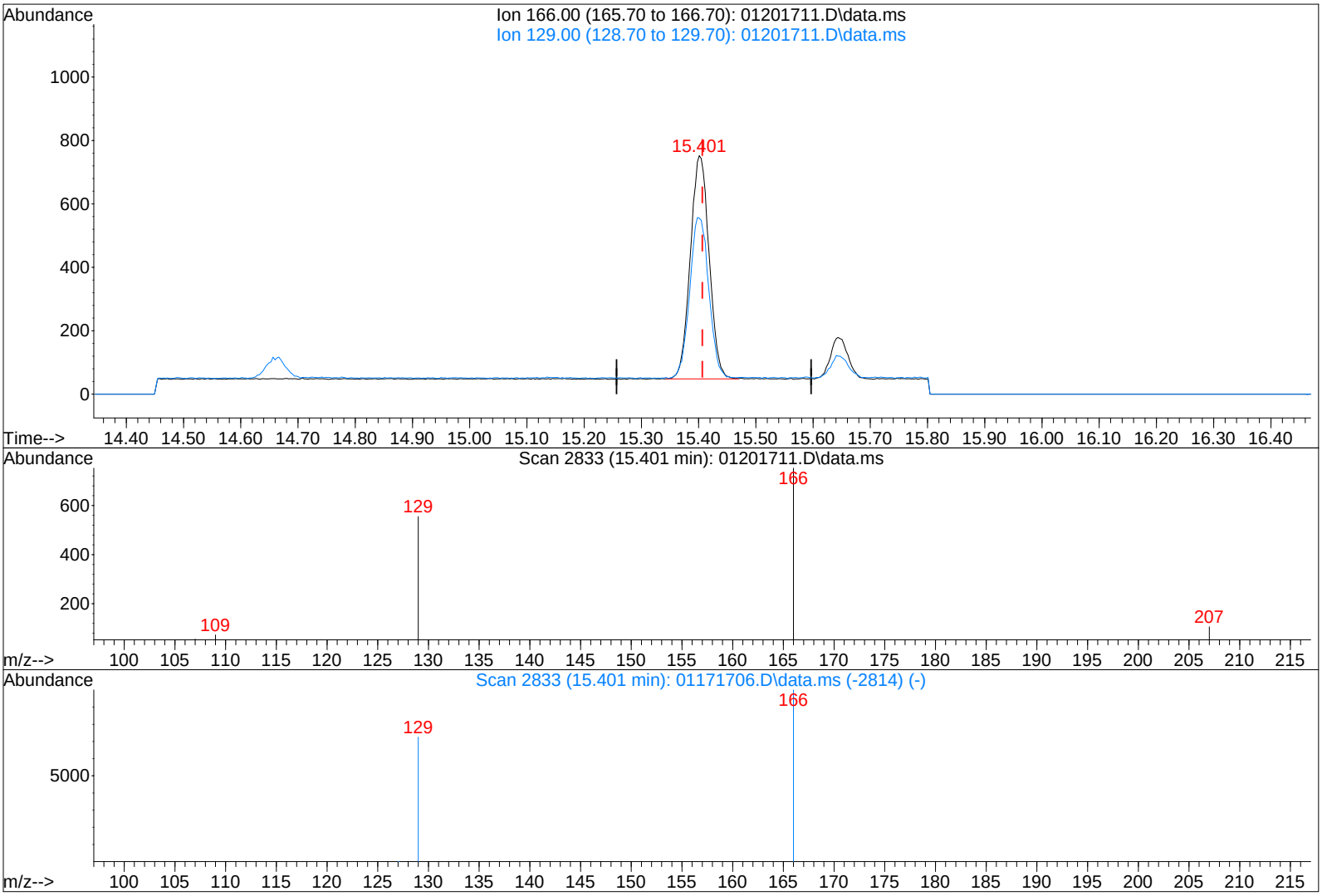
response 7203

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.61
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201711.D Vial: 12
Acq On : 20 Jan 2017 6:39 Operator: CL
Sample : P1700163-025 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 11:00:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201711.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 21.45pg

response 1607

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.37
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191704.D Vial: 2
Acq On : 19 Jan 2017 5:56 Operator: CL
Sample : MB S19011917 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 19 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	56285	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259848	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42652	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	94850	973.041	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.30%			
33) Toluene-d8 (SS2)	14.15	98	261542	1013.269	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.33%			
45) Bromofluorobenzene (SS3)	17.56	174	78364	1004.307	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	104	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	4442	115.638	pg	96
11) Trichlorofluoromethane	6.65	101	53	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	281	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	113	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	1080	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	4652	N.D.		
24) Carbon Tetrachloride	11.54	117	66	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.43	130	56	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	813	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.11	112	206	N.D.		
40) Ethylbenzene	16.50	91	168	N.D.		
41) m,p-Xylene	16.67	91	342	N.D.		
42) Styrene	17.04	104	212	N.D.		
43) o-Xylene	17.13	106	50	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.11	83	64	N.D.		
46) 1,3,5-Trimethylbenzene	18.39	105	87	N.D.		
47) 1,2,4-Trimethylbenzene	18.78	105	108	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	237	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	337	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	235	N.D.		
51) 1,2-Dibromo-3-chloropr...	19.73	157	92	N.D.		
52) 1,2,4-Trichlorobenzene	21.00	182	512	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191704.D Vial: 2
Acq On : 19 Jan 2017 5:56 Operator: CL
Sample : MB S19011917 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 19 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

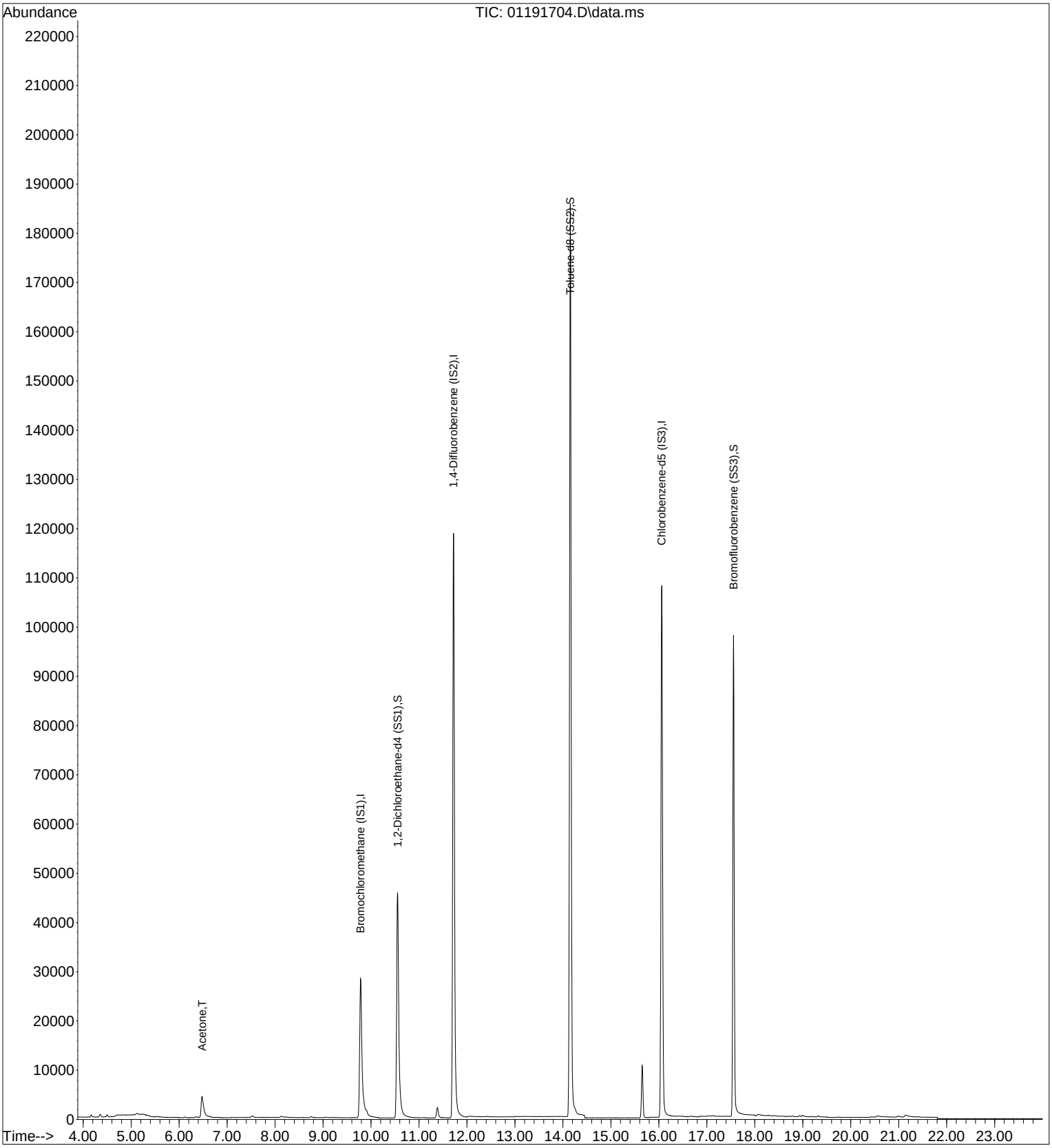
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	84	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191704.D Vial: 2
Acq On : 19 Jan 2017 5:56 Operator: CL
Sample : MB S19011917 1000mL Inst : MS19
Misc : S29-12201602/AC01205

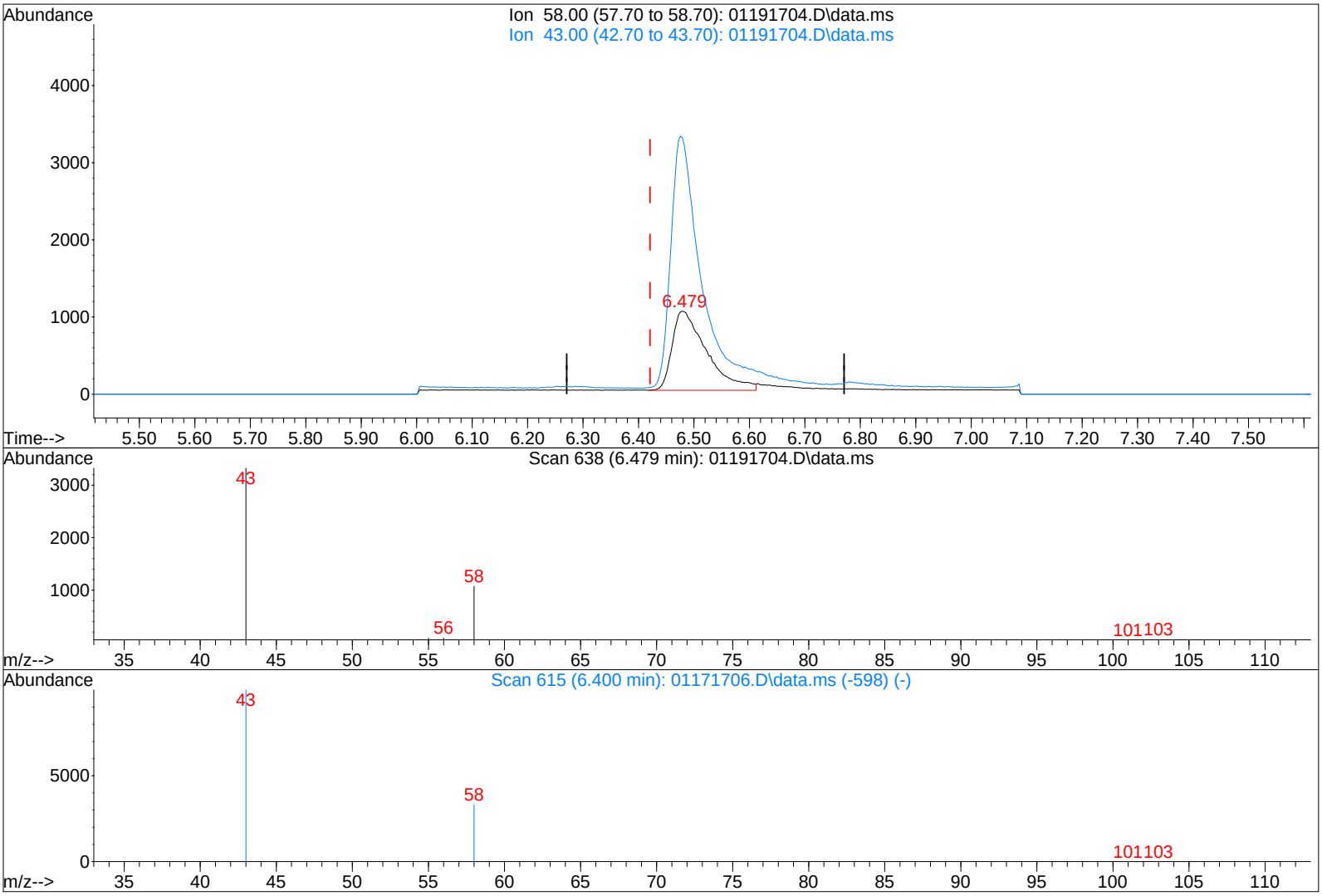
Quant Time: Jan 19 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\19\01191704.D Vial: 2
Acq On : 19 Jan 2017 5:56 Operator: CL
Sample : MB S19011917 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 19 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01191704.D\data.ms

(10) Acetone (T)

6.479min (+0.058) 115.64pg

response 4442

Ion	Exp%	Act%
58.00	100	100
43.00	303.20	295.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	54578	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	246137	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	40818	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	91993	973.249	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.32%			
33) Toluene-d8 (SS2)	14.15	98	249041	1018.584	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.86%			
45) Bromofluorobenzene (SS3)	17.56	174	73368	982.526	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	100	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	5612	150.666	pg	# 83
11) Trichlorofluoromethane	6.65	101	50	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	273	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	129	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.90	83	1239	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	4804	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.43	130	71	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	867	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.10	112	134	N.D.		
40) Ethylbenzene	16.49	91	112	N.D.		
41) m,p-Xylene	16.67	91	236	N.D.		
42) Styrene	17.04	104	150	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	119	N.D.		
46) 1,3,5-Trimethylbenzene	18.40	105	51	N.D.		
47) 1,2,4-Trimethylbenzene	18.79	105	87	N.D.		
48) 1,3-Dichlorobenzene	18.94	146	110	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	161	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	104	N.D.		
51) 1,2-Dibromo-3-chloropr...	19.73	157	57	N.D.		
52) 1,2,4-Trichlorobenzene	21.00	182	261	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

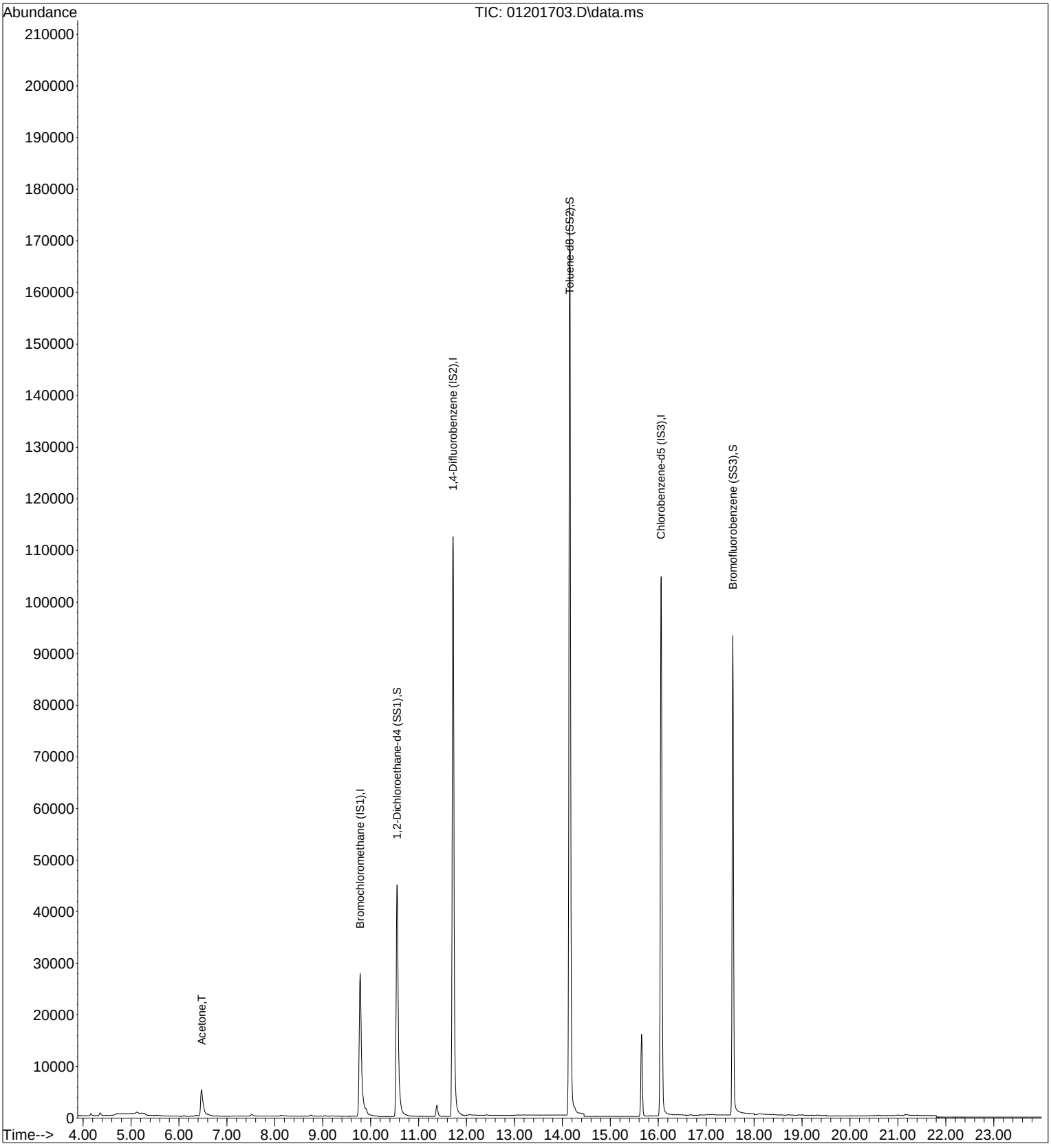
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	61	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

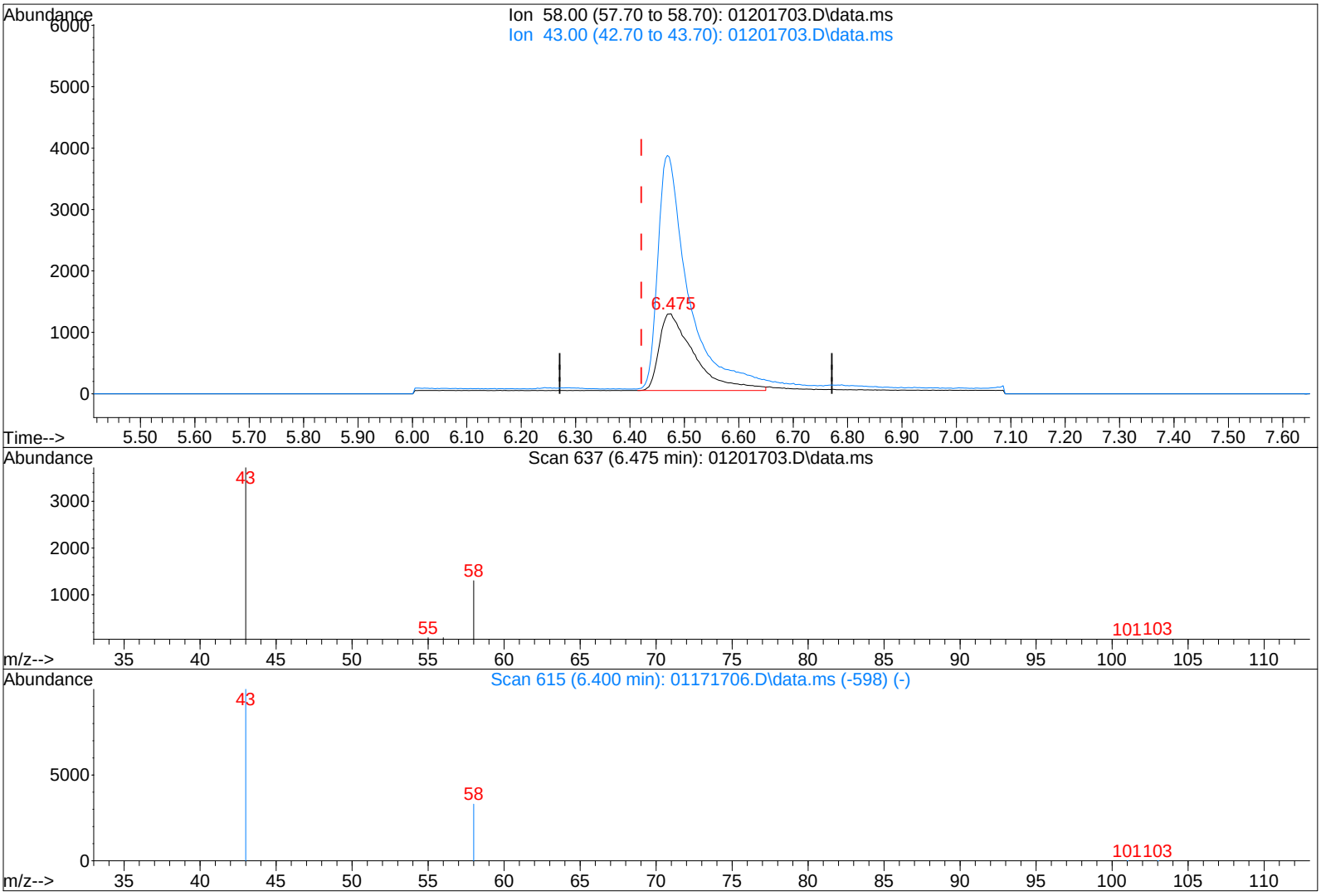
Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201703.D\data.ms

(10) Acetone (T)

6.475min (+0.054) 150.67pg

response 5612

Ion	Exp%	Act%
58.00	100	100
43.00	303.20	269.10#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191705.D Vial: 2
Acq On : 19 Jan 2017 6:27 Operator: CL
Sample : LCS S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 19 07:13:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	56636	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	287670	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	44760	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	94788	966.379	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.64%			
33) Toluene-d8 (SS2)	14.15	98	276786	968.617	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.86%			
45) Bromofluorobenzene (SS3)	17.55	174	89936	1098.330	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.83%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	74681	521.956	pg	100
3) Chloromethane	4.65	52	20317	476.624	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	63309	449.739	pg	100
5) Vinyl Chloride	4.96	62	66903	489.119	pg	100
6) 1,3-Butadiene	5.14	54	33488	411.788	pg	100
7) Bromomethane	5.48	94	28145	511.504	pg	100
8) Chloroethane	5.70	64	20401	484.778	pg	99
9) Acrolein	6.27	56	13095	438.031	pg	98
10) Acetone	6.40	58	99861	2583.559	pg	99
11) Trichlorofluoromethane	6.61	101	53662	548.351	pg	100
12) 1,1-Dichloroethene	7.35	96	31861	519.677	pg	98
13) Methylene Chloride	7.48	84	36400	547.107	pg	95
14) Trichlorotrifluoroethane	7.80	151	31872	521.070	pg	100
15) trans-1,2-Dichloroethene	8.51	96	34722	525.334	pg	100
16) 1,1-Dichloroethane	8.72	63	60499	515.929	pg	100
17) Methyl tert-Butyl Ether	8.79	73	93642	535.158	pg	98
18) cis-1,2-Dichloroethene	9.59	96	36679	528.827	pg	100
19) Chloroform	9.89	83	64110	519.904	pg	100
21) 1,2-Dichloroethane	10.64	62	48350	509.360	pg	99
22) 1,1,1-Trichloroethane	10.91	97	56536	493.905	pg	100
23) Benzene	11.37	78	152155	560.044	pg	100
24) Carbon Tetrachloride	11.52	117	48806	530.998	pg	100
26) 1,2-Dichloropropane	12.18	63	33495	457.122	pg	99
27) Bromodichloromethane	12.36	83	48197	476.329	pg	100
28) Trichloroethene	12.41	130	37179	497.104	pg	100
29) 1,4-Dioxane	12.38	88	27289	496.900	pg	97
30) cis-1,3-Dichloropropene	13.26	75	50069	508.027	pg	100
31) trans-1,3-Dichloropropene	13.77	75	42725	532.700	pg	100
32) 1,1,2-Trichloroethane	13.95	83	29490	475.806	pg	98
34) Toluene	14.25	91	136774	512.460	pg	100
35) Dibromochloromethane	14.66	129	36393	492.412	pg	100
36) 1,2-Dibromoethane	14.92	107	36078	516.133	pg	99
37) Tetrachloroethene	15.40	166	38403	495.217	pg	100
39) Chlorobenzene	16.10	112	93791	543.566	pg	100
40) Ethylbenzene	16.48	91	141905	557.699	pg	100
41) m,p-Xylene	16.66	91	227604	1192.581	pg	100
42) Styrene	17.01	104	79233	592.575	pg	100
43) o-Xylene	17.12	106	58057	592.154	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	59718	530.102	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	124522	616.364	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	126266	636.755	pg	100
48) 1,3-Dichlorobenzene	18.92	146	75285	617.714	pg	100
49) 1,4-Dichlorobenzene	18.98	146	73722	580.991	pg	100
50) 1,2-Dichlorobenzene	19.31	146	72771	585.908	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	22433	597.491	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	41661	566.685	pg	100
53) Naphthalene	21.07	128	140435	601.578	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191705.D Vial: 2
Acq On : 19 Jan 2017 6:27 Operator: CL
Sample : LCS S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 19 07:13:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

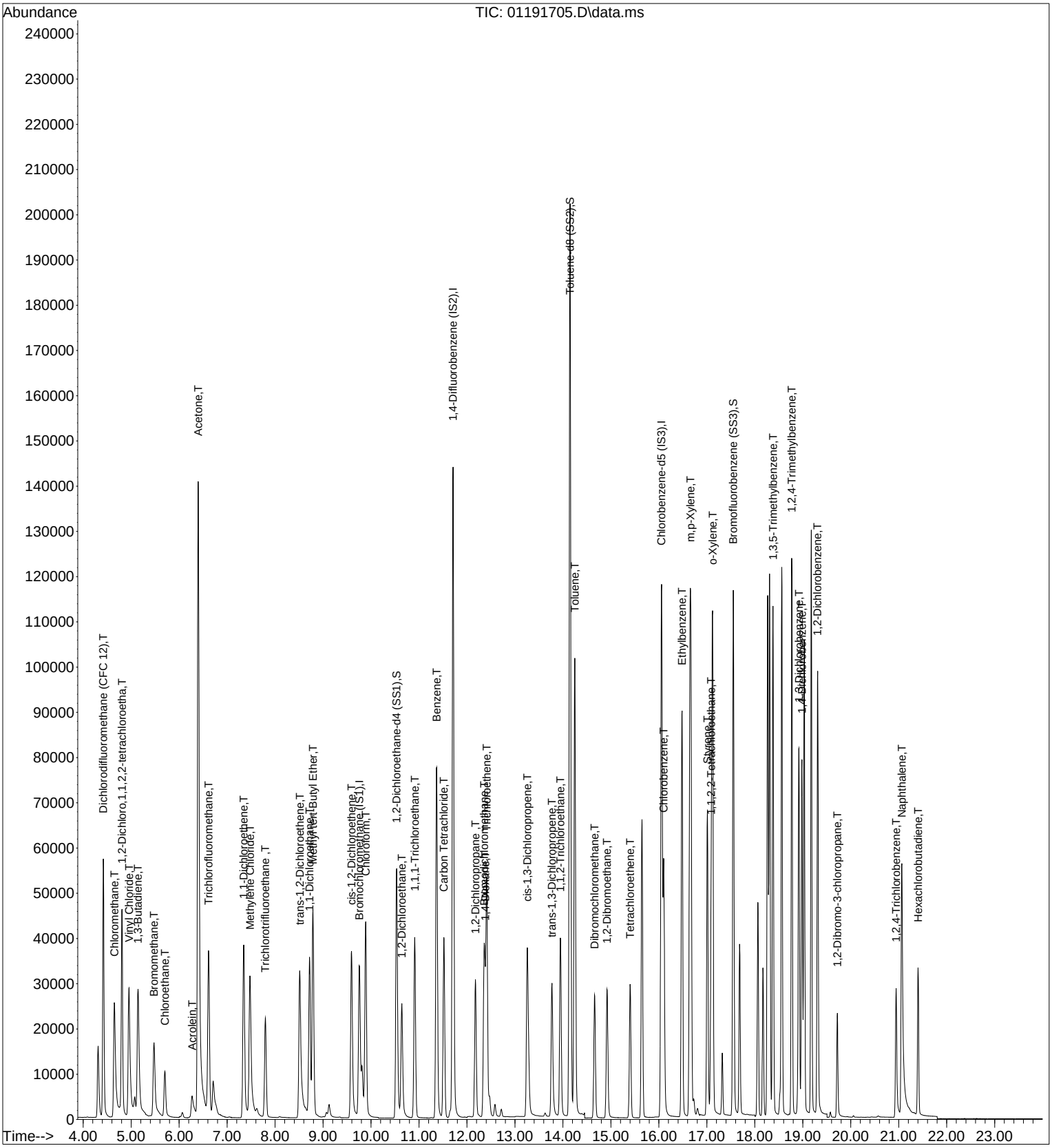
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	32045	550.960	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191705.D Vial: 2
Acq On : 19 Jan 2017 6:27 Operator: CL
Sample : LCS S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 19 07:13:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	54838	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	276607	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	43344	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	92226	971.088	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.11%			
33) Toluene-d8 (SS2)	14.15	98	266856	971.218	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.12%			
45) Bromofluorobenzene (SS3)	17.56	174	85500	1078.267	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.83%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	72919	526.351	pg	100
3) Chloromethane	4.65	52	19174	464.558	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	59443	436.121	pg	100
5) Vinyl Chloride	4.95	62	63222	477.362	pg	100
6) 1,3-Butadiene	5.14	54	33210	421.759	pg	99
7) Bromomethane	5.47	94	27748	520.824	pg	99
8) Chloroethane	5.70	64	20498	503.053	pg	100
9) Acrolein	6.27	56	13083	451.978	pg	98
10) Acetone	6.40	58	100443	2683.818	pg	100
11) Trichlorofluoromethane	6.61	101	51844	547.143	pg	100
12) 1,1-Dichloroethene	7.35	96	30655	516.400	pg	99
13) Methylene Chloride	7.48	84	35594	552.533	pg	97
14) Trichlorotrifluoroethane	7.80	151	30842	520.763	pg	100
15) trans-1,2-Dichloroethene	8.51	96	33468	522.964	pg	96
16) 1,1-Dichloroethane	8.72	63	59581	524.759	pg	100
17) Methyl tert-Butyl Ether	8.79	73	88782	524.020	pg	99
18) cis-1,2-Dichloroethene	9.59	96	35262	525.066	pg	100
19) Chloroform	9.89	83	62277	521.598	pg	100
21) 1,2-Dichloroethane	10.64	62	46661	507.684	pg	100
22) 1,1,1-Trichloroethane	10.91	97	54093	488.057	pg	100
23) Benzene	11.37	78	153140	582.151	pg	100
24) Carbon Tetrachloride	11.52	117	46419	521.586	pg	100
26) 1,2-Dichloropropane	12.17	63	32900	466.960	pg	100
27) Bromodichloromethane	12.35	83	46359	476.488	pg	100
28) Trichloroethene	12.41	130	35444	492.861	pg	100
29) 1,4-Dioxane	12.38	88	26012	492.591	pg	99
30) cis-1,3-Dichloropropene	13.26	75	47670	503.031	pg	100
31) trans-1,3-Dichloropropene	13.77	75	39804	516.130	pg	100
32) 1,1,2-Trichloroethane	13.95	83	28587	479.684	pg	99
34) Toluene	14.25	91	131132	510.971	pg	99
35) Dibromochloromethane	14.66	129	34608	486.988	pg	100
36) 1,2-Dibromoethane	14.92	107	34344	510.977	pg	100
37) Tetrachloroethene	15.40	166	36570	490.441	pg	100
39) Chlorobenzene	16.10	112	89790	537.378	pg	100
40) Ethylbenzene	16.48	91	134211	544.692	pg	100
41) m,p-Xylene	16.66	91	215551	1166.324	pg	100
42) Styrene	17.01	104	74507	575.434	pg	100
43) o-Xylene	17.12	106	55163	581.017	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	58076	532.368	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	118602	606.239	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	119932	624.571	pg	100
48) 1,3-Dichlorobenzene	18.92	146	71280	603.960	pg	100
49) 1,4-Dichlorobenzene	18.98	146	69697	567.215	pg	100
50) 1,2-Dichlorobenzene	19.31	146	69402	577.037	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	21122	580.952	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	38691	543.479	pg	100
53) Naphthalene	21.06	128	129044	570.842	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

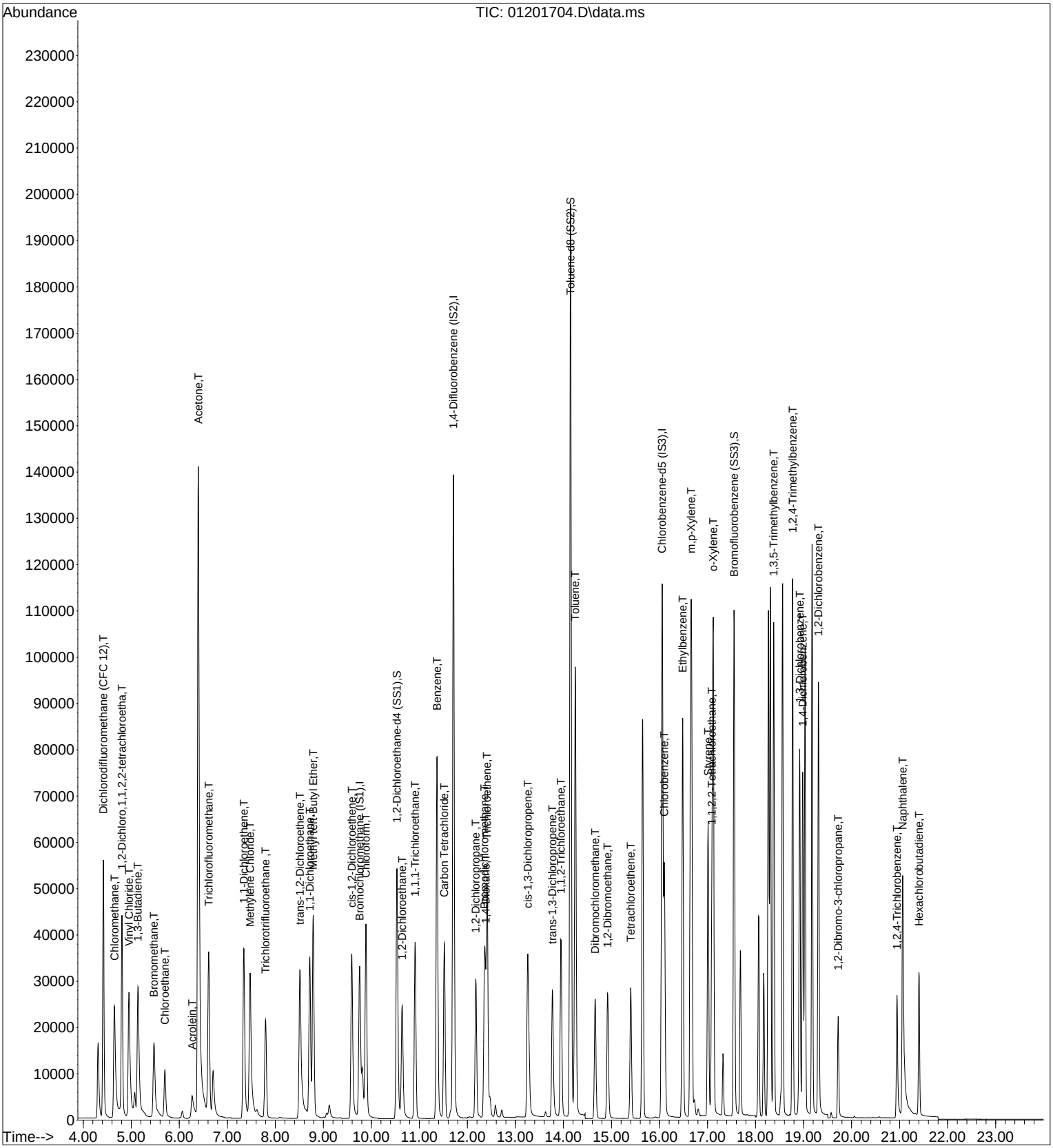
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	30662	544.404	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane		1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771		25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride		2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488		11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors: 5 | 50 | 250 | 1000 | 5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704		
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703		
4ng/L Std. ID:	S29-01171706					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

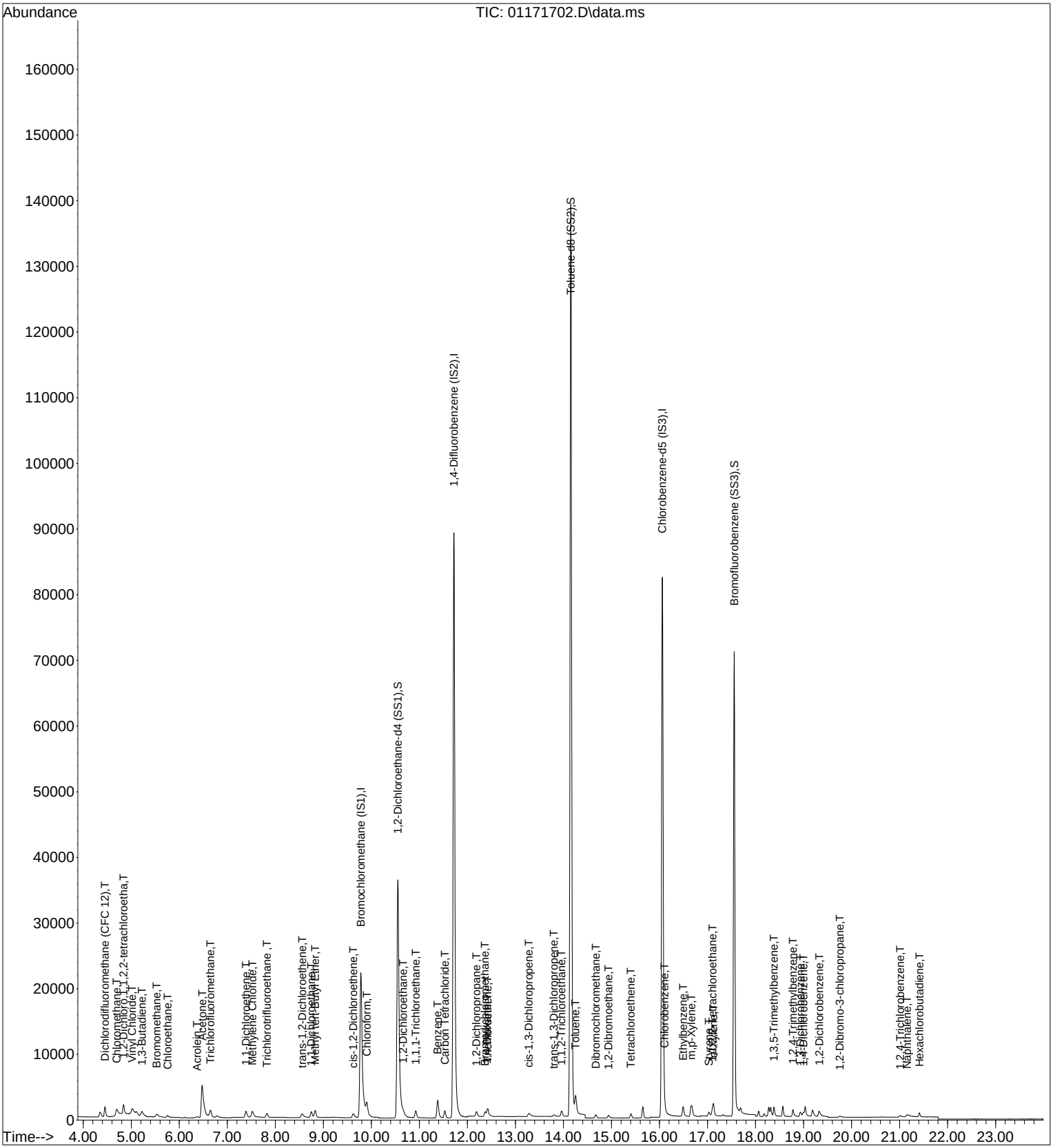
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

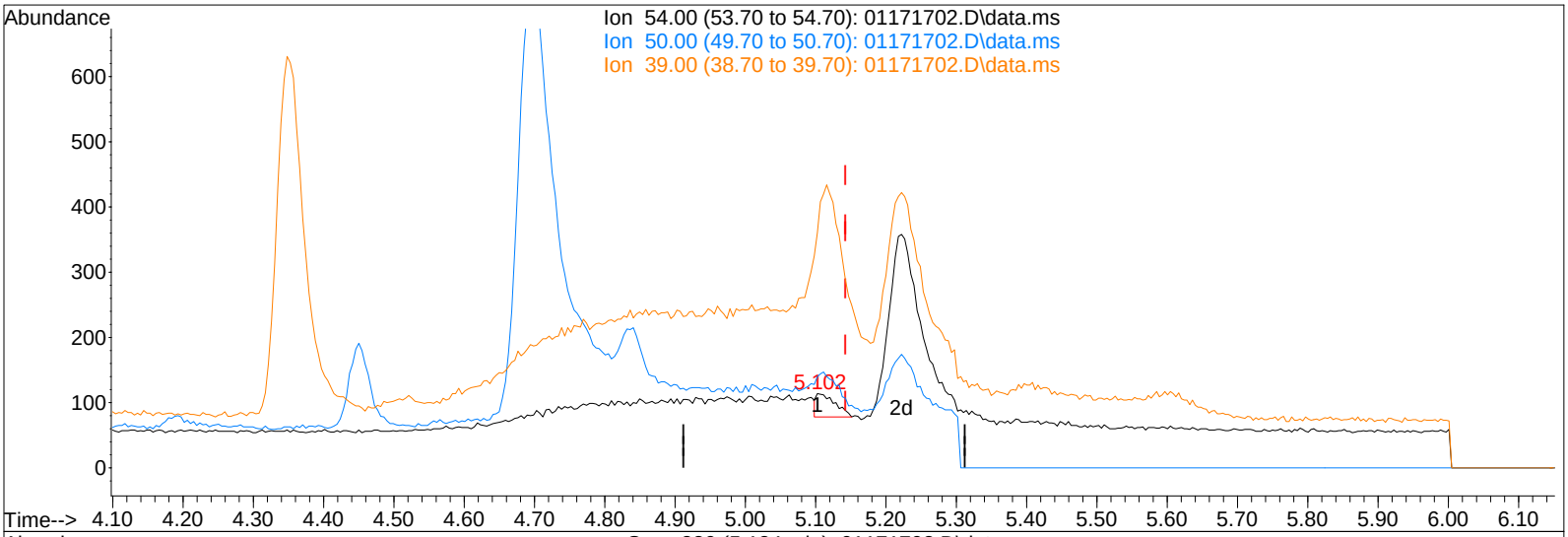
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

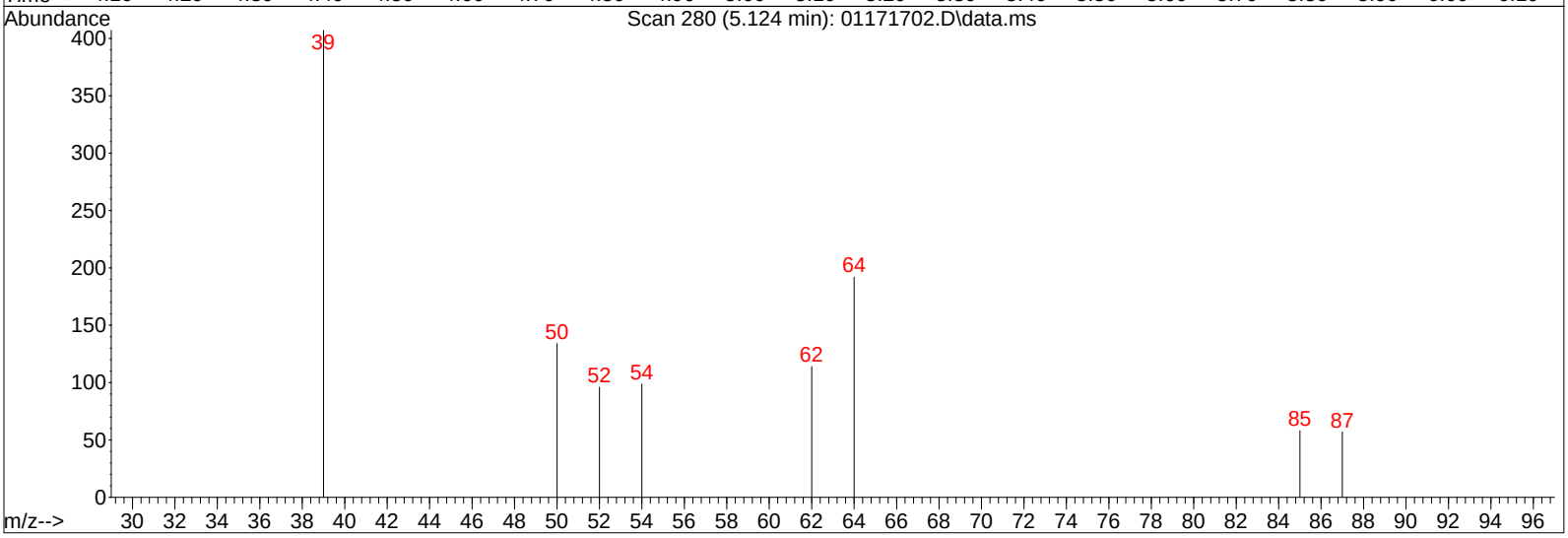


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

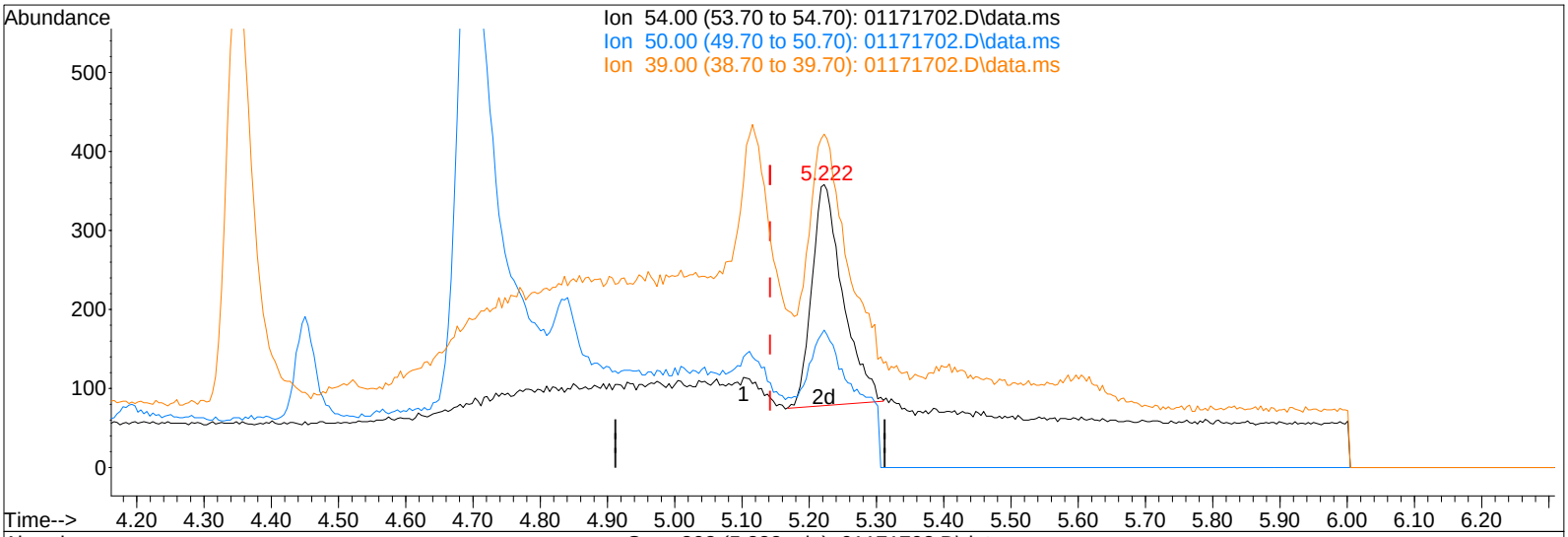
response 67

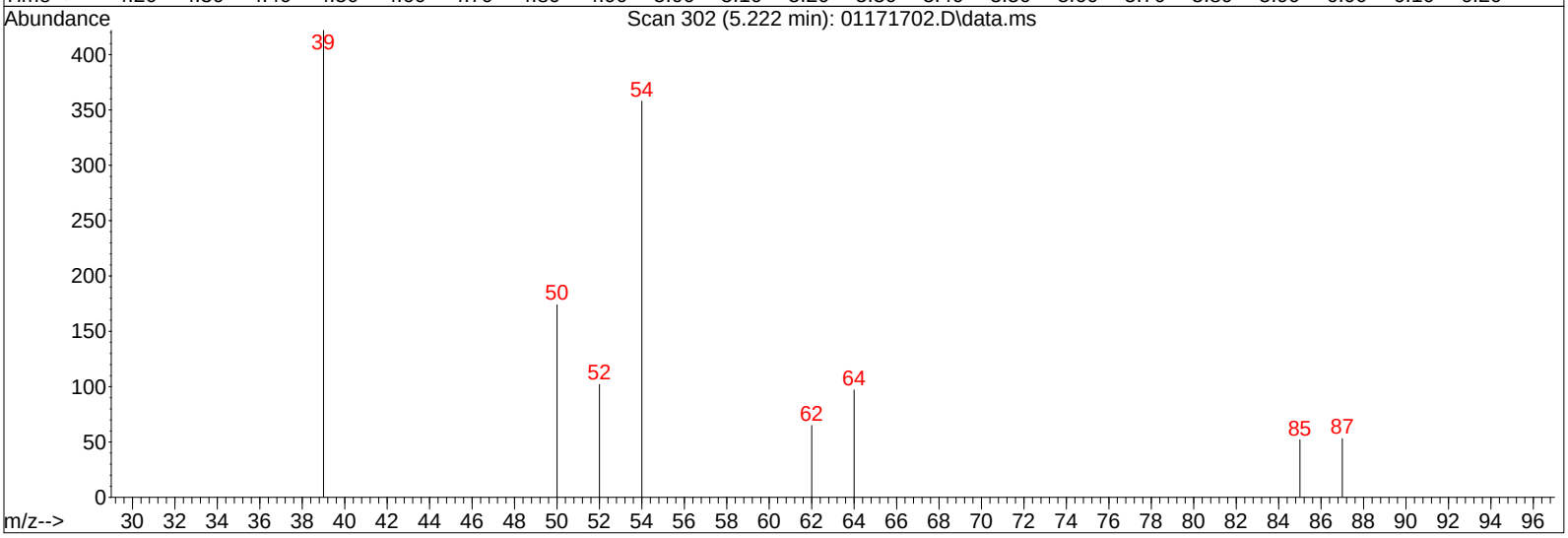
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

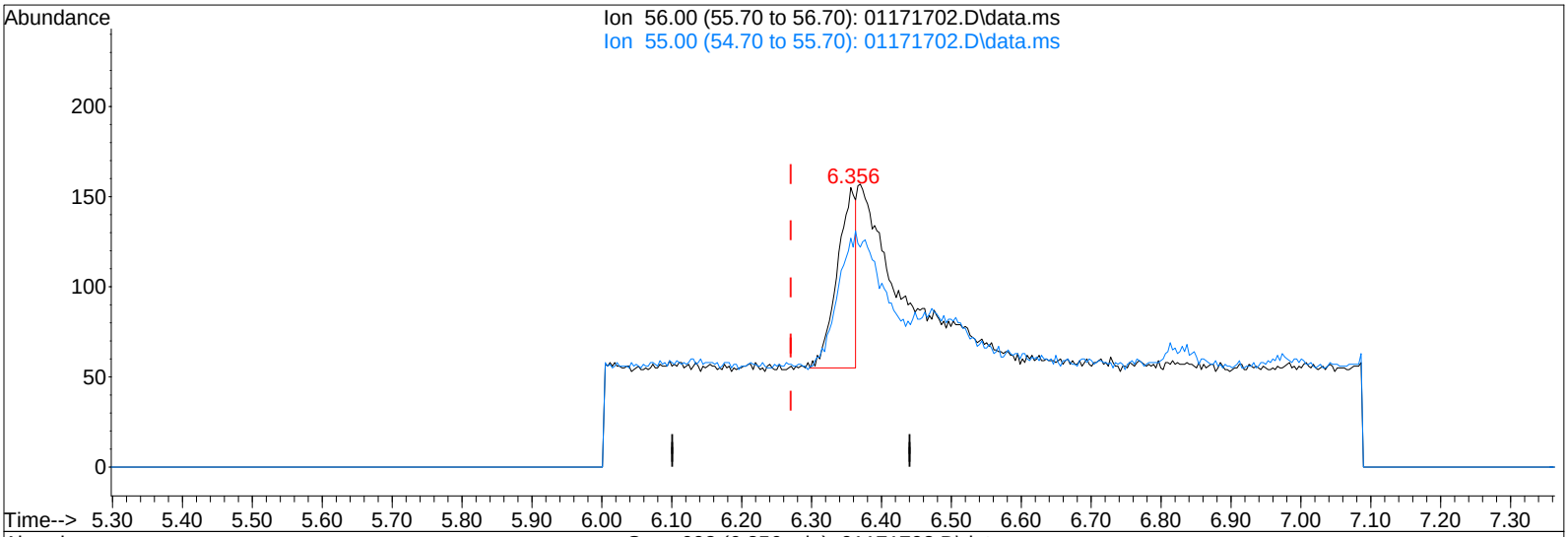
CL 1/18/17

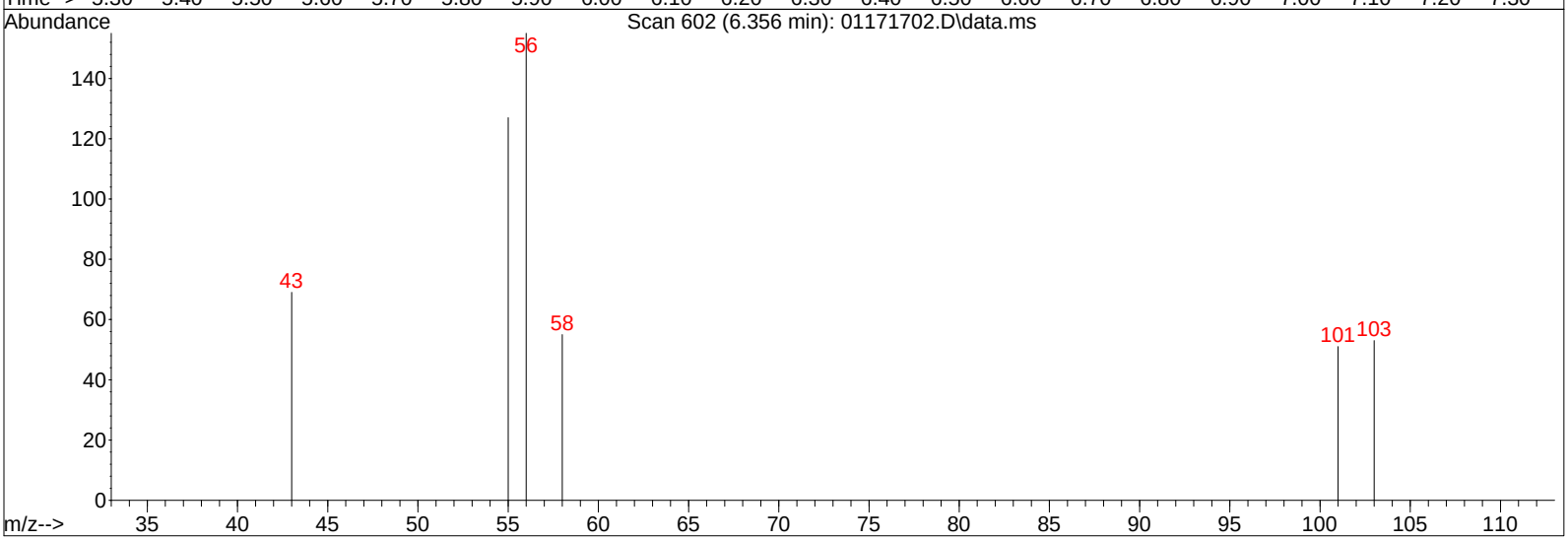
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

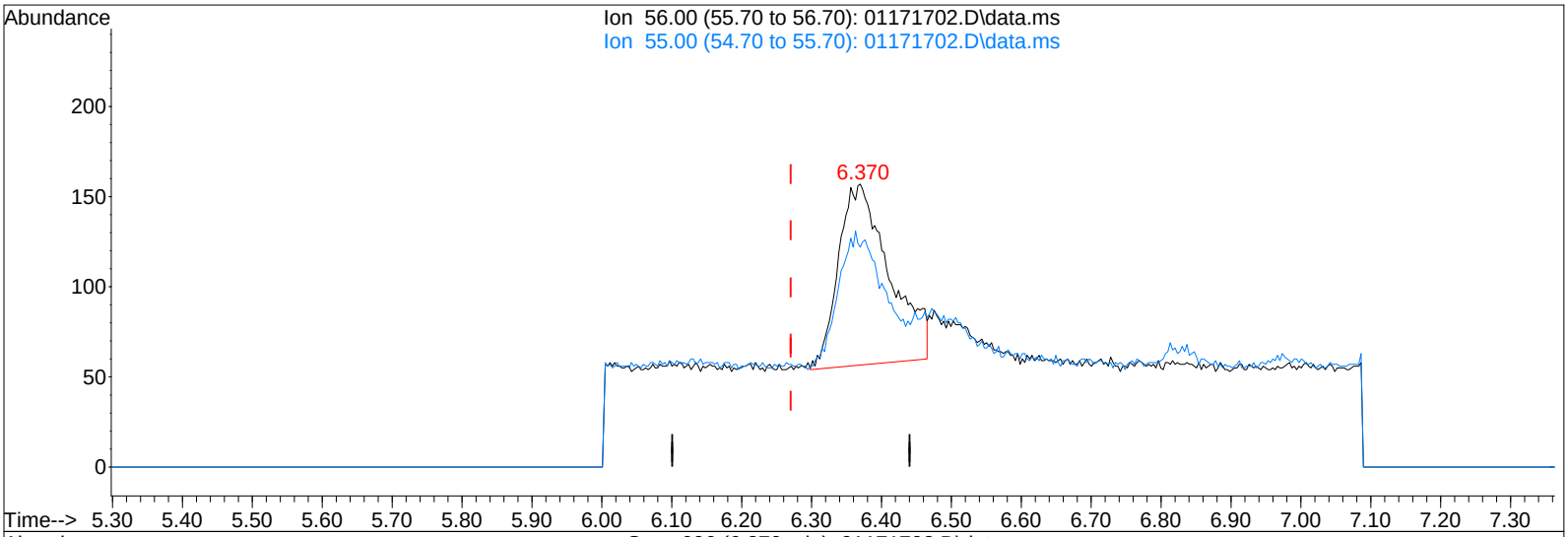
response 183

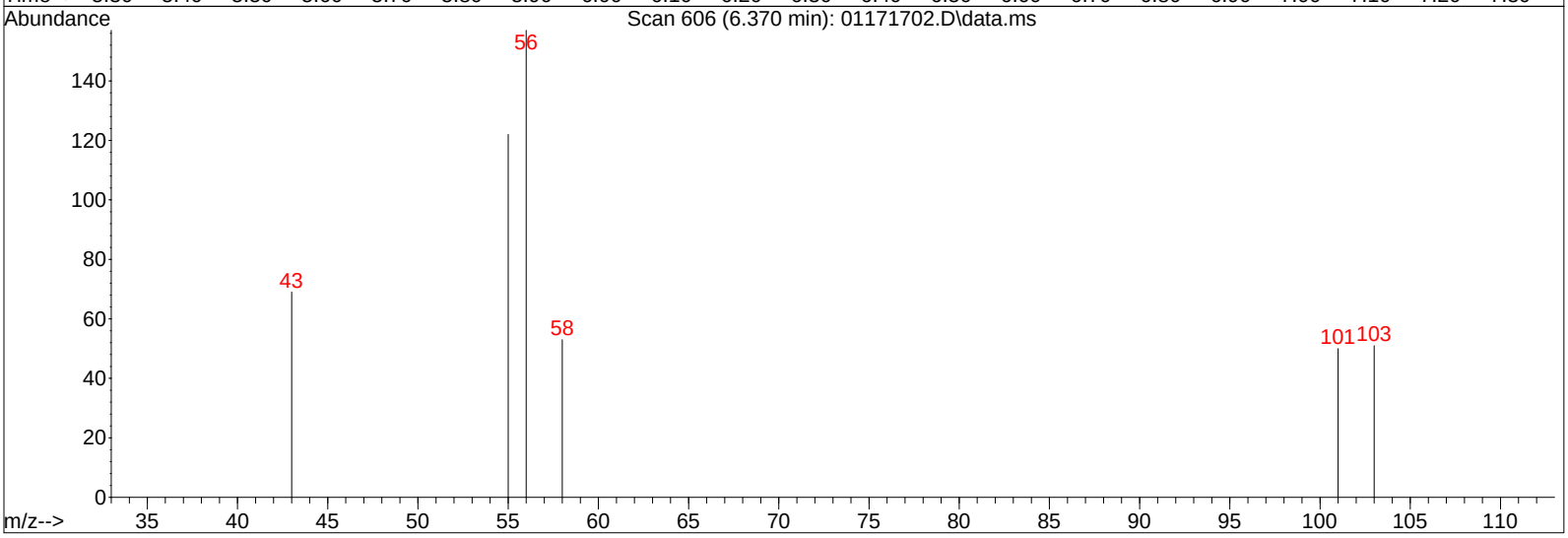
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

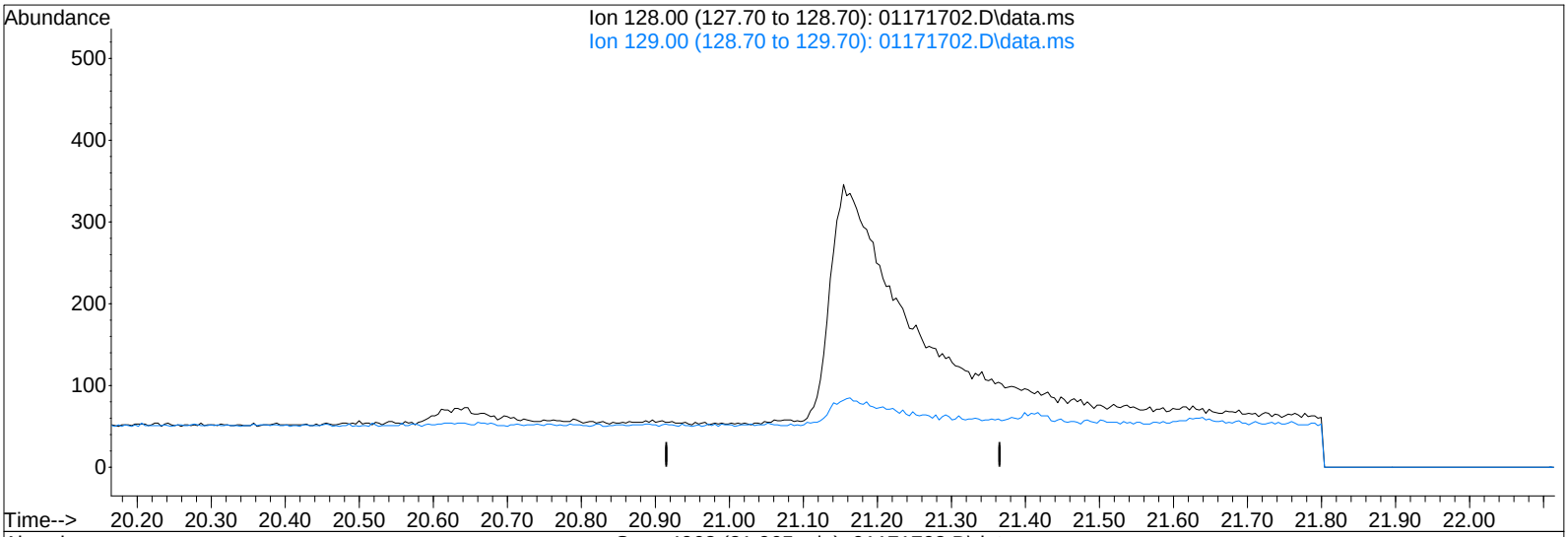
CL 1/18/17

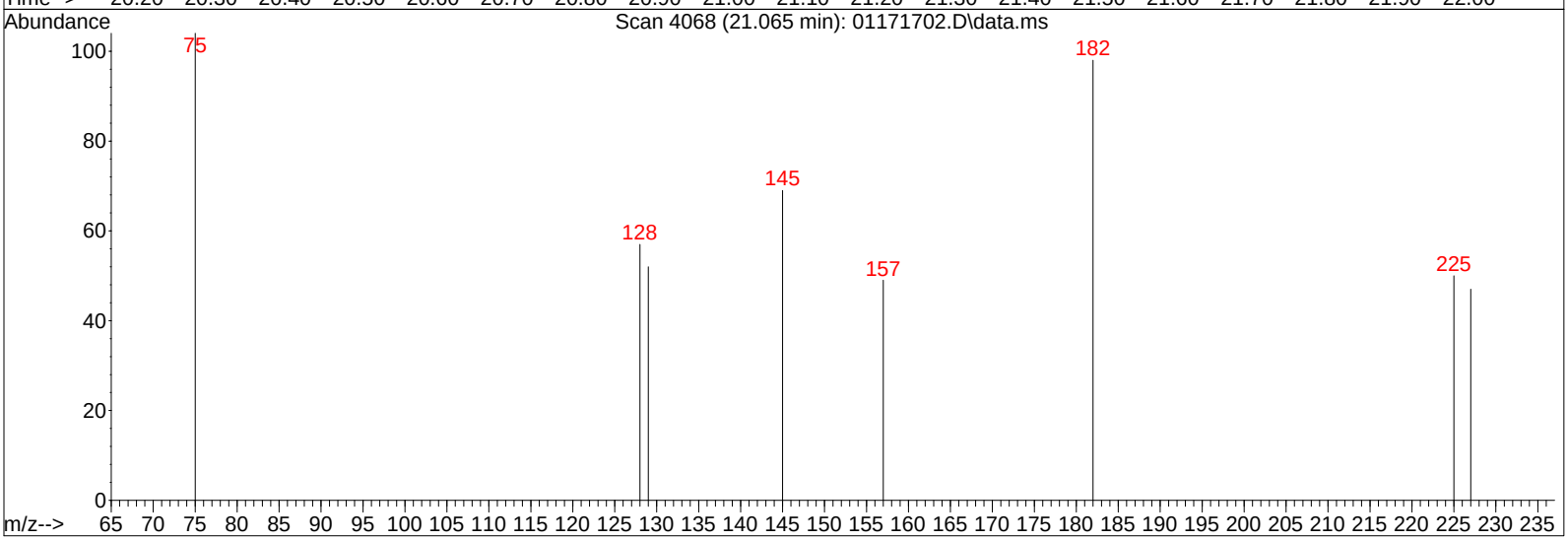
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

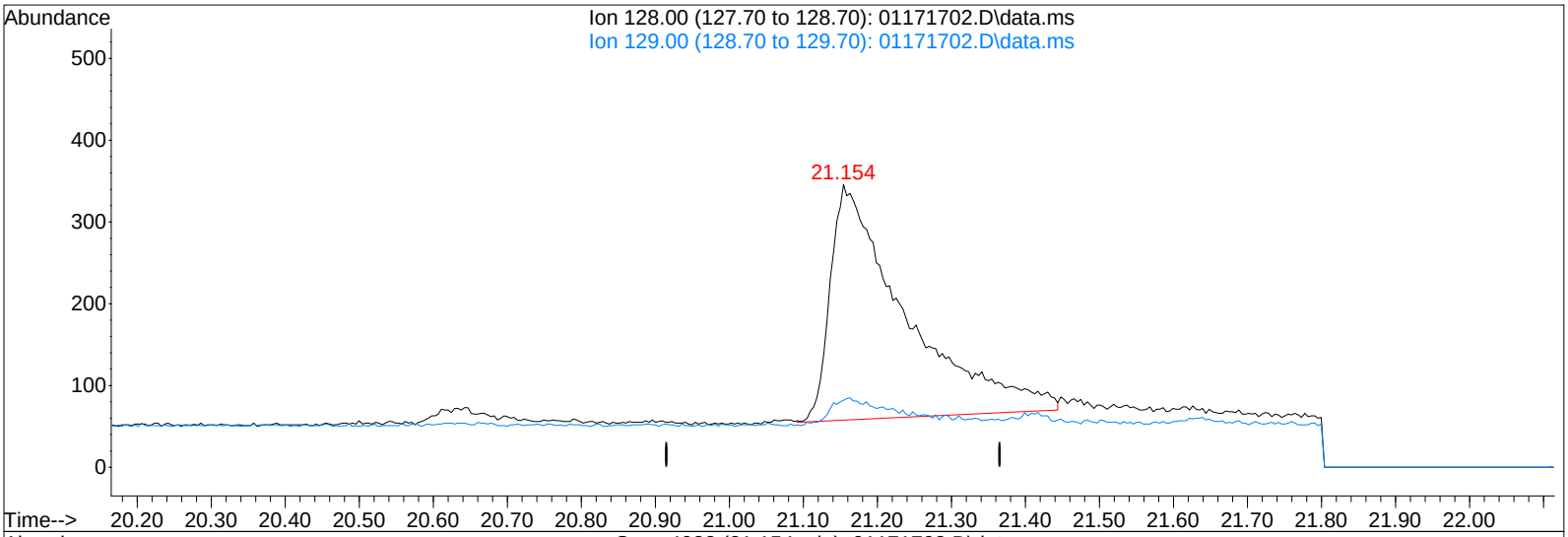
response 0

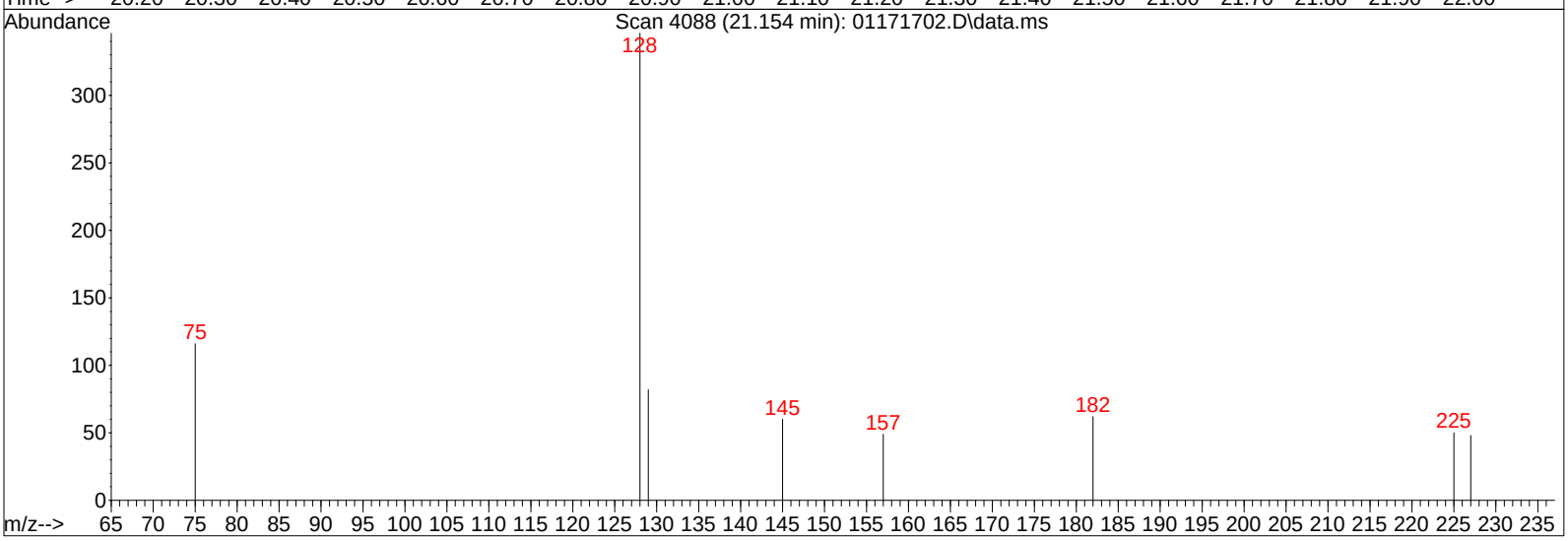
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

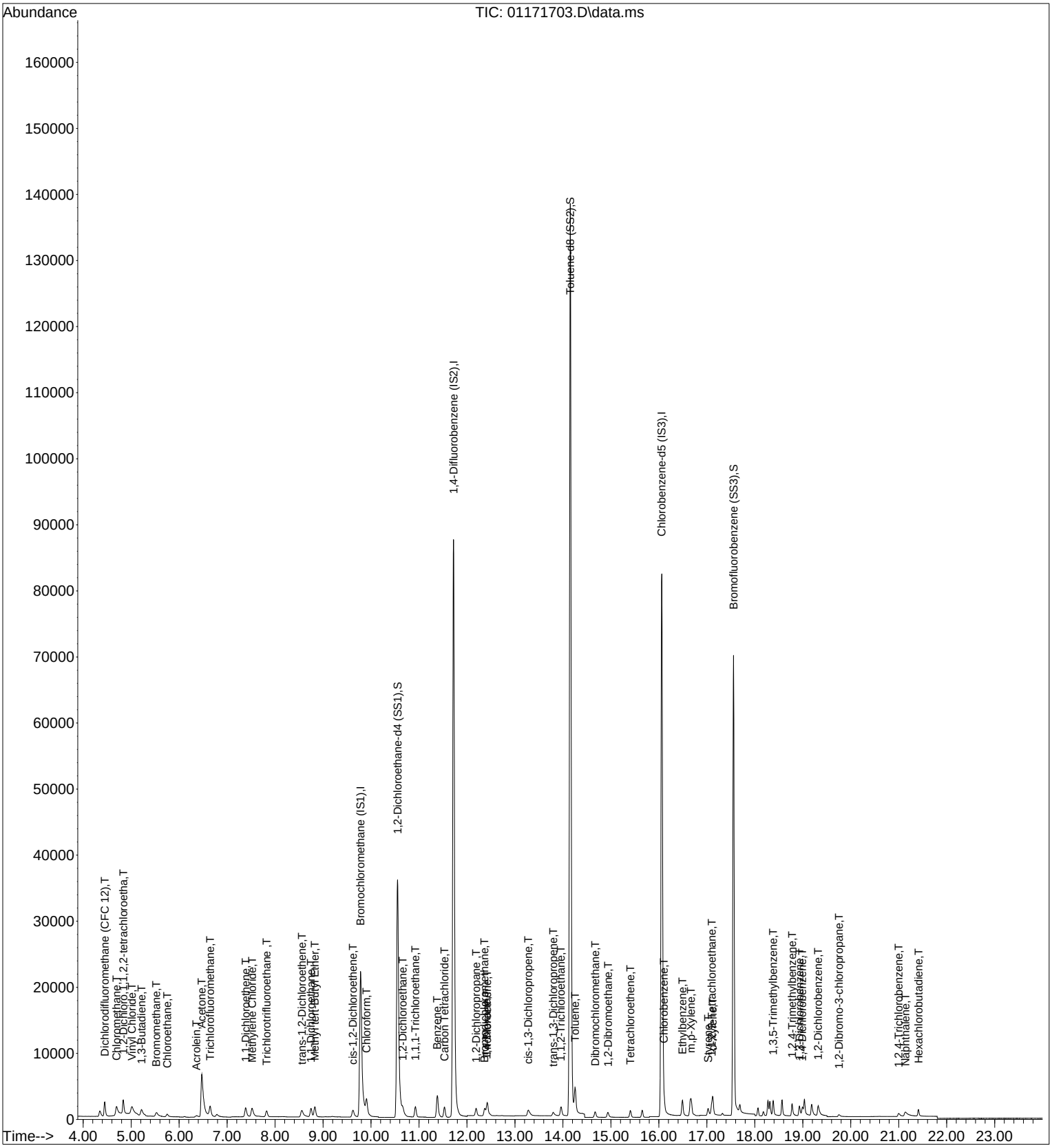
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

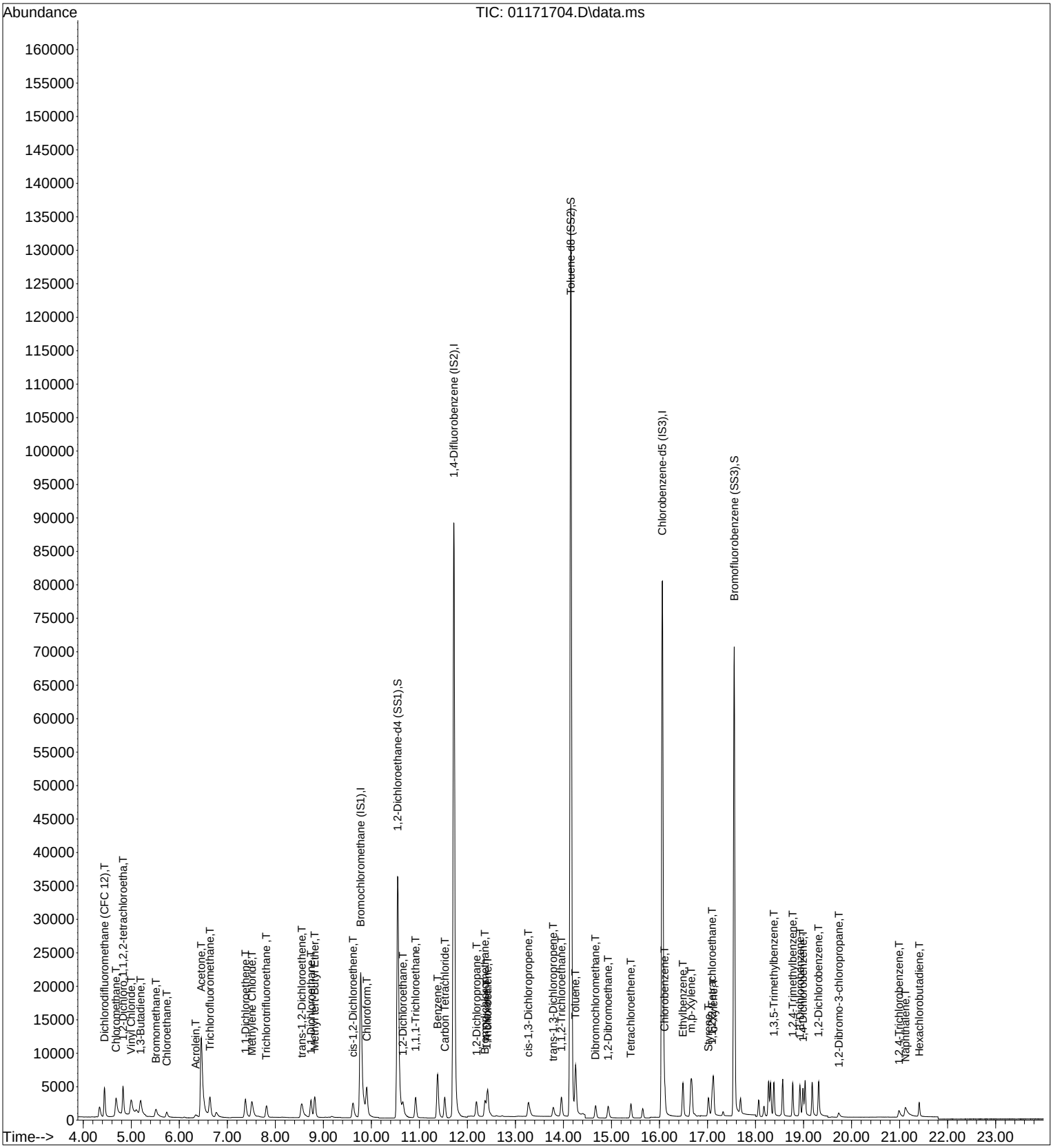
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

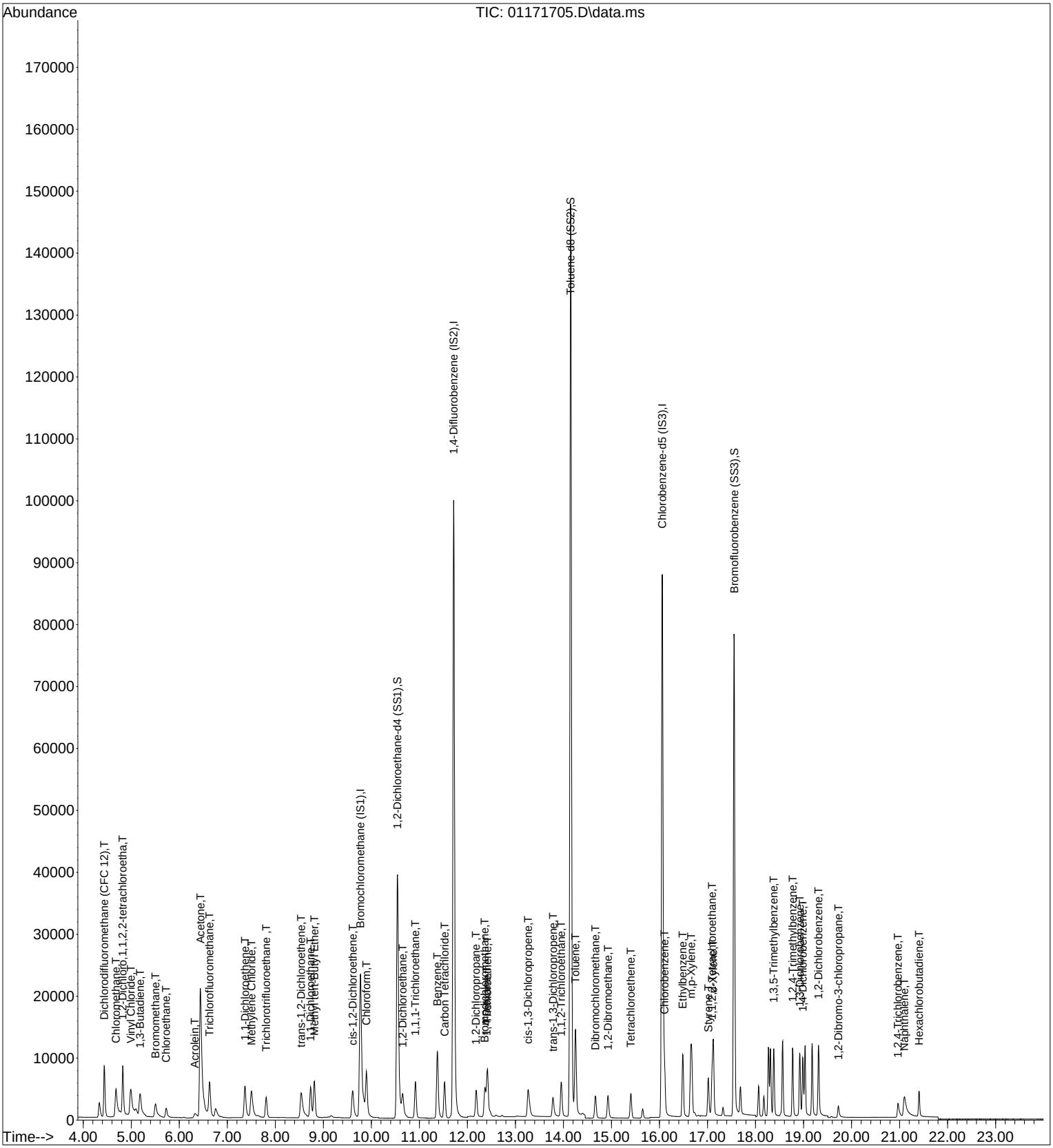
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

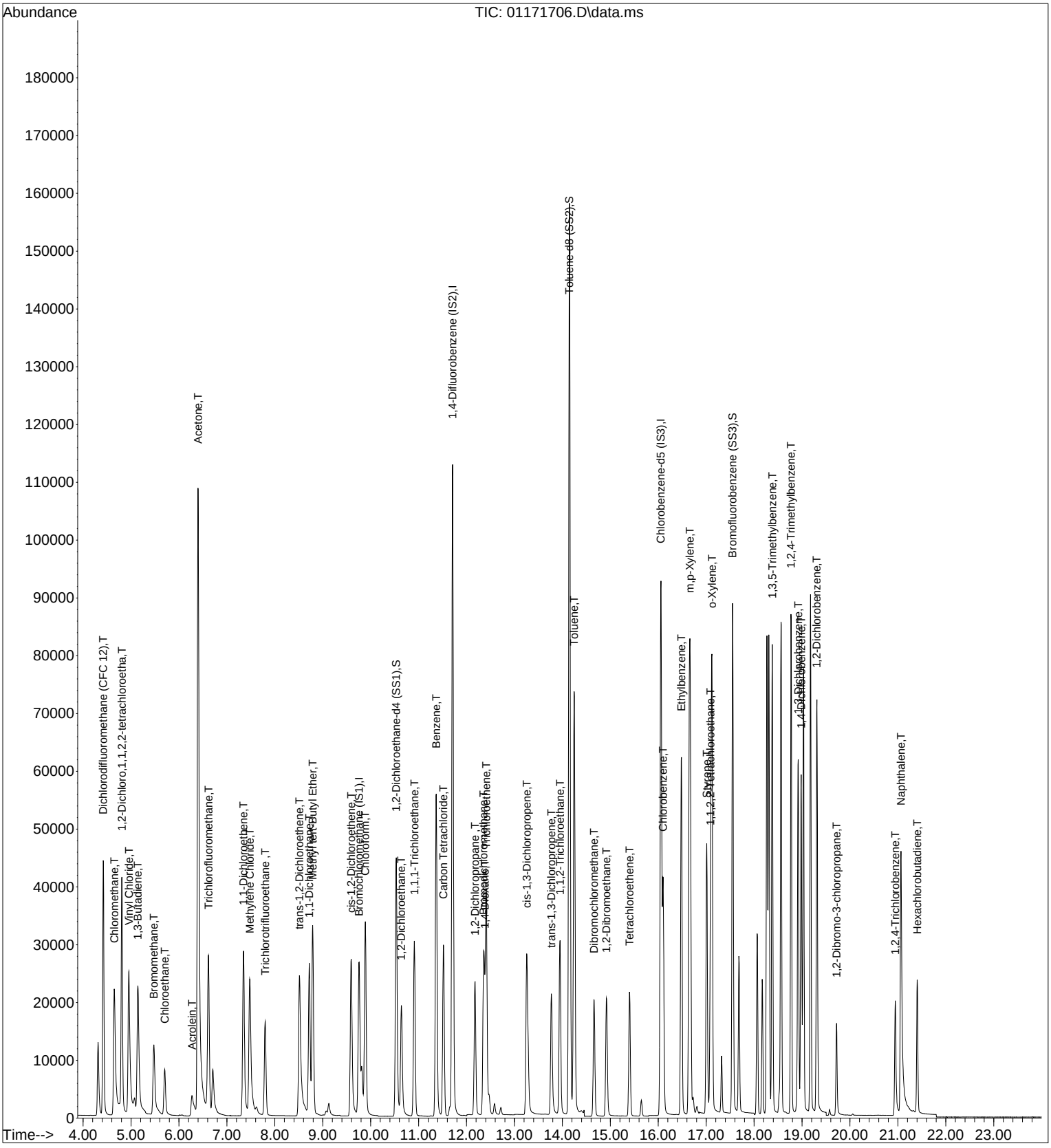
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

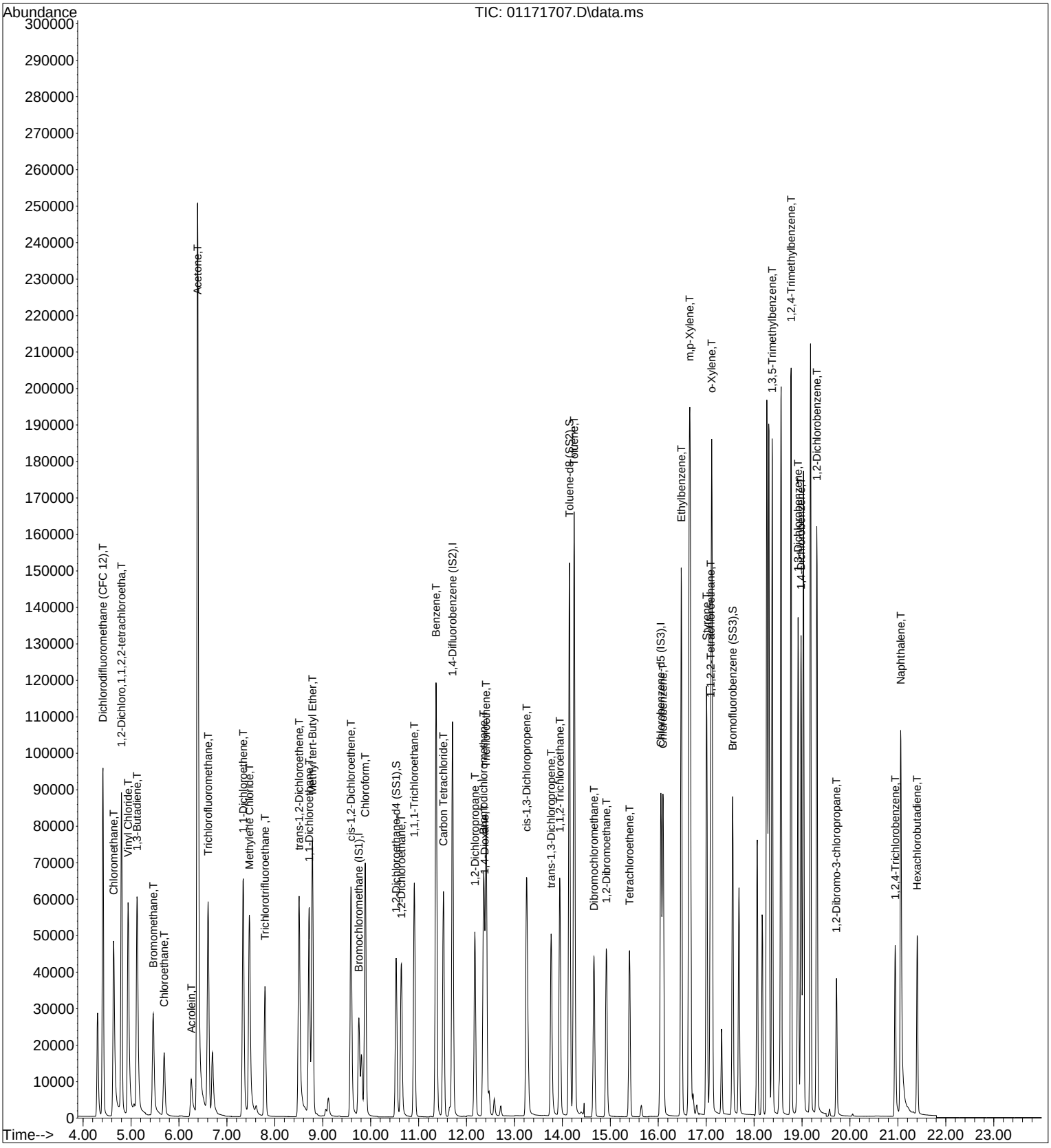
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

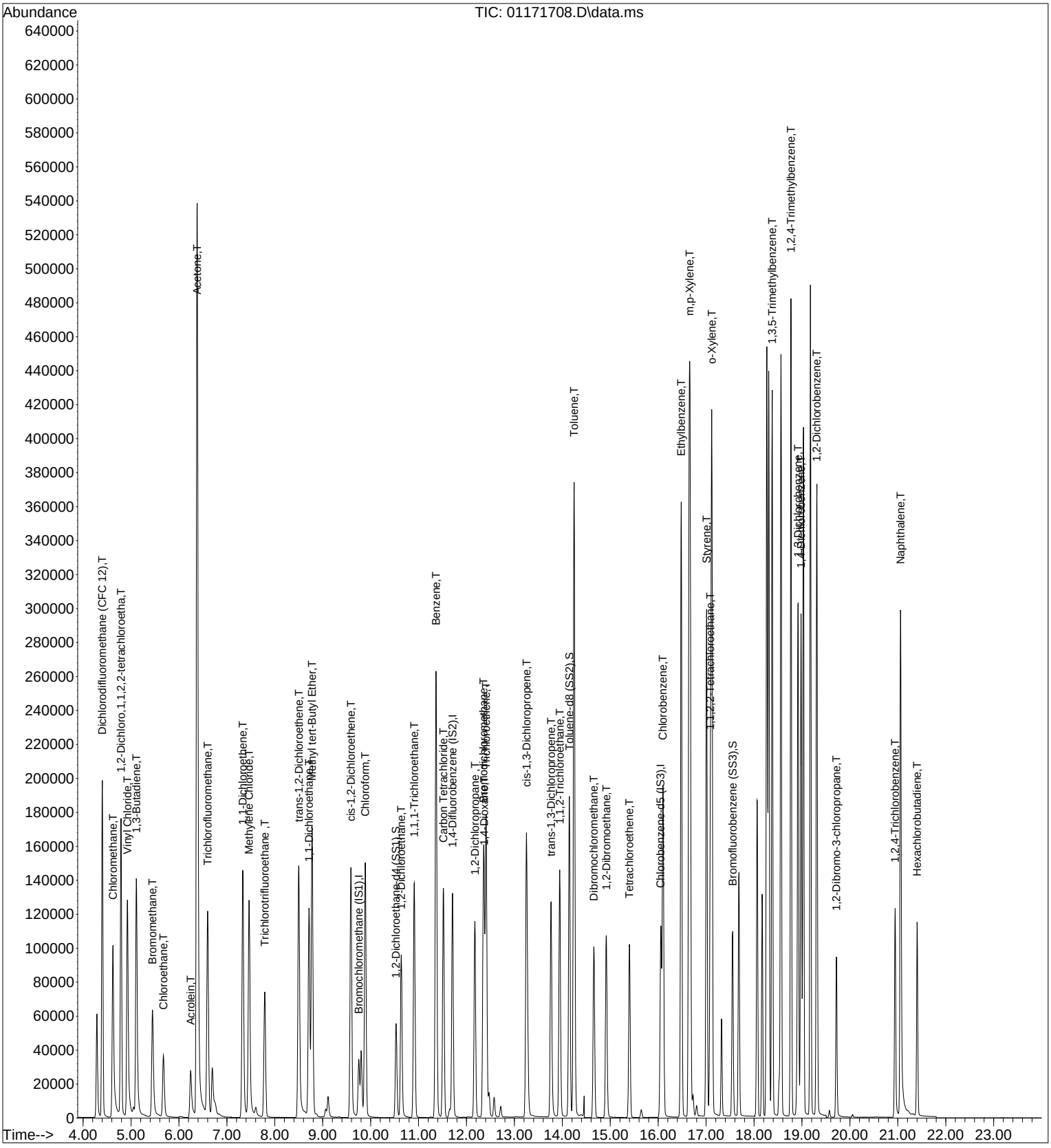
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%			
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%			
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944	pg	100
3) Chloromethane	4.61	52	162688	4785.564	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926	pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389	pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564	pg	99
7) Bromomethane	5.44	94	222851	4643.991	pg	100
8) Chloroethane	5.66	64	179461	5258.665	pg	100
9) Acrolein	6.24	56	140240	5967.932	pg	99
10) Acetone	6.38	58	838814	25814.022	pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282	pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913	pg	99
13) Methylene Chloride	7.47	84	297672	4889.177	pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498	pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436	pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227	pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907	pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430	pg	100
19) Chloroform	9.89	83	522733	4780.247	pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905	pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873	pg	100
23) Benzene	11.36	78	1167900	4536.841	pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159	pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114	pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606	pg	100
28) Trichloroethene	12.41	130	299094	4425.611	pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520	pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385	pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769	pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991	pg	99
34) Toluene	14.25	91	1167322	4708.699	pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519	pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632	pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535	pg	100
39) Chlorobenzene	16.10	112	788966	3880.853	pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214	pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622	pg	100
42) Styrene	17.01	104	851189	4927.183	pg	99
43) o-Xylene	17.12	106	518661	4234.000	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849	pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868	pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829	pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465	pg	100
53) Naphthalene	21.06	128	1434819	5185.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

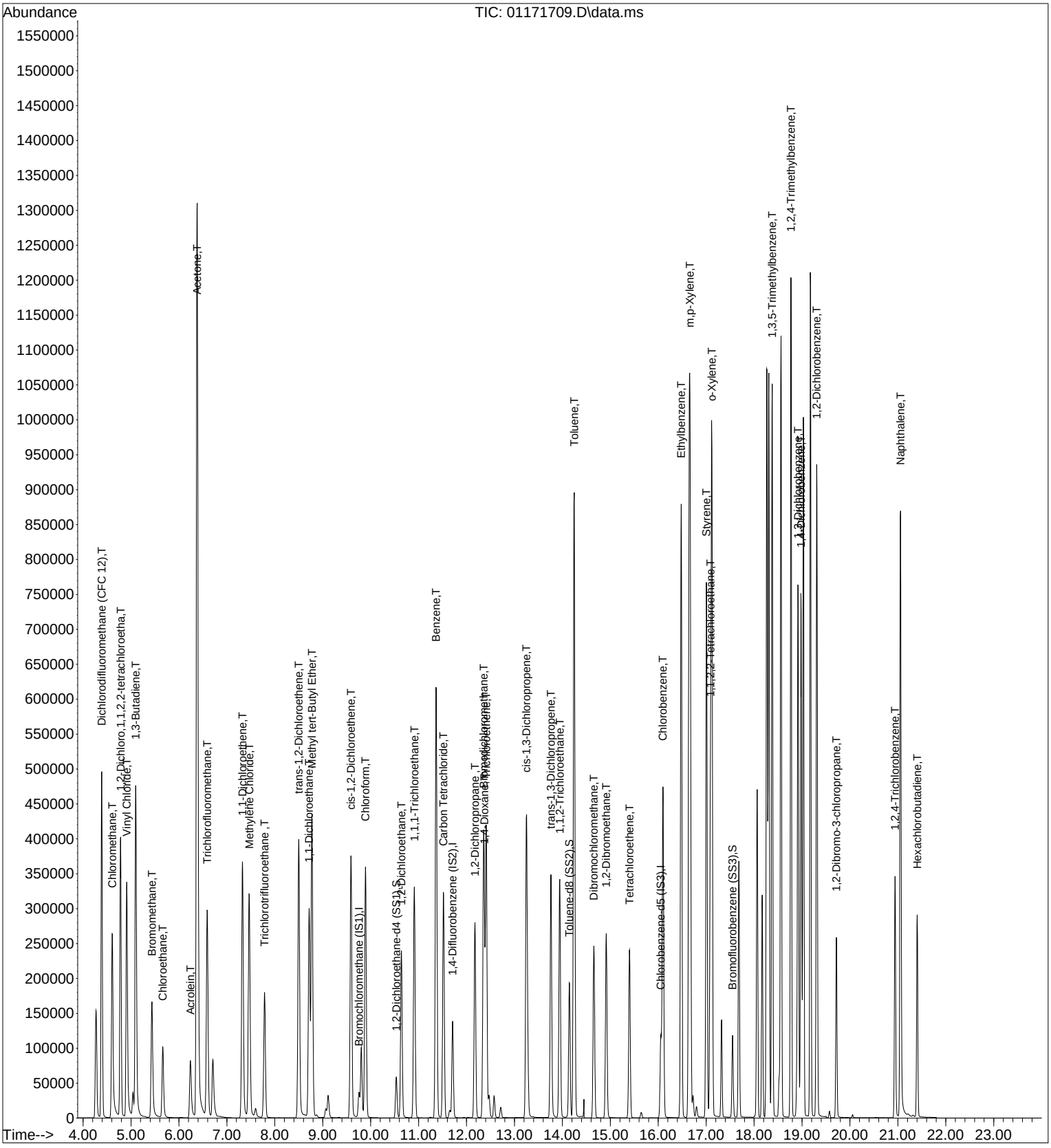
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

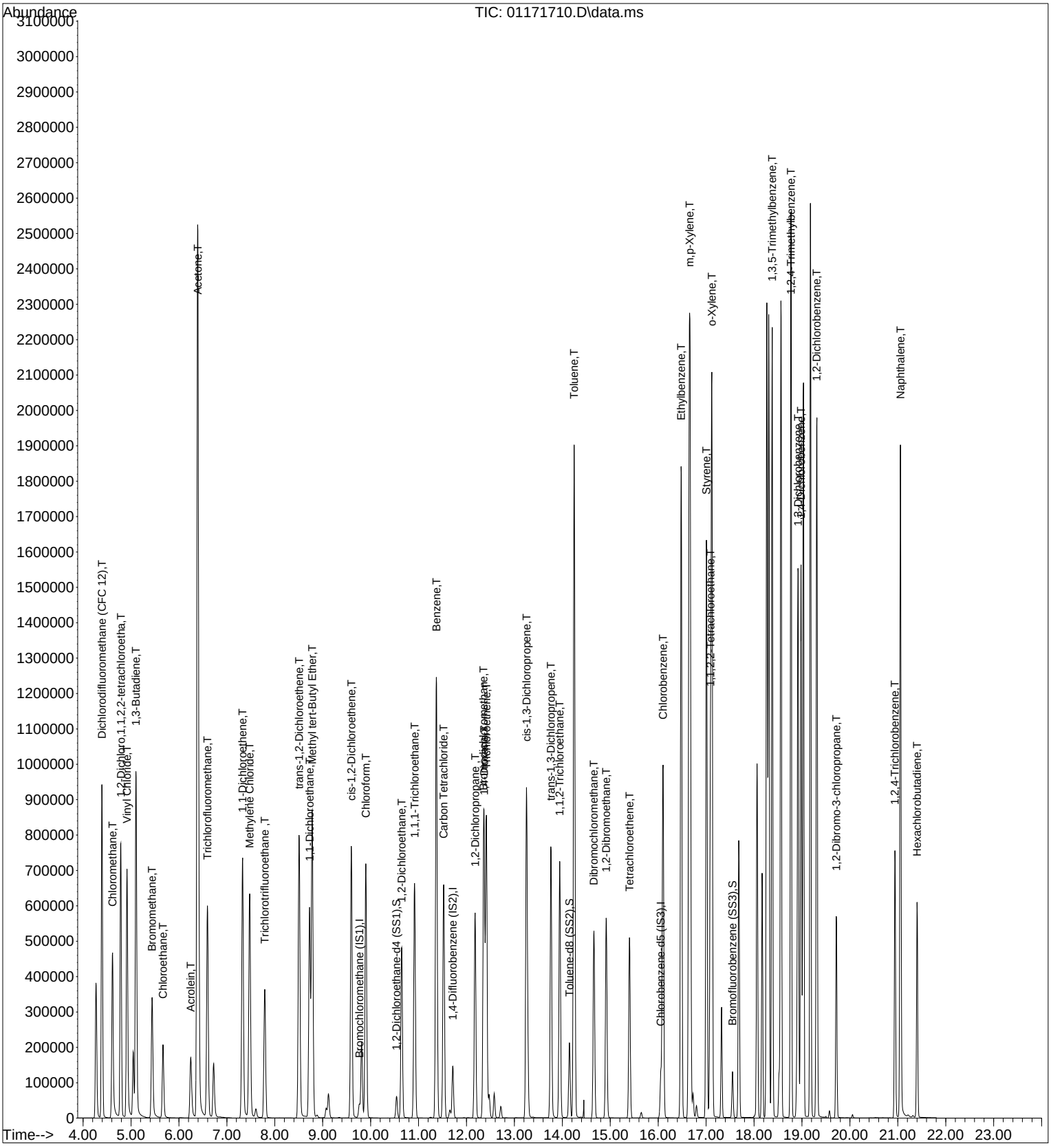
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

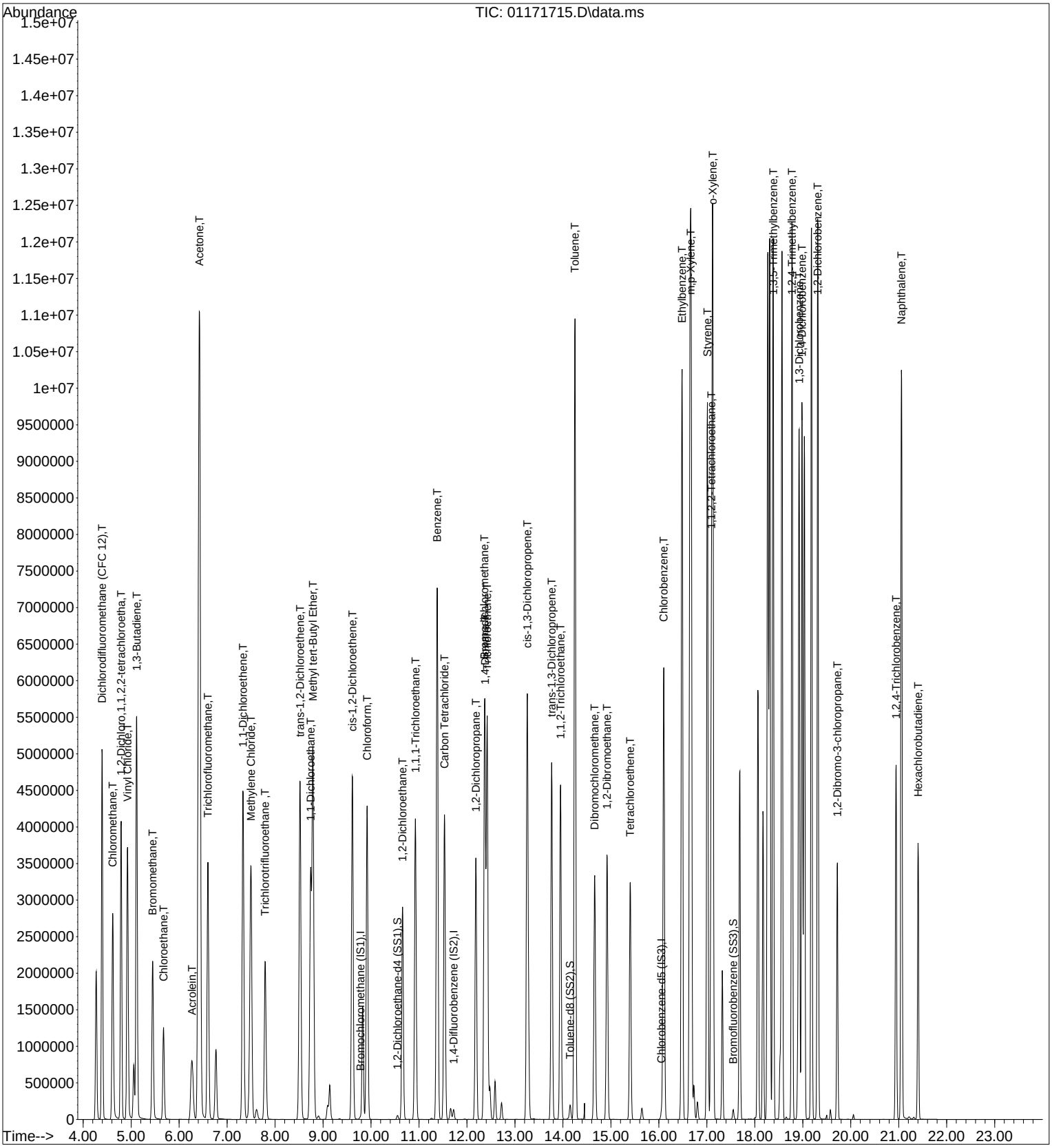
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

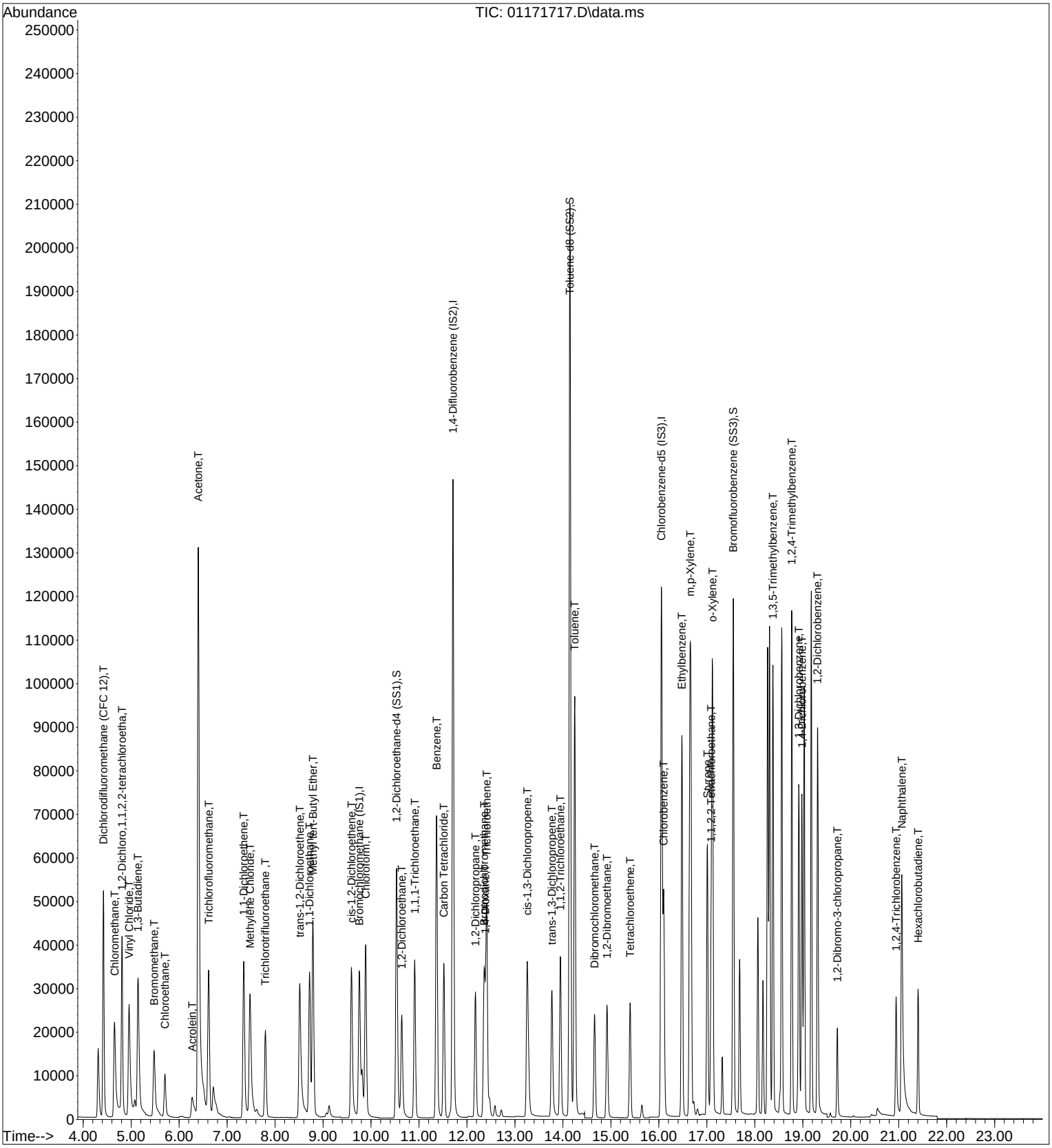
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23 CL 1/18/17
Acq. Method File: TO15SIM.M

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\19\01191703.D Vial: 16
Acq On : 19 Jan 2017 5:24 Operator: CL
Sample : CCV S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 19 07:13:18 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	128	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.382	5.7	124	0.03
3	T	Chloromethane	0.753	0.633	15.9	104	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.126	14.4	110	0.03
5	T	Vinyl Chloride	2.415	2.091	13.4	107	0.04
6	T	1,3-Butadiene	1.436	1.198	16.6	135	0.04
7	T	Bromomethane	0.972	0.907	6.7	126	0.04
8	T	Chloroethane	0.743	0.662	10.9	121	0.03
9	T	Acrolein	0.528	0.412	22.0	118	0.01
10	T	Acetone	0.682	0.623	8.7	121	-0.02
11	T	Trichlorofluoromethane	1.728	1.701	1.6	126	0.02
12	T	1,1-Dichloroethene	1.083	1.010	6.7	129	0.02
13	T	Methylene Chloride	1.175	1.129	3.9	124	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.008	6.7	129	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.095	6.2	130	0.00
16	T	1,1-Dichloroethane	2.070	1.915	7.5	124	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.975	3.7	137	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.164	5.0	131	-0.02
19	T	Chloroform	2.177	2.025	7.0	124	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.721	0.6	130	-0.02
21	T	1,2-Dichloroethane	1.676	1.519	9.4	125	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.776	12.1	128	-0.02
23	T	Benzene	4.797	4.510	6.0	125	-0.02
24	T	Carbon Tetrachloride	1.623	1.537	5.3	128	-0.01
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	130	-0.02
26	T	1,2-Dichloropropane	0.255	0.208	18.4	125	0.00
27	T	Bromodichloromethane	0.352	0.294	16.5	126	0.00
28	T	Trichloroethene	0.260	0.231	11.2	130	0.00
29	T	1,4-Dioxane	0.191	0.168	12.0	134	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.310	9.6	135	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.264	5.4	137	0.00
32	T	1,1,2-Trichloroethane	0.215	0.181	15.8	126	0.00
33	S	Toluene-d8 (SS2)	0.993	0.969	2.4	132	0.00
34	T	Toluene	0.928	0.851	8.3	130	0.00
35	T	Dibromochloromethane	0.257	0.222	13.6	128	0.00
36	T	1,2-Dibromoethane	0.243	0.222	8.6	130	0.00
37	T	Tetrachloroethene	0.270	0.236	12.6	130	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	126	0.00
39	T	Chlorobenzene	3.855	3.716	3.6	130	0.00
40	T	Ethylbenzene	5.685	5.638	0.8	138	0.00
41	T	m,p-Xylene	4.264	4.468	-4.8	135	0.00
42	T	Styrene	2.987	3.130	-4.8	137	0.00
43	T	o-Xylene	2.190	2.284	-4.3	134	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.333	7.3	122	0.00
45	S	Bromofluorobenzene (SS3)	1.829	1.997	-9.2	132	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.962	-9.9	133	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.894	-10.5	132	0.00
48	T	1,3-Dichlorobenzene	2.723	2.922	-7.3	125	0.00
49	T	1,4-Dichlorobenzene	2.835	2.883	-1.7	127	0.00
50	T	1,2-Dichlorobenzene	2.775	2.821	-1.7	126	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.840	-0.1	129	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.616	1.6	129	0.00
53	T	Naphthalene	5.215	5.464	-4.8	122	0.01
54	T	Hexachlorobutadiene	1.299	1.253	3.5	132	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\19\01191703.D Vial: 16
Acq On : 19 Jan 2017 5:24 Operator: CL
Sample : CCV S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 19 07:13:18 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191703.D Vial: 16
Acq On : 19 Jan 2017 5:24 Operator: CL
Sample : CCV S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 19 07:13:18 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/19/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	57513	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	291707	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	45394	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	99001	993.940	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.39%			
33) Toluene-d8 (SS2)	14.15	98	282636	975.401	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.54%			
45) Bromofluorobenzene (SS3)	17.55	174	90665	1091.768	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.18%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	71712	493.563	pg	100
3) Chloromethane	4.66	52	18304	422.853	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	61431	429.743	pg	100
5) Vinyl Chloride	4.96	62	61509	442.827	pg	100
6) 1,3-Butadiene	5.15	54	36414	440.940	pg	97
7) Bromomethane	5.48	94	25908	463.669	pg	100
8) Chloroethane	5.71	64	19210	449.516	pg	100
9) Acrolein	6.27	56	12331	406.185	pg	99
10) Acetone	6.40	58	95204	2425.516	pg	99
11) Trichlorofluoromethane	6.62	101	51314	516.361	pg	100
12) 1,1-Dichloroethene	7.35	96	30748	493.876	pg	98
13) Methylene Chloride	7.48	84	34322	508.007	pg	96
14) Trichlorotrifluoroethane	7.80	151	30418	489.716	pg	100
15) trans-1,2-Dichloroethene	8.52	96	33604	500.666	pg	99
16) 1,1-Dichloroethane	8.72	63	56169	471.699	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91198	513.243	pg	99
18) cis-1,2-Dichloroethene	9.59	96	35602	505.472	pg	100
19) Chloroform	9.89	83	61614	492.043	pg	100
21) 1,2-Dichloroethane	10.64	62	45943	476.622	pg	100
22) 1,1,1-Trichloroethane	10.91	97	54850	471.869	pg	100
23) Benzene	11.37	78	136434	494.521	pg	100
24) Carbon Tetrachloride	11.52	117	46621	499.491	pg	100
26) 1,2-Dichloropropane	12.18	63	32221	433.649	pg	100
27) Bromodichloromethane	12.36	83	45726	445.654	pg	100
28) Trichloroethene	12.41	130	35732	471.145	pg	100
29) 1,4-Dioxane	12.38	88	25946	465.907	pg	97
30) cis-1,3-Dichloropropene	13.26	75	50456	504.869	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40964	503.675	pg	100
32) 1,1,2-Trichloroethane	13.95	83	28075	446.707	pg	99
34) Toluene	14.25	91	130713	482.973	pg	99
35) Dibromochloromethane	14.66	129	34454	459.725	pg	100
36) 1,2-Dibromoethane	14.92	107	34230	482.918	pg	100
37) Tetrachloroethene	15.40	166	36471	463.794	pg	100
39) Chlorobenzene	16.10	112	89491	511.402	pg	100
40) Ethylbenzene	16.48	91	134994	523.128	pg	100
41) m,p-Xylene	16.66	91	215282	1112.262	pg	100
42) Styrene	17.01	104	75372	555.826	pg	100
43) o-Xylene	17.12	106	54645	549.569	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	55908	489.351	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	118151	576.660	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	116858	581.080	pg	100
48) 1,3-Dichlorobenzene	18.92	146	70165	567.664	pg	100
49) 1,4-Dichlorobenzene	18.98	146	69230	537.971	pg	100
50) 1,2-Dichlorobenzene	19.31	146	67744	537.816	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20068	527.036	pg	99
52) 1,2,4-Trichlorobenzene	20.95	182	38247	512.981	pg	100
53) Naphthalene	21.07	128	134309	567.301	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191703.D Vial: 16
Acq On : 19 Jan 2017 5:24 Operator: CL
Sample : CCV S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 19 07:13:18 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

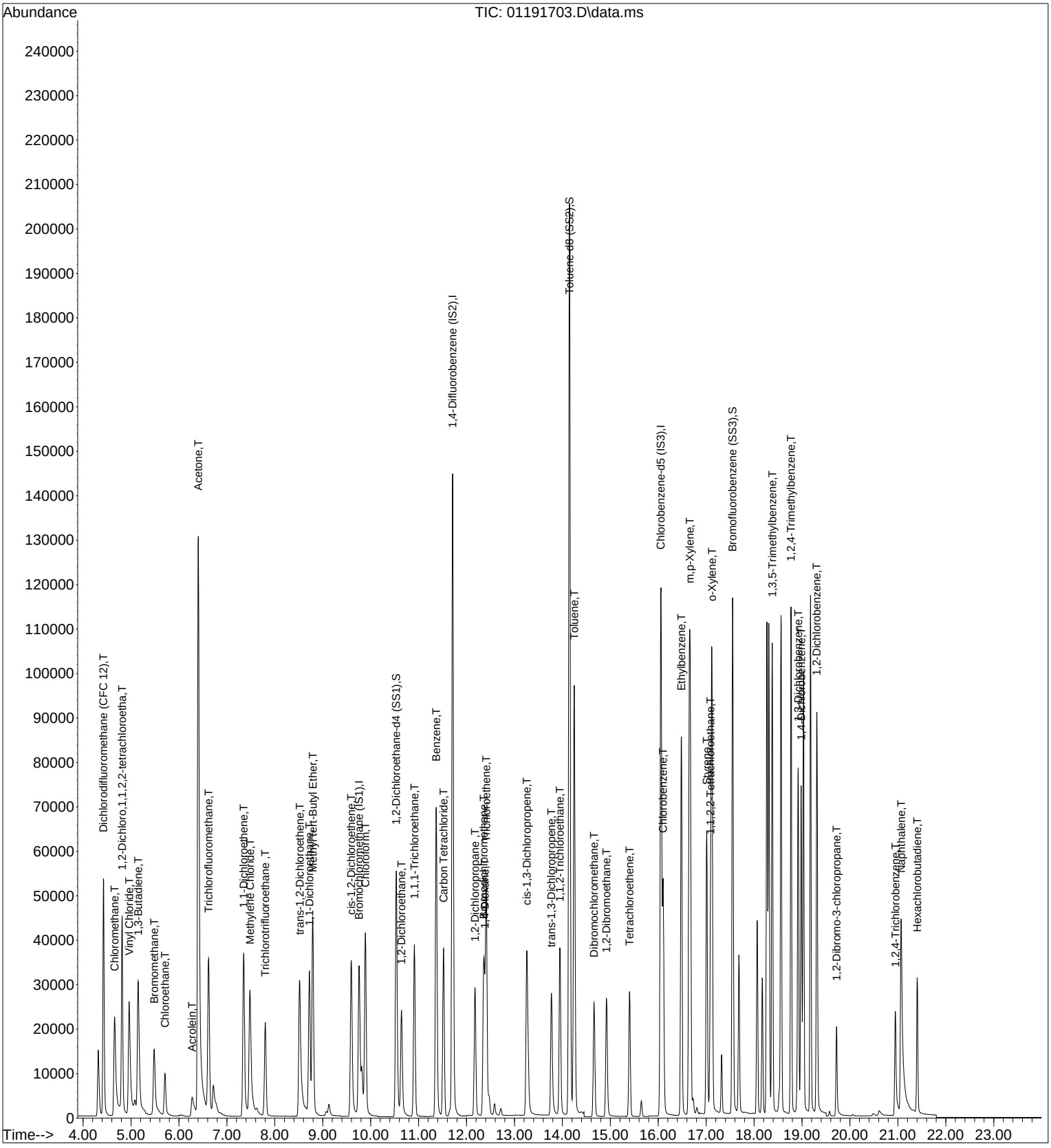
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	30106	510.393	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\19\01191703.D Vial: 16
Acq On : 19 Jan 2017 5:24 Operator: CL
Sample : CCV S19011917 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 19 07:13:18 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	123	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.336	7.5	116	0.03
3	T	Chloromethane	0.753	0.644	14.5	101	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.093	15.8	104	0.02
5	T	Vinyl Chloride	2.415	2.061	14.7	101	0.03
6	T	1,3-Butadiene	1.436	1.353	5.8	146	0.03
7	T	Bromomethane	0.972	0.905	6.9	120	0.03
8	T	Chloroethane	0.743	0.661	11.0	116	0.03
9	T	Acrolein	0.528	0.408	22.7	112	0.00
10	T	Acetone	0.682	0.617	9.5	115	-0.02
11	T	Trichlorofluoromethane	1.728	1.669	3.4	119	0.01
12	T	1,1-Dichloroethene	1.083	0.978	9.7	120	0.00
13	T	Methylene Chloride	1.175	1.115	5.1	117	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.006	6.9	123	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.063	8.9	121	0.00
16	T	1,1-Dichloroethane	2.070	1.888	8.8	117	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.796	9.5	124	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.125	8.2	121	-0.02
19	T	Chloroform	2.177	2.009	7.7	117	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.659	4.2	120	-0.02
21	T	1,2-Dichloroethane	1.676	1.486	11.3	117	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.738	14.0	120	-0.02
23	T	Benzene	4.797	4.480	6.6	119	-0.02
24	T	Carbon Tetrachloride	1.623	1.499	7.6	120	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	123	-0.02
26	T	1,2-Dichloropropane	0.255	0.207	18.8	117	0.00
27	T	Bromodichloromethane	0.352	0.292	17.0	118	0.00
28	T	Trichloroethene	0.260	0.229	11.9	121	0.00
29	T	1,4-Dioxane	0.191	0.163	14.7	123	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.302	12.0	124	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.256	8.2	125	0.00
32	T	1,1,2-Trichloroethane	0.215	0.180	16.3	118	0.00
33	S	Toluene-d8 (SS2)	0.993	0.963	3.0	123	0.00
34	T	Toluene	0.928	0.831	10.5	120	0.00
35	T	Dibromochloromethane	0.257	0.220	14.4	120	0.00
36	T	1,2-Dibromoethane	0.243	0.219	9.9	121	0.00
37	T	Tetrachloroethene	0.270	0.233	13.7	121	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	119	0.00
39	T	Chlorobenzene	3.855	3.650	5.3	120	0.00
40	T	Ethylbenzene	5.685	5.393	5.1	124	0.00
41	T	m,p-Xylene	4.264	4.309	-1.1	123	0.00
42	T	Styrene	2.987	3.004	-0.6	124	0.00
43	T	o-Xylene	2.190	2.224	-1.6	123	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.345	6.8	116	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.002	-9.5	125	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.807	-6.5	121	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.761	-7.5	121	0.00
48	T	1,3-Dichlorobenzene	2.723	2.889	-6.1	117	0.00
49	T	1,4-Dichlorobenzene	2.835	2.807	1.0	116	0.00
50	T	1,2-Dichlorobenzene	2.775	2.786	-0.4	117	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.826	1.5	119	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.553	5.4	117	0.00
53	T	Naphthalene	5.215	5.157	1.1	108	0.00
54	T	Hexachlorobutadiene	1.299	1.241	4.5	123	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	55082	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	275080	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	42790	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91395	958.075	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.81%			
33) Toluene-d8 (SS2)	14.15	98	264907	969.476	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.95%			
45) Bromofluorobenzene (SS3)	17.55	174	85685	1094.591	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.46%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	67351	484.006	pg	100
3) Chloromethane	4.65	52	17836	430.226	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	57936	423.181	pg	100
5) Vinyl Chloride	4.95	62	58068	436.504	pg	100
6) 1,3-Butadiene	5.14	54	39376	497.850	pg	94
7) Bromomethane	5.48	94	24756	462.606	pg	100
8) Chloroethane	5.70	64	18358	448.538	pg	100
9) Acrolein	6.27	56	11689	402.031	pg	99
10) Acetone	6.40	58	90230	2400.249	pg	99
11) Trichlorofluoromethane	6.61	101	48211	506.548	pg	100
12) 1,1-Dichloroethene	7.34	96	28533	478.525	pg	98
13) Methylene Chloride	7.48	84	32467	501.760	pg	97
14) Trichlorotrifluoroethane	7.80	151	29070	488.669	pg	100
15) trans-1,2-Dichloroethene	8.51	96	31240	485.987	pg	99
16) 1,1-Dichloroethane	8.72	63	53050	465.168	pg	100
17) Methyl tert-Butyl Ether	8.79	73	82096	482.410	pg	99
18) cis-1,2-Dichloroethene	9.59	96	32970	488.762	pg	99
19) Chloroform	9.88	83	58546	488.177	pg	100
21) 1,2-Dichloroethane	10.64	62	43062	466.450	pg	100
22) 1,1,1-Trichloroethane	10.91	97	51396	461.669	pg	100
23) Benzene	11.36	78	129802	491.247	pg	100
24) Carbon Tetrachloride	11.52	117	43552	487.204	pg	100
26) 1,2-Dichloropropane	12.18	63	30268	431.988	pg	100
27) Bromodichloromethane	12.36	83	42828	442.639	pg	100
28) Trichloroethene	12.41	130	33330	466.037	pg	99
29) 1,4-Dioxane	12.38	88	23760	452.442	pg	98
30) cis-1,3-Dichloropropene	13.25	75	46384	492.178	pg	100
31) trans-1,3-Dichloropropene	13.77	75	37524	489.266	pg	100
32) 1,1,2-Trichloroethane	13.95	83	26314	443.994	pg	98
34) Toluene	14.25	91	120391	471.722	pg	99
35) Dibromochloromethane	14.66	129	32173	455.237	pg	100
36) 1,2-Dibromoethane	14.92	107	31804	475.813	pg	100
37) Tetrachloroethene	15.40	166	33989	458.357	pg	100
39) Chlorobenzene	16.10	112	82852	502.275	pg	100
40) Ethylbenzene	16.48	91	121733	500.447	pg	100
41) m,p-Xylene	16.66	91	195701	1072.627	pg	100
42) Styrene	17.01	104	68187	533.441	pg	100
43) o-Xylene	17.12	106	50150	535.055	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	52983	491.970	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	107893	558.640	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	107157	565.268	pg	100
48) 1,3-Dichlorobenzene	18.92	146	65386	561.192	pg	100
49) 1,4-Dichlorobenzene	18.98	146	63543	523.827	pg	100
50) 1,2-Dichlorobenzene	19.31	146	63055	531.053	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18601	518.237	pg	100
52) 1,2,4-Trichlorobenzene	20.95	182	34660	493.161	pg	100
53) Naphthalene	21.07	128	119481	535.382	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

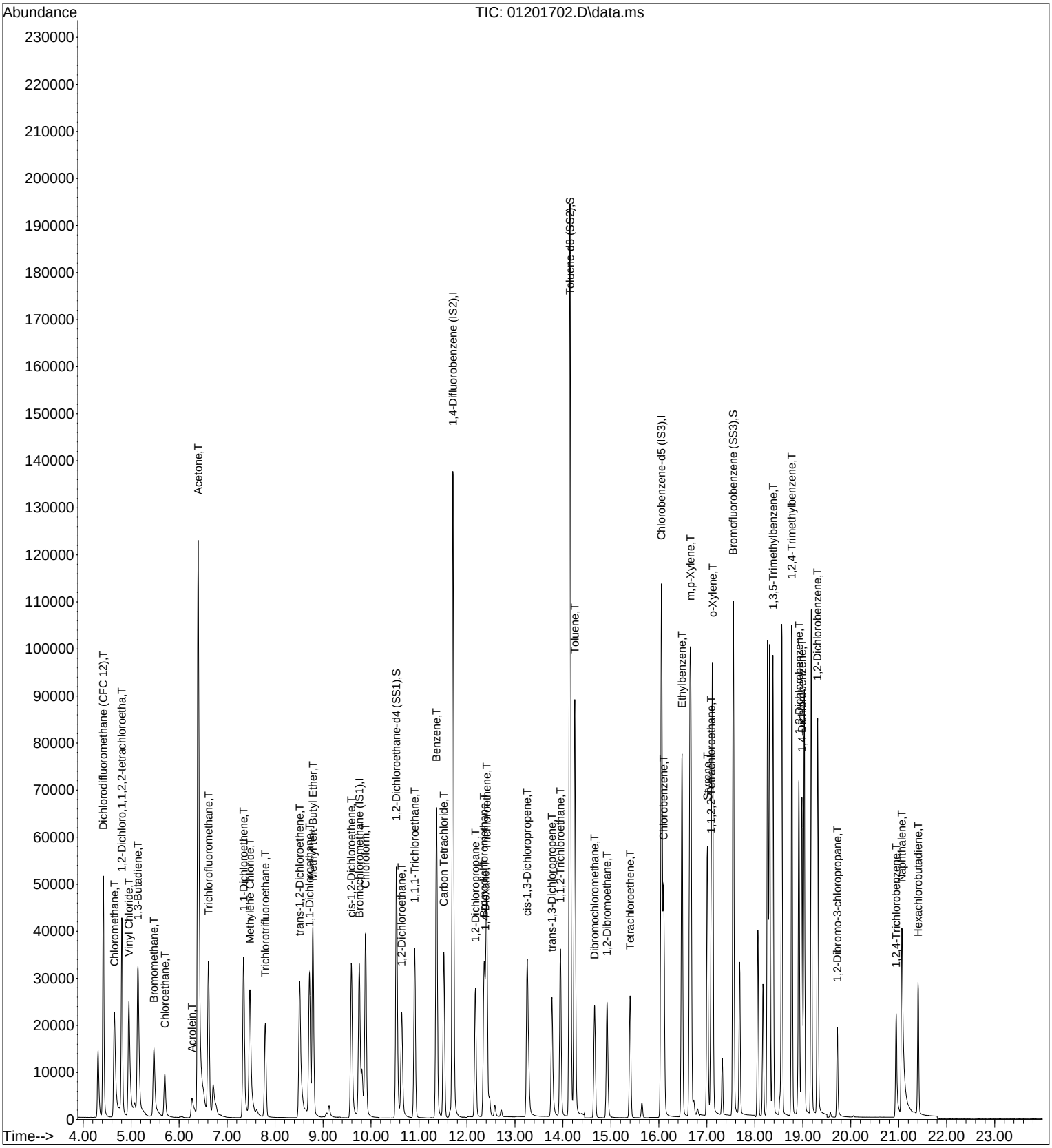
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28122	505.771	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



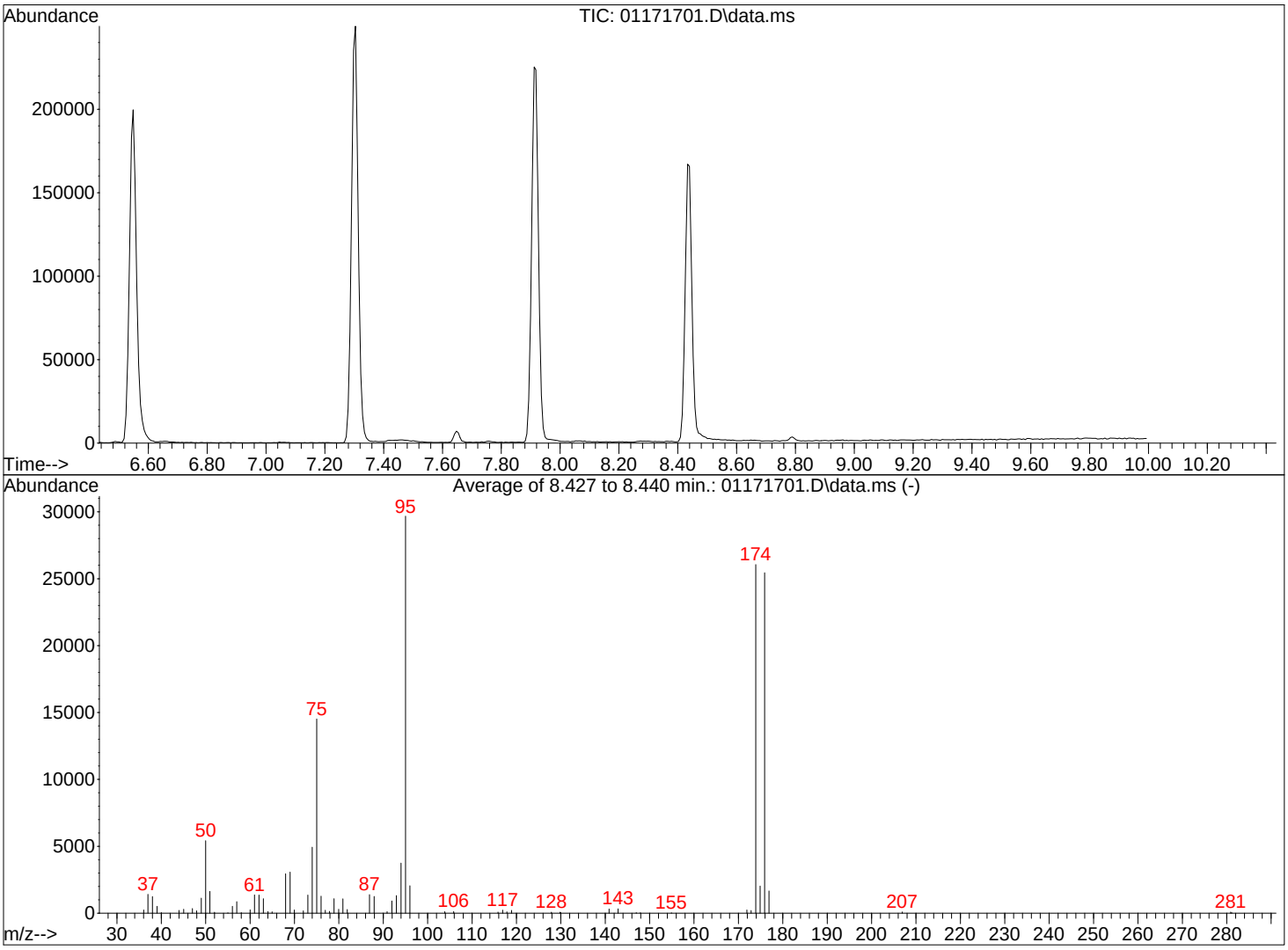
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

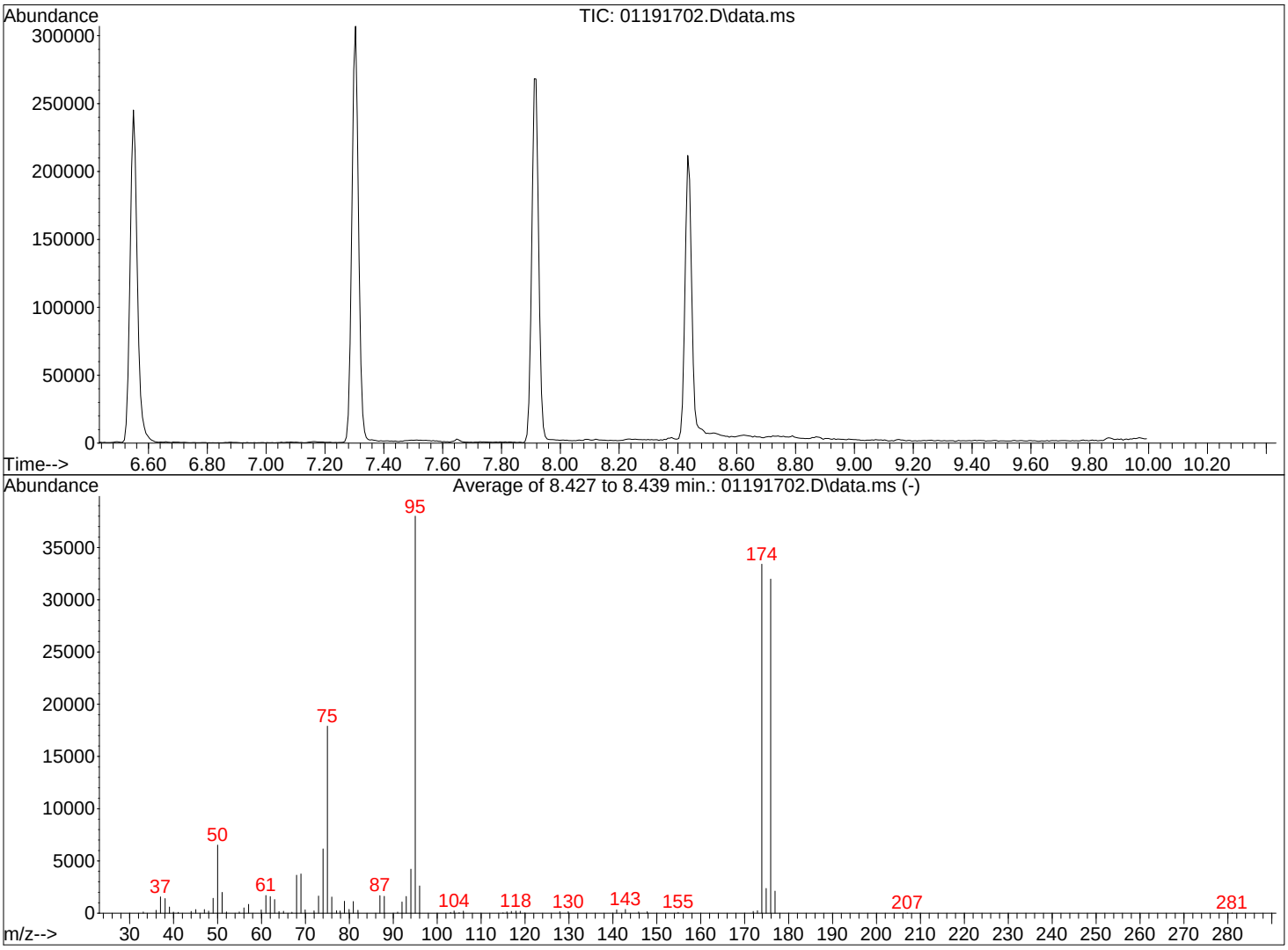
BFB

Data Path : I:\MS19\DATA\2017 01\19\
Data File : 01191702.D
Acq On : 19 Jan 2017 5:06
Operator : CL
Sample : BFB S19011917
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/19/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.1	6515	PASS
75	95	30	66	47.1	17907	PASS
95	95	100	100	100.0	38000	PASS
96	95	5	9	6.9	2609	PASS
173	174	0.00	2	0.7	241	PASS
174	95	50	120	87.9	33405	PASS
175	174	4	9	7.1	2371	PASS
176	174	93	101	95.7	31984	PASS
177	176	5	9	6.6	2118	PASS

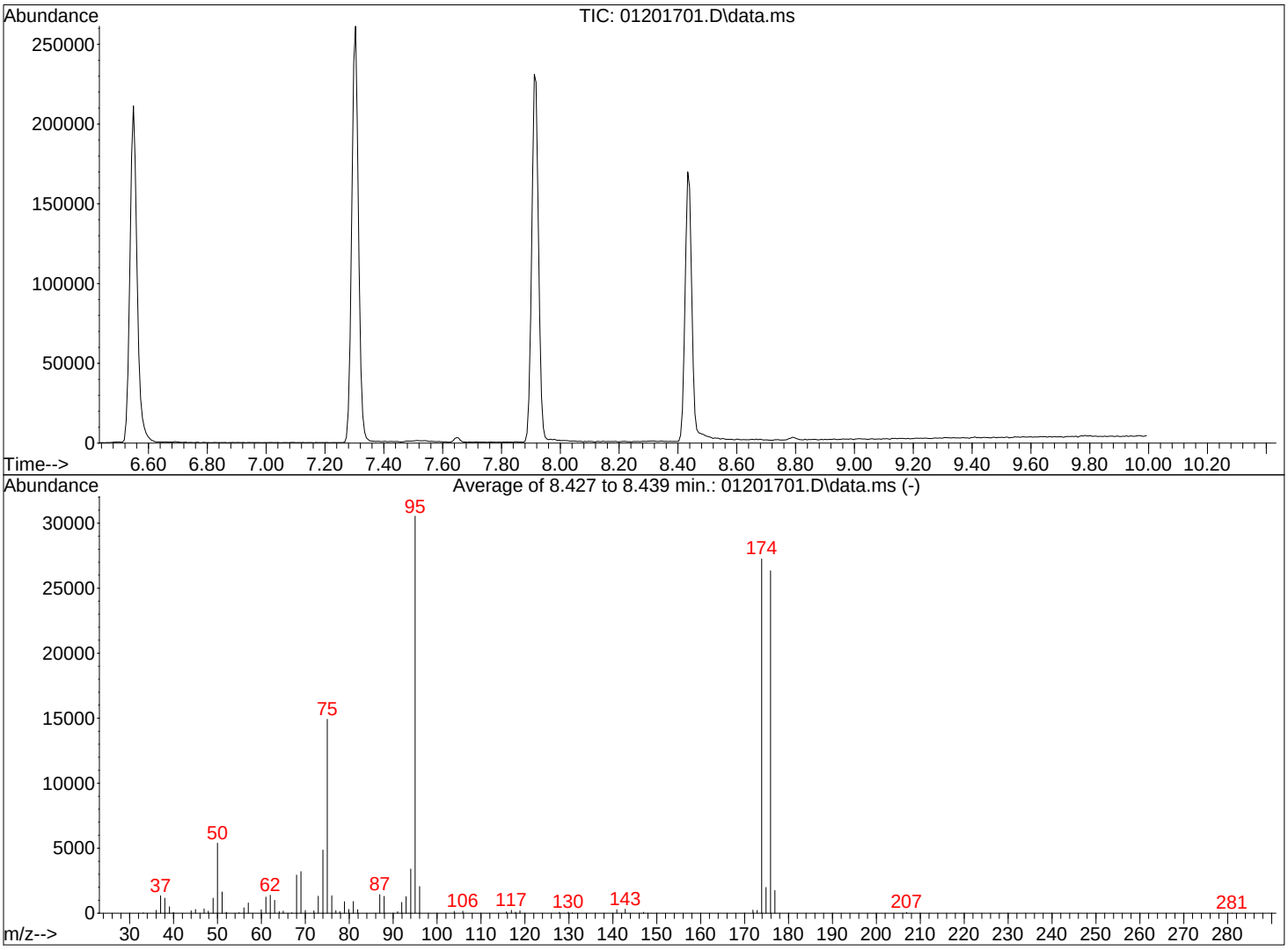
BFB

Data Path : I:\MS19\DATA\2017 01\20\
Data File : 01201701.D
Acq On : 20 Jan 2017 1:35
Operator : CL
Sample : BFB S19012017
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/20/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.6	5388	PASS
75	95	30	66	48.8	14914	PASS
95	95	100	100	100.0	30539	PASS
96	95	5	9	6.7	2056	PASS
173	174	0.00	2	0.8	219	PASS
174	95	50	120	89.2	27251	PASS
175	174	4	9	7.3	1979	PASS
176	174	93	101	96.7	26344	PASS
177	176	5	9	6.6	1739	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/19/17 4:35	01191701.D	system	S29-12201602	CL	2	
2	1/19/17 5:06	01191702.D	BFB S19011917	S29-12201602	CL	2	Pass
3	1/19/17 5:24	01191703.D	CCV S19011917_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
4	1/19/17 5:56	01191704.D	MB S19011917_1000mL	S29-12201602/AC01205	CL	2	Pass
5	1/19/17 6:27	01191705.D	LCS S19011917_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/19/17 6:58	01191706.D	LCSD S19011917_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
7	1/19/17 8:17	01191707.D	P1700163-001 (1000mL)	S29-12201602	CL	1	
8	1/19/17 8:48	01191708.D	P1700163-002 (1000mL)	S29-12201602	CL	3	
9	1/19/17 9:20	01191709.D	P1700163-003 (1000mL)	S29-12201602	CL	4	
10	1/19/17 9:51	01191710.D	P1700163-004 (1000mL)	S29-12201602	CL	5	
11	1/19/17 10:22	01191711.D	P1700163-005 (1000mL)	S29-12201602	CL	6	
12	1/19/17 10:53	01191712.D	blank	S29-12201602	CL	2	
13	1/19/17 11:25	01191713.D	P1700163-006 (1000mL)	S29-12201602	CL	7	
14	1/19/17 11:56	01191714.D	P1700163-007 (1000mL)	S29-12201602	CL	8	
15	1/19/17 12:28	01191715.D	P1700163-008 (1000mL)	S29-12201602	CL	9	
16	1/19/17 12:59	01191716.D	P1700163-009 (1000mL)	S29-12201602	CL	10	
17	1/19/17 13:30	01191717.D	P1700163-010 (1000mL)	S29-12201602	CL	11	
18	1/19/17 14:01	01191718.D	P1700163-011 (1000mL)	S29-12201602	CL	12	
19	1/19/17 14:33	01191719.D	CCV S19011917_500pg_Closing	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
20	1/19/17 15:19	01191720.D	blank	S29-12201602	CL	2	
21	1/19/17 15:51	01191721.D	P1700163-012 (1000mL)	S29-12201602	CL	13	
22	1/19/17 16:22	01191722.D	P1700163-012dup (1000mL)	S29-12201602	CL	13	Pass for Dup
23	1/19/17 16:53	01191723.D	P1700163-013 (1000mL)	S29-12201602	CL	14	
24	1/19/17 17:25	01191724.D	P1700163-014 (1000mL)	S29-12201602	CL	15	
25	1/19/17 17:56	01191725.D	P1700163-015 (1000mL)	S29-12201602	CL	1	
26	1/19/17 18:27	01191726.D	P1700163-016 (1000mL)	S29-12201602	CL	3	
27	1/19/17 18:58	01191727.D	blank	S29-12201602	CL	2	
28	1/19/17 19:30	01191728.D	P1700163-017 (1000mL)	S29-12201602	CL	4	
29	1/19/17 20:01	01191729.D	P1700163-018 (1000mL)	S29-12201602	CL	5	
30	1/19/17 20:32	01191730.D	P1700163-019 (1000mL)	S29-12201602	CL	6	
31	1/19/17 21:03	01191731.D	CCV S19011917_500pg_Closing	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
32	1/19/17 21:35	01191732.D	blank	S29-12201602	CL	2	
33	1/20/17 1:04	01191733.D	blank	S29-12201602	CL	2	

CL 1/20/17

Injection Log

Directory: I:\MS19\DATA\2017_01\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/20/17 1:35	01201701.D	BFB S19012017	S29-12201602	CL	2	Pass
2	1/20/17 1:55	01201702.D	CCV S19012017_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
3	1/20/17 2:26	01201703.D	MB S19012017_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/20/17 2:58	01201704.D	LCS S19012017_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
5	1/20/17 3:29	01201705.D	LCSD S19012017_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/20/17 4:01	01201706.D	P1700163-020 (1000mL)	S29-12201602	CL	7	
7	1/20/17 4:32	01201707.D	P1700163-021 (1000mL)	S29-12201602	CL	8	
8	1/20/17 5:04	01201708.D	P1700163-022 (1000mL)	S29-12201602	CL	9	
9	1/20/17 5:36	01201709.D	P1700163-023 (1000mL)	S29-12201602	CL	10	
10	1/20/17 6:07	01201710.D	P1700163-024 (1000mL)	S29-12201602	CL	11	
11	1/20/17 6:39	01201711.D	P1700163-025 (1000mL)	S29-12201602	CL	12	
12	1/20/17 8:57	01201712.D	P1700232-001 (1000mL)	S29-12201602	CL	11	
13	1/20/17 9:28	01201713.D	P1700232-002 (1000mL)	S29-12201602	CL	12	
14	1/20/17 9:59	01201714.D	P1700183-001 (1000mL)	S29-12201602	CL	1	
15	1/20/17 10:31	01201715.D	P1700183-002 (1000mL)	S29-12201602	CL	3	
16	1/20/17 11:02	01201716.D	blank	S29-12201602	CL	2	
17	1/20/17 11:33	01201717.D	P1700183-003 (1000mL)	S29-12201602	CL	4	
18	1/20/17 12:05	01201718.D	P1700183-003dup (1000mL)	S29-12201602	CL	4	Pass for Dup
19	1/20/17 12:36	01201719.D	P1700183-004 (1000mL)	S29-12201602	CL	5	
20	1/20/17 13:07	01201720.D	P1700183-005 (1000mL)	S29-12201602	CL	6	
21	1/20/17 13:39	01201721.D	blank	S29-12201602	CL	2	
22	1/20/17 14:10	01201722.D	P1700183-006 (1000mL)	S29-12201602	CL	7	
23	1/20/17 14:41	01201723.D	P1700183-007 (1000mL)	S29-12201602	CL	8	
24	1/20/17 15:13	01201724.D	P1700183-008 (1000mL)	S29-12201602	CL	9	
25	1/20/17 15:44	01201725.D	P1700183-009 (1000mL)	S29-12201602	CL	10	
26	1/20/17 16:16	01201726.D	CCV S19012017_500pg_Closing	S29-12201602/S29-01171706 (1/17)	CL	16	Pass

CL 1/23/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281624.D
Acq On : 29 Dec 2016 3:28 am
Operator : JM
Sample : AC00748 FCA00813
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Dec 29 10:16:19 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

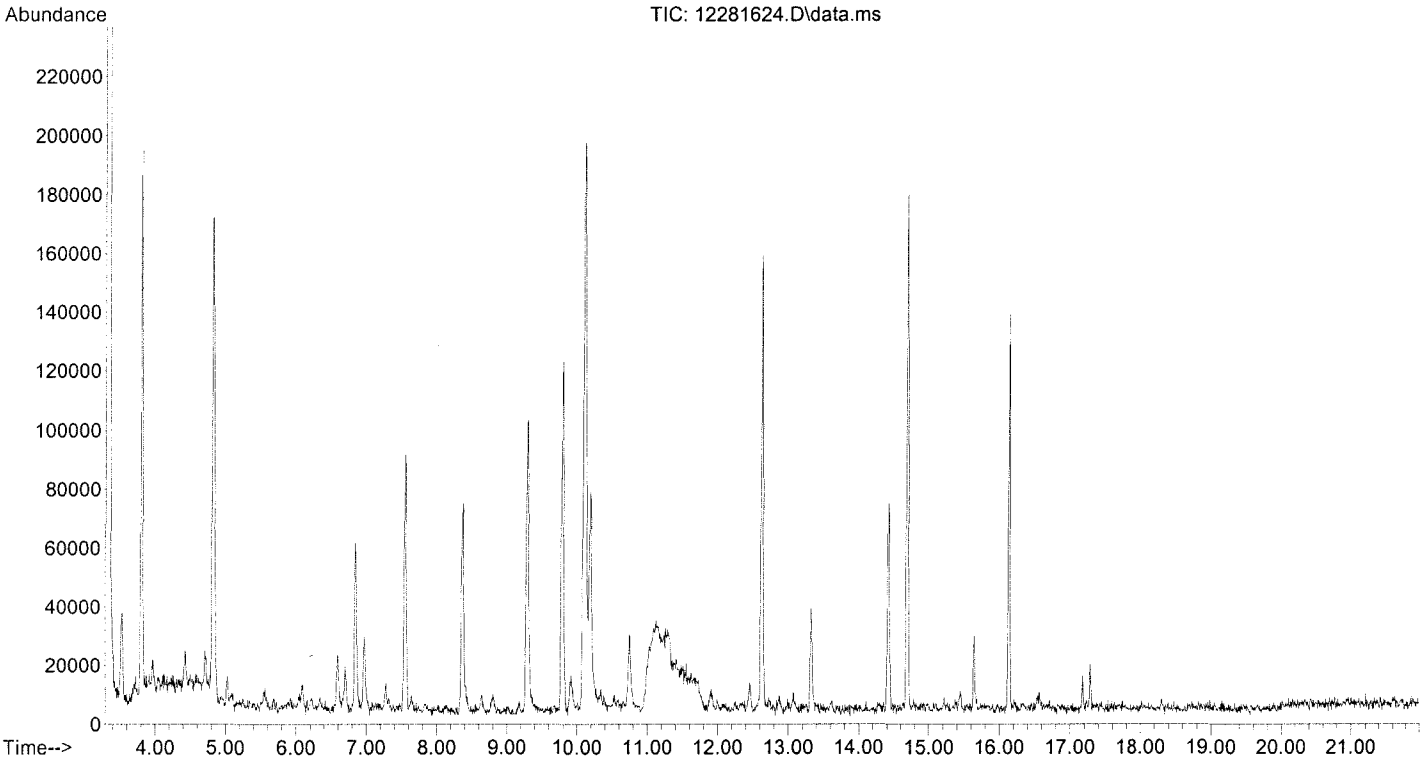
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37291	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133564	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105284	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	69089	940.725	pg		0.00
Spiked Amount 1000.000			Recovery = 94.07%				
57) Toluene-d8 (SS2)	12.63	98	121460	944.090	pg		0.00
Spiked Amount 1000.000			Recovery = 94.41%				
74) Bromofluorobenzene (SS3)	16.14	174	38841	916.676	pg		0.00
Spiked Amount 1000.000			Recovery = 91.67%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8247	110.184	pg		82
4) * Chloromethane	3.71	50	1480	12.418	pg		99
10) * Ethanol	4.43	45	13291	260.360	pg		100
11) * Acetonitrile	4.60	41	1403	10.961	pg	#	84
12) * Acrolein	4.72	56	10543	246.519	pg		98
13) * Acetone	4.83	58	111946	2321.714	pg	#	20
15) * 2-Propanol (Isopropa...	5.03	45	9337	71.470	pg		98
18) tert-Butanol	5.55	59	4194	53.263	pg	#	79
19) * Methylene Chloride	5.57	84	957	17.818	pg		86
20) * 3-Chloro-1-propene (...	5.68	41	1196	16.670	pg		93
22) * Carbon Disulfide	5.84	76	2732	13.875	pg		99
26) * Vinyl Acetate	6.71	86	2598	256.920	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	7735	267.271	pg		95
30) * Ethyl Acetate	7.65	61	506	34.199	pg		85
40) Isopropyl Acetate	9.28	61	599	37.585	pg	#	28
41) 1-Butanol	9.31	56	5469	189.408	pg		81
45) * 1,2-Dichloropropane	10.34	63	939	16.429	pg	#	84
49) Isooctane	10.75	56	747	10.146	pg	#	1
53) * 4-Methyl-2-pentanone	11.73	58	796	28.604	pg		97
58) * Toluene	12.74	91	1714	11.518	pg		98
59) * 2-Hexanone	13.07	58	1422	55.864	pg	#	93
69) Cyclohexanone	15.44	98	375	34.437	pg		86
83) tert-Butylbenzene	17.28	134	306	15.873	pg	#	1
99) n-Dodecane	19.32	85	66	12.393	pg	#	1

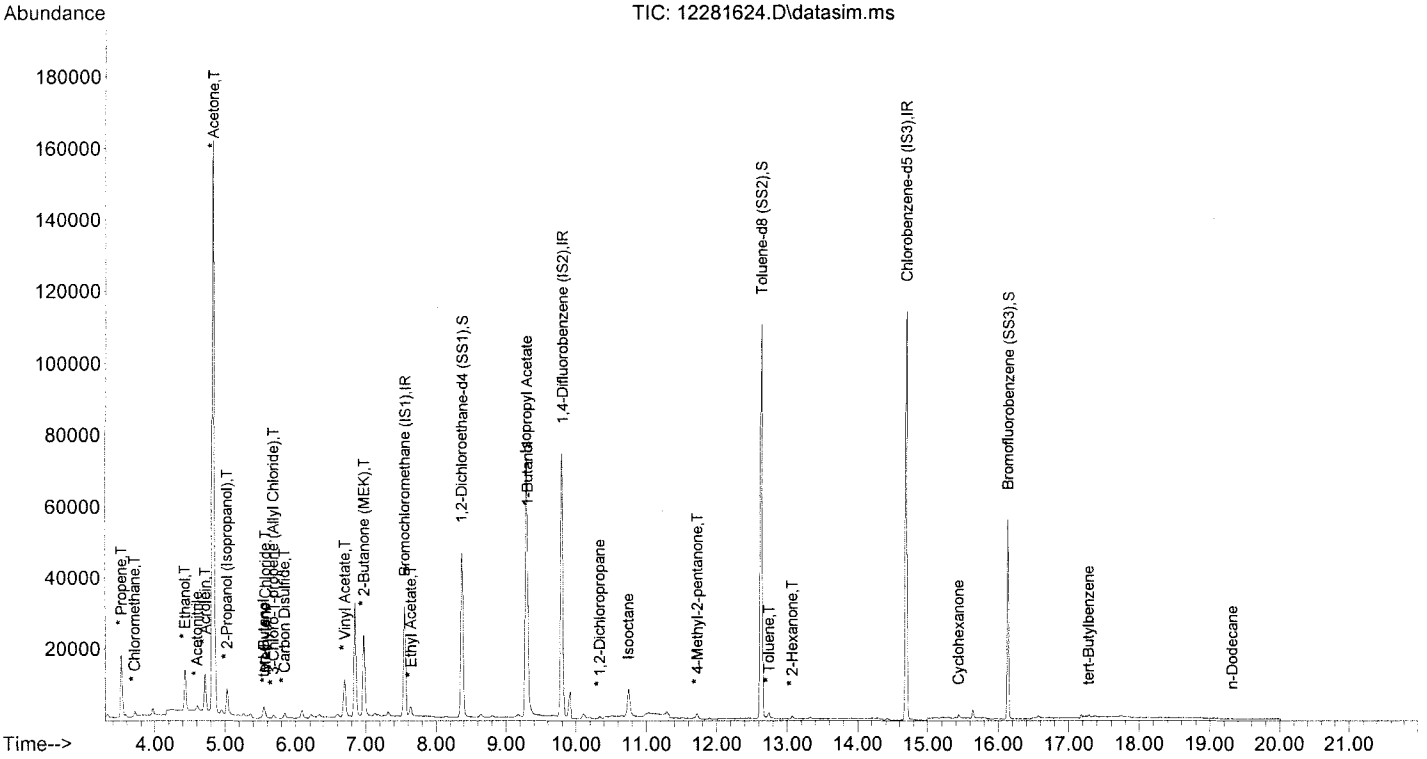
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281624.D
Acq On : 29 Dec 2016 3:28 am
Operator : JM
Sample : AC00748 FCA00813
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Dec 29 10:16:19 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291607.D
Acq On : 29 Dec 2016 12:39 pm
Operator : JM
Sample : AS00924 FCA00685
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Dec 30 09:43:49 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

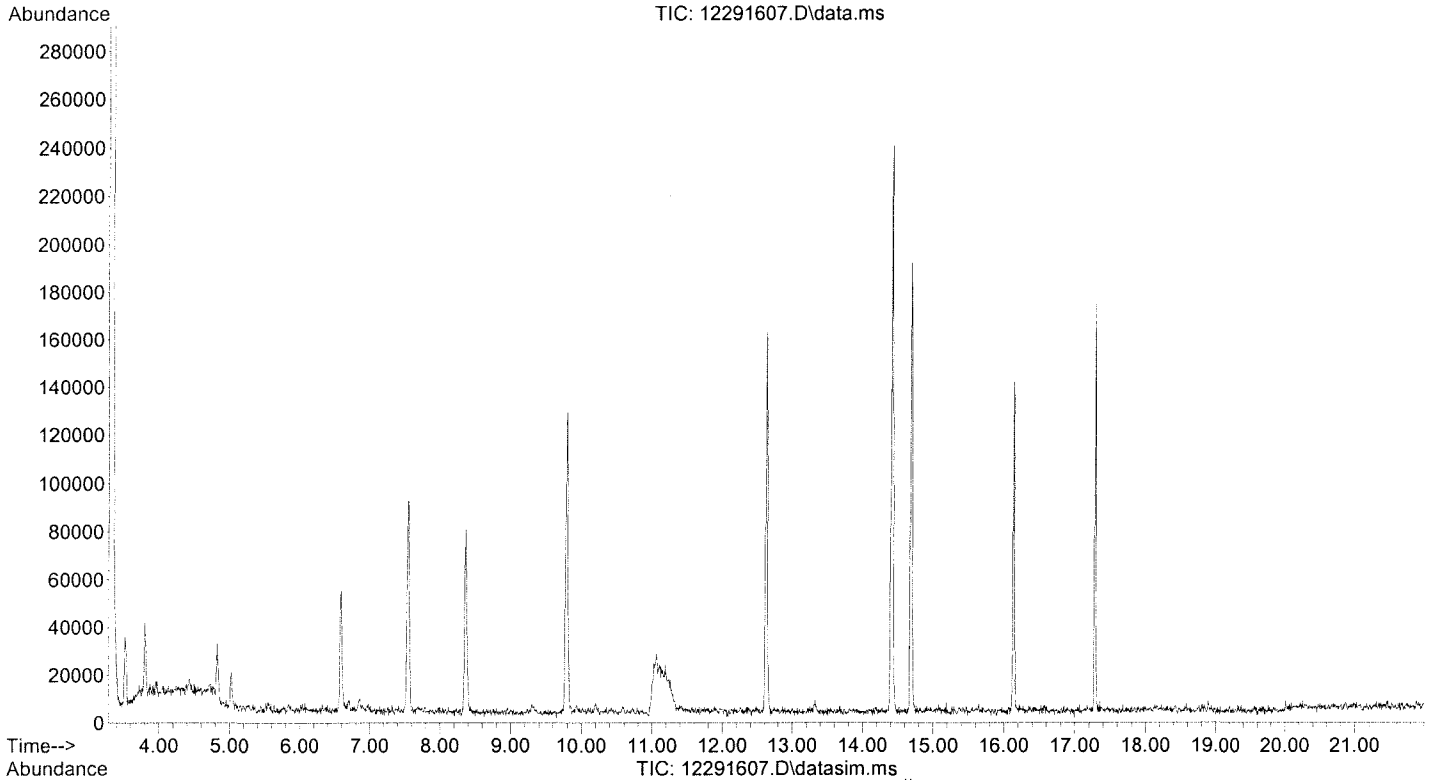
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	38330	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	137099	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	117870	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71957	953.218	pg		0.00
Spiked Amount 1000.000			Recovery = 95.32%				
57) Toluene-d8 (SS2)	12.63	98	124746	866.096	pg		0.00
Spiked Amount 1000.000			Recovery = 86.61%				
74) Bromofluorobenzene (SS3)	16.14	174	39395	830.473	pg		0.00
Spiked Amount 1000.000			Recovery = 83.05%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6479	84.216	pg		79
10) * Ethanol	4.43	45	4226	80.540	pg		96
12) * Acrolein	4.72	56	1125	25.592	pg		98
13) * Acetone	4.83	58	11086	223.687	pg	#	67
15) * 2-Propanol (Isopropa...	5.03	45	15284	113.820	pg		96
18) tert-Butanol	5.55	59	1279	15.803	pg	#	79
22) * Carbon Disulfide	5.84	76	3886	19.201	pg		97
26) * Vinyl Acetate	6.71	86	457	43.968	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	707	23.767	pg		85
41) 1-Butanol	9.31	56	1830	61.744	pg	#	57
83) tert-Butylbenzene	17.28	134	3063	141.923	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.29	105	929	10.699	pg		91

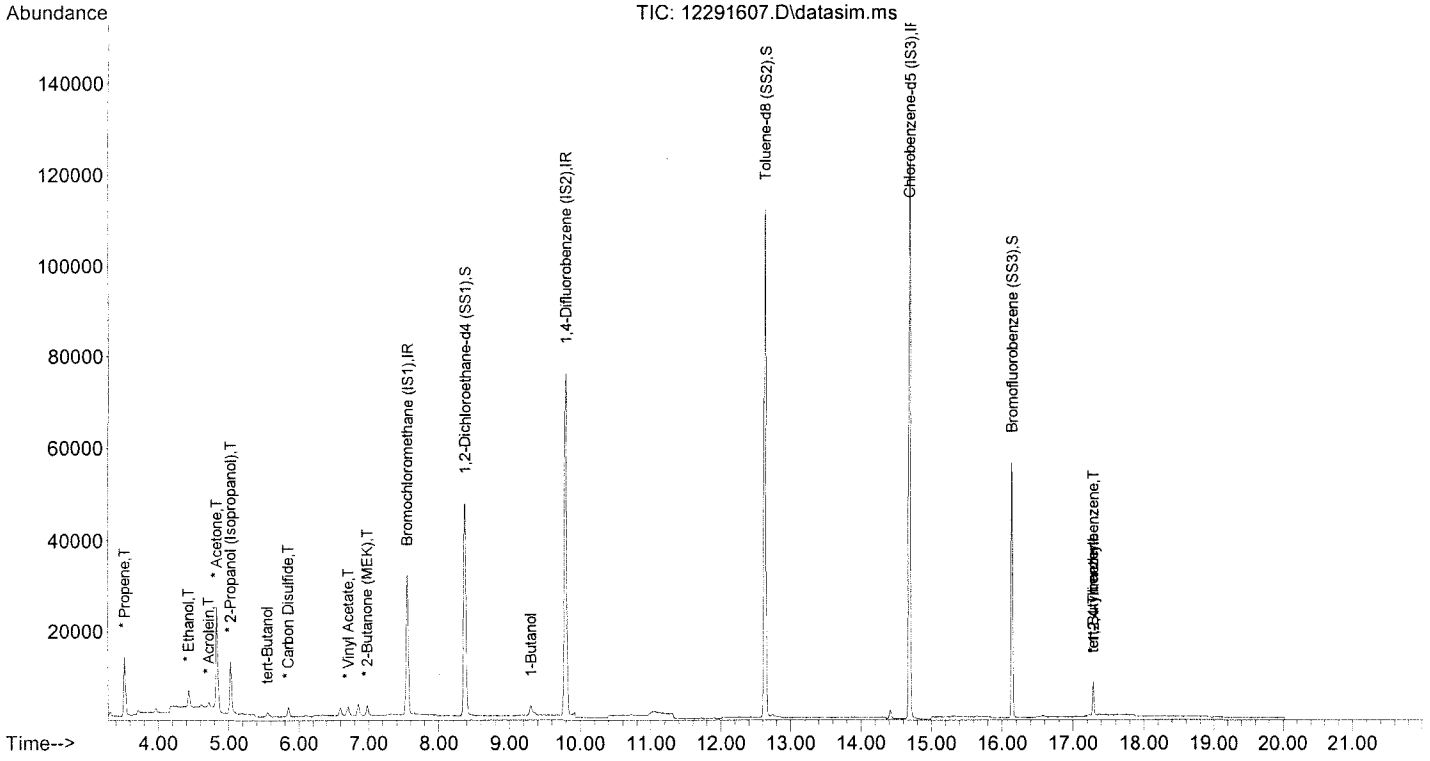
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291607.D
Acq On : 29 Dec 2016 12:39 pm
Operator : JM
Sample : AS00924 FCA00685
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Dec 30 09:43:49 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281621.D
Acq On : 29 Dec 2016 1:26 am
Operator : JM
Sample : SC02174 FCA00985
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 29 10:10:37 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

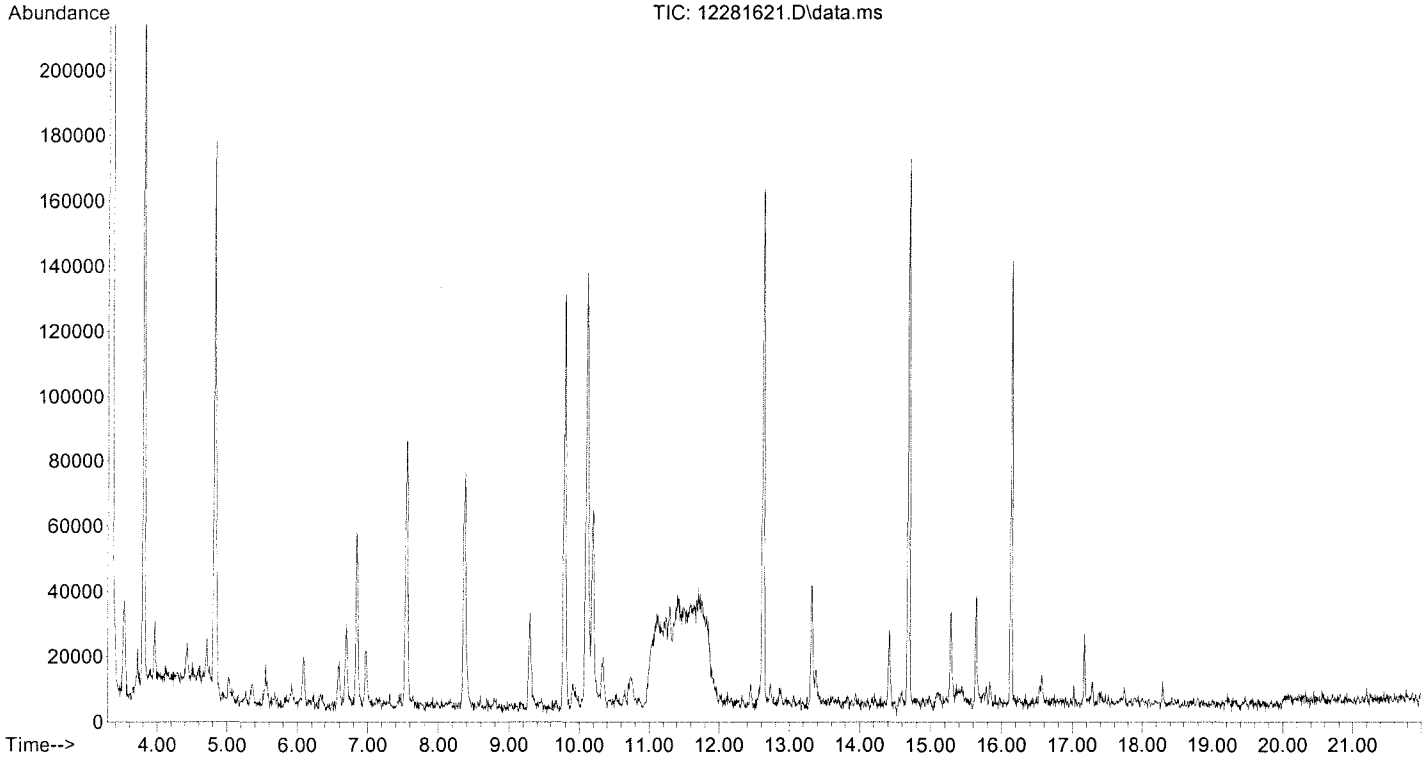
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37163	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134804	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105324	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	69732	952.751	pg		0.00
Spiked Amount 1000.000			Recovery = 95.28%				
57) Toluene-d8 (SS2)	12.62	98	124421	966.738	pg		0.00
Spiked Amount 1000.000			Recovery = 96.67%				
74) Bromofluorobenzene (SS3)	16.14	174	41009	967.475	pg		0.00
Spiked Amount 1000.000			Recovery = 96.75%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8491	113.835	pg		85
4) * Chloromethane	3.71	50	1772	14.919	pg		99
10) * Ethanol	4.43	45	11773	231.418	pg		99
11) * Acetonitrile	4.60	41	2085	16.346	pg		92
12) * Acrolein	4.71	56	10072	236.317	pg		98
13) * Acetone	4.82	58	102805	2139.478	pg	#	29
15) * 2-Propanol (Isopropa...	5.03	45	7397	56.815	pg		96
18) tert-Butanol	5.55	59	5183	66.049	pg		98
19) * Methylene Chloride	5.57	84	1269	23.709	pg		99
20) * 3-Chloro-1-propene (...	5.68	41	2452	34.294	pg		99
22) * Carbon Disulfide	5.84	76	2739	13.959	pg		100
26) * Vinyl Acetate	6.71	86	4758	472.146	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	5322	184.527	pg		92
30) * Ethyl Acetate	7.63	61	203	13.768	pg	#	66
39) * Benzene	9.36	78	1672	10.755	pg		99
41) 1-Butanol	9.30	56	6786	232.858	pg	#	54
45) * 1,2-Dichloropropane	10.34	63	5215	90.404	pg		94
48) * 1,4-Dioxane	10.64	88	600	18.506	pg		92
49) Isooctane	10.72	56	2190	29.471	pg		93
53) * 4-Methyl-2-pentanone	11.71	58	1814	64.585	pg	#	48
58) * Toluene	12.74	91	3810	25.594	pg		98
59) * 2-Hexanone	13.07	58	1182	46.418	pg		99
66) * Ethylbenzene	15.12	91	1490	11.868	pg		98
67) * m- & p-Xylenes	15.29	91	3863	39.605	pg		96
69) Cyclohexanone	15.44	98	512	47.000	pg	#	70
71) * o-Xylene	15.73	91	1063	11.142	pg		96
93) * D-Limonene	17.75	68	809	23.680	pg		94
99) n-Dodecane	19.32	85	97	18.207	pg	#	11

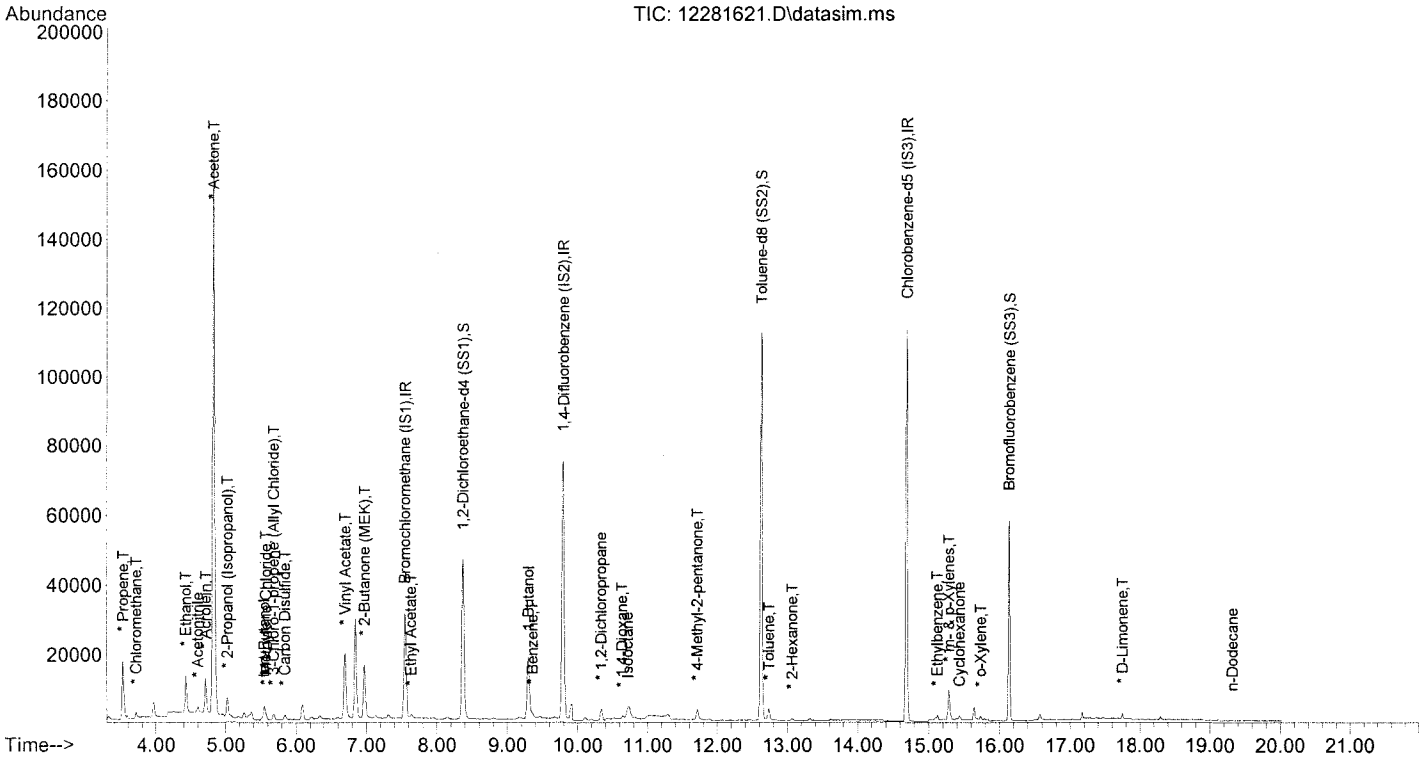
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281621.D
Acq On : 29 Dec 2016 1:26 am
Operator : JM
Sample : SC02174 FCA00985
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 29 10:10:37 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201626.D
Acq On : 21 Dec 2016 2:02 am
Operator : SM
Sample : AS00925 FCR00179
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 21 09:42:11 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration

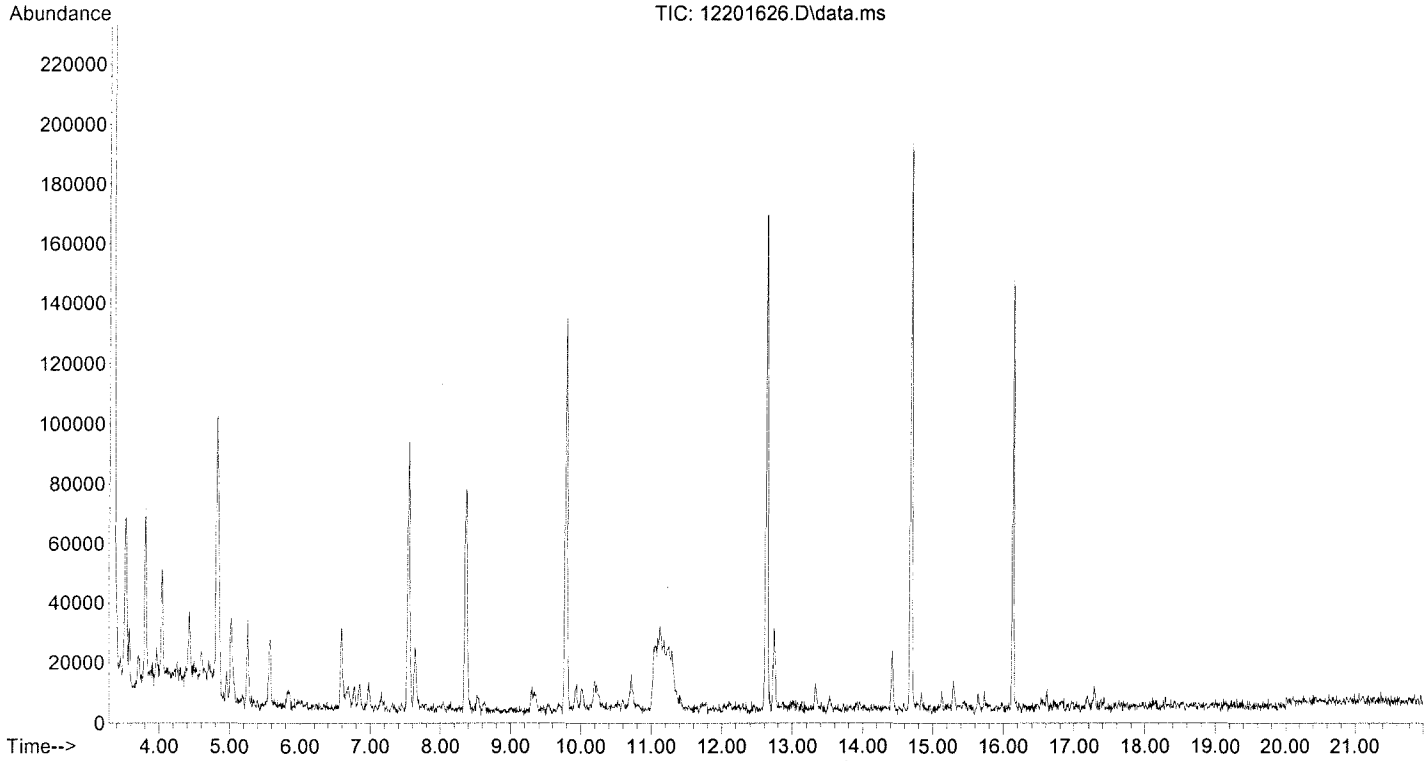
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37365	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	140094	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111145	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74730	1005.820	pg		0.00
Spiked Amount 1000.000			Recovery = 100.58%				
57) Toluene-d8 (SS2)	12.63	98	130551	942.512	pg		0.00
Spiked Amount 1000.000			Recovery = 94.25%				
74) Bromofluorobenzene (SS3)	16.14	174	41727	855.605	pg		0.00
Spiked Amount 1000.000			Recovery = 85.56%				
Target Compounds							Qvalue
2) * Propene	3.52	42	13249	187.967	pg	#	50
3) * Dichlorodifluoromethane	3.58	85	18681	150.166	pg		99
4) * Chloromethane	3.71	50	7713	101.587	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	805	10.370	pg		96
10) * Ethanol	4.43	45	24239	713.832	pg		96
11) * Acetonitrile	4.60	41	6490	77.506	pg		99
12) * Acrolein	4.72	56	1914	57.886	pg		86
13) * Acetone	4.82	58	38778	909.931	pg		100
14) * Trichlorofluoromethane	4.97	101	7344	75.644	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	39571	261.140	pg		93
18) tert-Butanol	5.55	59	1827	15.124	pg	#	1
19) * Methylene Chloride	5.57	84	9582	192.677	pg		100
21) * Trichlorotrifluoroet...	5.82	151	1098	27.113	pg		97
22) * Carbon Disulfide	5.84	76	7897	40.699	pg		100
26) * Vinyl Acetate	6.71	86	620	51.783	pg	#	28
27) * 2-Butanone (MEK)	6.98	72	2108	64.619	pg		80
29) DIPE	7.64	45	2977	14.970	pg	#	64
30) * Ethyl Acetate	7.64	61	2374	141.517	pg		89
31) * n-Hexane	7.65	57	2393	27.950	pg		100
32) * Chloroform	7.69	83	778	8.960	pg		97
39) * Benzene	9.35	78	6932	48.199	pg		96
41) 1-Butanol	9.30	56	3374	98.001	pg	#	73
42) * Carbon Tetrachloride	9.54	117	1777	33.068	pg		96
49) Isooctane	10.72	56	3385	46.106	pg		74
51) * n-Heptane	11.04	71	1401	27.926	pg		89
58) * Toluene	12.74	91	20017	135.631	pg		99
59) * 2-Hexanone	13.07	58	476	13.328	pg		99
64) * Tetrachloroethene	14.02	166	398	8.838	pg	#	74
66) * Ethylbenzene	15.13	91	2839	17.906	pg		98
67) * m- & p-Xylenes	15.29	91	5968	47.486	pg		97
69) Cyclohexanone	15.44	98	183	10.614	pg		92
71) * o-Xylene	15.73	91	2121	16.154	pg		96
76) * alpha-Pinene	16.61	93	1583	18.047	pg	#	86
78) 3-Ethyltoluene	16.81	105	1031	8.042	pg		97
79) * 4-Ethyltoluene	16.81	105	1031	8.384	pg		100
84) * 1,2,4-Trimethylbenzene	17.26	105	1084	8.928	pg		92

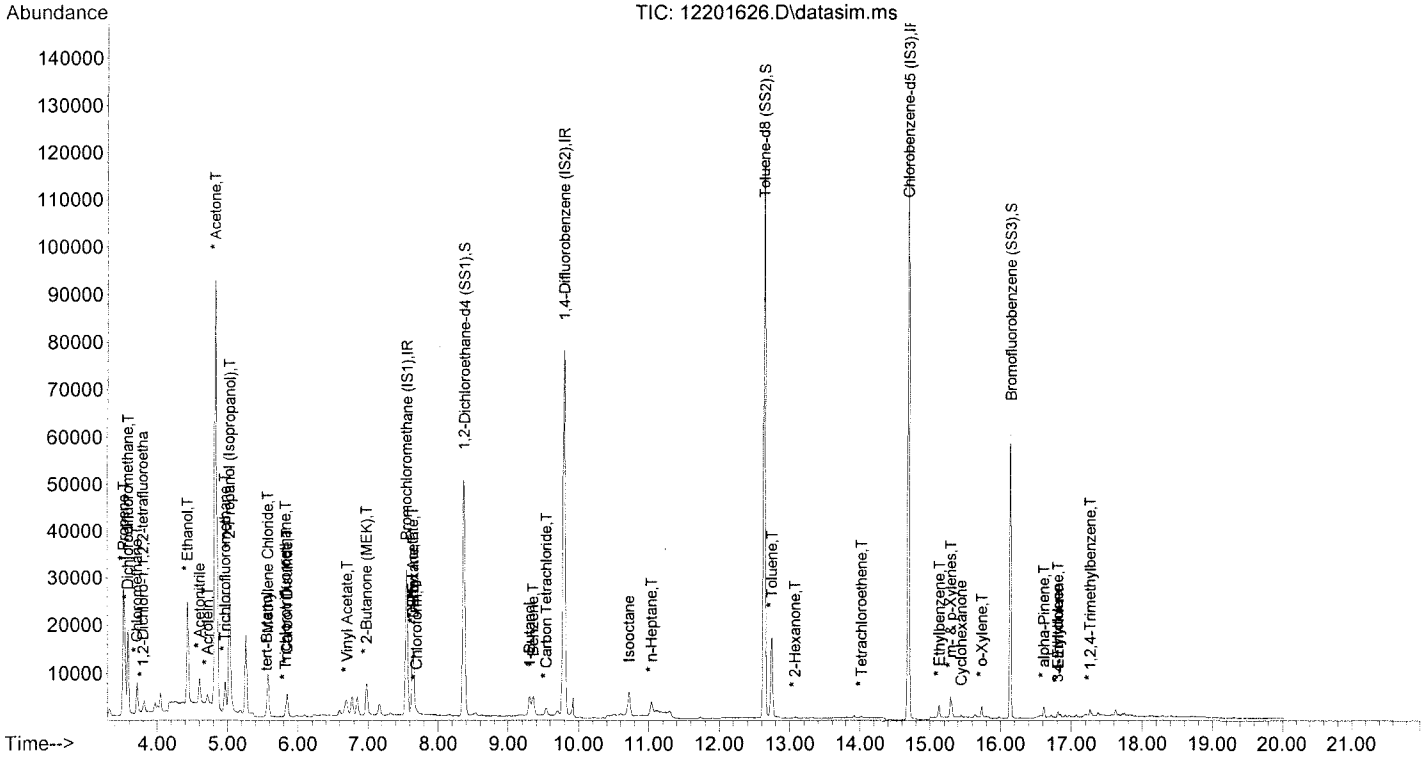
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201626.D
Acq On : 21 Dec 2016 2:02 am
Operator : SM
Sample : AS00925 FCR00179
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 21 09:42:11 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281614.D
Acq On : 28 Dec 2016 8:36 pm
Operator : JM
Sample : AC01939 FCA00029
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 29 09:53:37 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

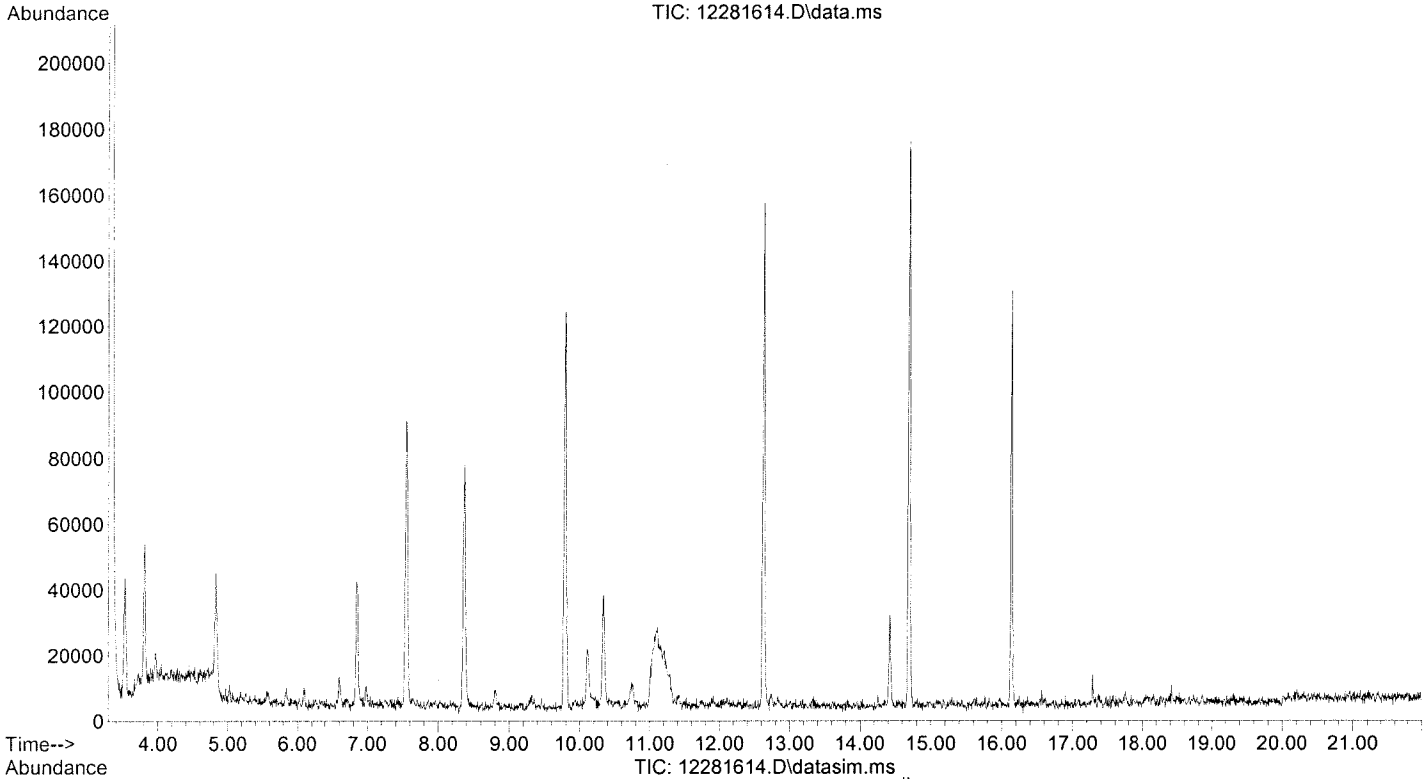
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	37902	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133513	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	103986	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71453	957.230	pg		0.00
Spiked Amount 1000.000			Recovery = 95.72%				
57) Toluene-d8 (SS2)	12.63	98	119382	939.521	pg		0.00
Spiked Amount 1000.000			Recovery = 93.95%				
74) Bromofluorobenzene (SS3)	16.14	174	37510	896.313	pg		0.00
Spiked Amount 1000.000			Recovery = 89.63%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7491	98.470	pg		84
4) * Chloromethane	3.71	50	1227	10.129	pg		92
10) * Ethanol	4.44	45	2130	41.052	pg	#	81
11) * Acetonitrile	4.60	41	1892	14.543	pg		91
12) * Acrolein	4.72	56	1223	28.135	pg		93
13) * Acetone	4.83	58	15109	308.303	pg	#	60
15) * 2-Propanol (Isopropa...	5.03	45	2211	16.651	pg		100
19) * Methylene Chloride	5.58	84	939	17.201	pg		97
22) * Carbon Disulfide	5.84	76	4453	22.251	pg		98
26) * Vinyl Acetate	6.71	86	284	27.632	pg	#	11
27) * 2-Butanone (MEK)	6.98	72	1142	38.824	pg		74
41) 1-Butanol	9.32	56	993	34.404	pg	#	58
45) * 1,2-Dichloropropane	10.34	63	14160	247.844	pg		100
49) Isooctane	10.73	56	1177	15.992	pg		76
58) * Toluene	12.74	91	2156	14.670	pg		99
93) * D-Limonene	17.75	68	641	19.004	pg		87
96) n-Undecane	18.41	85	121	14.448	pg	#	54
99) n-Dodecane	19.31	85	104	19.772	pg	#	36

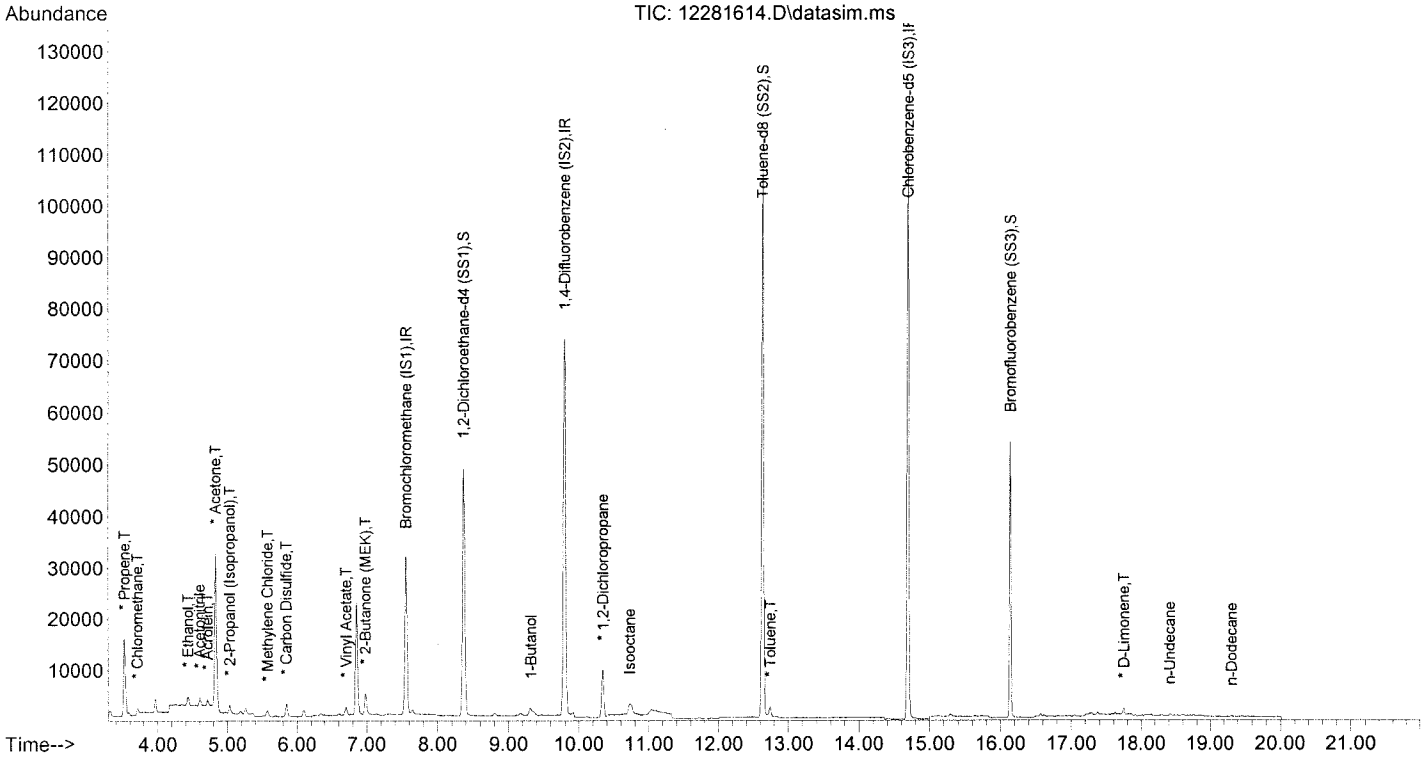
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281614.D
Acq On : 28 Dec 2016 8:36 pm
Operator : JM
Sample : AC01939 FCA00029
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 29 09:53:37 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271617.D
Acq On : 27 Dec 2016 11:22 pm
Operator : JM
Sample : AS00438 FCA01004
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 28 09:40:54 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

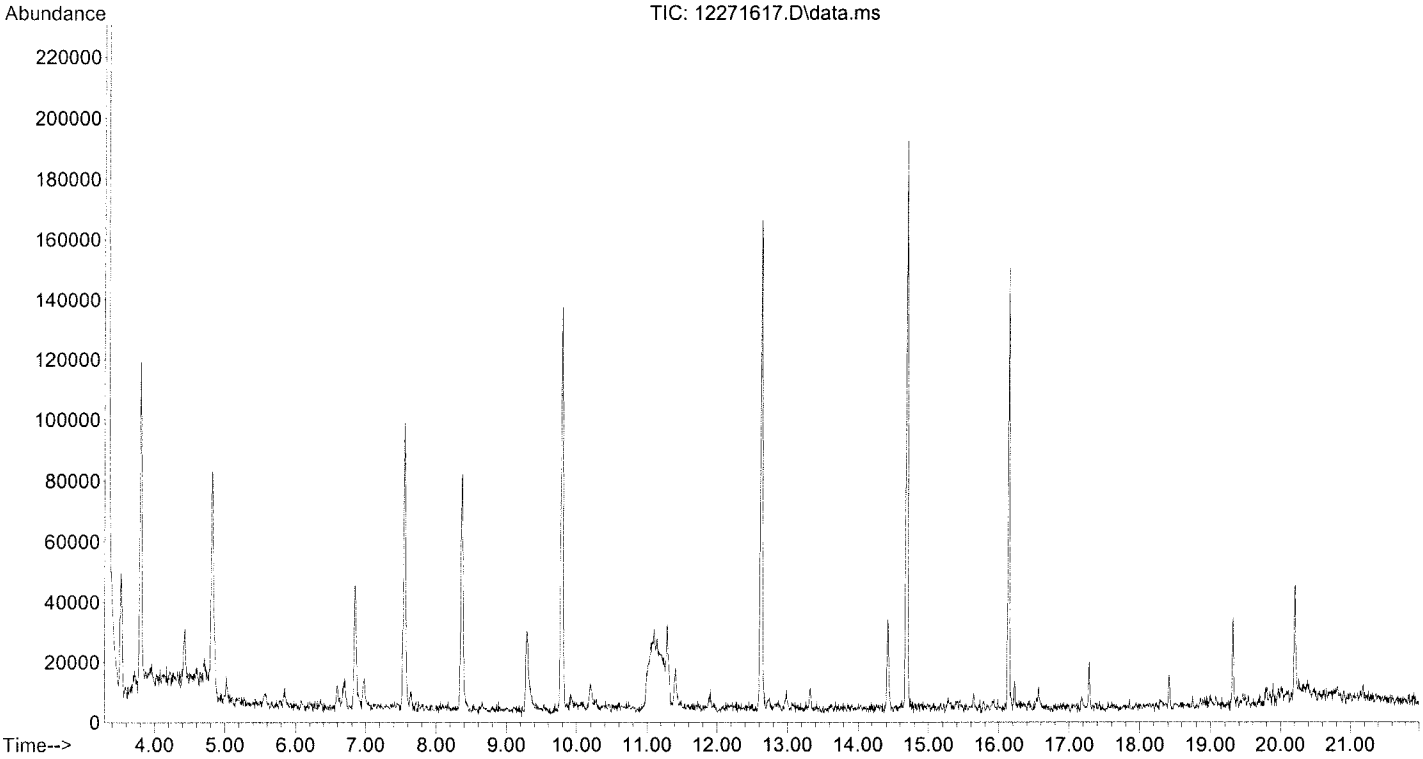
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37769	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	141749	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109230	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73810	992.288	pg		0.00
Spiked Amount 1000.000			Recovery = 99.23%				
57) Toluene-d8 (SS2)	12.63	98	127192	952.929	pg		0.00
Spiked Amount 1000.000			Recovery = 95.29%				
74) Bromofluorobenzene (SS3)	16.14	174	40752	927.032	pg		0.00
Spiked Amount 1000.000			Recovery = 92.70%				
Target Compounds							Qvalue
2) * Propene	3.52	42	5601	73.885	pg	#	74
4) * Chloromethane	3.71	50	1512	12.525	pg		96
8) * Bromomethane	4.21	94	1222	16.661	pg		97
10) * Ethanol	4.43	45	21609	417.945	pg		98
11) * Acetonitrile	4.60	41	2676	20.642	pg		93
12) * Acrolein	4.71	56	4013	92.645	pg		95
13) * Acetone	4.82	58	45117	923.866	pg	#	36
15) * 2-Propanol (Isopropa...	5.03	45	8559	64.686	pg		94
16) * Acrylonitrile	5.18	53	957	12.444	pg		92
18) tert-Butanol	5.55	59	1105	13.856	pg		97
19) * Methylene Chloride	5.57	84	1122	20.626	pg		99
22) * Carbon Disulfide	5.84	76	5369	26.923	pg		99
26) * Vinyl Acetate	6.71	86	1256	122.636	pg	#	30
27) * 2-Butanone (MEK)	6.98	72	2508	85.563	pg		96
30) * Ethyl Acetate	7.64	61	632	42.175	pg		96
39) * Benzene	9.36	78	2880	17.618	pg		99
41) 1-Butanol	9.30	56	16636	542.887	pg	#	51
58) * Toluene	12.74	91	1926	12.476	pg		96
59) * 2-Hexanone	13.07	58	384	14.541	pg		94
69) Cyclohexanone	15.44	98	164	14.516	pg		75
83) tert-Butylbenzene	17.28	134	264	13.200	pg	#	1
87) * 1,4-Dichlorobenzene	17.43	146	369	10.054	pg		97
96) n-Undecane	18.41	85	562	63.884	pg		96
98) * Naphthalene	19.29	128	470	13.685	pg		98
99) n-Dodecane	19.31	85	1613	291.928	pg		92

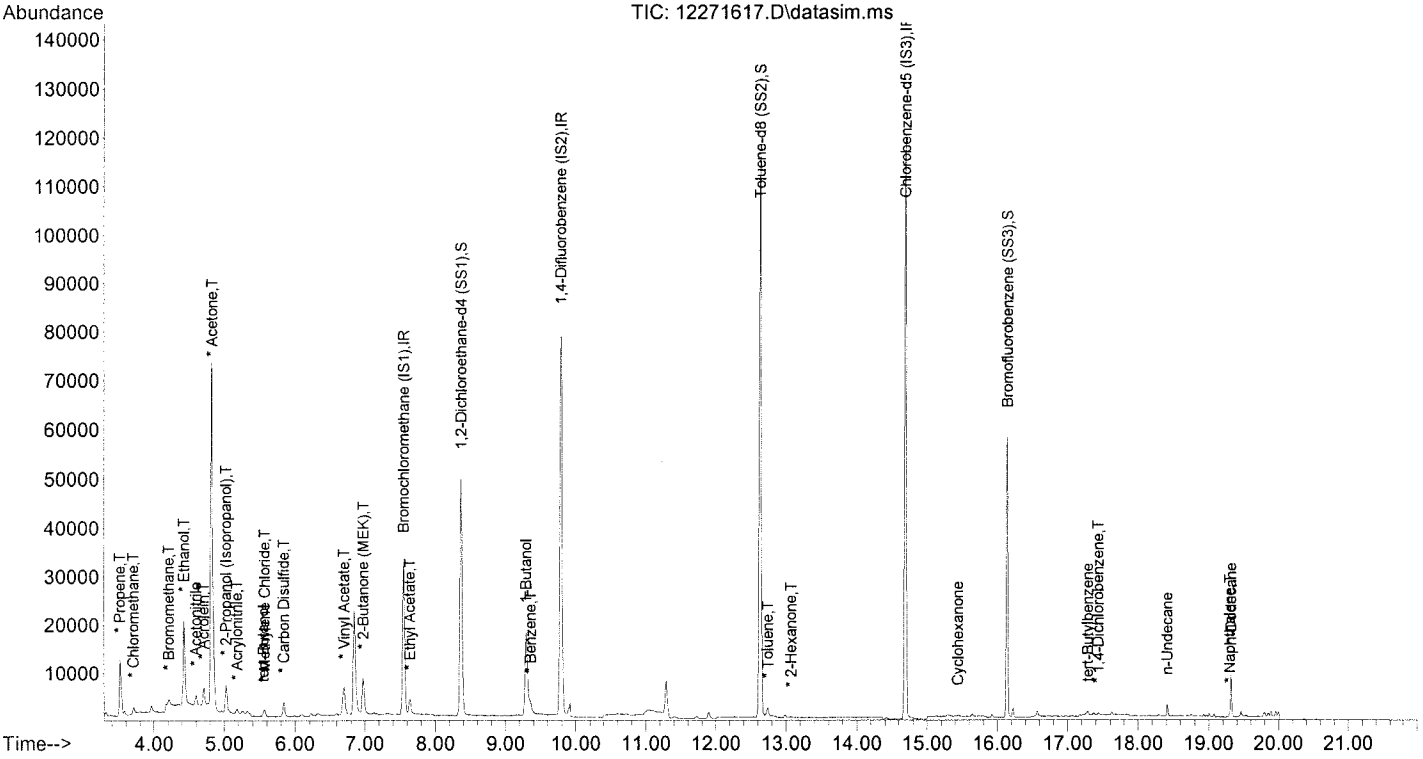
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271617.D
Acq On : 27 Dec 2016 11:22 pm
Operator : JM
Sample : AS00438 FCA01004
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 28 09:40:54 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2016 12\06\12061625.D Vial: 12
Acq On : 6 Dec 2016 23:58 Operator: CL
Sample : AC01251-FCA00787 (1000mL) Inst : MS19
Misc : 74995

Quant Time: Dec 07 07:21:22 2016
Quant Method : I:\MS19\METHODS\S19102016.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 21 09:11:03 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 12/7/16

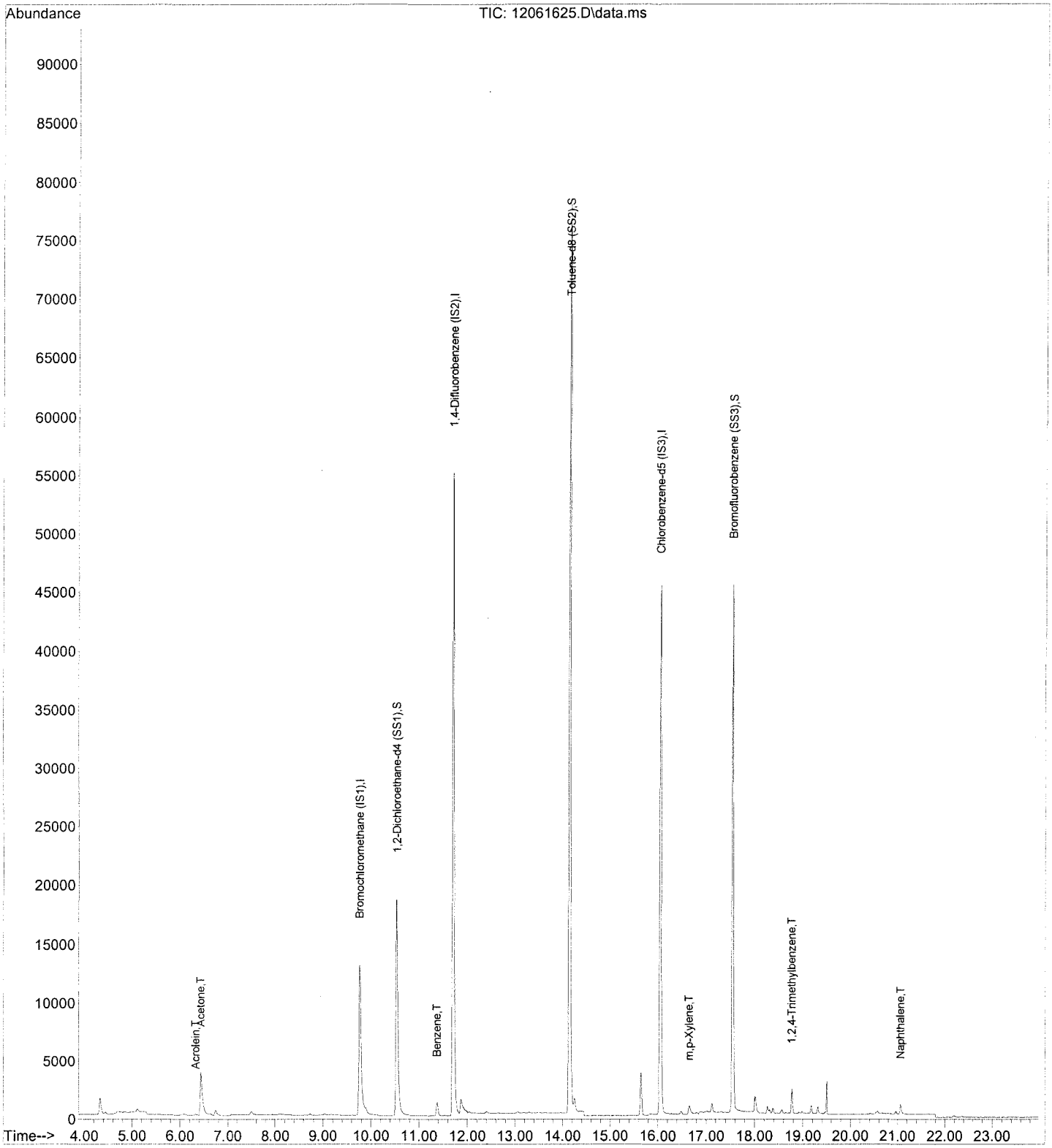
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	24293	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	116292	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	15850	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	35772	1059.056	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%			
33) Toluene-d8 (SS2)	14.15	98	107069	967.754	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.78%			
45) Bromofluorobenzene (SS3)	17.55	174	35319	879.162	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.92%			
Target Compounds						Qvalue
9) Acrolein	6.33	56	261	30.702	pg	90
10) Acetone	6.44	58	3469	276.415	pg	90
23) Benzene	11.38	78	2398	23.175	pg	99
41) m,p-Xylene	16.65	91	1351	16.101	pg	96
47) 1,2,4-Trimethylbenzene	18.77	105	2425	26.794	pg	87
53) Naphthalene	21.06	128	1671	15.632	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2016 12\06\12061625.D Vial: 12
Acq On : 6 Dec 2016 23:58 Operator: CL
Sample : AC01251-FCA00787 (1000mL) Inst : MS19
Misc : 74995

Quant Time: Dec 07 07:21:22 2016
Quant Method : I:\MS19\METHODS\S19102016.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 21 09:11:03 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231609.D
Acq On : 23 Dec 2016 10:48 am
Operator : SM
Sample : AC02223 FCA00961
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Dec 27 08:41:04 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

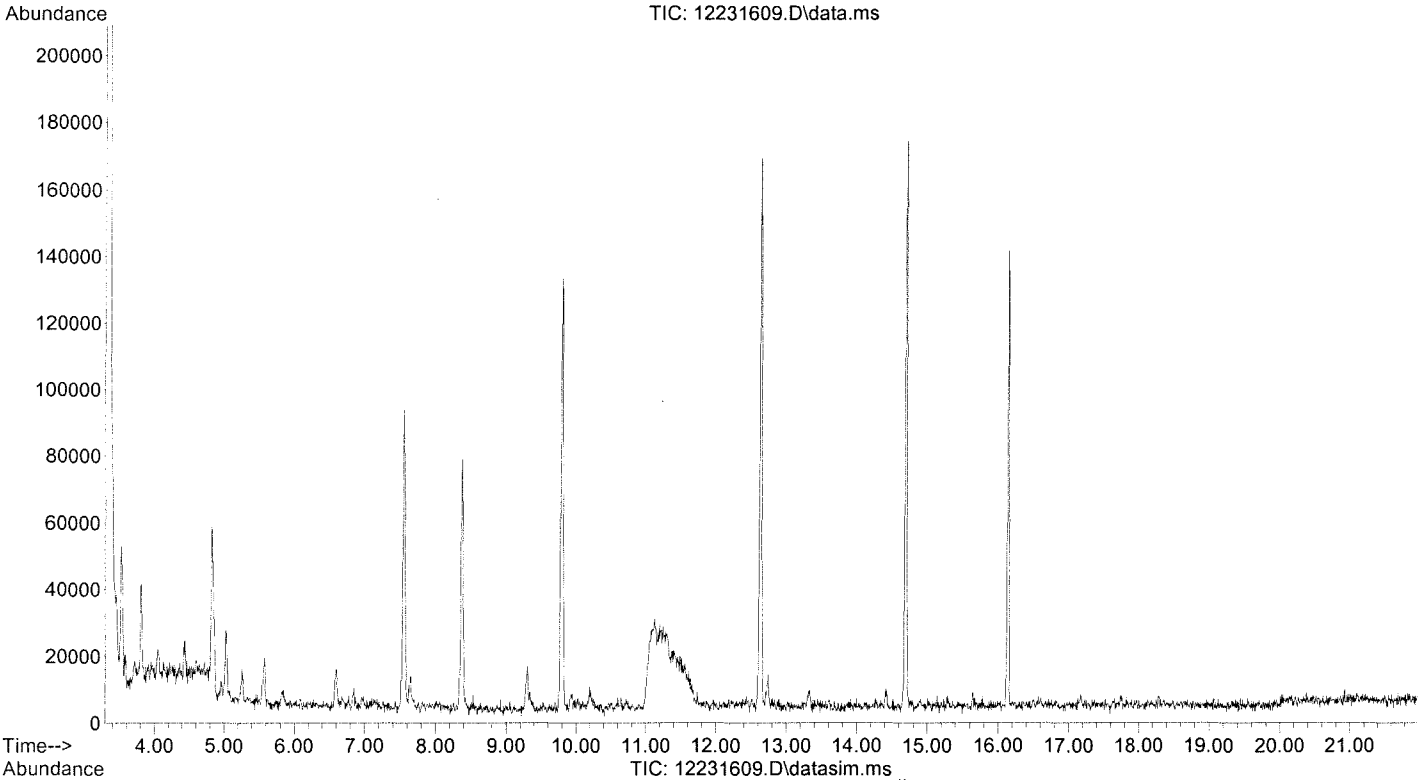
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	36925	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138390	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104431	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72263	993.696	pg		0.00
Spiked Amount 1000.000			Recovery = 99.37%				
57) Toluene-d8 (SS2)	12.63	98	127004	995.246	pg		0.00
Spiked Amount 1000.000			Recovery = 99.52%				
74) Bromofluorobenzene (SS3)	16.14	174	38205	909.031	pg		0.00
Spiked Amount 1000.000			Recovery = 90.90%				
Target Compounds							Qvalue
2) * Propene	3.52	42	9726	131.232	pg	#	77
3) * Dichlorodifluoromethane	3.58	85	9180	58.148	pg		99
4) * Chloromethane	3.71	50	3861	32.716	pg		100
10) * Ethanol	4.43	45	10269	203.155	pg		99
11) * Acetonitrile	4.60	41	3387	26.724	pg	#	84
12) * Acrolein	4.71	56	1271	30.013	pg		84
13) * Acetone	4.83	58	19726	413.164	pg		81
14) * Trichlorofluoromethane	4.97	101	3215	30.483	pg		99
15) * 2-Propanol (Isopropa...	5.02	45	27949	216.056	pg		92
19) * Methylene Chloride	5.57	84	5599	105.280	pg		100
22) * Carbon Disulfide	5.84	76	5296	27.164	pg		96
26) * Vinyl Acetate	6.70	86	361	36.054	pg	#	24
27) * 2-Butanone (MEK)	6.97	72	778	27.149	pg		91
30) * Ethyl Acetate	7.64	61	1279	87.302	pg		86
41) 1-Butanol	9.30	56	6923	231.403	pg	#	52
58) * Toluene	12.74	91	7285	49.357	pg		99
67) * m- & p-Xylenes	15.29	91	1451	15.003	pg		89
93) * D-Limonene	17.75	68	708	20.901	pg		97

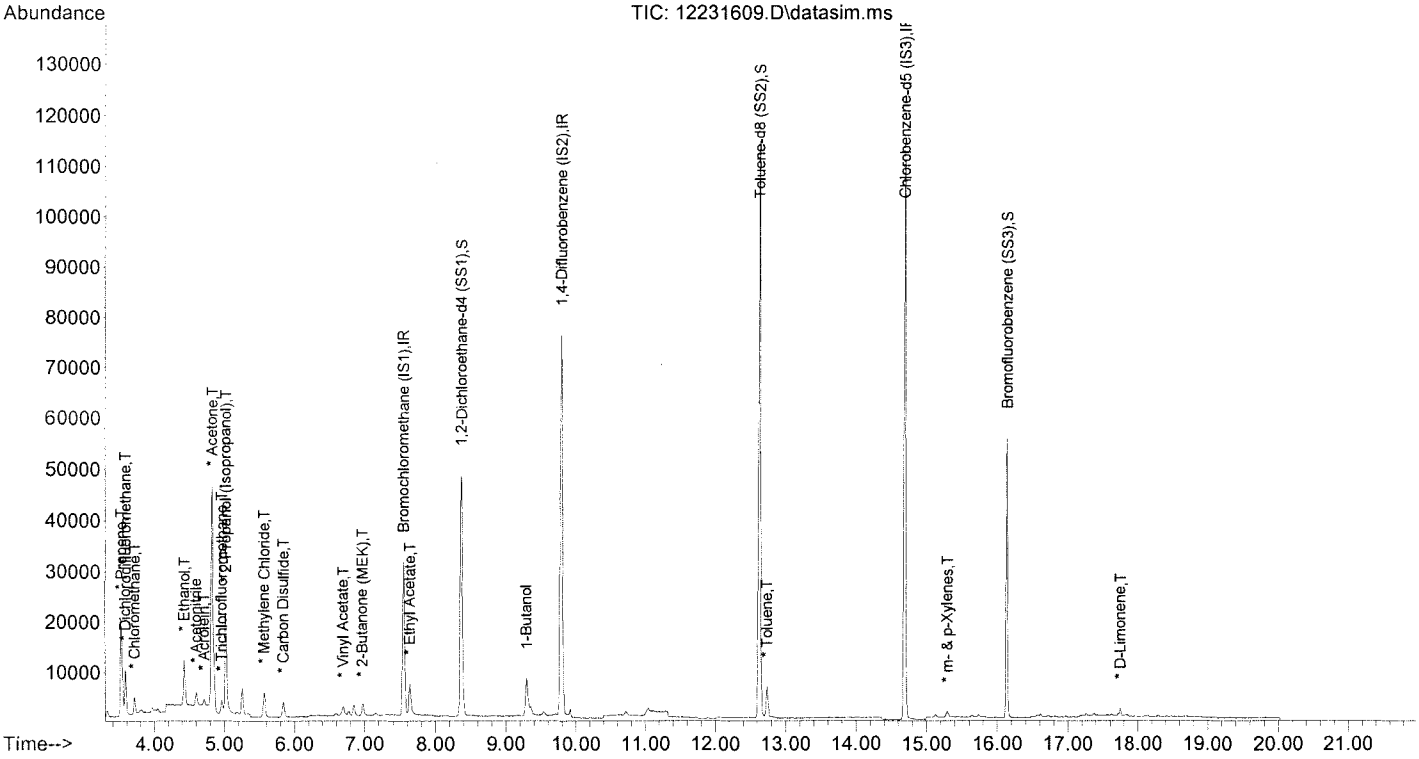
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231609.D
Acq On : 23 Dec 2016 10:48 am
Operator : SM
Sample : AC02223 FCA00961
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Dec 27 08:41:04 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201624.D
Acq On : 21 Dec 2016 12:38 am
Operator : SM
Sample : AS00310 FCR00182
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 21 09:41:59 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration

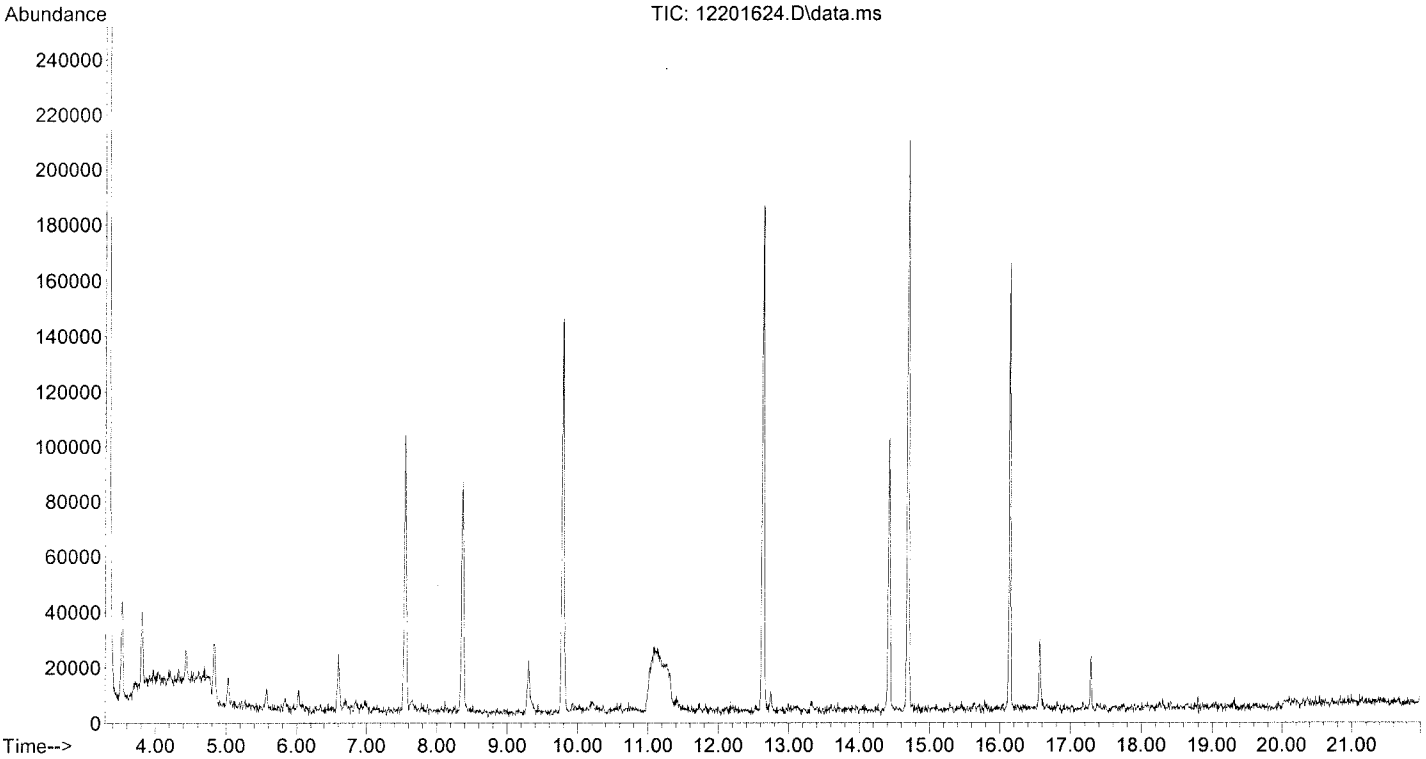
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39857	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	151694	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	123586	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	80099	1010.678	pg		0.00
Spiked Amount 1000.000			Recovery = 101.07%				
57) Toluene-d8 (SS2)	12.63	98	142178	923.123	pg		0.00
Spiked Amount 1000.000			Recovery = 92.31%				
74) Bromofluorobenzene (SS3)	16.14	174	44831	826.714	pg		0.00
Spiked Amount 1000.000			Recovery = 82.67%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7328	97.464	pg	#	68
4) * Chloromethane	3.71	50	967	11.940	pg		93
10) * Ethanol	4.44	45	9965	275.118	pg		99
11) * Acetonitrile	4.60	41	1355	15.170	pg		94
12) * Acrolein	4.72	56	1112	31.528	pg		97
13) * Acetone	4.83	58	9537	209.795	pg		75
15) * 2-Propanol (Isopropa...	5.03	45	13016	80.526	pg	#	88
19) * Methylene Chloride	5.57	84	2492	46.977	pg		98
22) * Carbon Disulfide	5.84	76	5286	25.539	pg	#	86
26) * Vinyl Acetate	6.71	86	354	27.718	pg	#	15
27) * 2-Butanone (MEK)	6.99	72	693	19.915	pg		88
30) * Ethyl Acetate	7.65	61	536	29.954	pg		100
39) * Benzene	9.36	78	1715	11.013	pg		93
41) 1-Butanol	9.30	56	10127	271.656	pg	#	68
58) * Toluene	12.74	91	3598	21.925	pg		98
83) tert-Butylbenzene	17.28	134	358	11.674	pg	#	1
96) n-Undecane	18.41	85	165	9.721	pg		71
98) * Naphthalene	19.29	128	1137	17.244	pg		98
99) n-Dodecane	19.31	85	195	18.750	pg		87

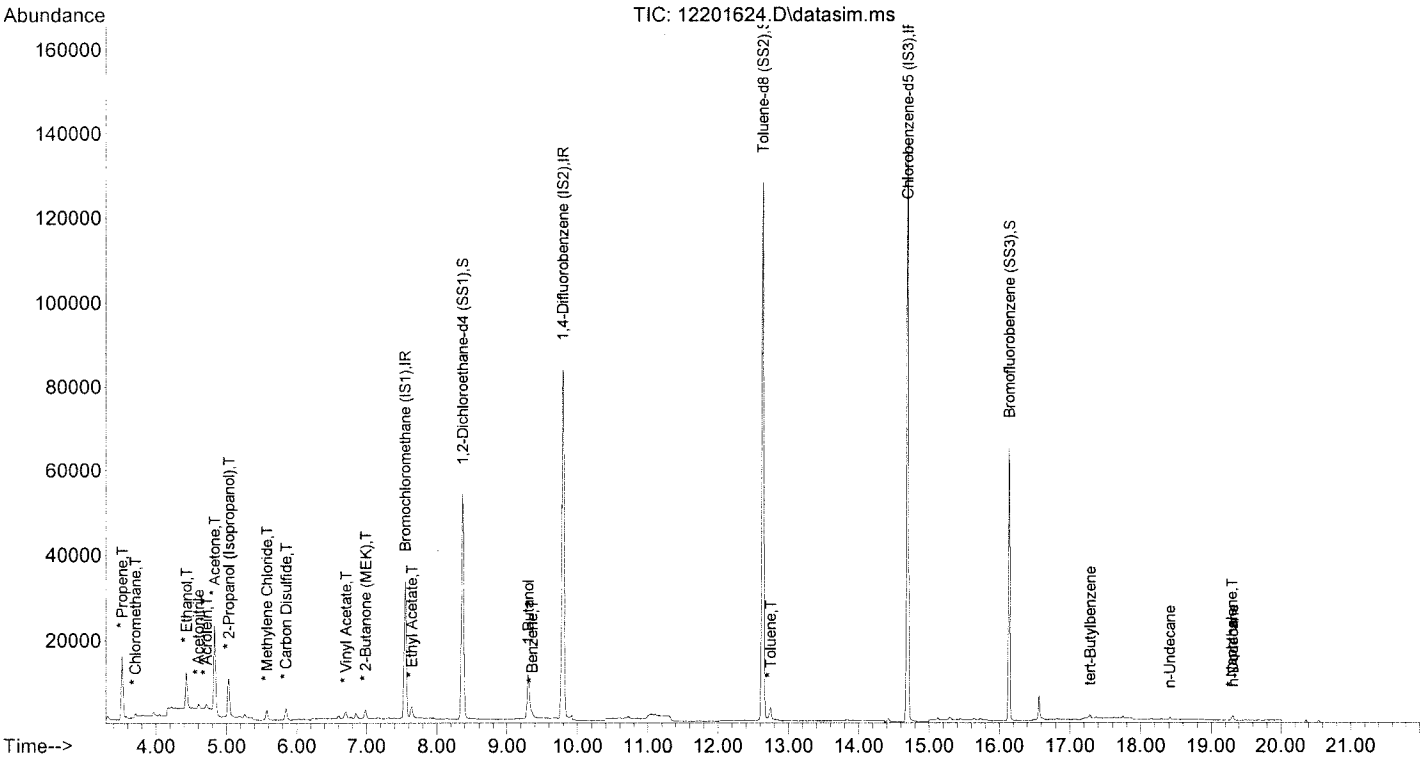
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201624.D
Acq On : 21 Dec 2016 12:38 am
Operator : SM
Sample : AS00310 FCR00182
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 21 09:41:59 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231608.D
Acq On : 23 Dec 2016 10:06 am
Operator : SM
Sample : AC02119 FCA00904
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Dec 27 08:40:58 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

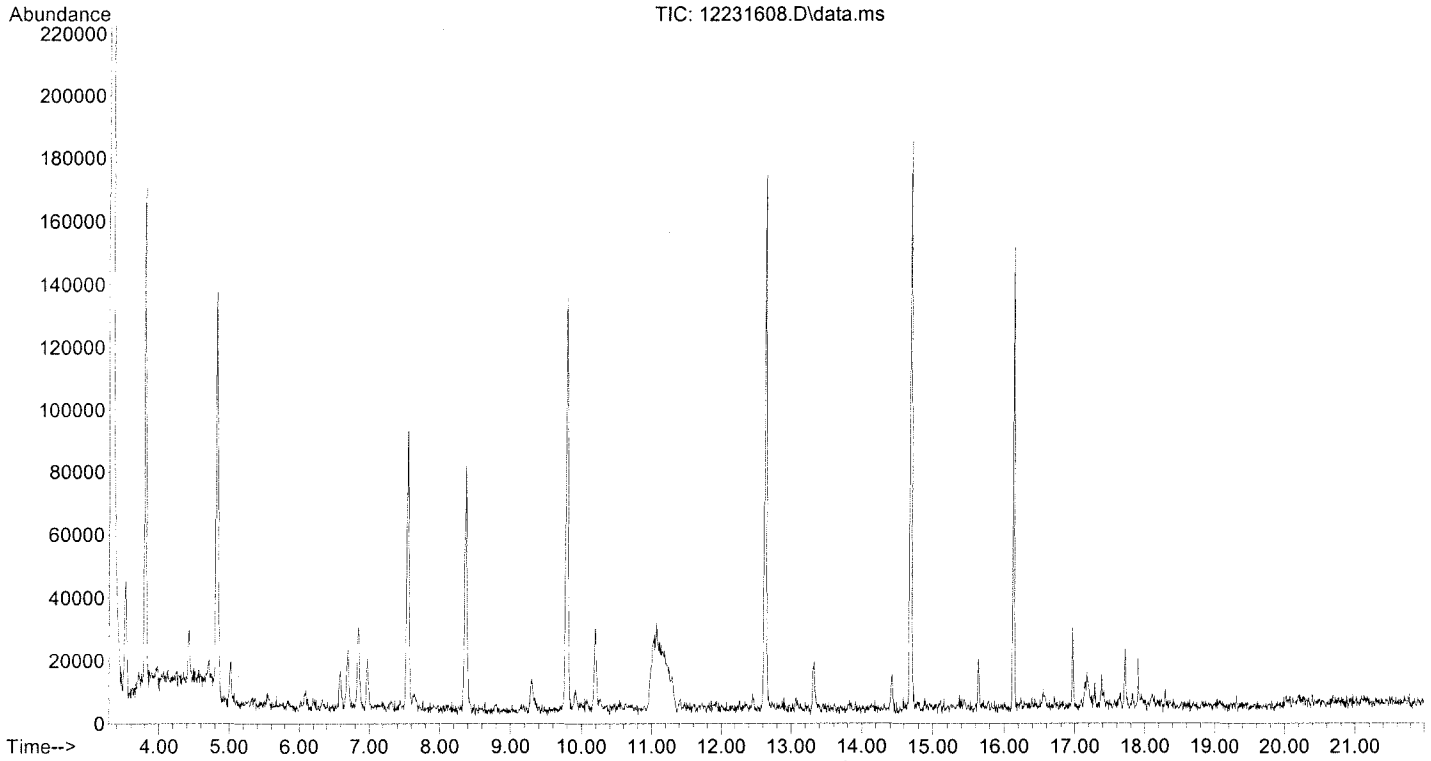
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37697	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138001	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106585	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72417	975.420	pg		0.00
Spiked Amount 1000.000			Recovery = 97.54%				
57) Toluene-d8 (SS2)	12.63	98	126308	969.789	pg		0.00
Spiked Amount 1000.000			Recovery = 96.98%				
74) Bromofluorobenzene (SS3)	16.14	174	39401	918.542	pg		0.00
Spiked Amount 1000.000			Recovery = 91.85%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7409	97.922	pg		79
10) * Ethanol	4.43	45	17872	346.327	pg		99
12) * Acrolein	4.71	56	3596	83.177	pg		93
13) * Acetone	4.82	58	72580	1489.068	pg	#	36
15) * 2-Propanol (Isopropa...	5.02	45	14564	110.279	pg		95
18) tert-Butanol	5.55	59	2332	29.297	pg		94
26) * Vinyl Acetate	6.70	86	3922	383.675	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	4396	150.261	pg		92
30) * Ethyl Acetate	7.63	61	711	47.537	pg		87
41) 1-Butanol	9.30	56	5627	188.614	pg	#	50
59) * 2-Hexanone	13.07	58	1015	39.388	pg	#	88
69) Cyclohexanone	15.44	98	179	16.237	pg		86
88) n-Decane	17.38	85	639	42.565	pg	#	53
99) n-Dodecane	19.31	85	137	25.410	pg		90

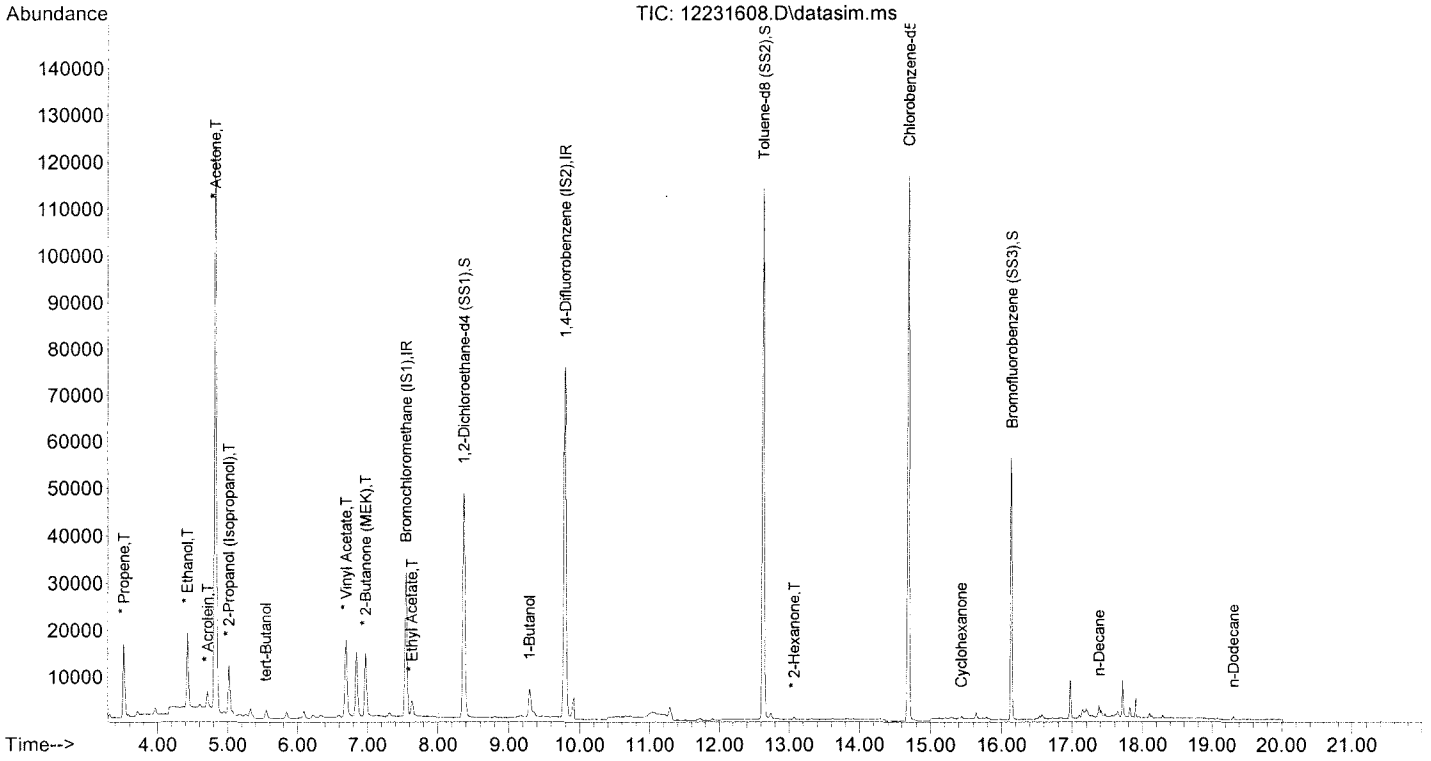
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231608.D
Acq On : 23 Dec 2016 10:06 am
Operator : SM
Sample : AC02119 FCA00904
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Dec 27 08:40:58 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231616.D
Acq On : 23 Dec 2016 3:38 pm
Operator : SM
Sample : AS00098 FCA00997
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

Quant Time: Dec 27 08:41:47 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

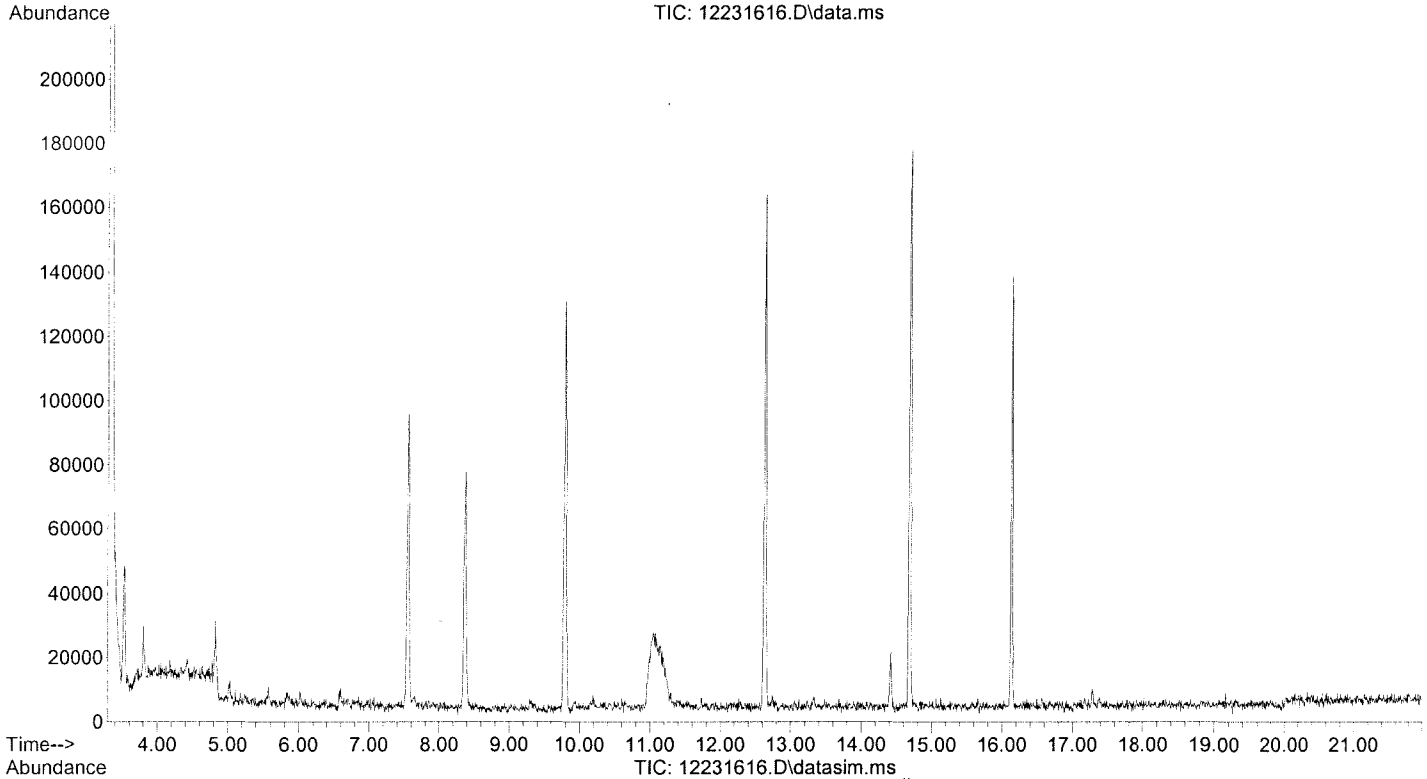
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	37584	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	135523	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106396	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72486	979.285	pg		0.00
Spiked Amount 1000.000			Recovery = 97.93%				
57) Toluene-d8 (SS2)	12.63	98	124725	959.336	pg		0.00
Spiked Amount 1000.000			Recovery = 95.93%				
74) Bromofluorobenzene (SS3)	16.14	174	38348	895.581	pg		0.00
Spiked Amount 1000.000			Recovery = 89.56%				
Target Compounds							Qvalue
2) * Propene	3.52	42	8215	108.901	pg		85
10) * Ethanol	4.43	45	3827	74.383	pg		99
12) * Acrolein	4.71	56	843	19.558	pg		93
13) * Acetone	4.83	58	6534	134.456	pg		71
15) * 2-Propanol (Isopropa...	5.02	45	5571	42.311	pg		96
19) * Methylene Chloride	5.57	84	888	16.405	pg		97
22) * Carbon Disulfide	5.84	76	5338	26.899	pg		100
26) * Vinyl Acetate	6.71	86	221	21.685	pg	#	7
30) * Ethyl Acetate	7.65	61	372	24.947	pg		88
41) 1-Butanol	9.30	56	1363	46.523	pg	#	48

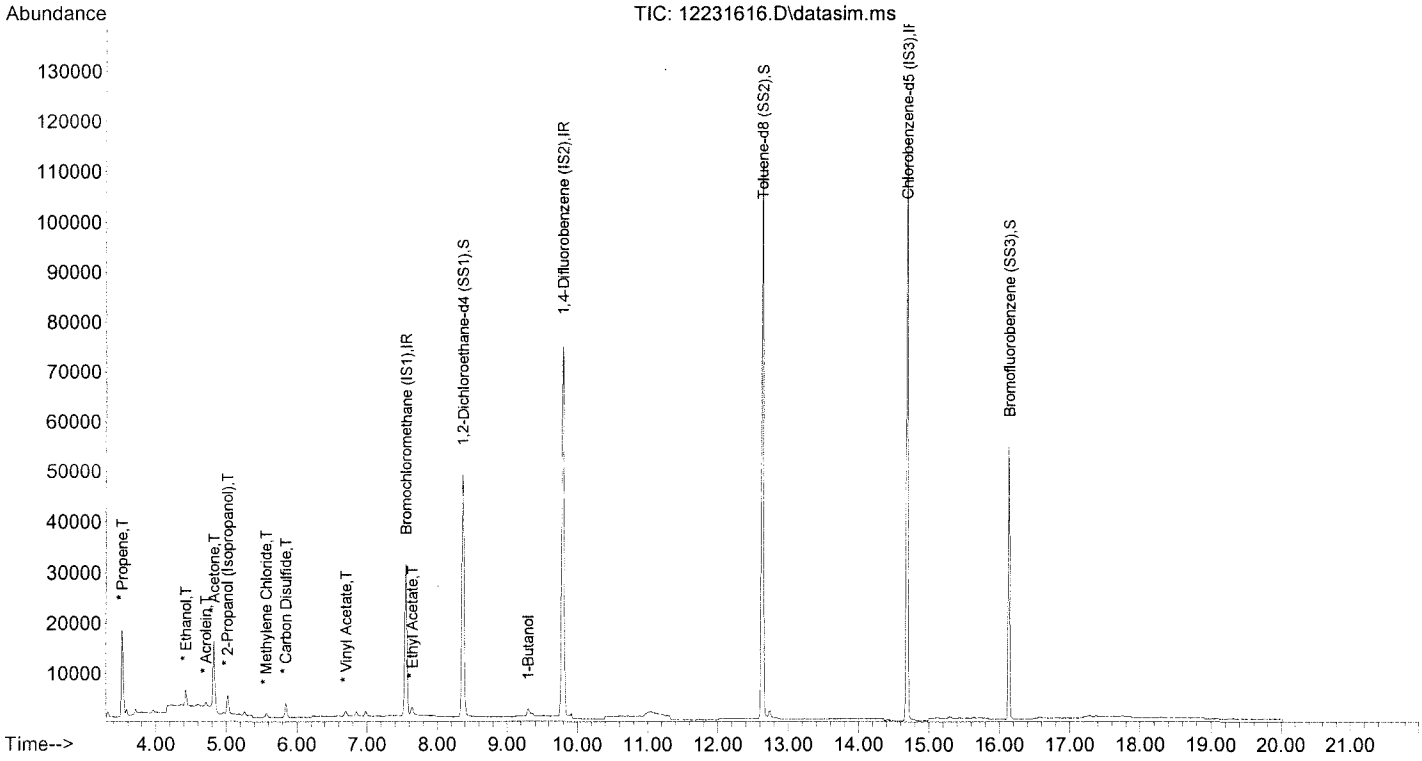
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231616.D
Acq On : 23 Dec 2016 3:38 pm
Operator : SM
Sample : AS00098 FCA00997
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

Quant Time: Dec 27 08:41:47 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231610.D
Acq On : 23 Dec 2016 11:29 am
Operator : SM
Sample : AS01079 FCA00530
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Dec 27 08:41:11 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

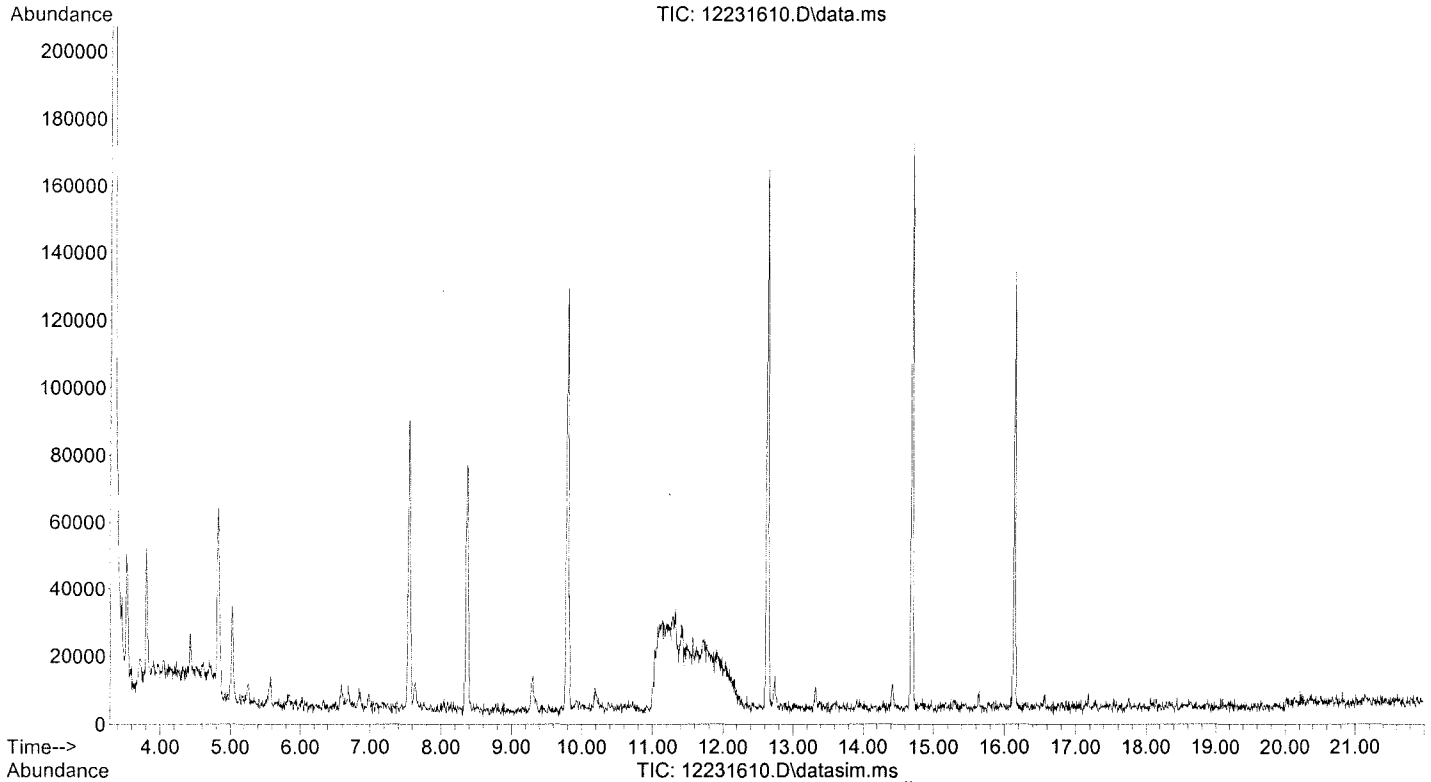
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	36287	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134071	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	101251	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70503	986.539	pg		0.00
Spiked Amount 1000.000			Recovery =	98.65%			
57) Toluene-d8 (SS2)	12.63	98	126326	1021.024	pg		0.00
Spiked Amount 1000.000			Recovery =	102.10%			
74) Bromofluorobenzene (SS3)	16.14	174	37290	915.126	pg		0.00
Spiked Amount 1000.000			Recovery =	91.51%			
Target Compounds							Qvalue
2) * Propene	3.52	42	8438	115.855	pg	#	78
3) * Dichlorodifluoromethane	3.58	85	5430	34.999	pg		99
4) * Chloromethane	3.71	50	2478	21.366	pg		95
10) * Ethanol	4.43	45	13001	261.725	pg		97
11) * Acetonitrile	4.60	41	2629	21.108	pg		93
12) * Acrolein	4.71	56	1611	38.711	pg	#	80
13) * Acetone	4.83	58	23578	502.528	pg		70
14) * Trichlorofluoromethane	4.97	101	1920	18.525	pg		100
15) * 2-Propanol (Isopropa...	5.02	45	36265	285.270	pg		91
19) * Methylene Chloride	5.57	84	3242	62.032	pg		95
22) * Carbon Disulfide	5.84	76	4470	23.330	pg		95
26) * Vinyl Acetate	6.71	86	574	58.334	pg	#	18
27) * 2-Butanone (MEK)	6.98	72	1036	36.788	pg		90
30) * Ethyl Acetate	7.64	61	1109	77.029	pg		97
41) 1-Butanol	9.30	56	5630	194.247	pg	#	49
53) * 4-Methyl-2-pentanone	11.72	58	1323	47.361	pg	#	73
58) * Toluene	12.74	91	5117	35.757	pg		99

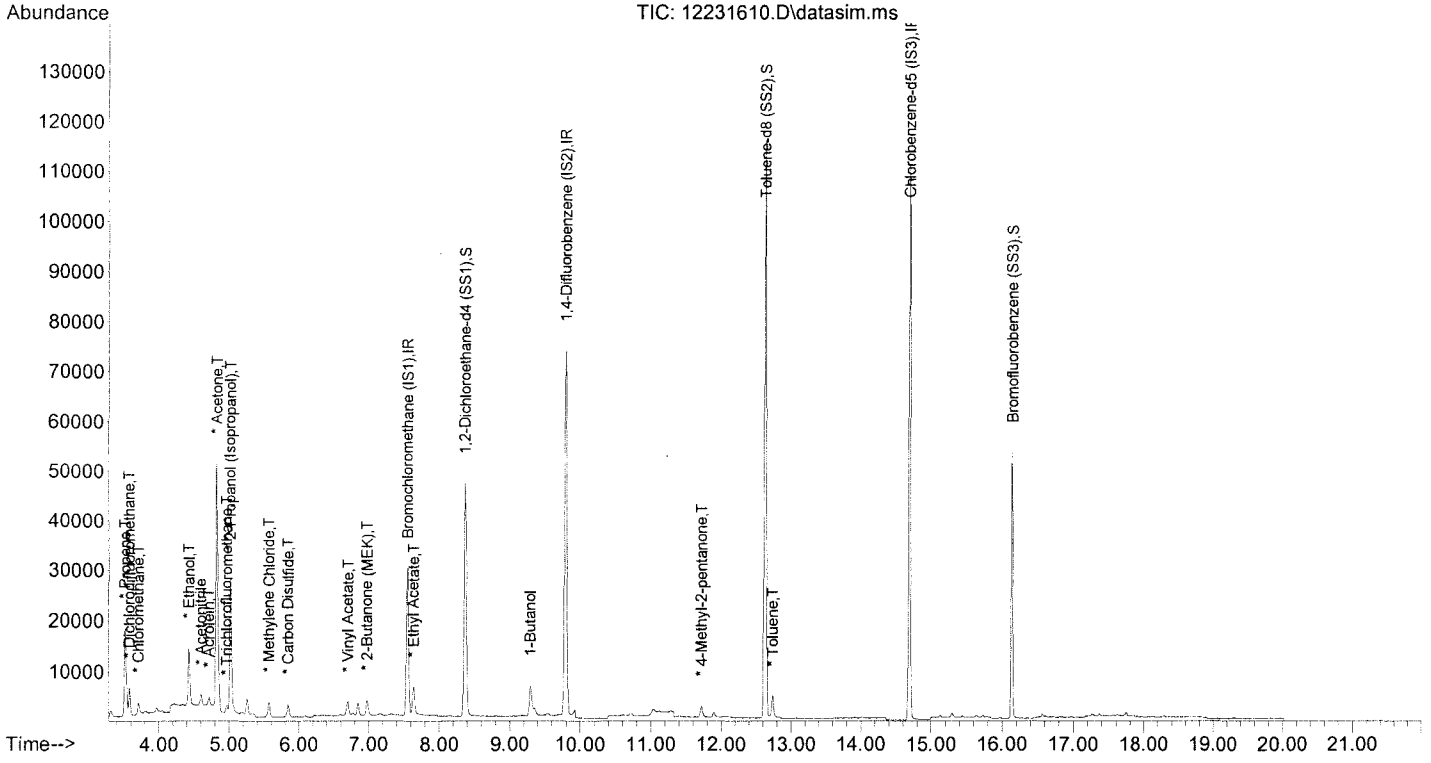
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231610.D
Acq On : 23 Dec 2016 11:29 am
Operator : SM
Sample : AS01079 FCA00530
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Dec 27 08:41:11 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271605.D
Acq On : 27 Dec 2016 11:37 am
Operator : SM
Sample : 122716 AC00584 20153
Misc : LL+TICS/74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 27 15:40:35 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

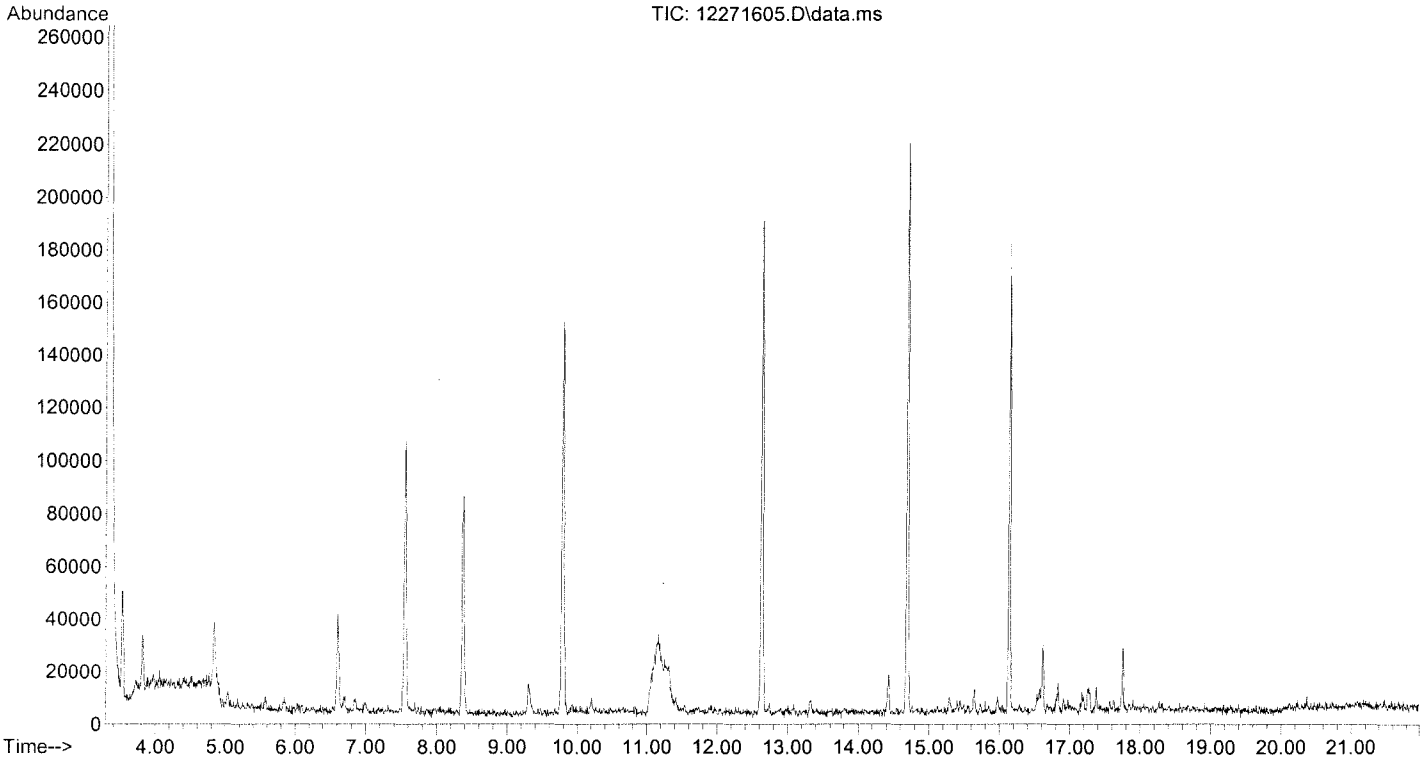
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	40903	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	153602	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	123594	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	81409	1010.590	pg		0.00
Spiked Amount 1000.000			Recovery = 101.06%				
57) Toluene-d8 (SS2)	12.63	98	145152	961.099	pg		0.00
Spiked Amount 1000.000			Recovery = 96.11%				
74) Bromofluorobenzene (SS3)	16.14	174	49395	993.055	pg		0.00
Spiked Amount 1000.000			Recovery = 99.30%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6928	84.388	pg		80
10) * Ethanol	4.44	45	2692	48.077	pg		91
12) * Acrolein	4.72	56	990	21.104	pg	#	82
13) * Acetone	4.84	58	12248	231.587	pg	#	55
15) * 2-Propanol (Isopropa...	5.04	45	5924	41.341	pg		89
19) * Methylene Chloride	5.57	84	701	11.899	pg		92
22) * Carbon Disulfide	5.85	76	6468	29.949	pg		99
26) * Vinyl Acetate	6.71	86	581	52.382	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	742	23.375	pg		96
41) 1-Butanol	9.31	56	6380	192.134	pg	#	52
59) * 2-Hexanone	13.08	58	305	10.207	pg	#	89
62) * n-Butyl Acetate	13.81	56	353	16.519	pg	#	83
67) * m- & p-Xylenes	15.29	91	3994	34.895	pg		99
69) Cyclohexanone	15.44	98	212	16.584	pg		79
71) * o-Xylene	15.73	91	1409	12.585	pg		97
72) * n-Nonane	15.98	57	997	19.760	pg	#	85
76) * alpha-Pinene	16.62	93	6942	95.659	pg		95
78) 3-Ethyltoluene	16.81	105	1961	19.142	pg		99
79) * 4-Ethyltoluene	16.84	105	1063	11.834	pg		96
84) * 1,2,4-Trimethylbenzene	17.26	105	2971	32.631	pg		89
85) * Benzyl Chloride	17.36	126	93	10.132	pg	#	42
88) n-Decane	17.38	85	451	25.907	pg		90
91) p-Isopropyltoluene	17.63	134	353	12.218	pg		96
93) * D-Limonene	17.75	68	3781	94.311	pg		98
94) n-Butylbenzene	17.97	134	193	11.417	pg	#	1
96) n-Undecane	18.42	85	142	14.266	pg	#	46
98) * Naphthalene	19.29	128	809	20.818	pg	#	91

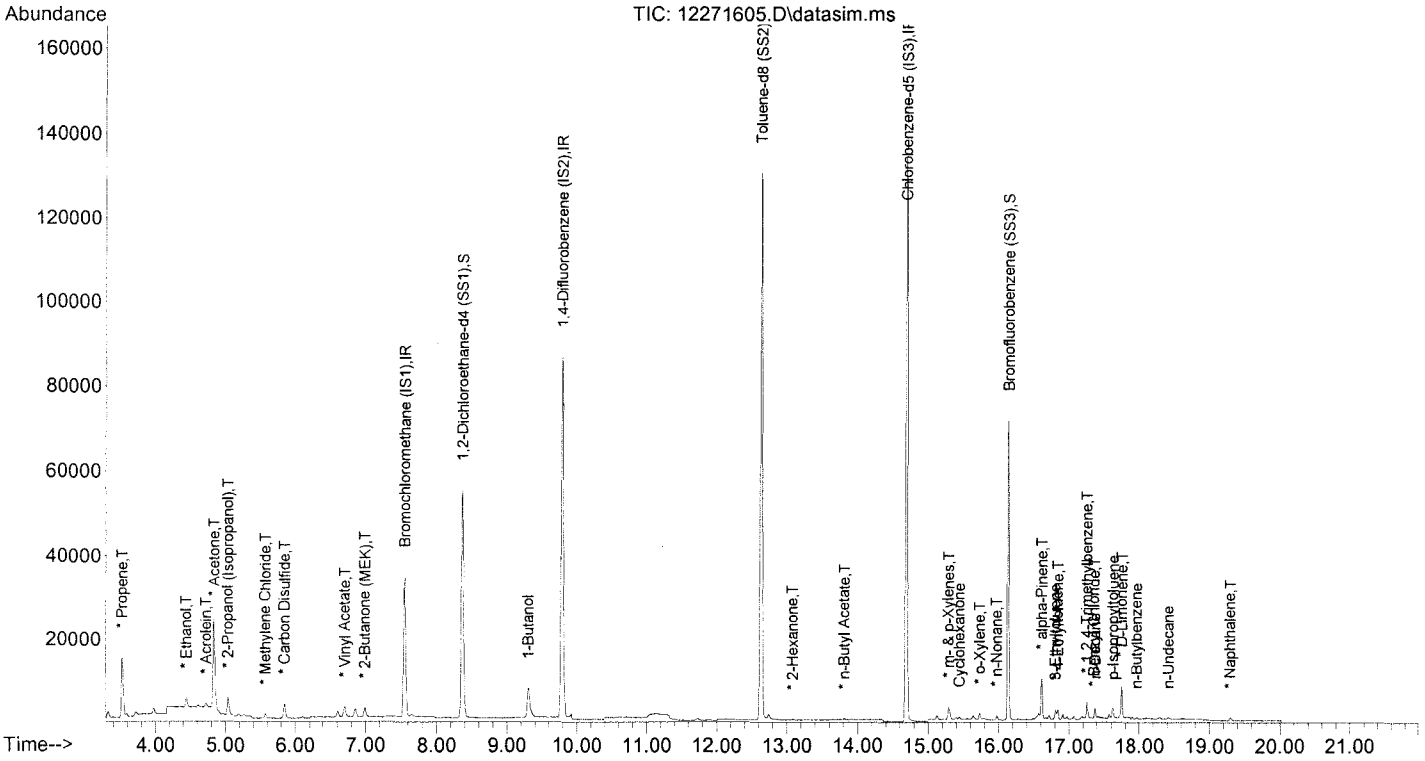
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271605.D
Acq On : 27 Dec 2016 11:37 am
Operator : SM
Sample : 122716 AC00584 20153
Misc : LL+TICS/74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 27 15:40:35 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291615.D
Acq On : 29 Dec 2016 6:07 pm
Operator : JM
Sample : AC01584 FCA00230
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Dec 30 10:00:43 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

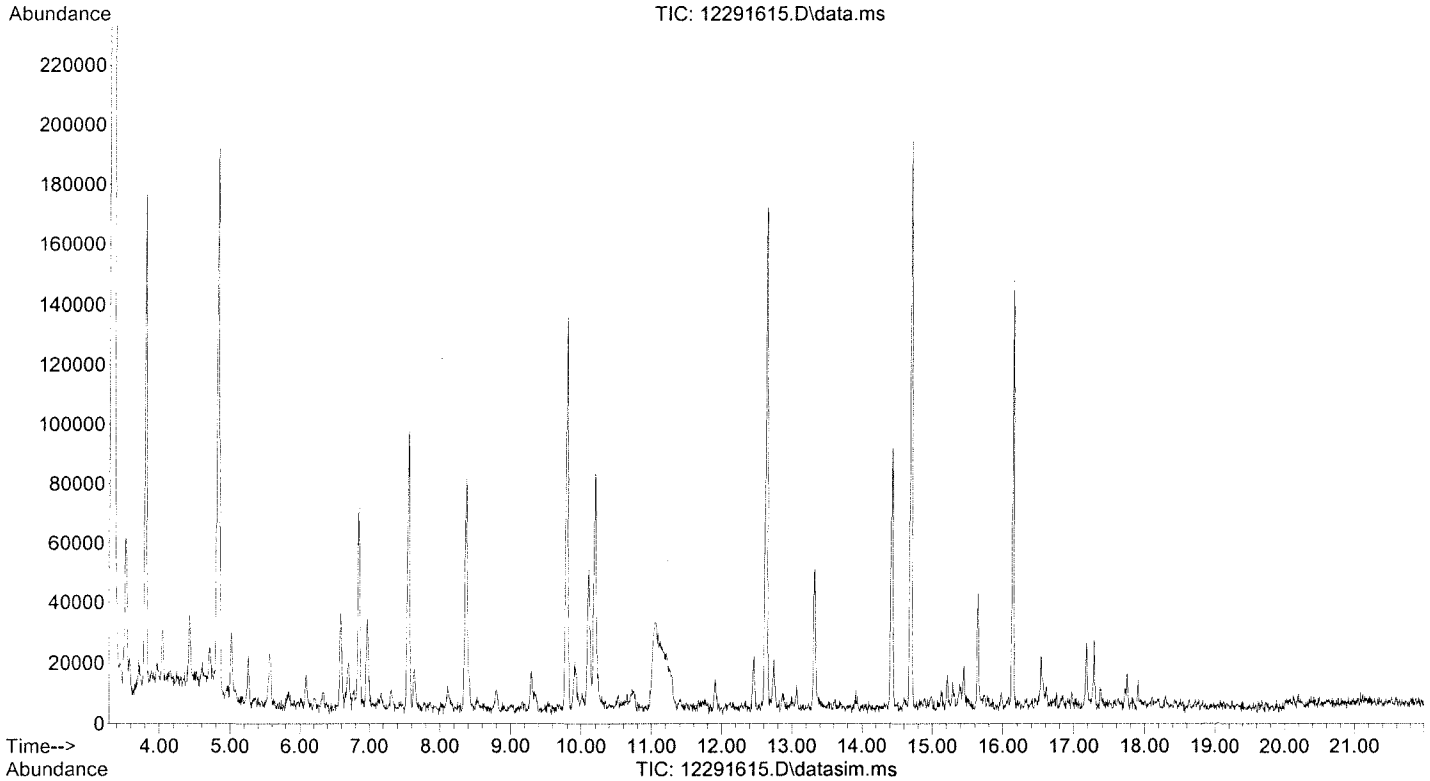
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38742	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	140757	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	115601	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	72215	946.462 pg		0.00
Spiked Amount 1000.000			Recovery = 94.65%			
57) Toluene-d8 (SS2)	12.63	98	133798	947.176 pg		0.00
Spiked Amount 1000.000			Recovery = 94.72%			
74) Bromofluorobenzene (SS3)	16.14	174	43543	935.932 pg		0.00
Spiked Amount 1000.000			Recovery = 93.59%			
Target Compounds						Qvalue
2) * Propene	3.52	42	13582	174.666 pg	#	75
3) * Dichlorodifluoromethane	3.58	85	11550	69.729 pg		99
4) * Chloromethane	3.71	50	5277	42.617 pg		97
10) * Ethanol	4.43	45	24285	457.906 pg		99
11) * Acetonitrile	4.60	41	3879	29.171 pg		95
12) * Acrolein	4.71	56	9473	213.204 pg		100
13) * Acetone	4.82	58	112728	2250.370 pg	#	32
14) * Trichlorofluoromethane	4.97	101	4124	37.268 pg		98
15) * 2-Propanol (Isopropa...	5.02	45	28599	210.712 pg		92
18) tert-Butanol	5.54	59	2823	34.509 pg		84
19) * Methylene Chloride	5.57	84	7080	126.884 pg		99
21) * Trichlorotrifluoroet...	5.82	151	682	15.725 pg		91
22) * Carbon Disulfide	5.84	76	4919	24.047 pg		98
26) * Vinyl Acetate	6.70	86	2818	268.239 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	9947	330.831 pg		95
30) * Ethyl Acetate	7.64	61	1211	78.783 pg		91
31) * n-Hexane	7.65	57	2186	27.655 pg		95
39) * Benzene	9.35	78	4574	28.177 pg		98
41) 1-Butanol	9.30	56	4575	150.349 pg	#	55
42) * Carbon Tetrachloride	9.55	117	961	15.217 pg		93
49) Isooctane	10.72	56	1742	22.451 pg		83
51) * n-Heptane	11.04	71	2382	28.577 pg		97
53) * 4-Methyl-2-pentanone	11.72	58	430	14.662 pg	#	86
58) * Toluene	12.74	91	11640	71.242 pg		100
59) * 2-Hexanone	13.07	58	2108	75.423 pg		95
63) * n-Octane	13.92	85	461	18.087 pg		100
66) * Ethylbenzene	15.12	91	1942	14.094 pg		99
67) * m- & p-Xylenes	15.29	91	5099	47.630 pg		94
69) Cyclohexanone	15.44	98	520	43.490 pg	#	21
71) * o-Xylene	15.73	91	1963	18.746 pg		98
72) * n-Nonane	15.98	57	642	13.604 pg	#	86
76) * alpha-Pinene	16.61	93	1302	19.182 pg		90
83) tert-Butylbenzene	17.28	134	434	20.504 pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	1081	12.694 pg		89
88) n-Decane	17.38	85	304	18.671 pg	#	61
93) * D-Limonene	17.75	68	1586	42.296 pg		98

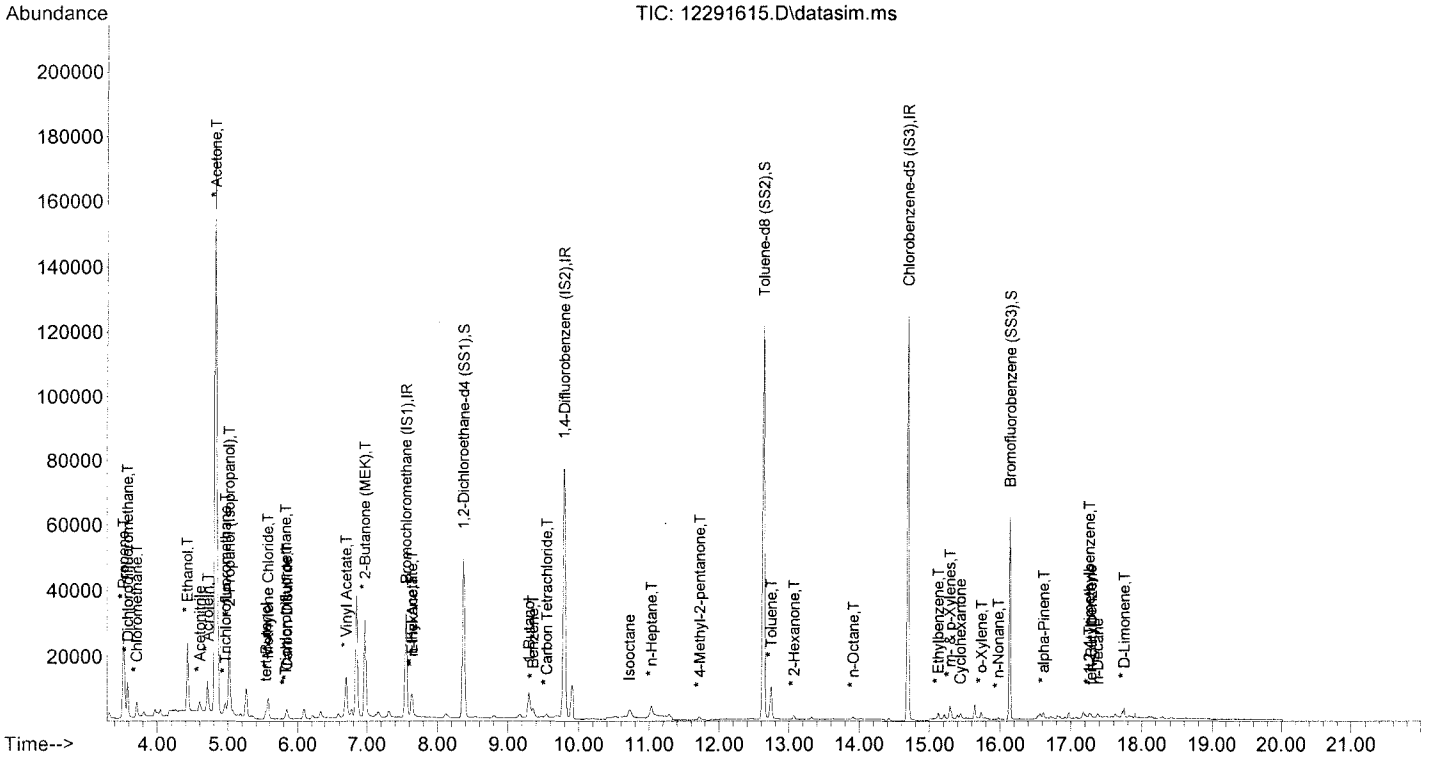
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291615.D
Acq On : 29 Dec 2016 6:07 pm
Operator : JM
Sample : AC01584 FCA00230
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Dec 30 10:00:43 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291605.D
Acq On : 29 Dec 2016 11:17 am
Operator : JM
Sample : AC01590 FCA00278
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Dec 30 09:36:45 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

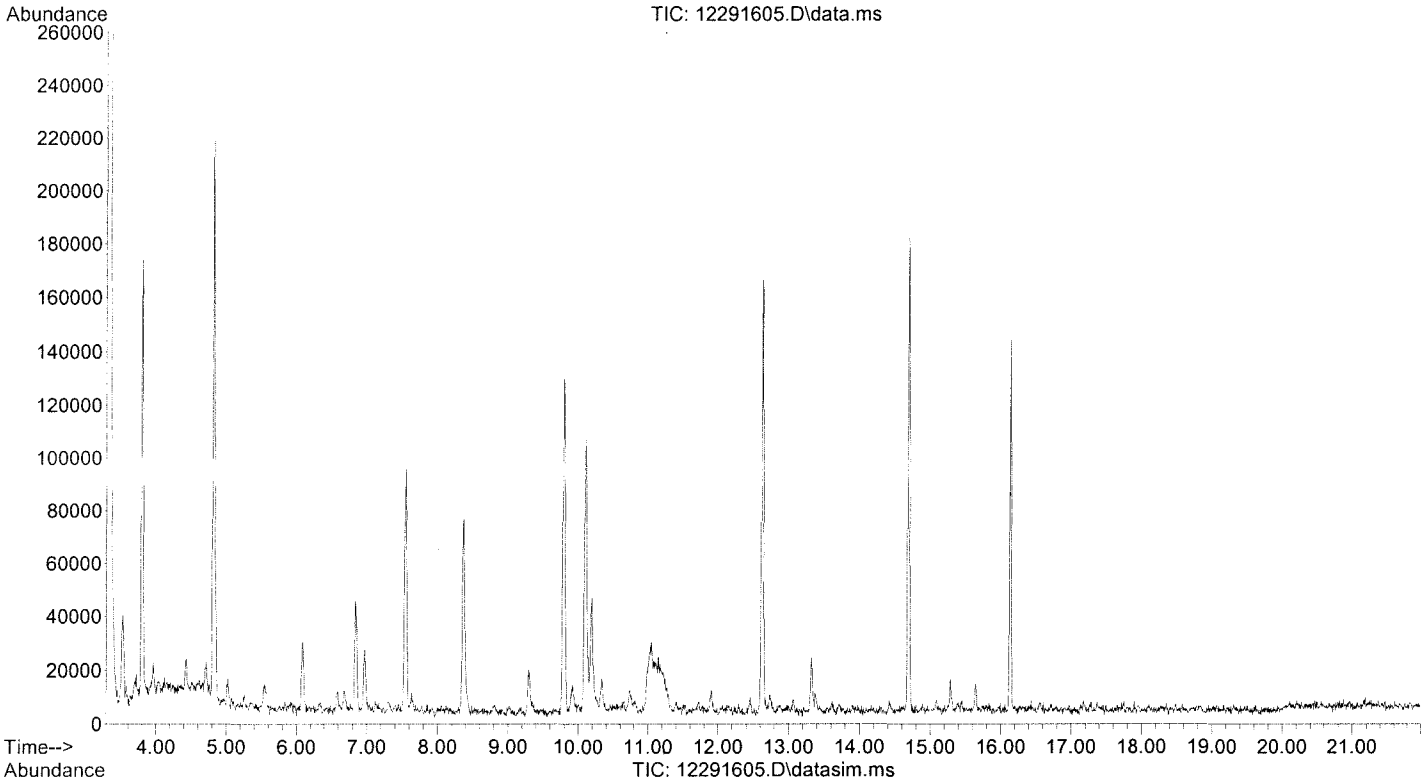
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39065	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138405	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	108892	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71946	935.140	pg		0.00
Spiked Amount 1000.000			Recovery = 93.51%				
57) Toluene-d8 (SS2)	12.63	98	126965	954.181	pg		0.00
Spiked Amount 1000.000			Recovery = 95.42%				
74) Bromofluorobenzene (SS3)	16.14	174	41117	938.238	pg		0.00
Spiked Amount 1000.000			Recovery = 93.82%				
Target Compounds							Qvalue
2) * Propene	3.52	42	8862	113.024	pg		79
3) * Dichlorodifluoromethane	3.58	85	3499	20.949	pg		97
4) * Chloromethane	3.71	50	2661	21.313	pg		99
10) * Ethanol	4.43	45	12504	233.820	pg		98
11) * Acetonitrile	4.60	41	1815	13.536	pg		94
12) * Acrolein	4.71	56	8302	185.304	pg		98
13) * Acetone	4.82	58	115028	2277.299	pg	#	51
14) * Trichlorofluoromethane	4.97	101	1217	10.907	pg		92
15) * 2-Propanol (Isopropa...	5.02	45	11883	86.828	pg		97
18) tert-Butanol	5.54	59	6171	74.811	pg		94
19) * Methylene Chloride	5.57	84	2229	39.617	pg		100
22) * Carbon Disulfide	5.84	76	3583	17.371	pg		99
26) * Vinyl Acetate	6.71	86	249	23.506	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	7579	249.989	pg		97
30) * Ethyl Acetate	7.63	61	744	48.002	pg		99
39) * Benzene	9.36	78	2064	12.931	pg		99
41) 1-Butanol	9.30	56	3284	109.757	pg	#	60
45) * 1,2-Dichloropropane	10.34	63	3697	62.422	pg		99
48) * 1,4-Dioxane	10.64	88	634	19.046	pg		83
49) Isooctane	10.72	56	839	10.997	pg	#	65
51) * n-Heptane	11.04	71	836	10.200	pg		91
53) * 4-Methyl-2-pentanone	11.72	58	689	23.893	pg		99
58) * Toluene	12.74	91	4944	32.124	pg		100
59) * 2-Hexanone	13.07	58	1417	53.823	pg	#	92
67) * m- & p-Xylenes	15.29	91	1557	15.440	pg		99
69) Cyclohexanone	15.44	98	230	20.421	pg		96
93) * D-Limonene	17.75	68	429	12.146	pg		98
96) n-Undecane	18.41	85	103	11.745	pg	#	63
99) n-Dodecane	19.32	85	98	17.792	pg		99

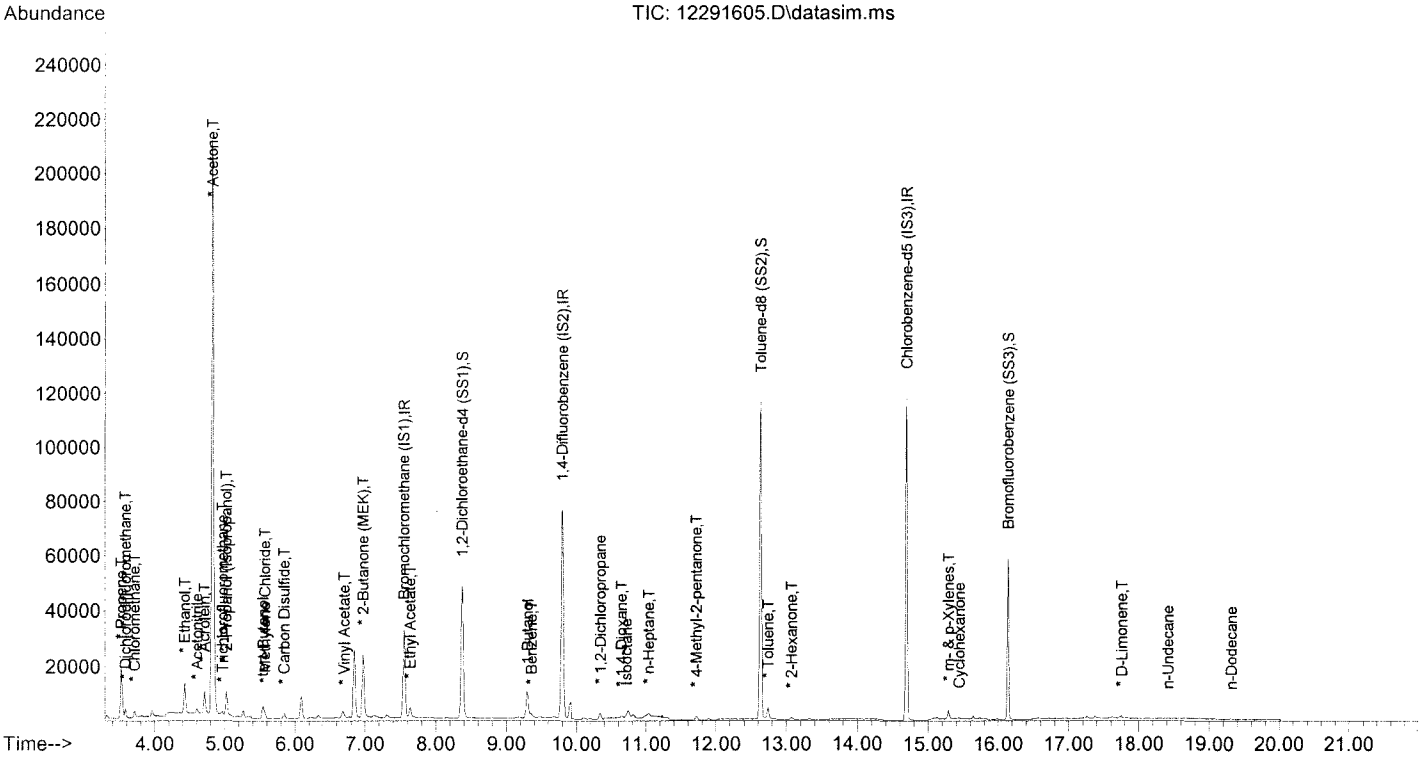
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291605.D
Acq On : 29 Dec 2016 11:17 am
Operator : JM
Sample : AC01590 FCA00278
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Dec 30 09:36:45 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291629.D
Acq On : 30 Dec 2016 4:32 am
Operator : JM
Sample : AC01093 FCA01020
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

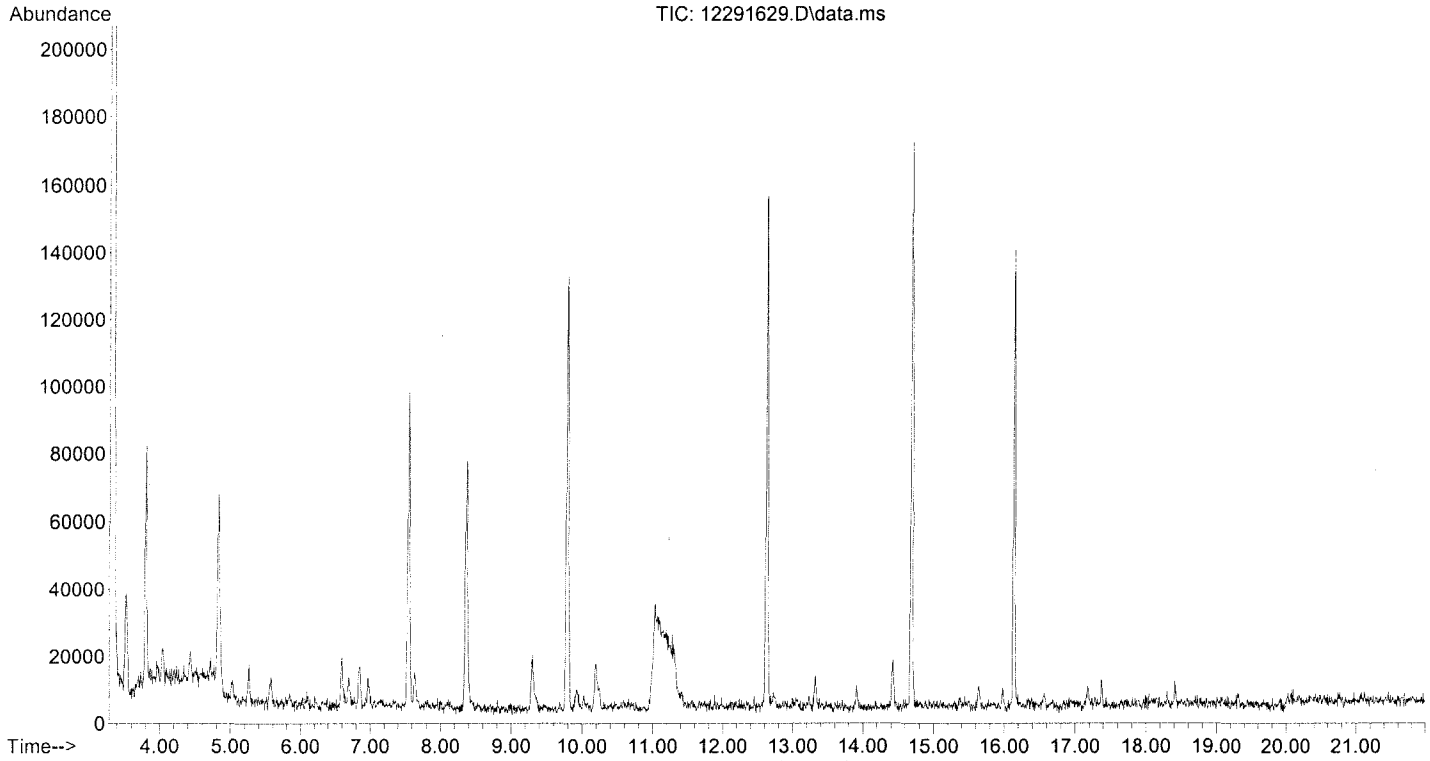
Quant Time: Dec 30 10:36:20 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

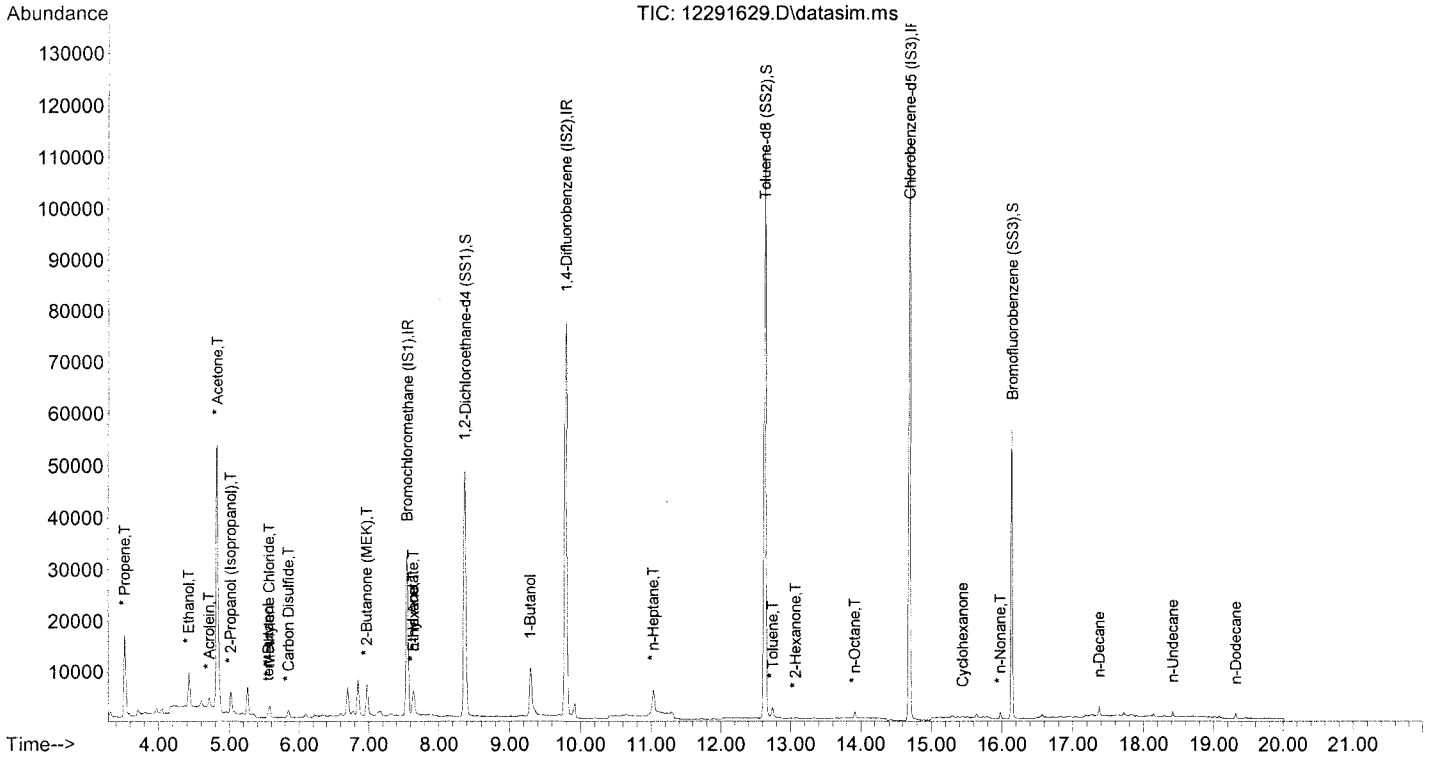
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39290	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	139696	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106530	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72015	930.677	pg		0.00
Spiked Amount 1000.000			Recovery = 93.07%				
57) Toluene-d8 (SS2)	12.63	98	122897	944.087	pg		0.00
Spiked Amount 1000.000			Recovery = 94.41%				
74) Bromofluorobenzene (SS3)	16.14	174	38913	907.633	pg		0.00
Spiked Amount 1000.000			Recovery = 90.76%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7908	100.279	pg	#	75
10) * Ethanol	4.43	45	7364	136.915	pg		97
12) * Acrolein	4.72	56	1915	42.499	pg		97
13) * Acetone	4.83	58	33803	665.392	pg	#	30
15) * 2-Propanol (Isopropa...	5.03	45	5732	41.643	pg		94
18) tert-Butanol	5.56	59	1147	13.825	pg		97
19) * Methylene Chloride	5.57	84	2476	43.755	pg		100
22) * Carbon Disulfide	5.85	76	2704	13.034	pg		99
27) * 2-Butanone (MEK)	6.98	72	2143	70.281	pg		93
30) * Ethyl Acetate	7.64	61	627	40.222	pg		87
31) * n-Hexane	7.65	57	2310	28.816	pg		99
41) 1-Butanol	9.30	56	8950	296.360	pg	#	53
51) * n-Heptane	11.04	71	3497	42.273	pg	#	87
58) * Toluene	12.74	91	2258	14.997	pg		99
59) * 2-Hexanone	13.07	58	383	14.870	pg	#	68
63) * n-Octane	13.91	85	723	30.782	pg		96
69) Cyclohexanone	15.44	98	158	14.340	pg		93
72) * n-Nonane	15.98	57	1204	27.684	pg	#	80
88) n-Decane	17.37	85	300	19.994	pg	#	62
96) n-Undecane	18.42	85	273	31.819	pg		83
99) n-Dodecane	19.32	85	236	43.795	pg	#	63

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291629.D
Acq On : 30 Dec 2016 4:32 am
Operator : JM
Sample : AC01093 FCA01020
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 30 10:36:20 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031715.D
Acq On : 3 Jan 2017 10:04 pm
Operator : SM
Sample : AS00851 FCA00636
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 04 09:31:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

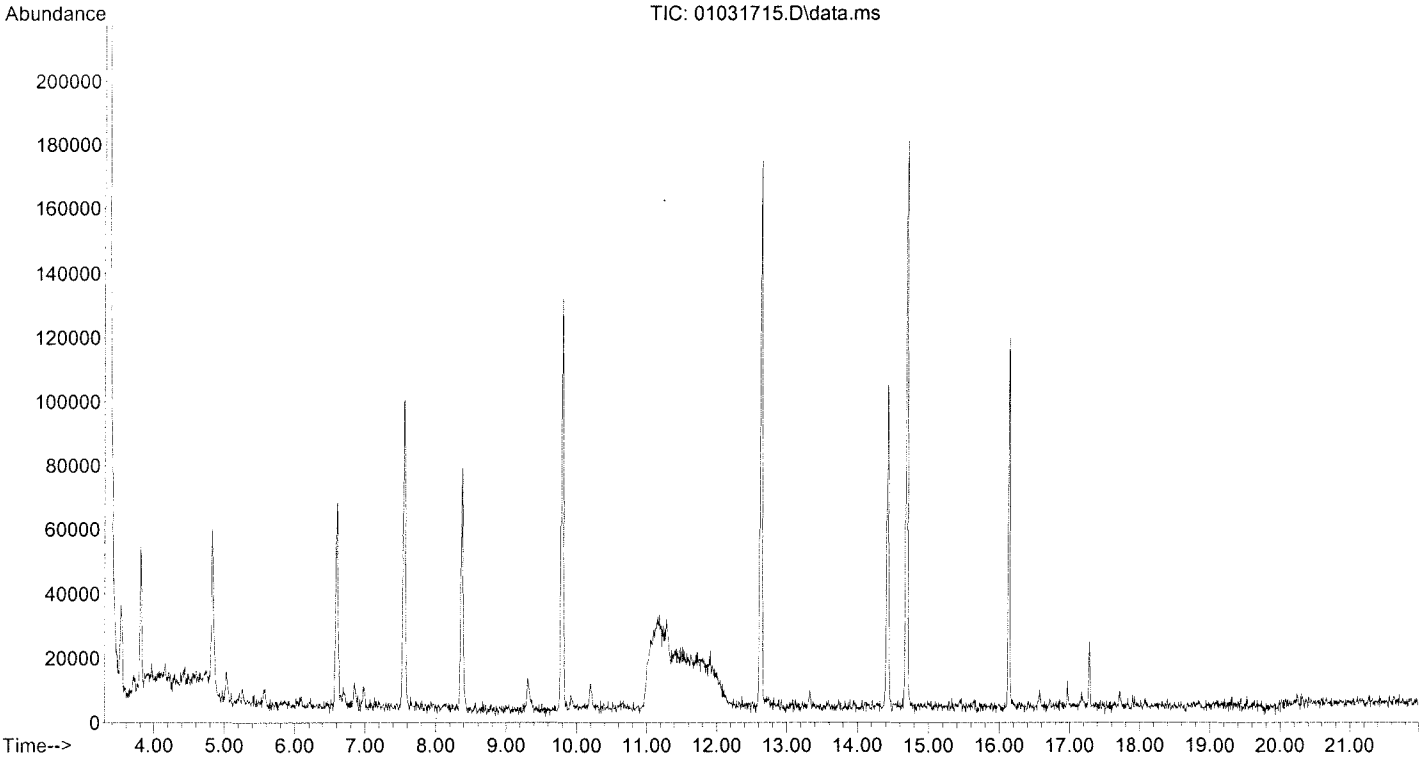
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	41912	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	140208	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112088	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73226	887.125	pg		0.00
Spiked Amount 1000.000			Recovery = 88.71%				
57) Toluene-d8 (SS2)	12.63	98	131357	959.040	pg		0.00
Spiked Amount 1000.000			Recovery = 95.90%				
74) Bromofluorobenzene (SS3)	16.14	174	36645	812.350	pg		0.00
Spiked Amount 1000.000			Recovery = 81.23%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6905	82.083	pg	#	74
4) * Chloromethane	3.71	50	1647	12.295	pg		100
10) * Ethanol	4.44	45	4148	72.297	pg		93
11) * Acetonitrile	4.60	41	1533	10.656	pg		95
12) * Acrolein	4.72	56	1704	35.450	pg		99
13) * Acetone	4.84	58	23016	424.713	pg	#	53
15) * 2-Propanol (Isopropa...	5.03	45	10909	74.296	pg		93
18) tert-Butanol	5.56	59	1151	13.006	pg		92
19) * Methylene Chloride	5.57	84	1452	24.054	pg		97
22) * Carbon Disulfide	5.85	76	2673	12.079	pg		98
26) * Vinyl Acetate	6.71	86	611	53.761	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1510	46.423	pg		88
30) * Ethyl Acetate	7.65	61	191	11.486	pg		96
41) 1-Butanol	9.31	56	5224	172.350	pg	#	49
53) * 4-Methyl-2-pentanone	11.73	58	321	10.988	pg	#	74
58) * Toluene	12.74	91	1814	11.450	pg		97
59) * 2-Hexanone	13.08	58	291	10.738	pg	#	68
83) tert-Butylbenzene	17.28	134	416	20.270	pg	#	1

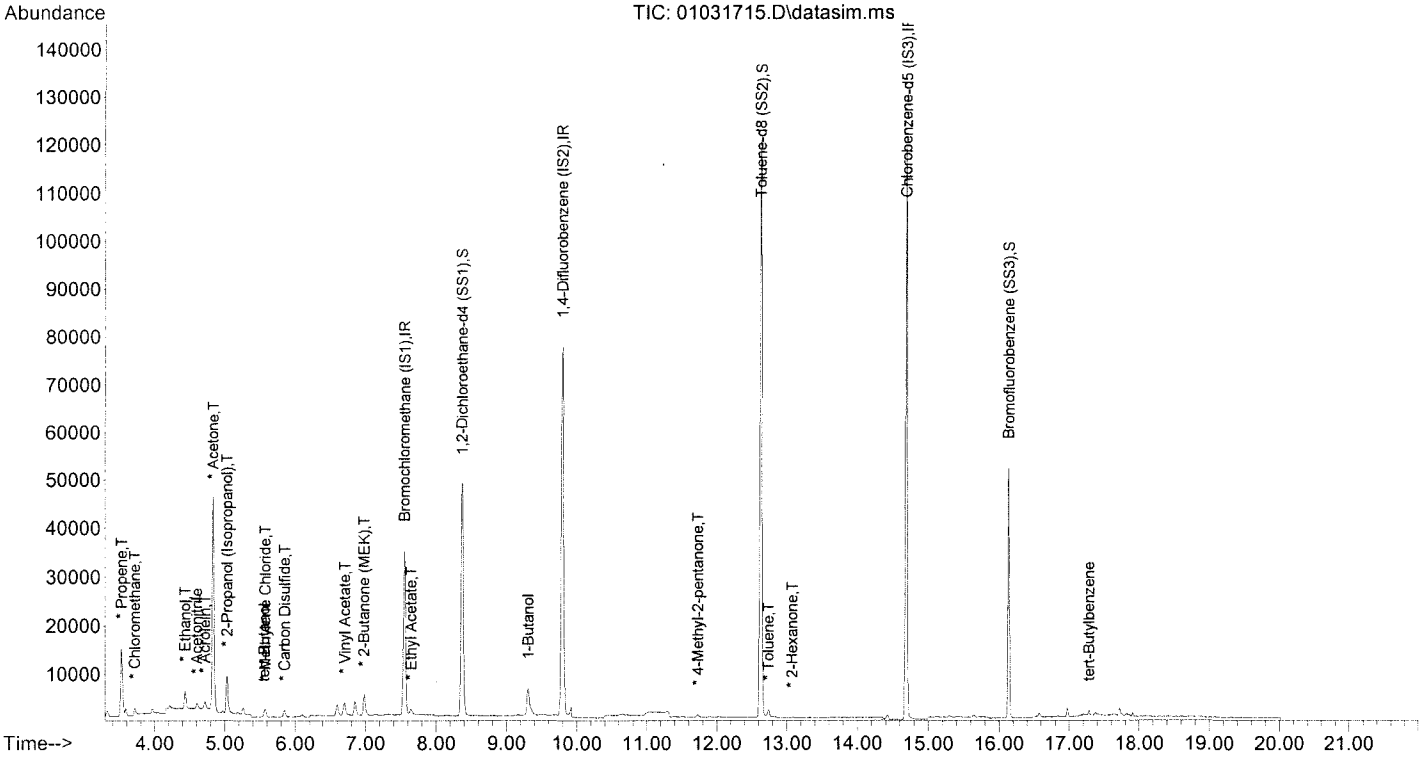
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031715.D
Acq On : 3 Jan 2017 10:04 pm
Operator : SM
Sample : AS00851 FCA00636
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 04 09:31:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201630.D
Acq On : 21 Dec 2016 4:53 am
Operator : SM
Sample : AS00857 FCA00880
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Dec 21 09:42:35 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration

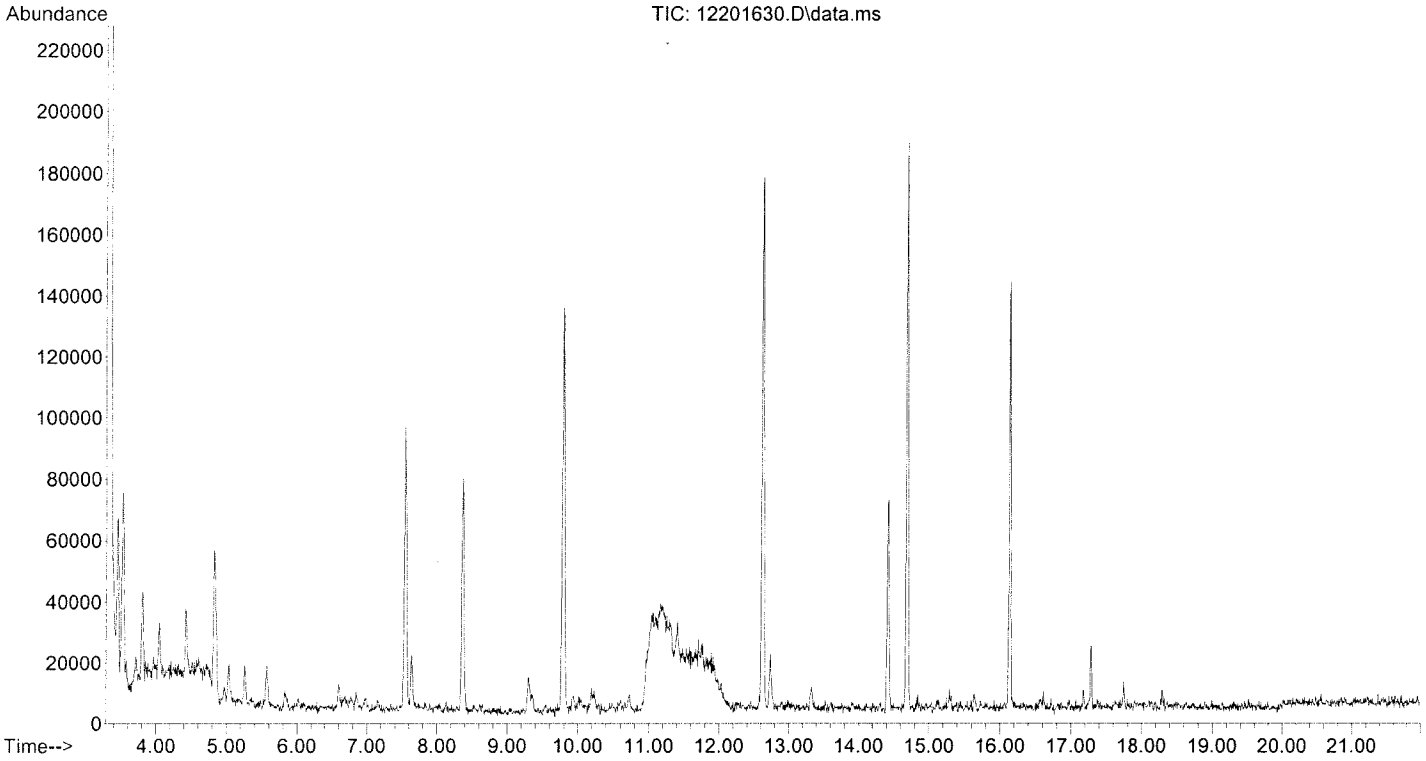
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37182	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138932	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110857	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74089	1002.100	pg		0.00
Spiked Amount 1000.000			Recovery = 100.21%				
57) Toluene-d8 (SS2)	12.62	98	130496	944.562	pg		0.00
Spiked Amount 1000.000			Recovery = 94.46%				
74) Bromofluorobenzene (SS3)	16.13	174	40586	834.371	pg		0.00
Spiked Amount 1000.000			Recovery = 83.44%				
Target Compounds							Qvalue
2) * Propene	3.52	42	11092	158.139	pg	#	63
3) * Dichlorodifluoromethane	3.58	85	9807	79.221	pg		100
4) * Chloromethane	3.71	50	4528	59.931	pg		98
10) * Ethanol	4.44	45	21916	648.597	pg		97
11) * Acetonitrile	4.60	41	3775	45.304	pg		94
12) * Acrolein	4.72	56	1569	47.686	pg		96
13) * Acetone	4.83	58	20639	486.680	pg		92
14) * Trichlorofluoromethane	4.97	101	3861	39.965	pg		95
15) * 2-Propanol (Isopropa...	5.03	45	16435	108.993	pg		91
19) * Methylene Chloride	5.58	84	5260	106.290	pg		100
21) * Trichlorotrifluoroet...	5.83	151	655	16.254	pg		96
22) * Carbon Disulfide	5.84	76	5988	31.012	pg		100
26) * Vinyl Acetate	6.70	86	384	32.230	pg		65
27) * 2-Butanone (MEK)	6.98	72	1076	33.146	pg		88
29) DIPE	7.64	45	3028	15.302	pg	#	54
30) * Ethyl Acetate	7.64	61	2635	157.848	pg		89
31) * n-Hexane	7.64	57	1231	14.449	pg	#	86
39) * Benzene	9.36	78	3705	25.977	pg		97
41) 1-Butanol	9.31	56	6189	181.269	pg	#	67
42) * Carbon Tetrachloride	9.55	117	916	17.188	pg		98
49) Isooctane	10.72	56	1446	19.860	pg	#	66
51) * n-Heptane	11.04	71	991	19.919	pg		96
58) * Toluene	12.74	91	11653	79.163	pg		98
66) * Ethylbenzene	15.12	91	1369	8.657	pg		97
67) * m- & p-Xylenes	15.28	91	3029	24.164	pg		96
76) * alpha-Pinene	16.61	93	1032	11.796	pg	#	79
83) tert-Butylbenzene	17.28	134	361	13.123	pg	#	1
85) * Benzyl Chloride	17.36	126	93	10.728	pg	#	15
93) * D-Limonene	17.75	68	1311	25.250	pg		99

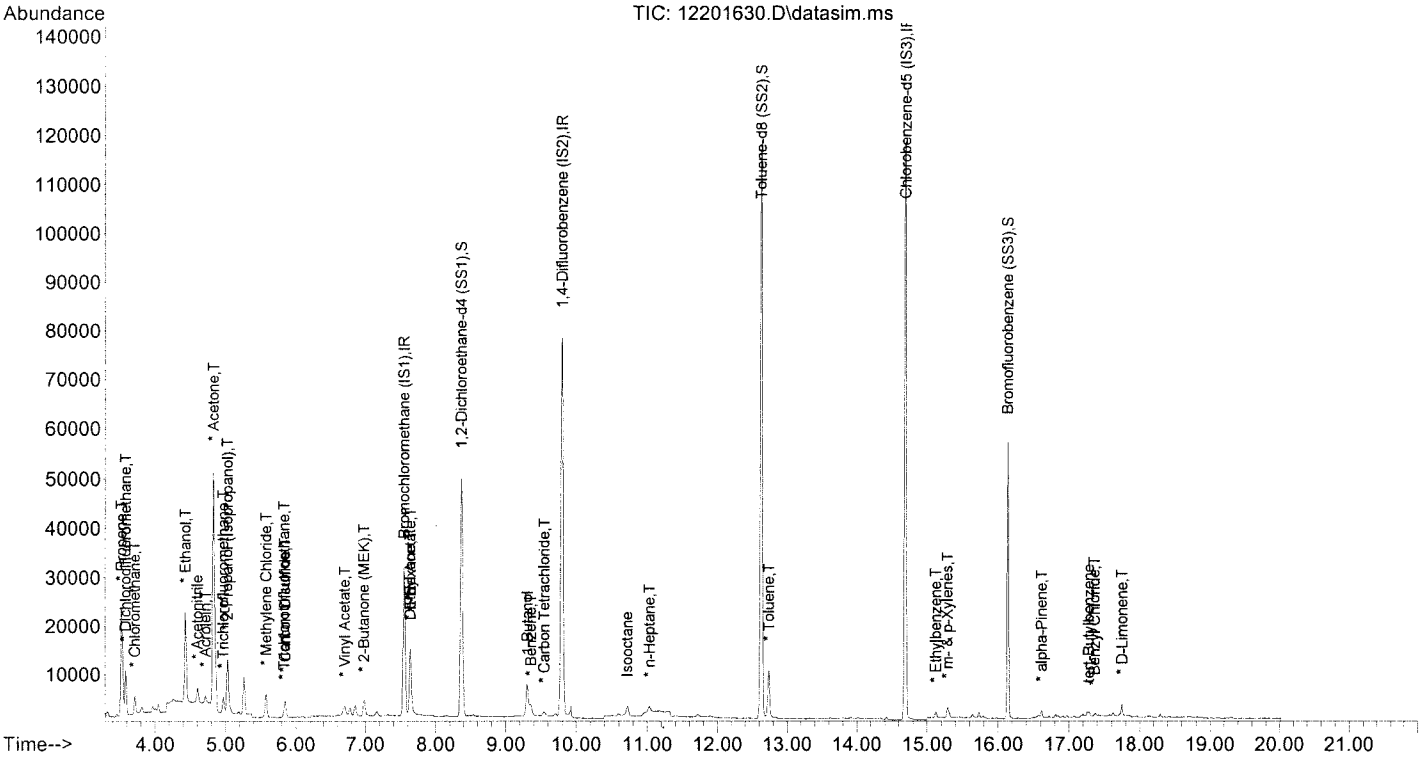
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201630.D
Acq On : 21 Dec 2016 4:53 am
Operator : SM
Sample : AS00857 FCA00880
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Dec 21 09:42:35 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291620.D
Acq On : 29 Dec 2016 9:58 pm
Operator : JM
Sample : AC02164 FCA00736
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 30 10:14:53 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

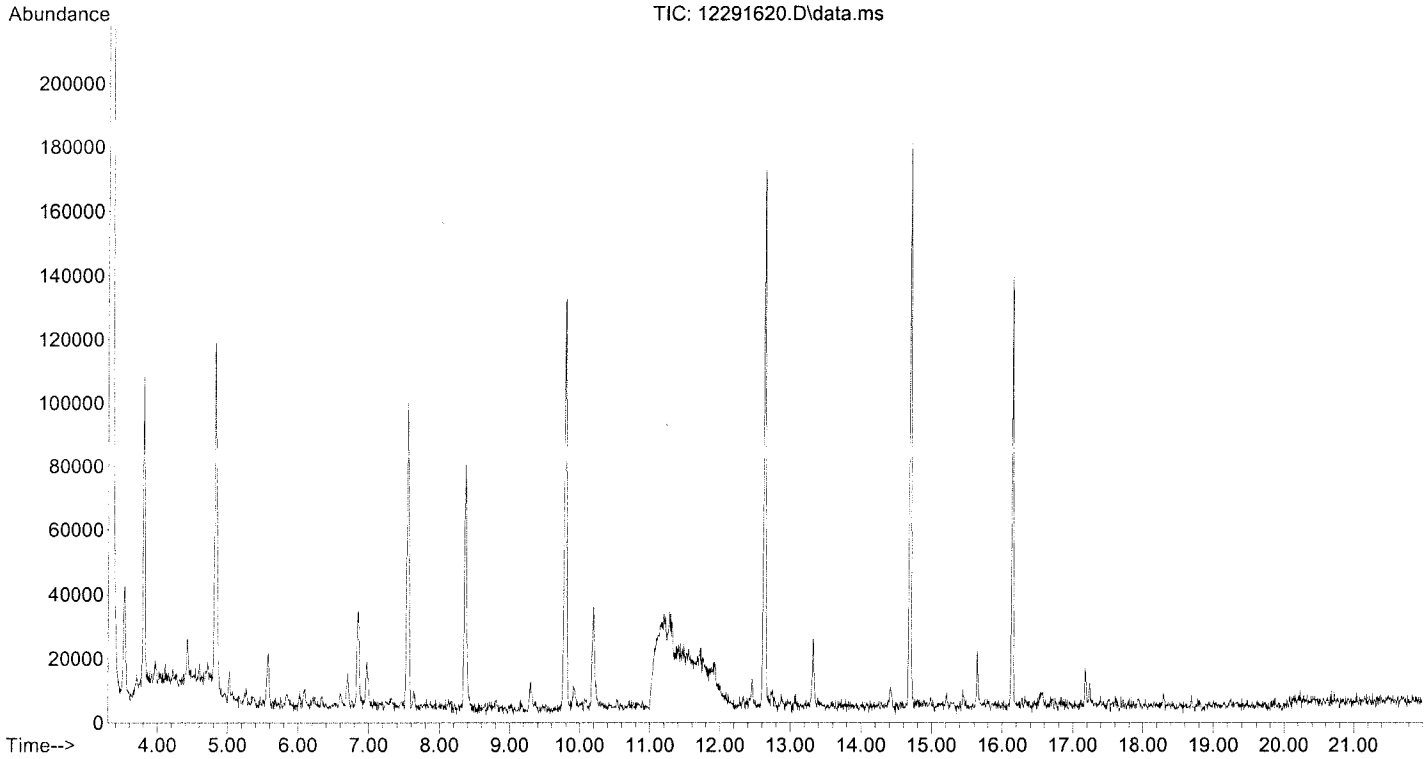
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39438	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	138924	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107261	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	72844	937.857 pg		0.00
Spiked Amount 1000.000			Recovery = 93.79%			
57) Toluene-d8 (SS2)	12.63	98	131453	1002.931 pg		0.00
Spiked Amount 1000.000			Recovery = 100.29%			
74) Bromofluorobenzene (SS3)	16.14	174	40964	948.961 pg		0.00
Spiked Amount 1000.000			Recovery = 94.90%			
Target Compounds						Qvalue
2) * Propene	3.53	42	8768	110.768 pg		81
3) * Dichlorodifluoromethane	3.58	85	1885	11.179 pg		99
10) * Ethanol	4.43	45	13169	243.926 pg		99
11) * Acetonitrile	4.61	41	1786	13.194 pg		99
12) * Acrolein	4.71	56	2752	60.845 pg		95
13) * Acetone	4.83	58	71699	1406.056 pg	#	20
15) * 2-Propanol (Isopropa...	5.03	45	9674	70.018 pg		96
18) tert-Butanol	5.56	59	1920	23.056 pg		84
19) * Methylene Chloride	5.58	84	5955	104.839 pg		99
22) * Carbon Disulfide	5.84	76	5499	26.408 pg		99
26) * Vinyl Acetate	6.71	86	1810	169.249 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	4578	149.574 pg		97
30) * Ethyl Acetate	7.64	61	349	22.304 pg		94
41) 1-Butanol	9.31	56	4014	133.653 pg	#	50
53) * 4-Methyl-2-pentanone	11.72	58	488	16.859 pg	#	64
58) * Toluene	12.74	91	2930	19.327 pg		97
59) * 2-Hexanone	13.07	58	976	37.636 pg	#	86
69) Cyclohexanone	15.44	98	270	24.337 pg		83

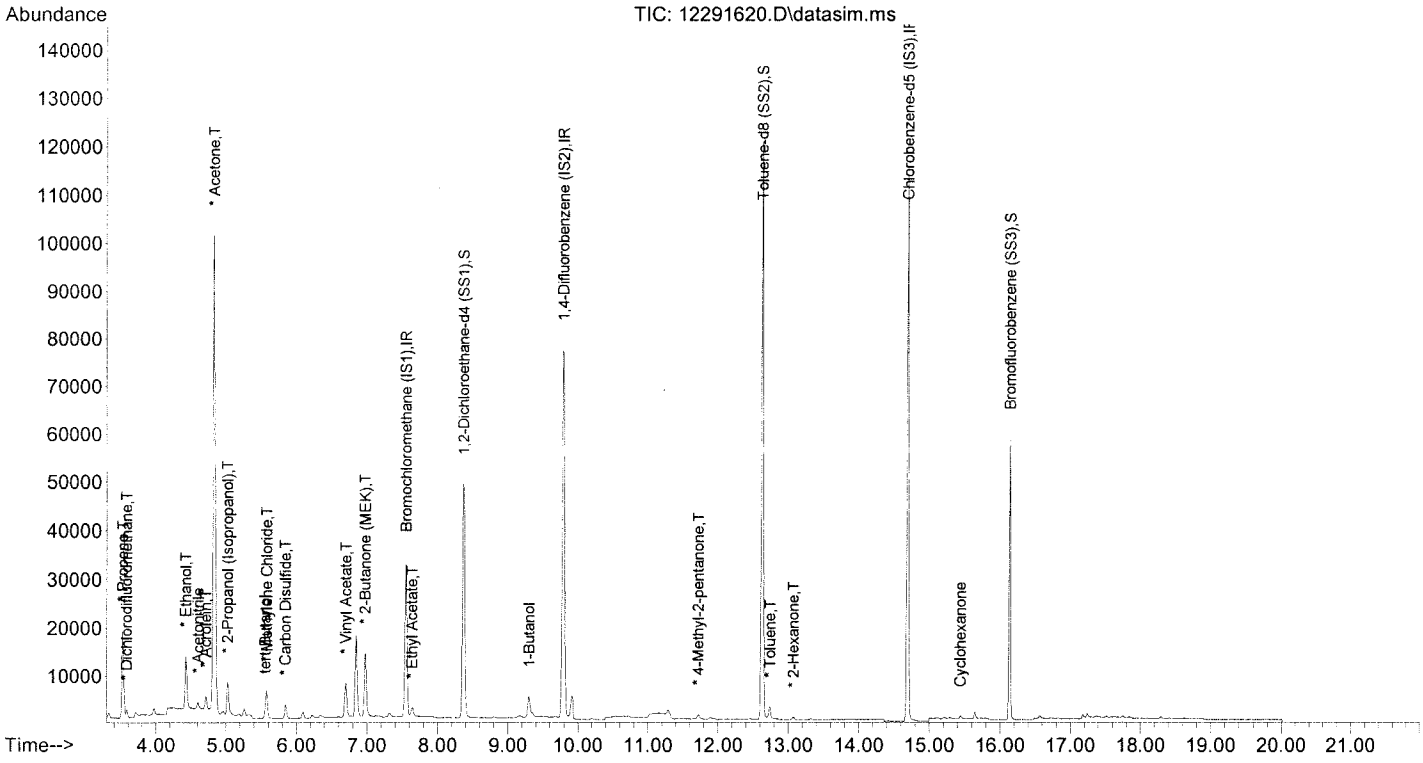
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291620.D
Acq On : 29 Dec 2016 9:58 pm
Operator : JM
Sample : AC02164 FCA00736
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 30 10:14:53 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291631.D
Acq On : 30 Dec 2016 5:53 am
Operator : JM
Sample : AC01250 FCA00809
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 30 10:39:09 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

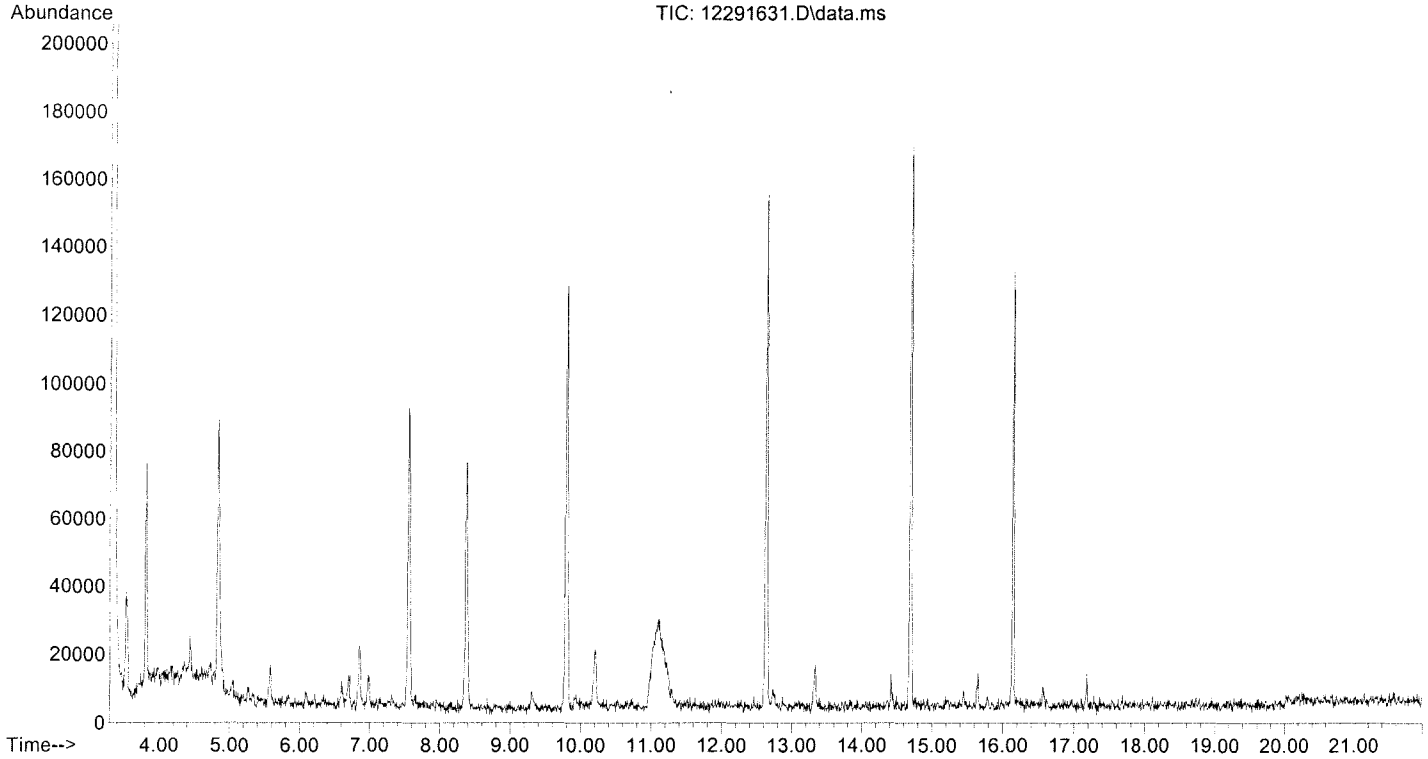
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39149	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133171	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102647	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71054	921.564	pg		0.00
Spiked Amount 1000.000			Recovery = 92.16%				
57) Toluene-d8 (SS2)	12.63	98	118816	947.265	pg		0.00
Spiked Amount 1000.000			Recovery = 94.73%				
74) Bromofluorobenzene (SS3)	16.14	174	37109	898.299	pg		0.00
Spiked Amount 1000.000			Recovery = 89.83%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7437	94.647	pg	#	77
10) * Ethanol	4.44	45	10465	195.271	pg		92
12) * Acrolein	4.72	56	2792	62.185	pg		100
13) * Acetone	4.84	58	45738	903.568	pg	#	30
15) * 2-Propanol (Isopropa...	5.03	45	5998	43.733	pg		94
18) tert-Butanol	5.57	59	1655	20.021	pg		87
19) * Methylene Chloride	5.58	84	3987	70.710	pg		96
22) * Carbon Disulfide	5.85	76	3011	14.566	pg		99
26) * Vinyl Acetate	6.71	86	1055	99.379	pg	#	16
27) * 2-Butanone (MEK)	6.99	72	2335	76.853	pg		96
30) * Ethyl Acetate	7.65	61	231	14.872	pg		100
41) 1-Butanol	9.31	56	2237	77.703	pg	#	46
58) * Toluene	12.74	91	3074	21.189	pg		99
59) * 2-Hexanone	13.08	58	479	19.301	pg		97
69) Cyclohexanone	15.44	98	230	21.664	pg		89
96) n-Undecane	18.42	85	90	10.887	pg	#	1
98) * Naphthalene	19.29	128	383	11.867	pg	#	66
99) n-Dodecane	19.31	85	55	10.593	pg	#	65

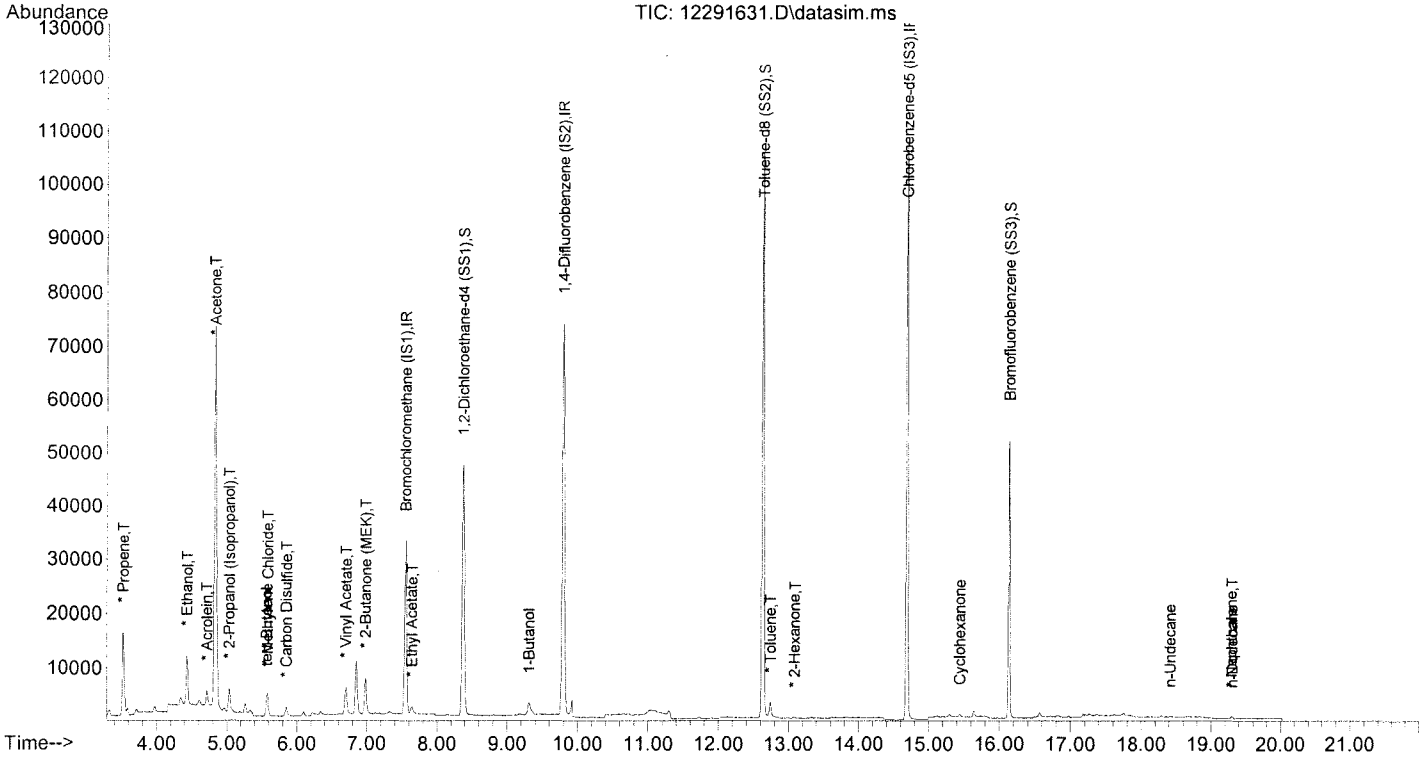
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291631.D
Acq On : 30 Dec 2016 5:53 am
Operator : JM
Sample : AC01250 FCA00809
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 30 10:39:09 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281616.D
Acq On : 28 Dec 2016 9:58 pm
Operator : JM
Sample : AS00898 FCA00494
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 29 10:00:03 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

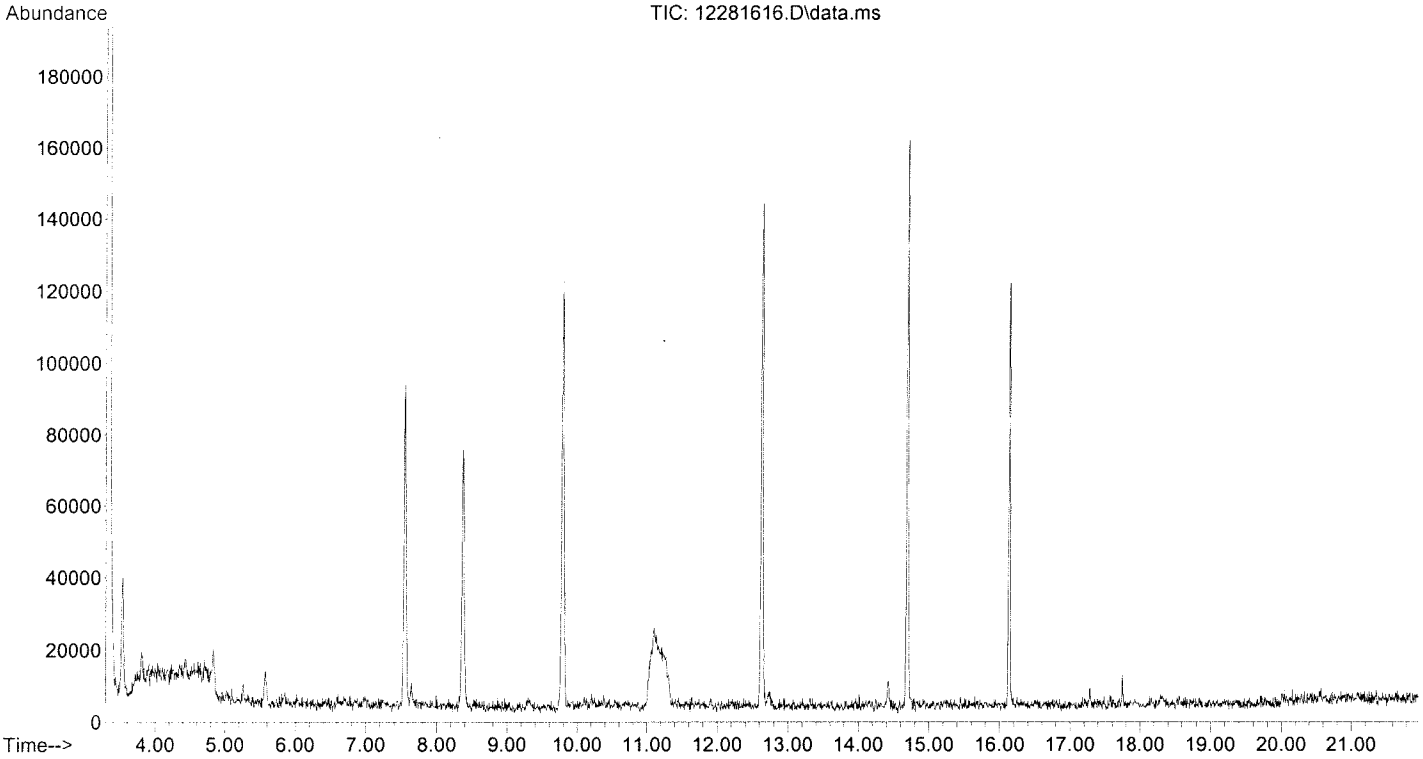
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37202	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	128236	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	98455	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	69802	952.707	pg		0.00
Spiked Amount 1000.000			Recovery = 95.27%				
57) Toluene-d8 (SS2)	12.63	98	115574	960.650	pg		0.00
Spiked Amount 1000.000			Recovery = 96.06%				
74) Bromofluorobenzene (SS3)	16.14	174	35363	892.481	pg		0.00
Spiked Amount 1000.000			Recovery = 89.25%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7101	95.100	pg	#	78
3) * Dichlorodifluoromethane	3.58	85	1868	11.744	pg		98
10) * Ethanol	4.44	45	5330	104.660	pg		94
11) * Acetonitrile	4.60	41	1401	10.972	pg	#	82
12) * Acrolein	4.71	56	512	12.000	pg		92
13) * Acetone	4.84	58	4705	97.813	pg		82
15) * 2-Propanol (Isopropa...	5.03	45	1857	14.248	pg		96
19) * Methylene Chloride	5.58	84	3781	70.566	pg		96
22) * Carbon Disulfide	5.84	76	3506	17.849	pg		97
30) * Ethyl Acetate	7.64	61	613	41.530	pg		97
41) 1-Butanol	9.31	56	947	34.160	pg	#	50
53) * 4-Methyl-2-pentanone	11.73	58	327	12.239	pg		100
58) * Toluene	12.74	91	2662	19.130	pg		99
93) * D-Limonene	17.75	68	1252	39.203	pg		100
99) n-Dodecane	19.32	85	64	12.851	pg	#	1

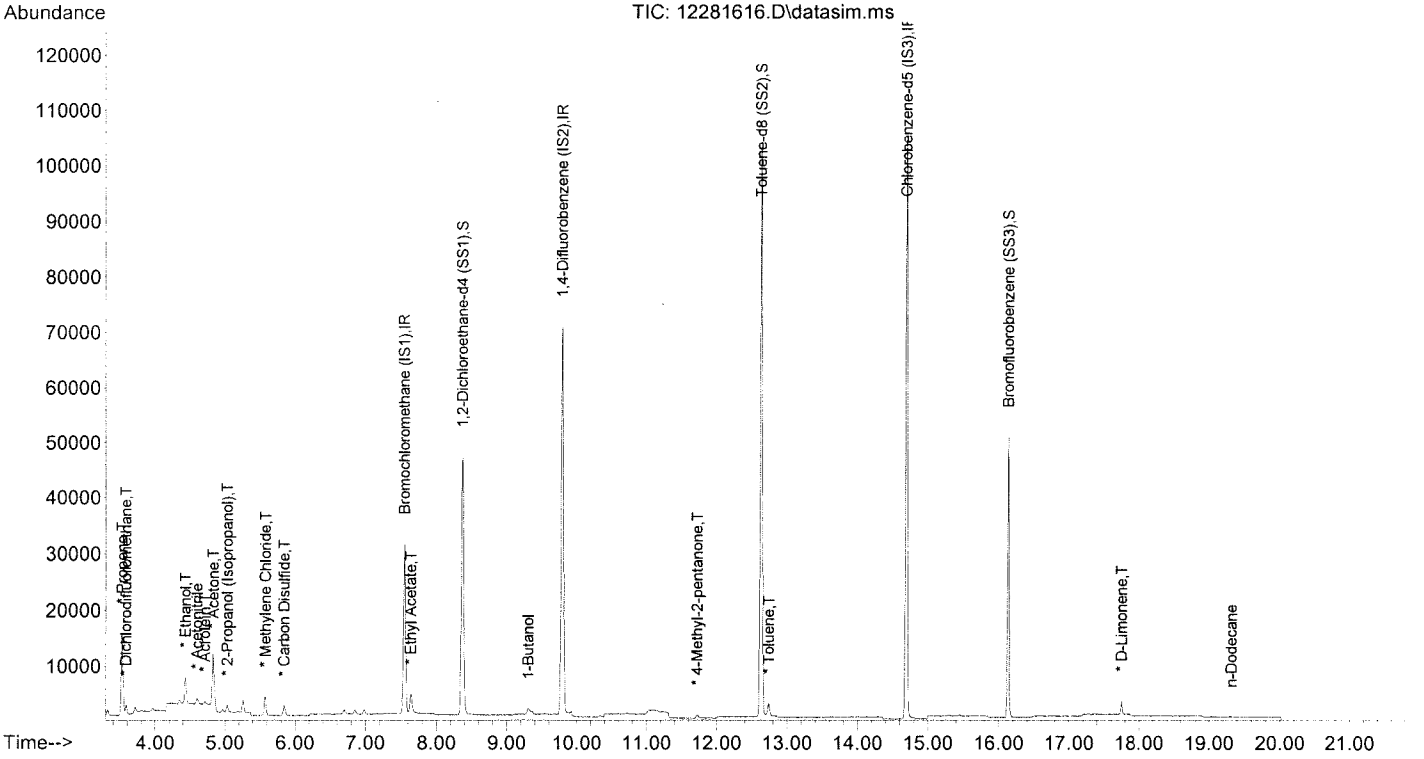
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281616.D
Acq On : 28 Dec 2016 9:58 pm
Operator : JM
Sample : AS00898 FCA00494
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 29 10:00:03 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291609.D
Acq On : 29 Dec 2016 2:01 pm
Operator : JM
Sample : AC01659 FCA01011
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Dec 30 09:47:46 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

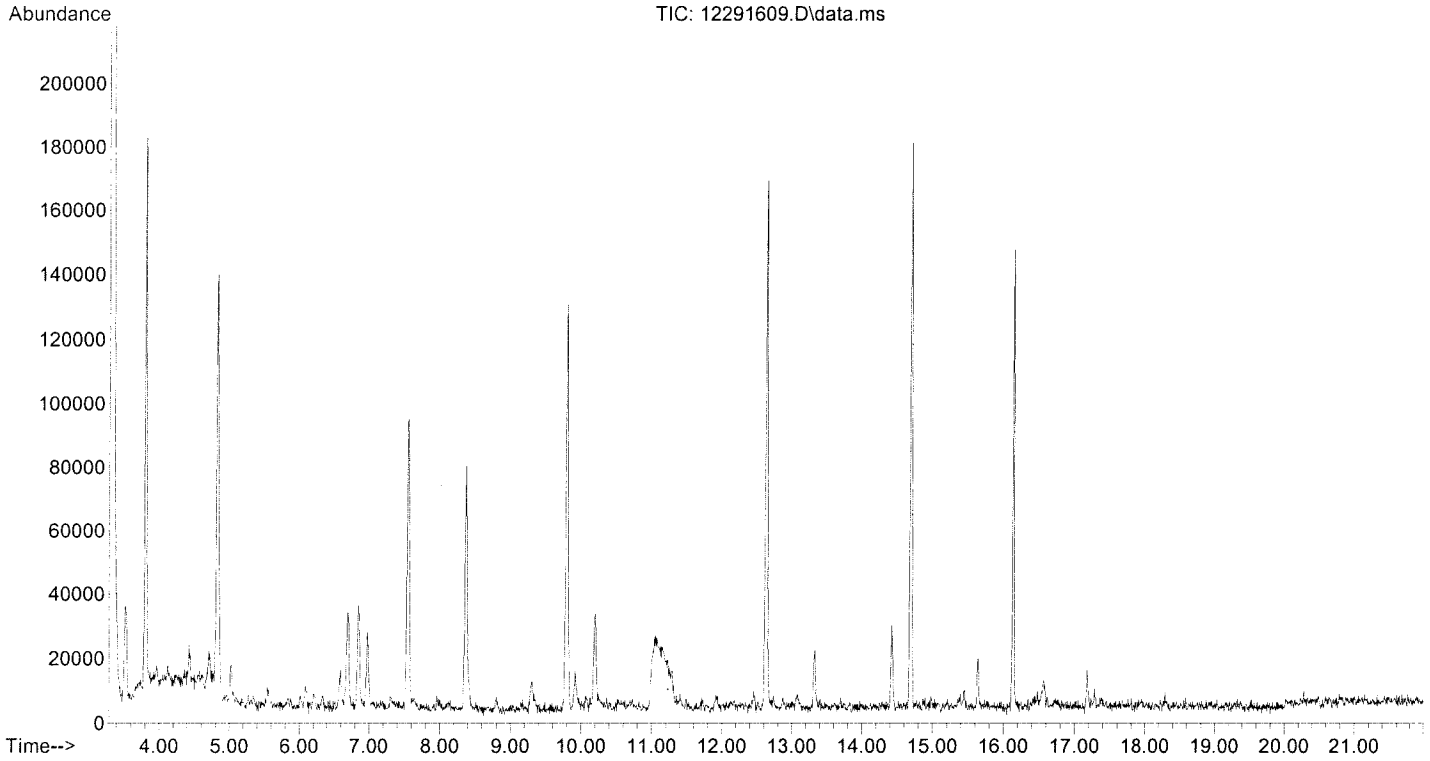
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39343	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	139962	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111196	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72013	929.397	pg		0.00
Spiked Amount 1000.000			Recovery = 92.94%				
57) Toluene-d8 (SS2)	12.63	98	128474	945.516	pg		0.00
Spiked Amount 1000.000			Recovery = 94.55%				
74) Bromofluorobenzene (SS3)	16.14	174	41358	924.183	pg		0.00
Spiked Amount 1000.000			Recovery = 92.42%				
Target Compounds							Qvalue
2) * Propene	3.52	42	8203	103.880	pg		79
10) * Ethanol	4.43	45	11255	208.977	pg		97
12) * Acrolein	4.71	56	7656	169.678	pg		99
13) * Acetone	4.82	58	78888	1550.771	pg	#	41
15) * 2-Propanol (Isopropa...	5.03	45	15128	109.757	pg		98
18) tert-Butanol	5.55	59	2921	35.161	pg		87
22) * Carbon Disulfide	5.84	76	3212	15.462	pg		96
26) * Vinyl Acetate	6.70	86	5797	543.373	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	7211	236.170	pg		97
30) * Ethyl Acetate	7.64	61	494	31.647	pg		99
41) 1-Butanol	9.30	56	4812	159.036	pg	#	53
53) * 4-Methyl-2-pentanone	11.72	58	380	13.031	pg	#	79
58) * Toluene	12.74	91	1993	12.681	pg		98
59) * 2-Hexanone	13.07	58	1375	51.146	pg	#	86
69) Cyclohexanone	15.44	98	330	28.693	pg		96

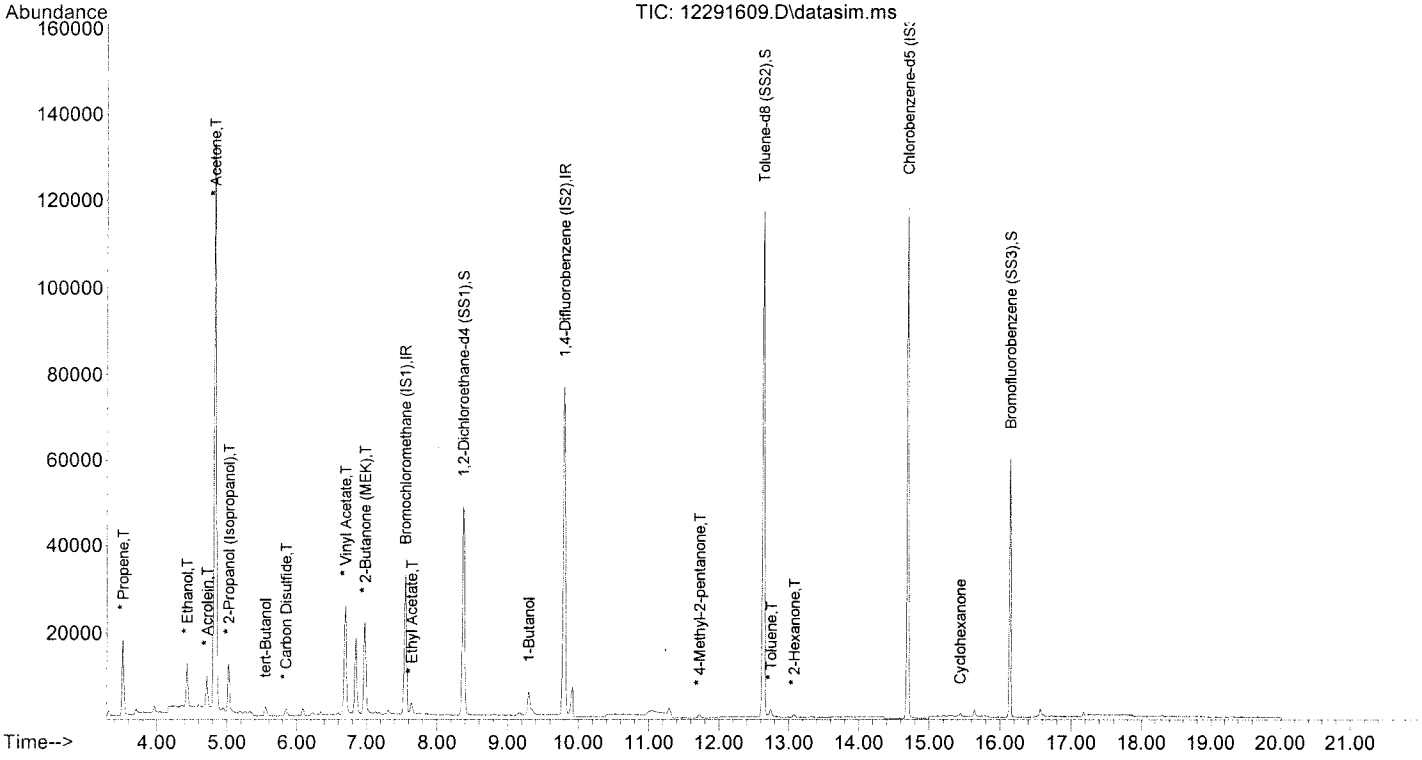
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291609.D
Acq On : 29 Dec 2016 2:01 pm
Operator : JM
Sample : AC01659 FCA01011
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Dec 30 09:47:46 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291614.D
Acq On : 29 Dec 2016 5:26 pm
Operator : JM
Sample : AC02178 FCA00968
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

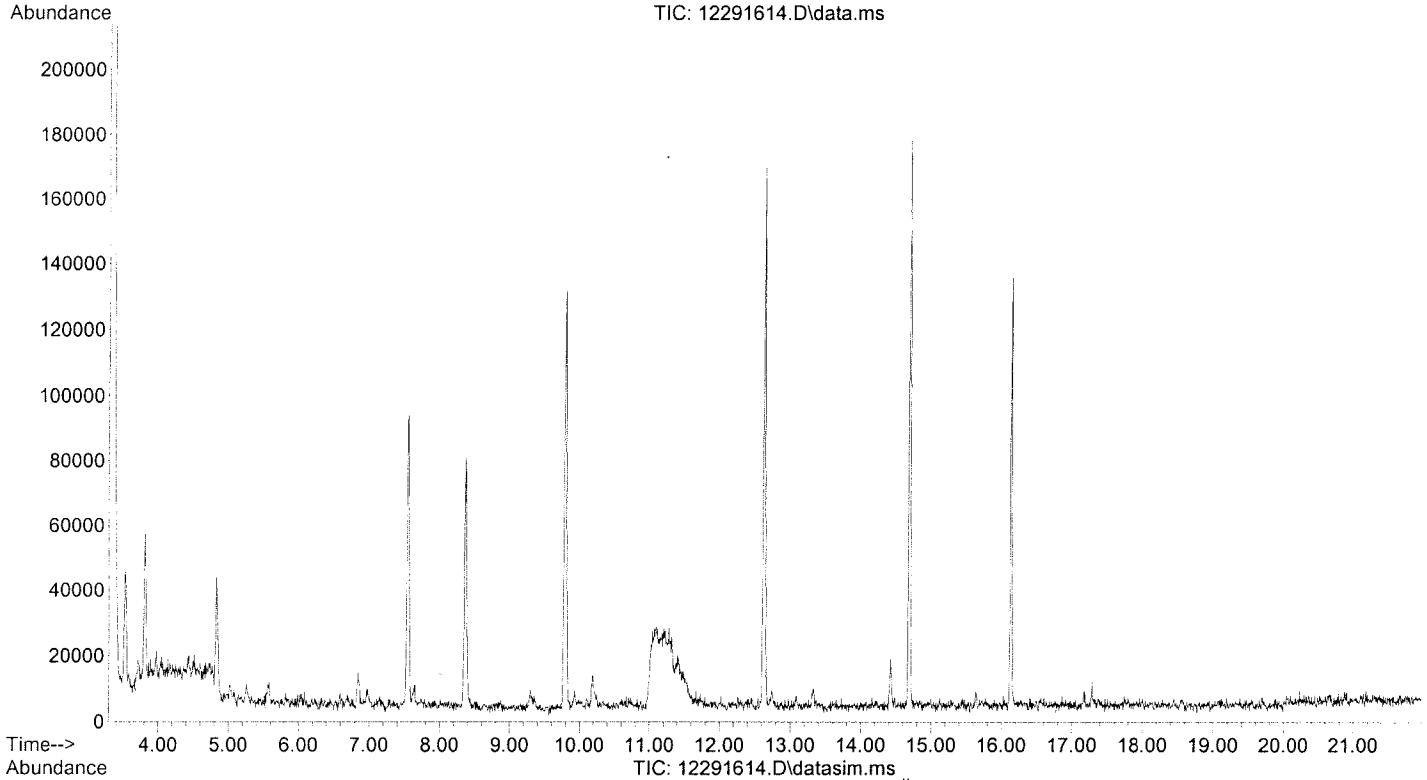
Quant Time: Dec 30 09:59:17 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

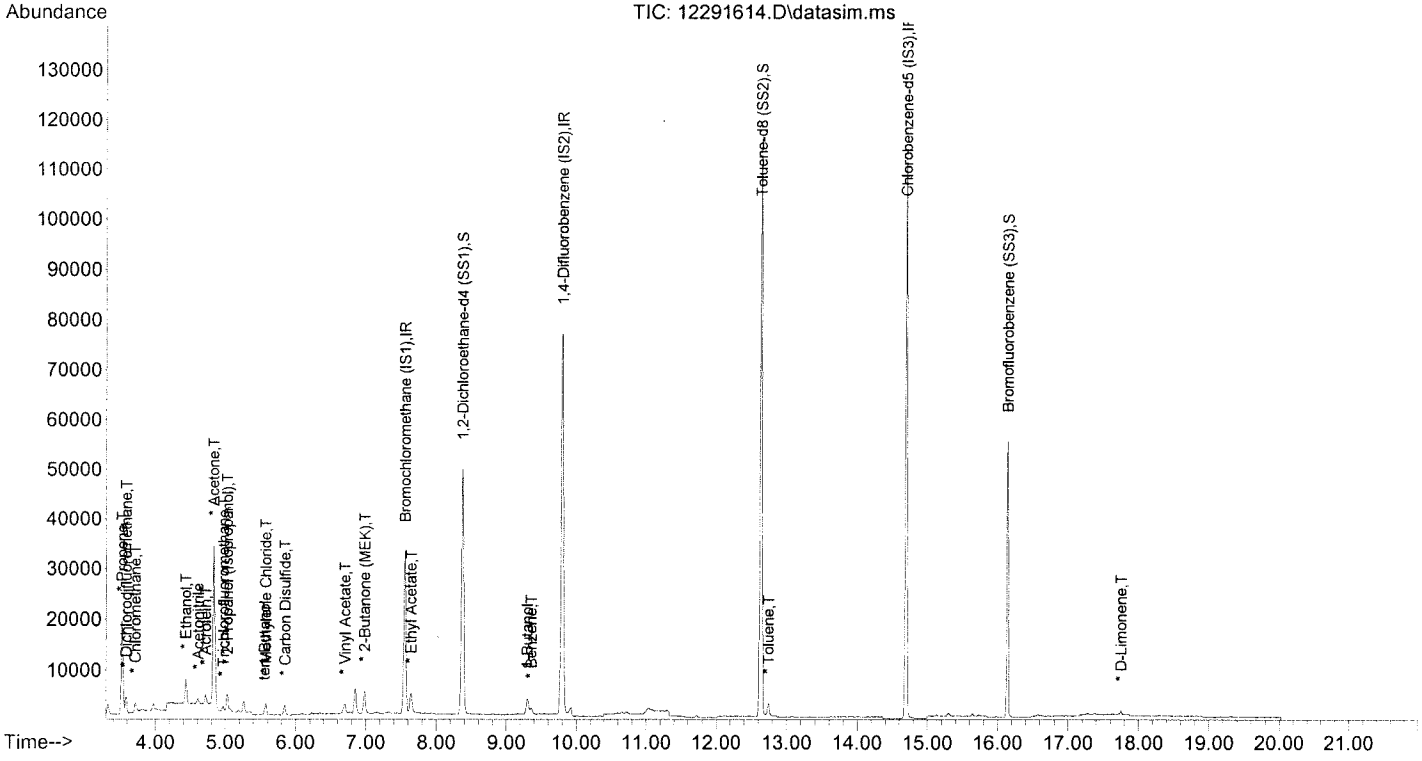
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39402	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	139269	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106670	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73246	943.895	pg		0.00
Spiked Amount 1000.000			Recovery = 94.39%				
57) Toluene-d8 (SS2)	12.63	98	127098	975.077	pg		0.00
Spiked Amount 1000.000			Recovery = 97.51%				
74) Bromofluorobenzene (SS3)	16.14	174	38746	902.552	pg		0.00
Spiked Amount 1000.000			Recovery = 90.25%				
Target Compounds							Qvalue
2) * Propene	3.52	42	9061	114.574	pg	#	77
3) * Dichlorodifluoromethane	3.58	85	3549	21.067	pg		100
4) * Chloromethane	3.71	50	1954	15.516	pg		94
10) * Ethanol	4.43	45	5500	101.968	pg		97
11) * Acetonitrile	4.61	41	1361	10.063	pg	#	81
12) * Acrolein	4.71	56	1980	43.816	pg		97
13) * Acetone	4.83	58	19773	388.113	pg	#	42
14) * Trichlorofluoromethane	4.97	101	1255	11.151	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	5044	36.541	pg		95
18) tert-Butanol	5.55	59	957	11.502	pg		91
19) * Methylene Chloride	5.57	84	2373	41.815	pg		95
22) * Carbon Disulfide	5.85	76	3547	17.049	pg		95
26) * Vinyl Acetate	6.71	86	448	41.930	pg	#	12
27) * 2-Butanone (MEK)	6.98	72	1499	49.021	pg		97
30) * Ethyl Acetate	7.64	61	756	48.359	pg		99
39) * Benzene	9.35	78	1911	11.898	pg		97
41) 1-Butanol	9.30	56	2101	69.783	pg	#	52
58) * Toluene	12.74	91	2929	19.428	pg		97
93) * D-Limonene	17.75	68	461	13.323	pg		93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291614.D
Acq On : 29 Dec 2016 5:26 pm
Operator : JM
Sample : AC02178 FCA00968
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Dec 30 09:59:17 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291612.D
Acq On : 29 Dec 2016 4:04 pm
Operator : JM
Sample : AS00947 FCA00579
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

Quant Time: Dec 30 09:55:35 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

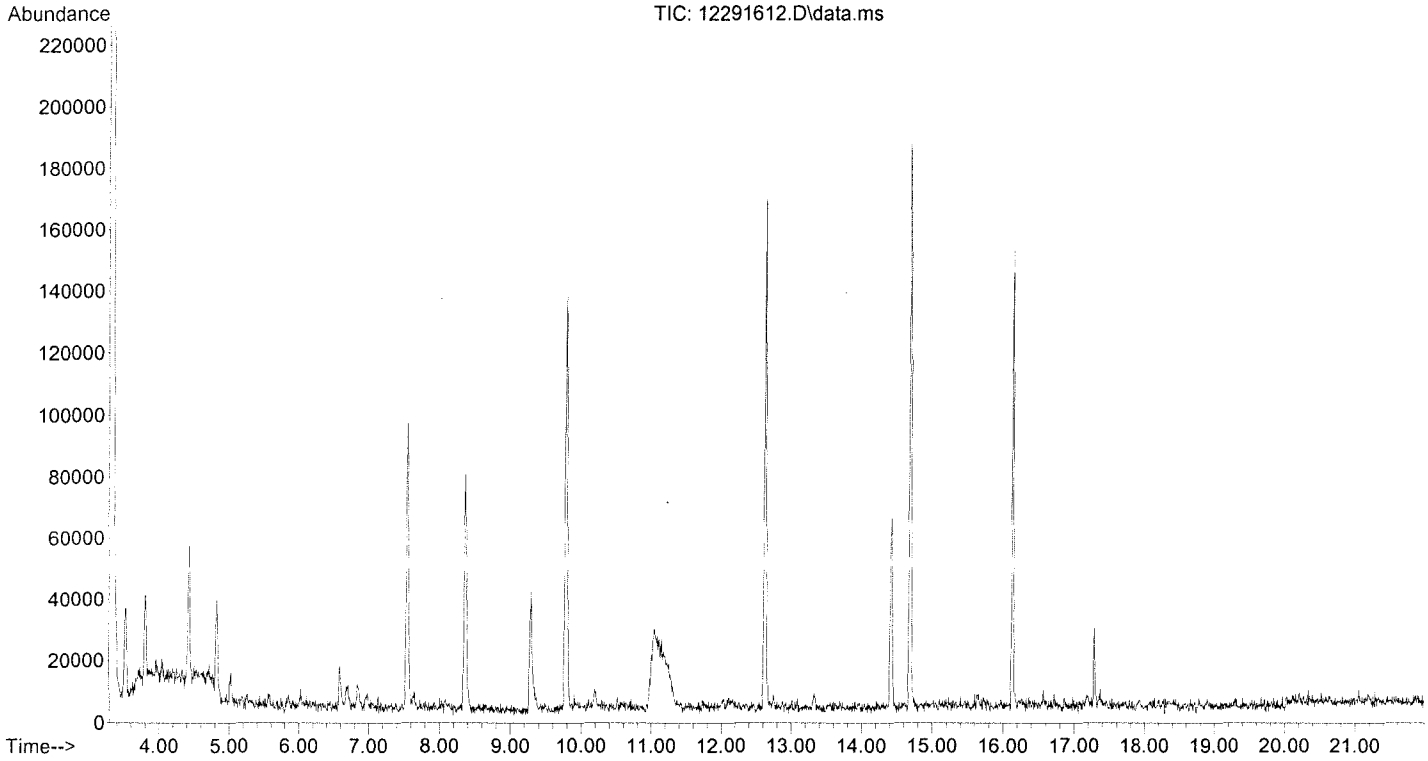
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39429	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147585	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	114845	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73866	951.232	pg		0.00
Spiked Amount 1000.000			Recovery = 95.12%				
57) Toluene-d8 (SS2)	12.63	98	130384	929.084	pg		0.00
Spiked Amount 1000.000			Recovery = 92.91%				
74) Bromofluorobenzene (SS3)	16.14	174	42884	927.835	pg		0.00
Spiked Amount 1000.000			Recovery = 92.78%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6893	87.100	pg	#	72
10) * Ethanol	4.43	45	47844	886.404	pg		98
12) * Acrolein	4.72	56	1363	30.142	pg		88
13) * Acetone	4.83	58	15255	299.227	pg	#	62
15) * 2-Propanol (Isopropa...	5.03	45	9772	70.744	pg		96
22) * Carbon Disulfide	5.84	76	2818	13.536	pg		96
26) * Vinyl Acetate	6.71	86	395	36.944	pg		71
27) * 2-Butanone (MEK)	6.98	72	1058	34.575	pg		89
30) * Ethyl Acetate	7.65	61	285	18.218	pg		88
41) 1-Butanol	9.29	56	22345	700.355	pg	#	48
83) tert-Butylbenzene	17.28	134	446	21.210	pg	#	1
98) * Naphthalene	19.29	128	1124	31.127	pg	#	93
99) n-Dodecane	19.31	85	78	13.427	pg		85

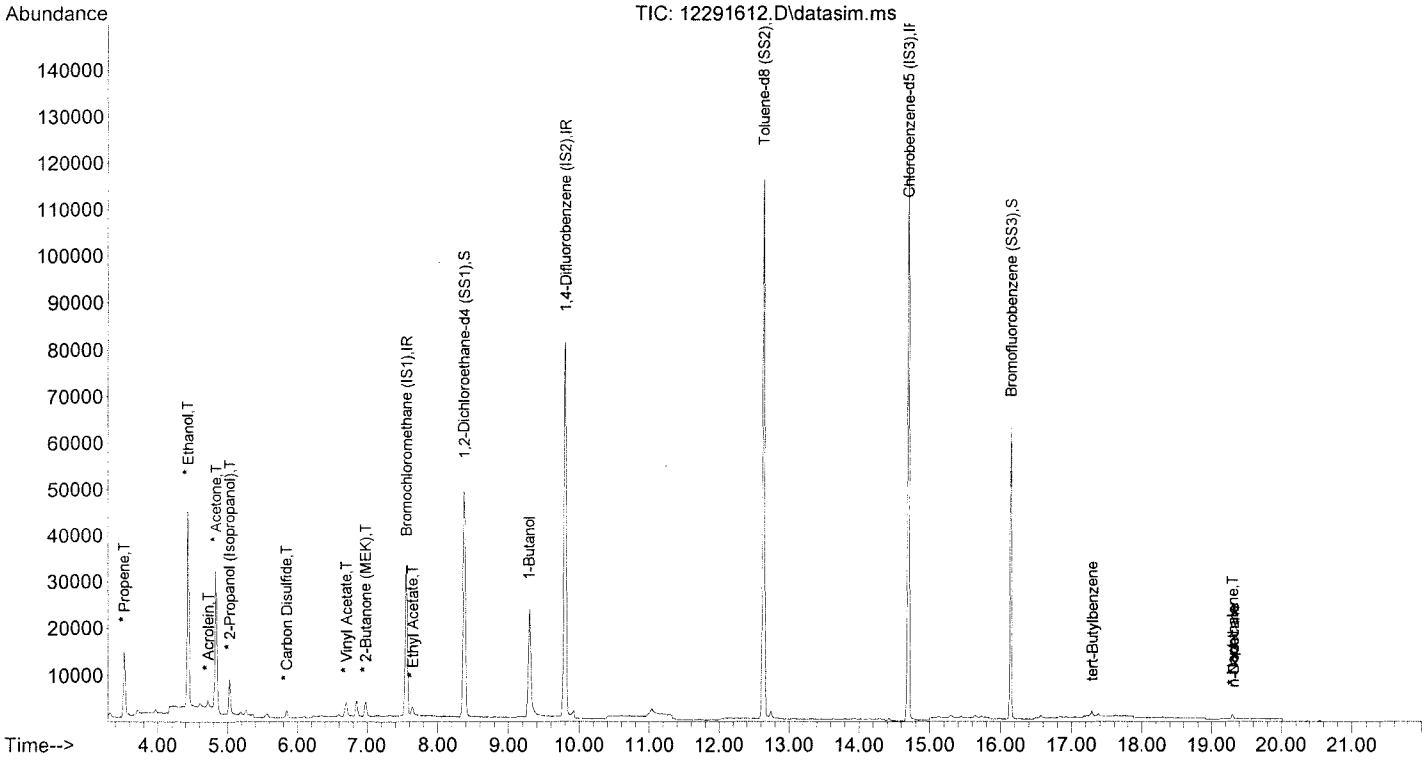
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291612.D
Acq On : 29 Dec 2016 4:04 pm
Operator : JM
Sample : AS00947 FCA00579
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

Quant Time: Dec 30 09:55:35 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291613.D
Acq On : 29 Dec 2016 4:45 pm
Operator : JM
Sample : AS00772 FCA01083
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Dec 30 09:56:41 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39462	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	145405	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111372	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72564	933.684	pg		0.00
Spiked Amount 1000.000			Recovery = 93.37%				
57) Toluene-d8 (SS2)	12.63	98	126401	928.789	pg		0.00
Spiked Amount 1000.000			Recovery = 92.88%				
74) Bromofluorobenzene (SS3)	16.14	174	48303	1077.670	pg		0.00
Spiked Amount 1000.000			Recovery = 107.77%				
Target Compounds							Qvalue
2) * Propene	3.52	42	8738	110.322	pg	#	74
3) * Dichlorodifluoromethane	3.58	85	5725	33.932	pg		99
4) * Chloromethane	3.71	50	2501	19.830	pg		90
10) * Ethanol	4.43	45	55888	1034.569	pg		99
11) * Acetonitrile	4.60	41	2225	16.427	pg		99
12) * Acrolein	4.71	56	1768	39.066	pg		96
13) * Acetone	4.82	58	35596	697.632	pg		87
14) * Trichlorofluoromethane	4.97	101	2011	17.842	pg		97
15) * 2-Propanol (Isopropa...	5.02	45	35009	253.233	pg		93
18) tert-Butanol	5.55	59	882	10.585	pg	#	75
19) * Methylene Chloride	5.58	84	3806	66.965	pg		100
22) * Carbon Disulfide	5.85	76	4141	19.874	pg		98
26) * Vinyl Acetate	6.70	86	436	40.745	pg	#	25
27) * 2-Butanone (MEK)	6.98	72	3317	108.308	pg		93
29) DIPE	7.63	45	2487	13.934	pg	#	53
30) * Ethyl Acetate	7.64	61	2150	137.319	pg		91
34) * Tetrahydrofuran	8.14	71	891	36.298	pg		81
39) * Benzene	9.36	78	20739	123.675	pg		100
41) 1-Butanol	9.29	56	21862	695.490	pg	#	47
53) * 4-Methyl-2-pentanone	11.72	58	327	10.794	pg		95
58) * Toluene	12.74	91	12595	80.014	pg		99
62) * n-Butyl Acetate	13.80	56	1294	67.199	pg		95
63) * n-Octane	13.91	85	459	18.693	pg		85
66) * Ethylbenzene	15.12	91	7468	56.255	pg		98
67) * m- & p-Xylenes	15.29	91	46603	451.847	pg		96
69) Cyclohexanone	15.44	98	419	36.374	pg		84
70) * Styrene	15.63	104	1470	26.769	pg		98
71) * o-Xylene	15.73	91	13312	131.949	pg		100
72) * n-Nonane	15.98	57	13003	285.989	pg		95
76) * alpha-Pinene	16.61	93	670	10.246	pg		98
78) 3-Ethyltoluene	16.81	105	3030	32.822	pg		94
79) * 4-Ethyltoluene	16.84	105	1655	20.446	pg		95
80) * 1,3,5-Trimethylbenzene	16.91	105	2302	25.354	pg		97
81) alpha-Methylstyrene	17.04	118	375	10.202	pg		90
82) 2-Ethyltoluene	17.07	105	1433	13.007	pg		91
83) tert-Butylbenzene	17.28	134	401	19.664	pg		69
84) * 1,2,4-Trimethylbenzene	17.26	105	9915	120.848	pg		86
88) n-Decane	17.37	85	21479	1369.252	pg	#	68
90) 1,2,3-Trimethylbenzene	17.62	105	2702	31.410	pg		99
91) p-Isopropyltoluene	17.63	134	655	25.159	pg		86
93) * D-Limonene	17.75	68	6716	185.905	pg		94
94) n-Butylbenzene	17.97	134	712	46.743	pg	#	1
96) n-Undecane	18.42	85	668	74.473	pg	#	66
98) * Naphthalene	19.29	128	1199	34.240	pg		98
99) n-Dodecane	19.31	85	67	11.893	pg		74

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291613.D
Acq On : 29 Dec 2016 4:45 pm
Operator : JM
Sample : AS00772 FCA01083
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Dec 30 09:56:41 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291613.D
Acq On : 29 Dec 2016 4:45 pm
Operator : JM
Sample : AS00772 FCA01083
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

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Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
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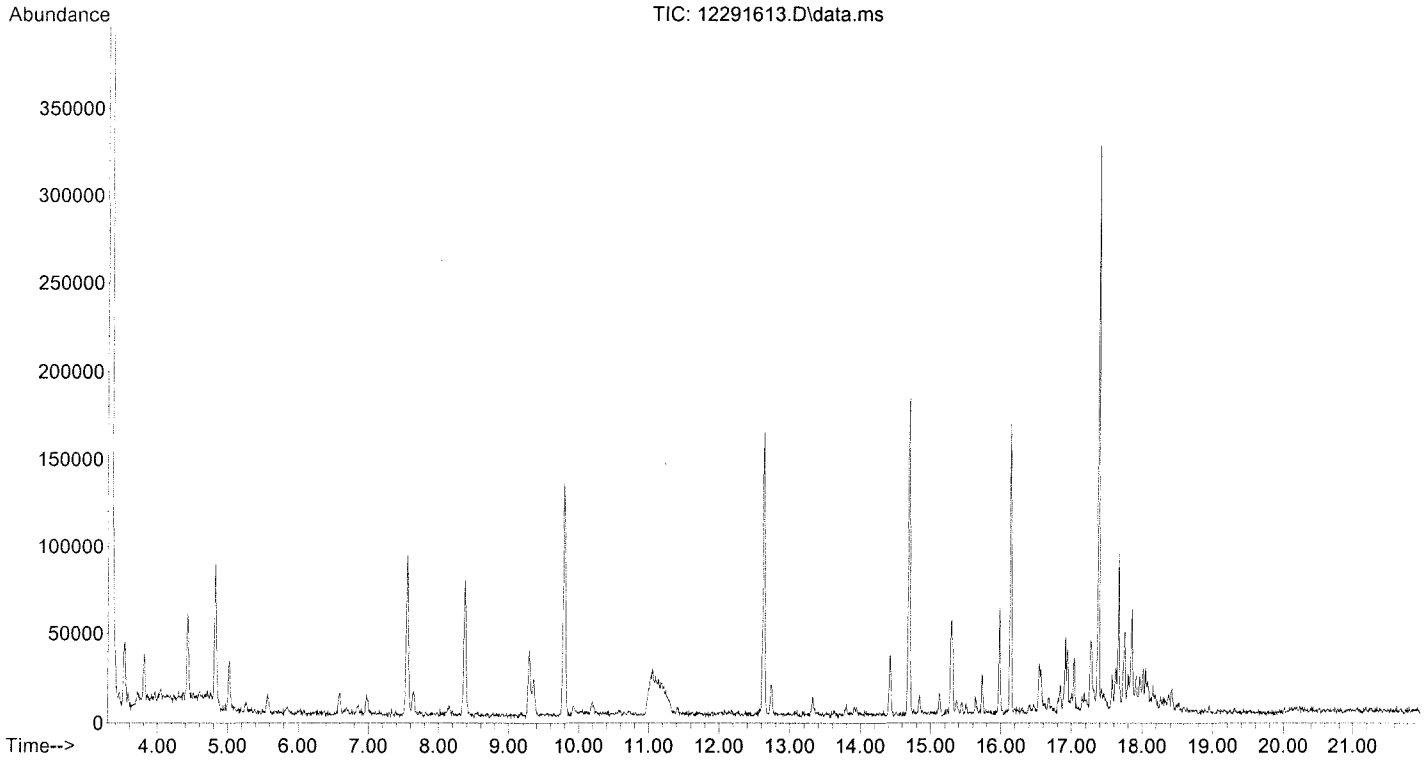
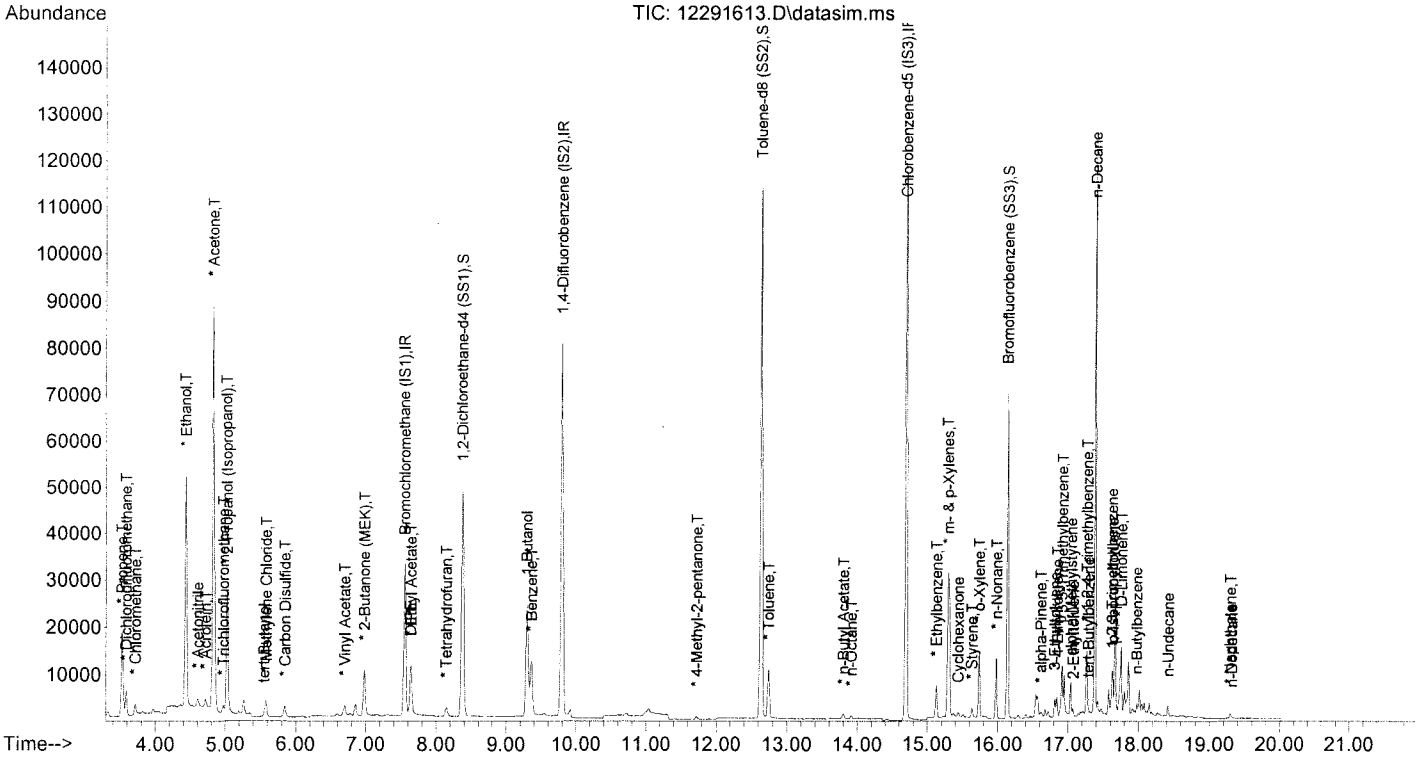
Response via : Initial Calibration





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LABORATORY REPORT

January 29, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 16, 2017. For your reference, these analyses have been assigned our service request number P1700173.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 11:25 am, Jan 29, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700173

CASE NARRATIVE

The samples were received intact under chain of custody on January 16, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700173

Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/16/2017

Time Received: 09:50

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
17M566-1-01-N	P1700173-001	Air	1/9/2017	08:19	AC01611	-3.17	3.51	X
17M566-1-02-N	P1700173-002	Air	1/9/2017	08:20	AS00663	-4.05	3.60	X
17M029-1-01	P1700173-003	Air	1/9/2017	08:48	AS01159	-2.25	3.50	X
17M029-B-01	P1700173-004	Air	1/9/2017	08:47	AS01180	-2.13	3.73	X
17M029-A-01	P1700173-005	Air	1/9/2017	08:49	AC01178	-1.83	3.65	X

P1700173

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 001
PAGE 1 of 1

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com		
Project Contact: Sevda Aleckson	**Airbill No.** FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com		

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M566-1-01-N	6381	FCA00872	1/9/17	0819	-28.69	-7.18	6L	8-hr	X				X
2	17M566-1-02-N	5058	FCA00473	1/9/17	0820	-30.04	-9.08	6L	8-hr	X				
3	17M029-1-01	12875	FCA01085	1/9/17	0848	-29.99	-5.74	6L	8-hr	X				
4	17M029-B-01	14056	FCA00461	1/9/17	0847	-30.01	-5.40	6L	8-hr	X				
5	17M029-A-01	3024	FCA00454	1/9/17	0849	-29.95	-4.17	6L	24-hr	X				

5 of 96

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael

Relinquished By (signature):	Date 1/12/17	Received By (signature)	Date
Company NOREAS	Time 1100	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 1/16/17 0952
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700173

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/16/17 Date opened: 1/16/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700173-001.01	6.0 L Ambient Can					AC01611 / Seial #6381
P1700173-002.01	6.0 L Silonite Can					AS00663 / Asset Tag#5068
P1700173-003.01	6.0 L Silonite Can					AS01159 / Serial #12875
P1700173-004.01	6.0 L Silonite Can					AC01180 / Serial #14056
P1700173-005.01	6.0 L Ambient Can					AC01178 / Asset Tag#3024

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M566-1-01-N** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700173-001

Test Code: EPA TO-15 SIM Date Collected: 1/9/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01611
Initial Pressure (psig): -3.17 Final Pressure (psig): 3.51

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.032	0.040	0.032	0.012	**U**
75-35-4	1,1-Dichloroethene	0.033	0.040	0.033	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.013**	0.040	0.033	0.012	**J**
75-34-3	1,1-Dichloroethane	**0.013**	0.040	0.032	0.0096	**J**
156-59-2	cis-1,2-Dichloroethene	**0.024**	0.040	0.033	0.015	**J**
79-01-6	Trichloroethene	**0.14**	0.040	0.033	0.013	
127-18-4	Tetrachloroethene	**0.039**	0.040	0.033	0.013	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M566-1-02-N** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700173-002

Test Code: EPA TO-15 SIM Date Collected: 1/9/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00663
Initial Pressure (psig): -4.05 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034	0.043	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.036	0.043	0.036	0.015	**U**
156-60-5	trans-1,2-Dichloroethene	0.036	0.043	0.036	0.013	**U**
75-34-3	1,1-Dichloroethane	0.034	0.043	0.034	0.010	**U**
156-59-2	cis-1,2-Dichloroethene	**0.016**	0.043	0.036	0.016	**J**
79-01-6	Trichloroethene	**0.15**	0.043	0.036	0.015	
127-18-4	Tetrachloroethene	**0.040**	0.043	0.036	0.014	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M029-1-01** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700173-003

Test Code: EPA TO-15 SIM Date Collected: 1/9/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01159

Initial Pressure (psig): -2.25 Final Pressure (psig): 3.50

Canister Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.031**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	0.031	0.037	0.031	0.011	**U**
75-34-3	1,1-Dichloroethane	**0.016**	0.037	0.029	0.0089	**J**
156-59-2	cis-1,2-Dichloroethene	**0.16**	0.037	0.031	0.013	
79-01-6	Trichloroethene	**0.39**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.29**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M029-B-01** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700173-004

Test Code: EPA TO-15 SIM Date Collected: 1/9/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01180
Initial Pressure (psig): -2.13 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.029**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	0.031	0.037	0.031	0.011	**U**
75-34-3	1,1-Dichloroethane	**0.013**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.35**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.26**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M029-A-01** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700173-005

Test Code: EPA TO-15 SIM Date Collected: 1/9/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01178
Initial Pressure (psig): -1.83 Final Pressure (psig): 3.65

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.010	**U**
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	**0.037**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.070**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.066**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170123-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700173

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/9/17
Analyst: Cory Lewis Date(s) Received: 1/16/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/23/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170123-MB	**95**	**102**	**104**	70-130	
Lab Control Sample	P170123-LCS	**98**	**98**	**111**	70-130	
17M566-1-01-N	P1700173-001	**97**	**104**	**112**	70-130	
17M566-1-02-N	P1700173-002	**97**	**104**	**110**	70-130	
17M029-1-01	P1700173-003	**98**	**105**	**112**	70-130	
17M029-B-01	P1700173-004	**98**	**107**	**110**	70-130	
17M029-A-01	P1700173-005	**97**	**106**	**114**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700173
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170123-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.75**	**89**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.06**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.13**	**97**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.04**	**95**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.13**	**97**	70-121	
79-01-6	Trichloroethene	4.25	**3.96**	**93**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.94**	**93**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700173

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01231703.D
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:06
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170123-LCS	01231704.D	08:38
17M566-1-01-N	P1700173-001	01231706.D	10:15
17M566-1-02-N	P1700173-002	01231707.D	10:47
17M029-1-01	P1700173-003	01231708.D	11:18
17M029-B-01	P1700173-004	01231709.D	11:49
17M029-A-01	P1700173-005	01231710.D	12:20

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700173

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01231702.D

Analyst: Cory Lewis Date Analyzed: 1/23/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 07:35

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	60738		9.76	300562		11.71		46758		16.06	
	Upper Limit	85033		10.09	420787		12.04		65461		16.39	
	Lower Limit	36443		9.43	180337		11.38		28055		15.73	
	Client Sample ID											
01	Method Blank	59572		9.79	271363		11.72		44267		16.06	
02	Lab Control Sample	58946		9.76	293467		11.71		45491		16.05	
03	17M566-1-01-N	58354		9.75	285192		11.71		46671		16.05	
04	17M566-1-02-N	56617		9.76	274810		11.71		45303		16.05	
05	17M029-1-01	56564		9.76	282506		11.71		46224		16.05	
06	17M029-B-01	56974		9.76	277811		11.71		45702		16.05	
07	17M029-A-01	56821		9.76	277375		11.71		45820		16.05	
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	58354	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	285192	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	46671	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	97635	966.099	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.61%				
33) Toluene-d8 (SS2)	14.14	98	294147	1038.317	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.83%				
45) Bromofluorobenzene (SS3)	17.55	174	95771	1121.698	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	206020	1397.511	pg		100
3) Chloromethane	4.62	52	10481	238.639	pg		92
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	8605	59.329	pg		99
5) Vinyl Chloride	4.94	62	792	5.620	pg		96
6) 1,3-Butadiene	5.13	54	3465	41.353	pg	#	64
7) Bromomethane	5.45	94	1304	23.001	pg		99
8) Chloroethane	5.67	64	531	12.246	pg		99
9) Acrolein	6.25	56	15291	496.429	pg		99
10) Acetone	6.39	58	235414	5911.213	pg		95
11) Trichlorofluoromethane	6.59	101	75677	750.546	pg		100
12) 1,1-Dichloroethene	7.33	96	276	N.D.			
13) Methylene Chloride	7.47	84	17790	259.519	pg		97
14) Trichlorotrifluoroethane	7.79	151	18666	296.183	pg		100
15) trans-1,2-Dichloroethene	8.51	96	560	8.223	pg		99
16) 1,1-Dichloroethane	8.71	63	998	8.260	pg		100
17) Methyl tert-Butyl Ether	8.80	73	1003	5.563	pg	#	57
18) cis-1,2-Dichloroethene	9.59	96	1100	15.393	pg		97
19) Chloroform	9.88	83	15804	124.390	pg		100
21) 1,2-Dichloroethane	10.64	62	4424	45.234	pg		100
22) 1,1,1-Trichloroethane	10.91	97	1269	10.760	pg		98
23) Benzene	11.36	78	91102	325.451	pg		100
24) Carbon Tetrachloride	11.51	117	26878	283.817	pg		100
26) 1,2-Dichloropropane	12.18	63	1247	17.166	pg		99
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	6794	91.629	pg		98
29) 1,4-Dioxane	12.39	88	596	10.947	pg		90
30) cis-1,3-Dichloropropene	13.25	75	531	5.435	pg		100
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.24	91	188485	712.345	pg		99
35) Dibromochloromethane	14.65	129	418	5.705	pg		99
36) 1,2-Dibromoethane	14.91	107	428	6.176	pg		94
37) Tetrachloroethene	15.40	166	1919	24.961	pg		99
39) Chlorobenzene	16.10	112	2142	11.906	pg		94
40) Ethylbenzene	16.48	91	37595	141.702	pg		99
41) m,p-Xylene	16.65	91	100549	505.276	pg		100
42) Styrene	17.01	104	8924	64.009	pg		97
43) o-Xylene	17.12	106	22623	221.296	pg	#	81
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	12633	59.971	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	40950	198.054	pg		88
48) 1,3-Dichlorobenzene	18.92	146	999	7.861	pg		99
49) 1,4-Dichlorobenzene	18.98	146	2854	21.571	pg		98
50) 1,2-Dichlorobenzene	19.31	146	975	7.529	pg		97
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	d		
52) 1,2,4-Trichlorobenzene	20.95	182	1089	14.206	pg		97
53) Naphthalene	21.06	128	18090	74.319	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

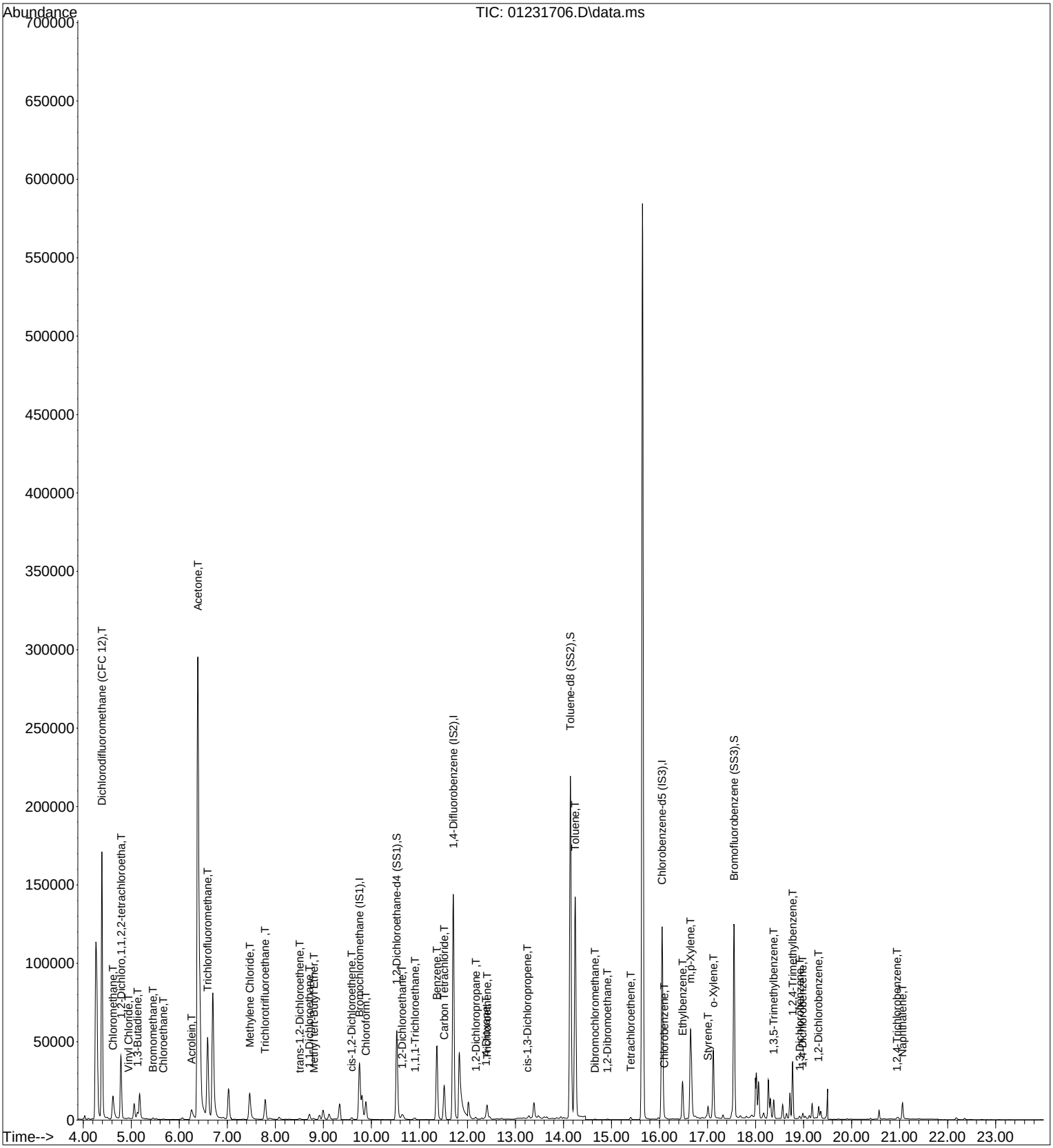
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	302	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

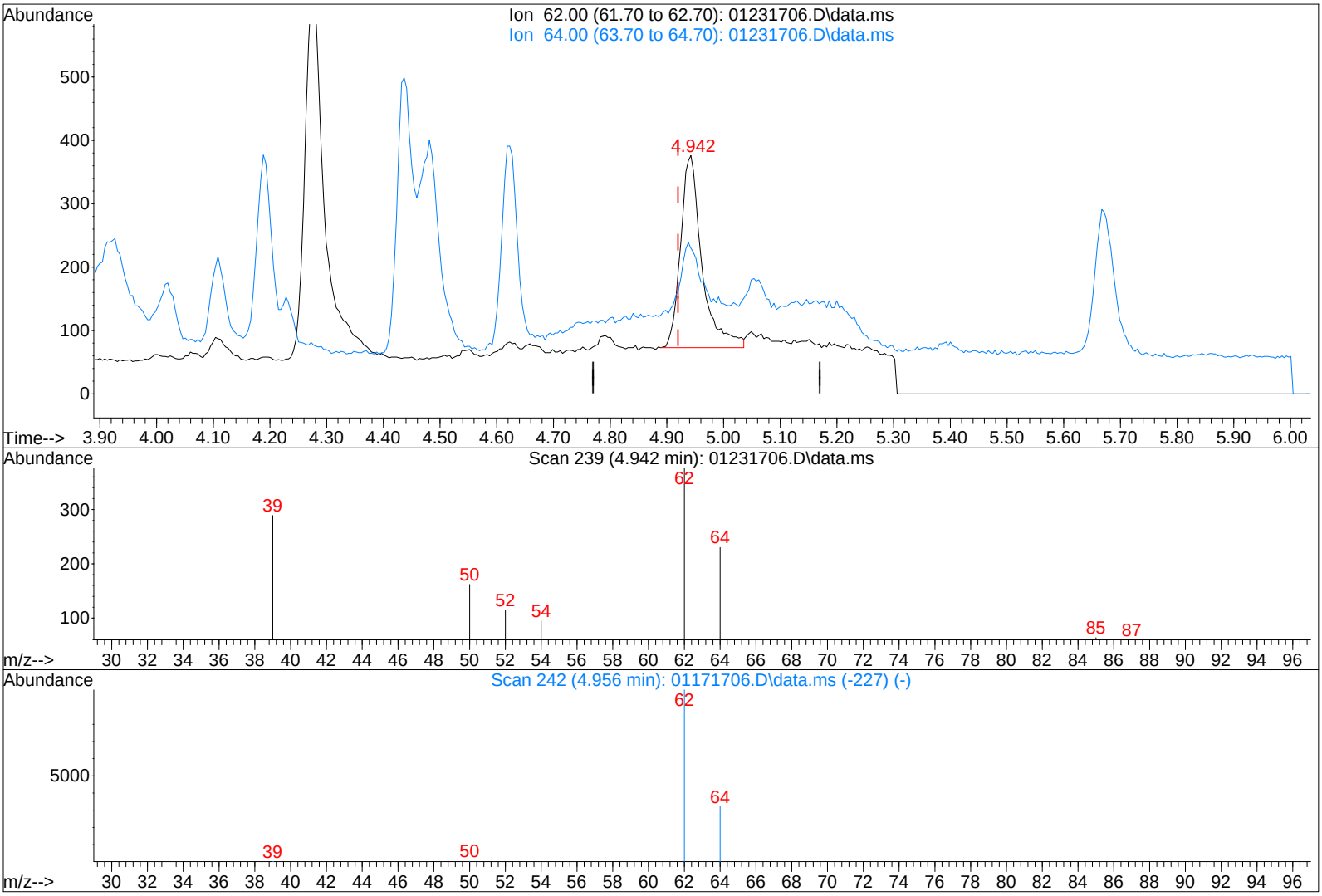
Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231706.D\data.ms

(5) Vinyl Chloride (T)

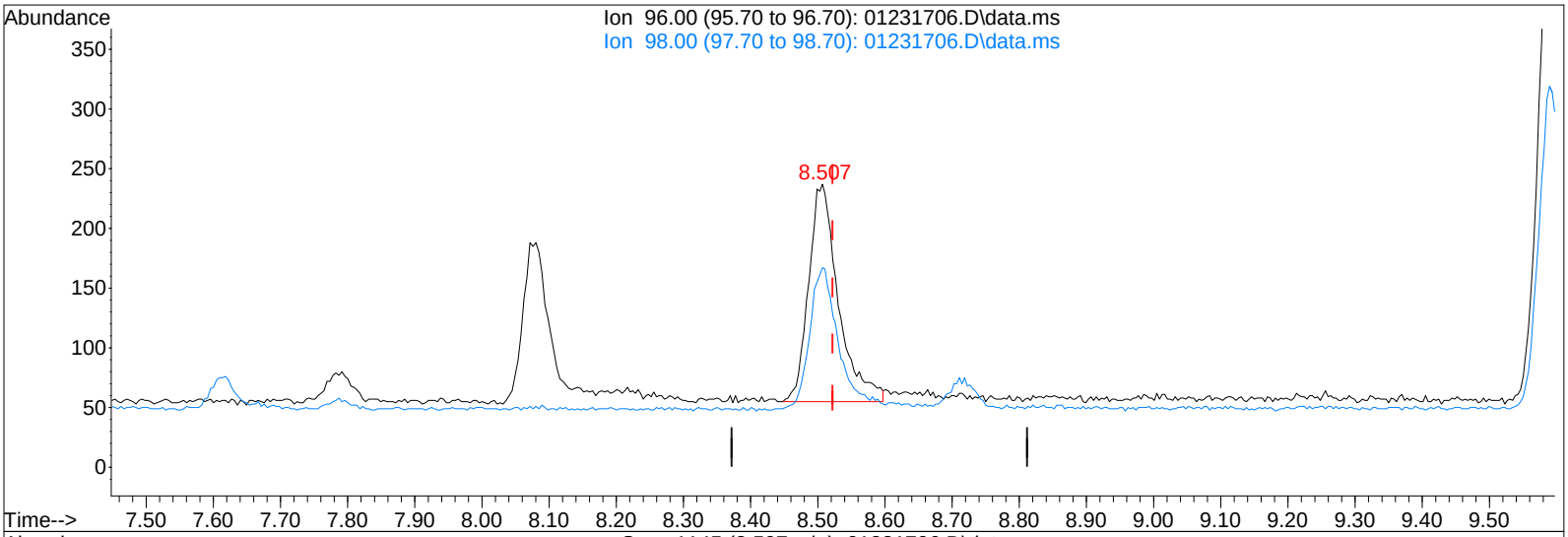
4.942min (+0.022) 5.62pg

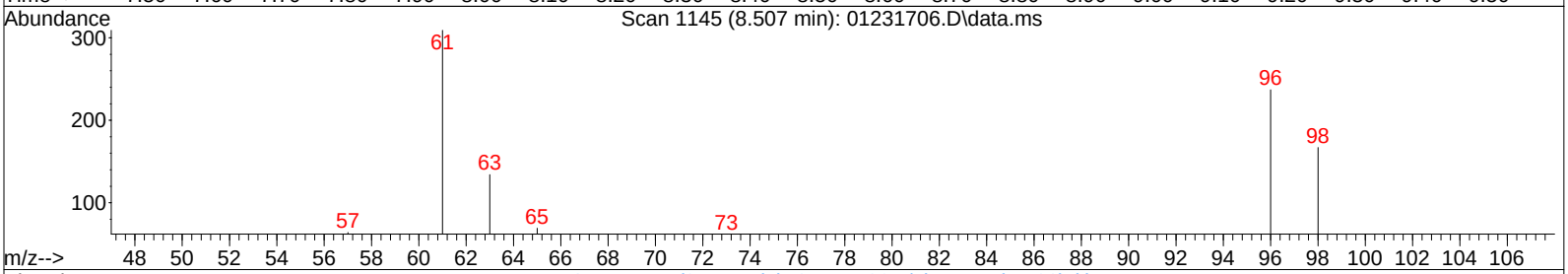
response 792

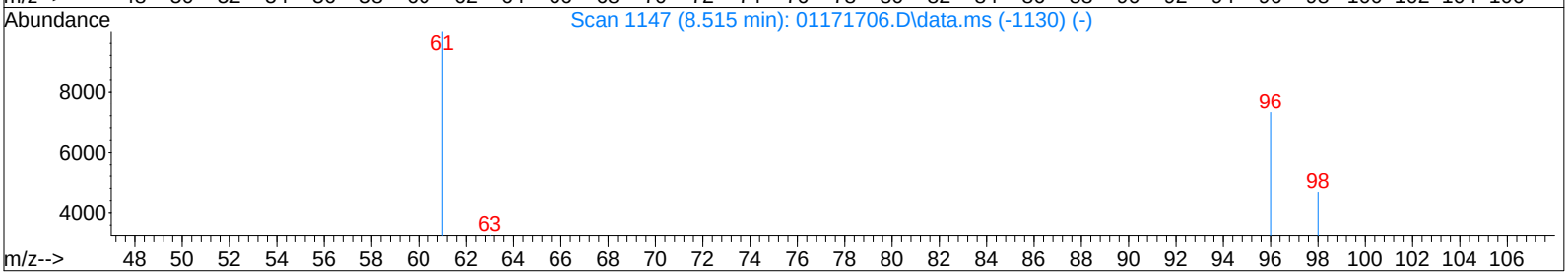
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	34.09
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231706.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 8.22pg

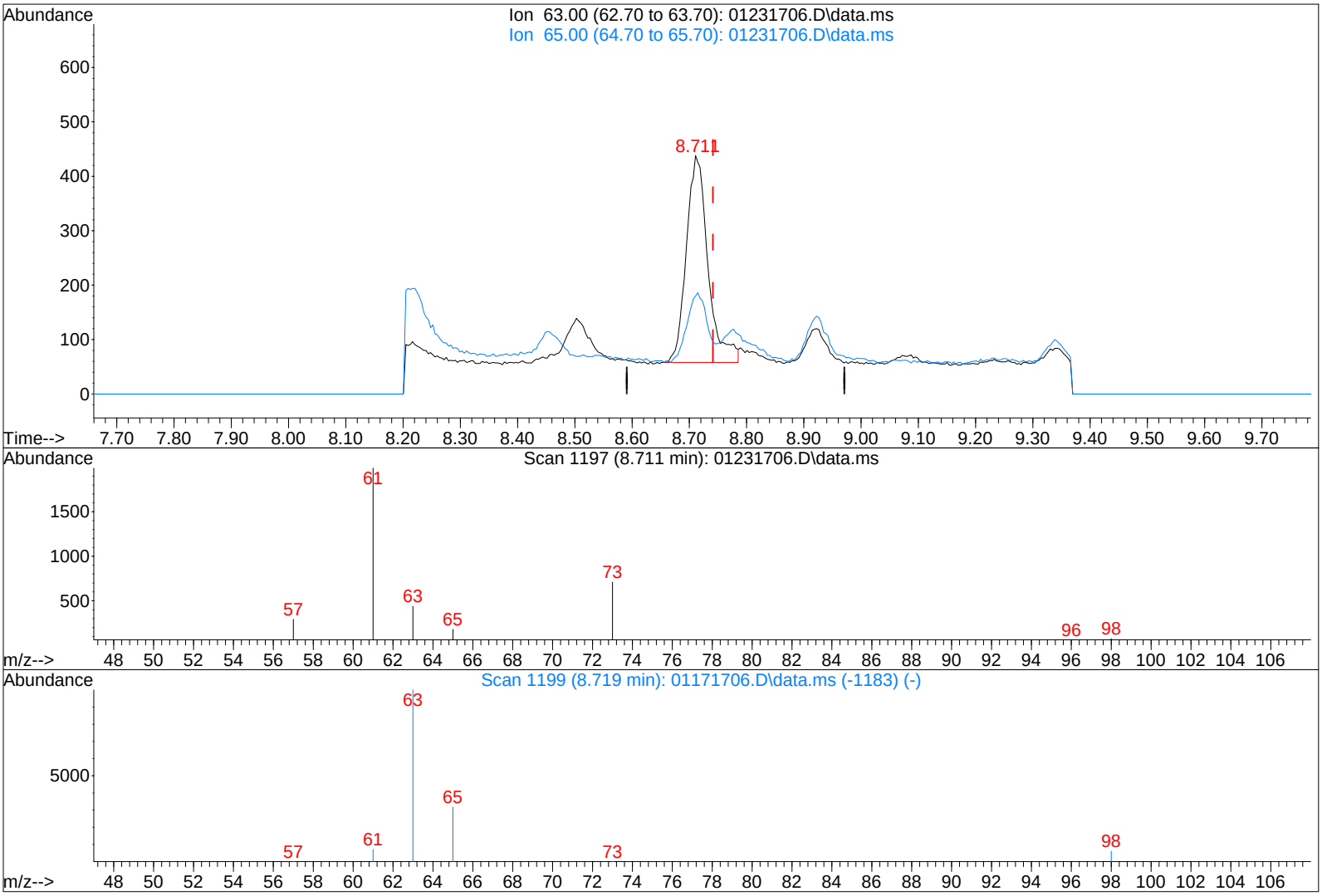
response 560

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	61.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231706.D\data.ms

(16) 1,1-Dichloroethane (T)

8.711min (-0.030) 8.26pg

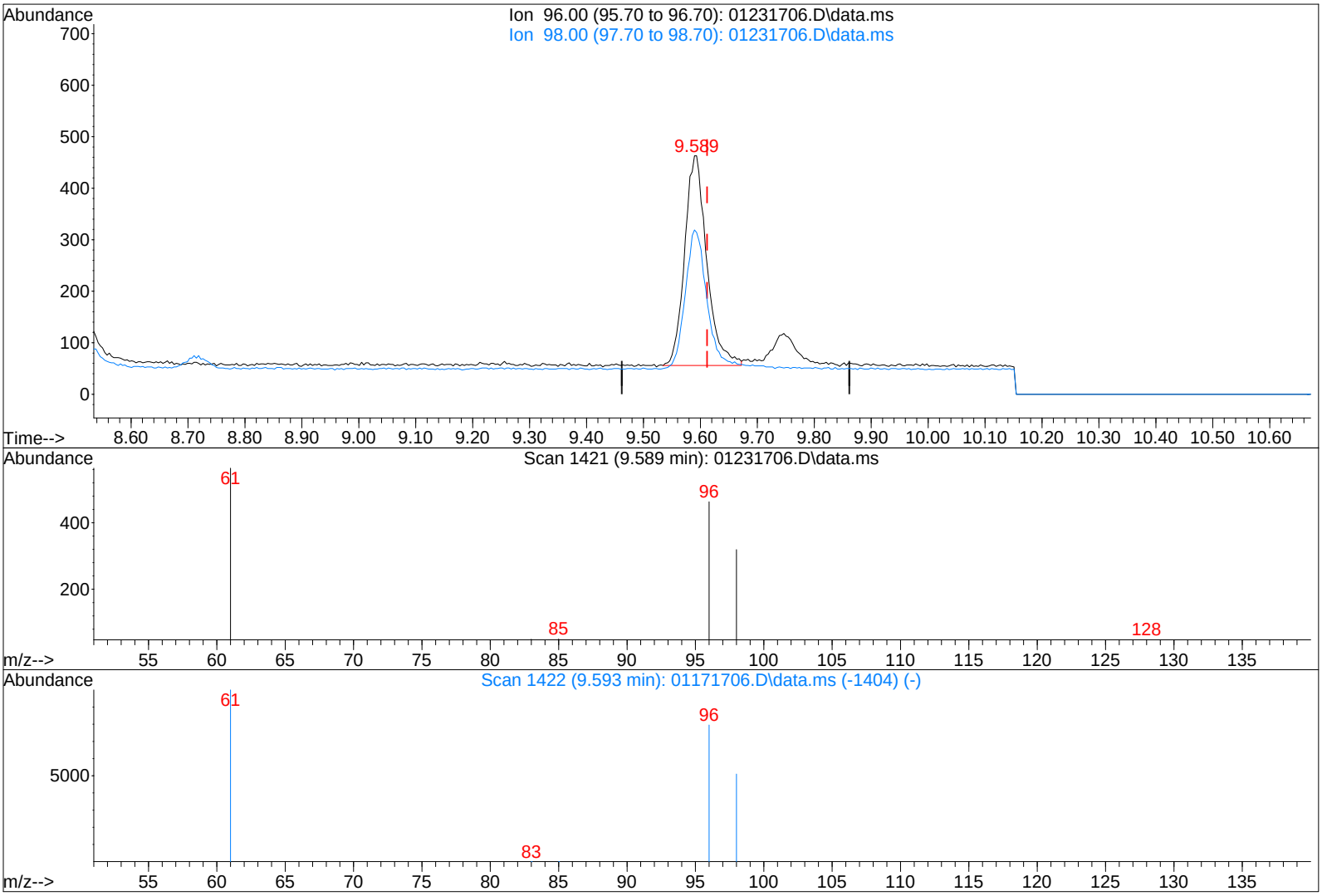
response 998

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.66
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231706.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.589min (-0.023) 15.39pg

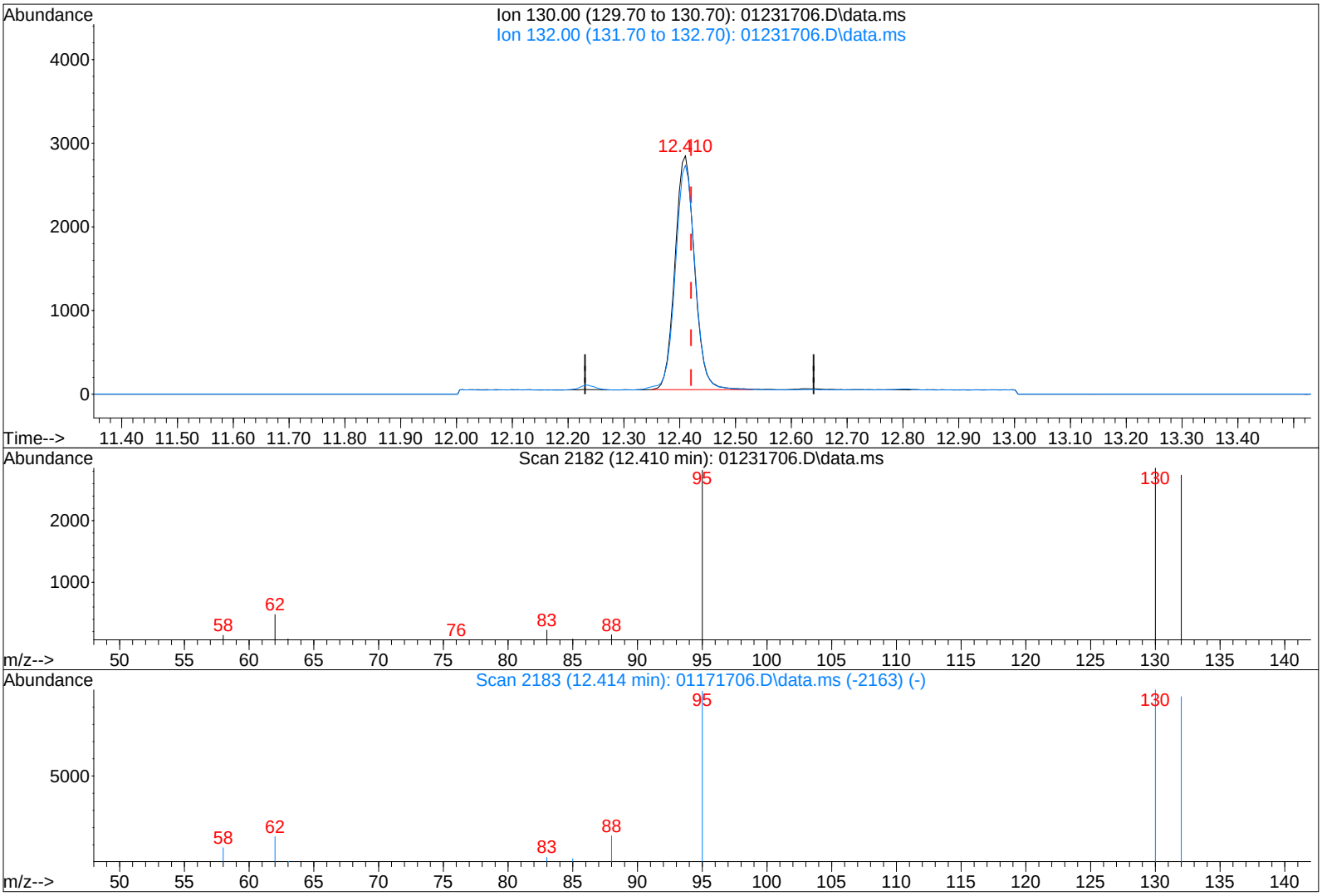
response 1100

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.09
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231706.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 91.63pg

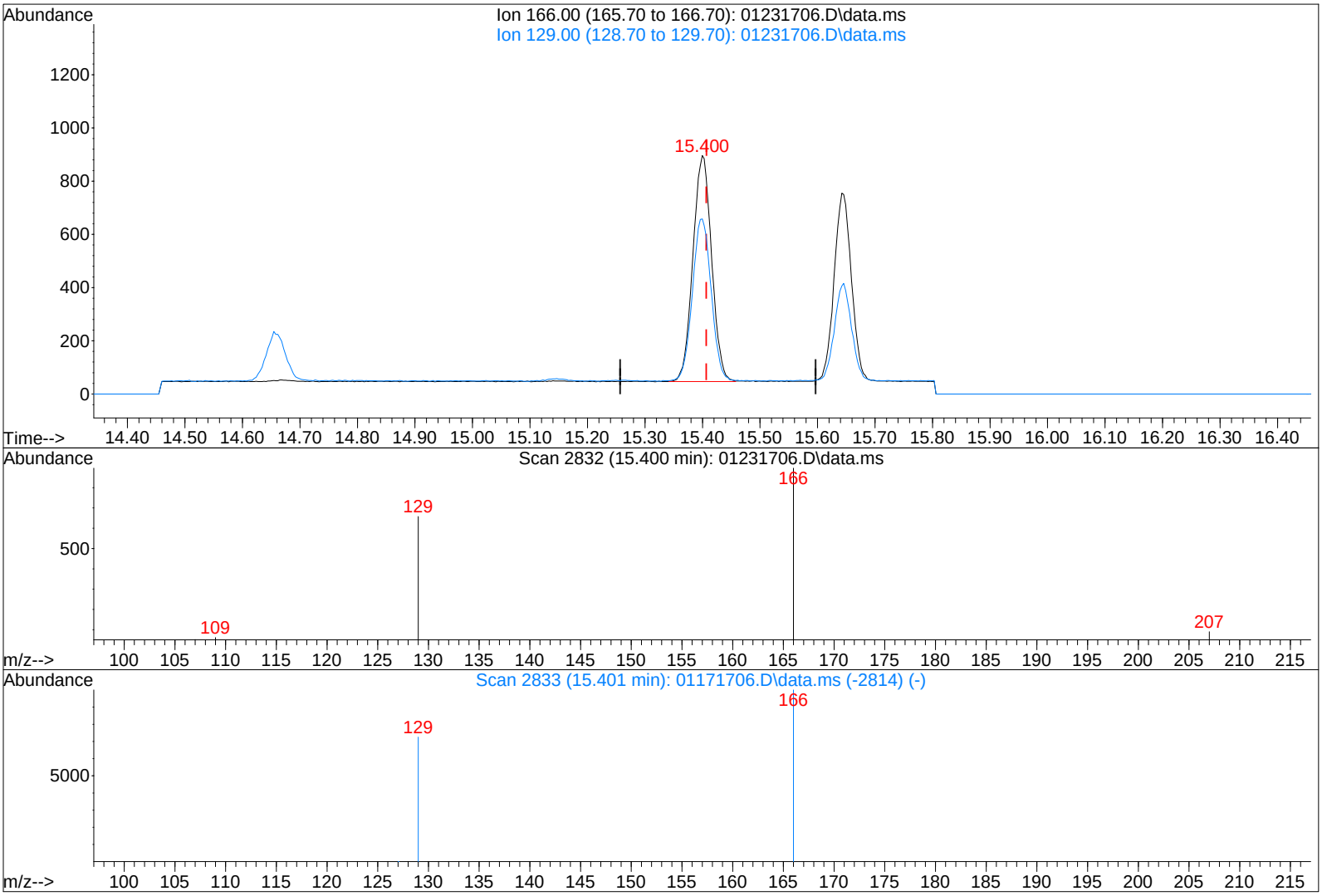
response 6794

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.73
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231706.D Vial: 1
Acq On : 23 Jan 2017 10:15 Operator: CL
Sample : P1700173-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231706.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.007) 24.96pg

response 1919

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	71.96
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	59572	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	271363	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	44267	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	98214	951.958	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.20%			
33) Toluene-d8 (SS2)	14.15	98	274299	1017.598	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.76%			
45) Bromofluorobenzene (SS3)	17.56	174	83858	1035.508	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.55%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	114	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	11330	278.678	pg #	74
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.53	84	329	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	180	N.D.		
18) cis-1,2-Dichloroethene	9.63	96	124	N.D.		
19) Chloroform	9.91	83	2343	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	5159	N.D.		
24) Carbon Tetrachloride	11.53	117	118	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.42	130	208	N.D.		
29) 1,4-Dioxane	12.43	88	65	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	1062	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.41	166	75	N.D.		
39) Chlorobenzene	16.11	112	196	N.D.		
40) Ethylbenzene	16.49	91	184	N.D.		
41) m,p-Xylene	16.67	91	409	N.D.		
42) Styrene	17.04	104	158	N.D.		
43) o-Xylene	17.13	106	57	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	129	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	94	N.D.		
47) 1,2,4-Trimethylbenzene	18.79	105	103	N.D.		
48) 1,3-Dichlorobenzene	18.94	146	142	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	172	N.D.		
50) 1,2-Dichlorobenzene	19.33	146	117	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.99	182	280	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

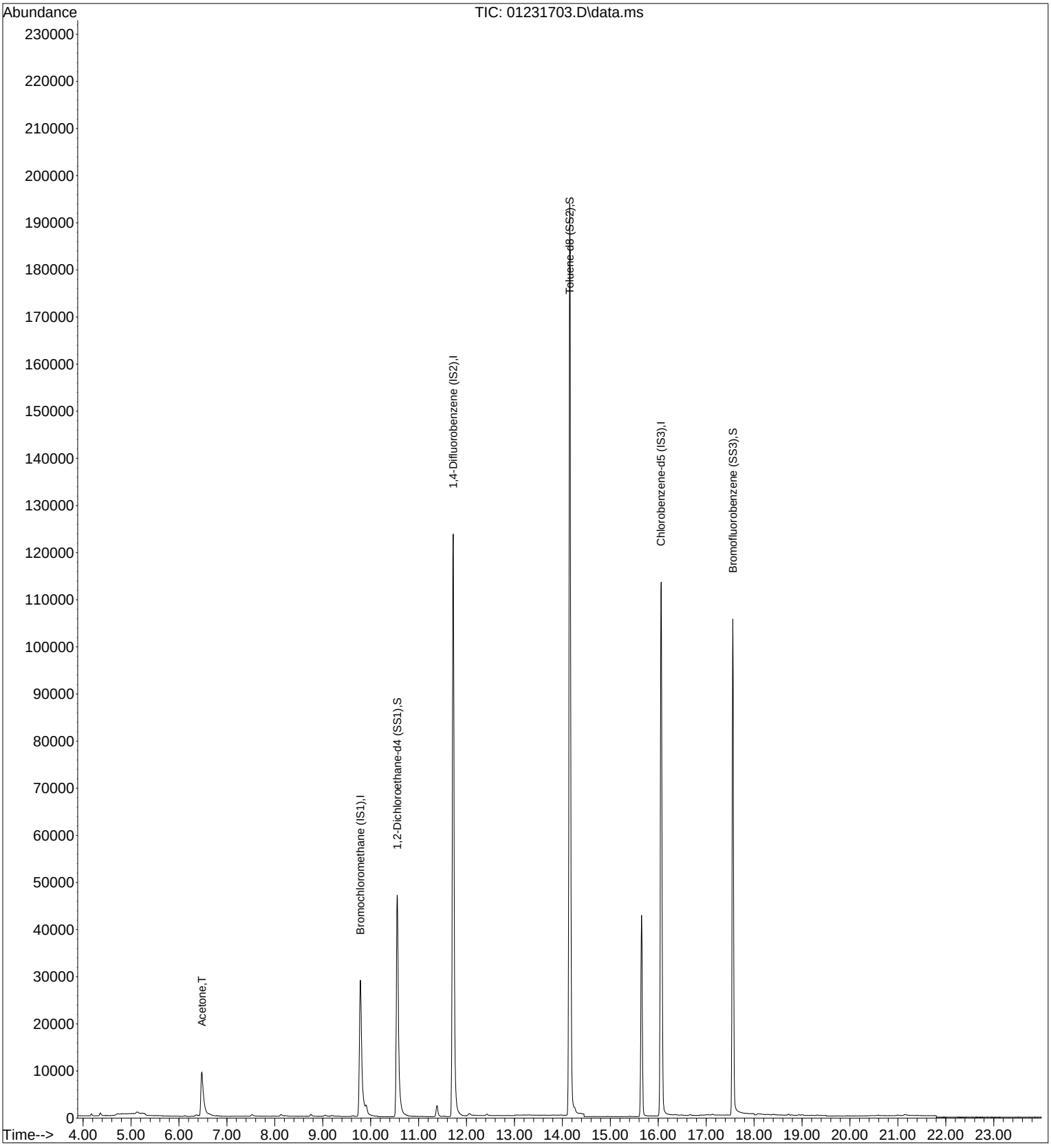
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	69	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

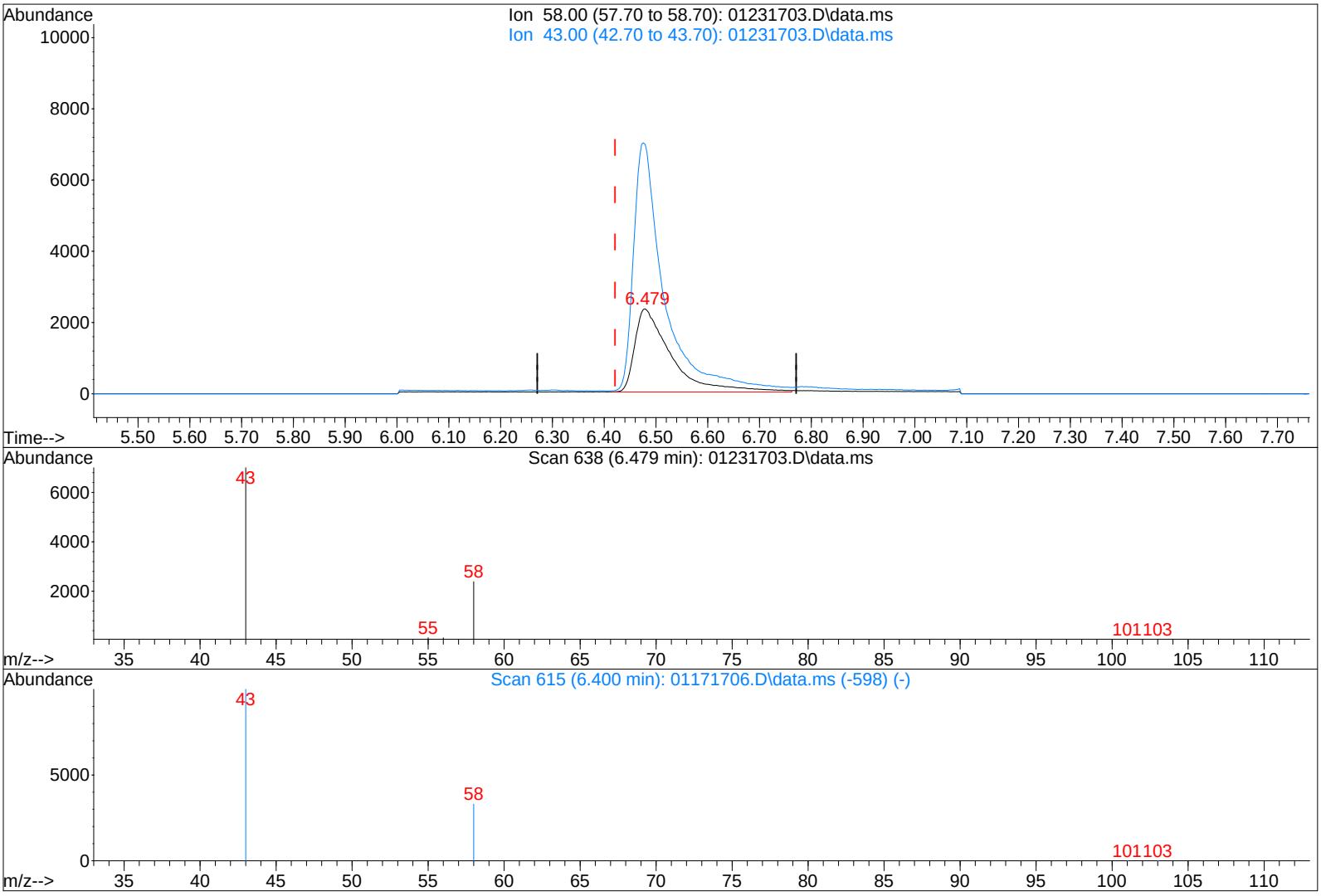
Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231703.D\data.ms

(10) Acetone (T)

6.479min (+0.058) 278.68pg

response 11330

Ion	Exp%	Act%
58.00	100	100
43.00	303.20	252.22#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	58946	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293467	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	45491	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	100353	983.021	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.30%			
33) Toluene-d8 (SS2)	14.15	98	284199	974.913	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.49%			
45) Bromofluorobenzene (SS3)	17.55	174	92037	1105.926	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	76109	511.091	pg	100
3) Chloromethane	4.65	52	19865	447.758	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	63021	430.148	pg	100
5) Vinyl Chloride	4.95	62	66780	469.087	pg	100
6) 1,3-Butadiene	5.14	54	34122	403.141	pg	98
7) Bromomethane	5.47	94	29220	510.230	pg	99
8) Chloroethane	5.70	64	21298	486.260	pg	100
9) Acrolein	6.27	56	13800	443.523	pg	100
10) Acetone	6.40	58	105760	2628.949	pg	99
11) Trichlorofluoromethane	6.61	101	54443	534.530	pg	100
12) 1,1-Dichloroethene	7.35	96	32393	507.649	pg	98
13) Methylene Chloride	7.48	84	37204	537.278	pg	96
14) Trichlorotrifluoroethane	7.80	151	32661	513.044	pg	100
15) trans-1,2-Dichloroethene	8.51	96	35474	515.679	pg	100
16) 1,1-Dichloroethane	8.72	63	61652	505.157	pg	100
17) Methyl tert-Butyl Ether	8.79	73	94043	516.388	pg	99
18) cis-1,2-Dichloroethene	9.59	96	37300	516.705	pg	100
19) Chloroform	9.89	83	66465	517.879	pg	100
21) 1,2-Dichloroethane	10.64	62	48529	491.210	pg	99
22) 1,1,1-Trichloroethane	10.91	97	57112	479.385	pg	100
23) Benzene	11.37	78	165173	584.135	pg	100
24) Carbon Tetrachloride	11.52	117	49017	512.395	pg	100
26) 1,2-Dichloropropane	12.18	63	34224	457.845	pg	100
27) Bromodichloromethane	12.36	83	48833	473.081	pg	100
28) Trichloroethene	12.41	130	37806	495.503	pg	100
29) 1,4-Dioxane	12.38	88	27475	490.404	pg	98
30) cis-1,3-Dichloropropene	13.26	75	50323	500.518	pg	100
31) trans-1,3-Dichloropropene	13.77	75	42268	516.592	pg	100
32) 1,1,2-Trichloroethane	13.95	83	30023	474.837	pg	98
34) Toluene	14.25	91	137734	505.863	pg	99
35) Dibromochloromethane	14.66	129	36824	488.401	pg	100
36) 1,2-Dibromoethane	14.92	107	36445	511.084	pg	100
37) Tetrachloroethene	15.40	166	38933	492.134	pg	100
39) Chlorobenzene	16.10	112	93913	535.527	pg	100
40) Ethylbenzene	16.48	91	143048	553.157	pg	100
41) m,p-Xylene	16.66	91	227626	1173.531	pg	100
42) Styrene	17.01	104	78509	577.725	pg	100
43) o-Xylene	17.12	106	57983	581.896	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	60731	530.432	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	124013	603.980	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	126851	629.425	pg	100
48) 1,3-Dichlorobenzene	18.92	146	74411	600.732	pg	100
49) 1,4-Dichlorobenzene	18.98	146	71780	556.597	pg	100
50) 1,2-Dichlorobenzene	19.31	146	72650	575.534	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	22868	599.290	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	40413	540.876	pg	99
53) Naphthalene	21.06	128	129704	546.682	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	32397	548.061	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
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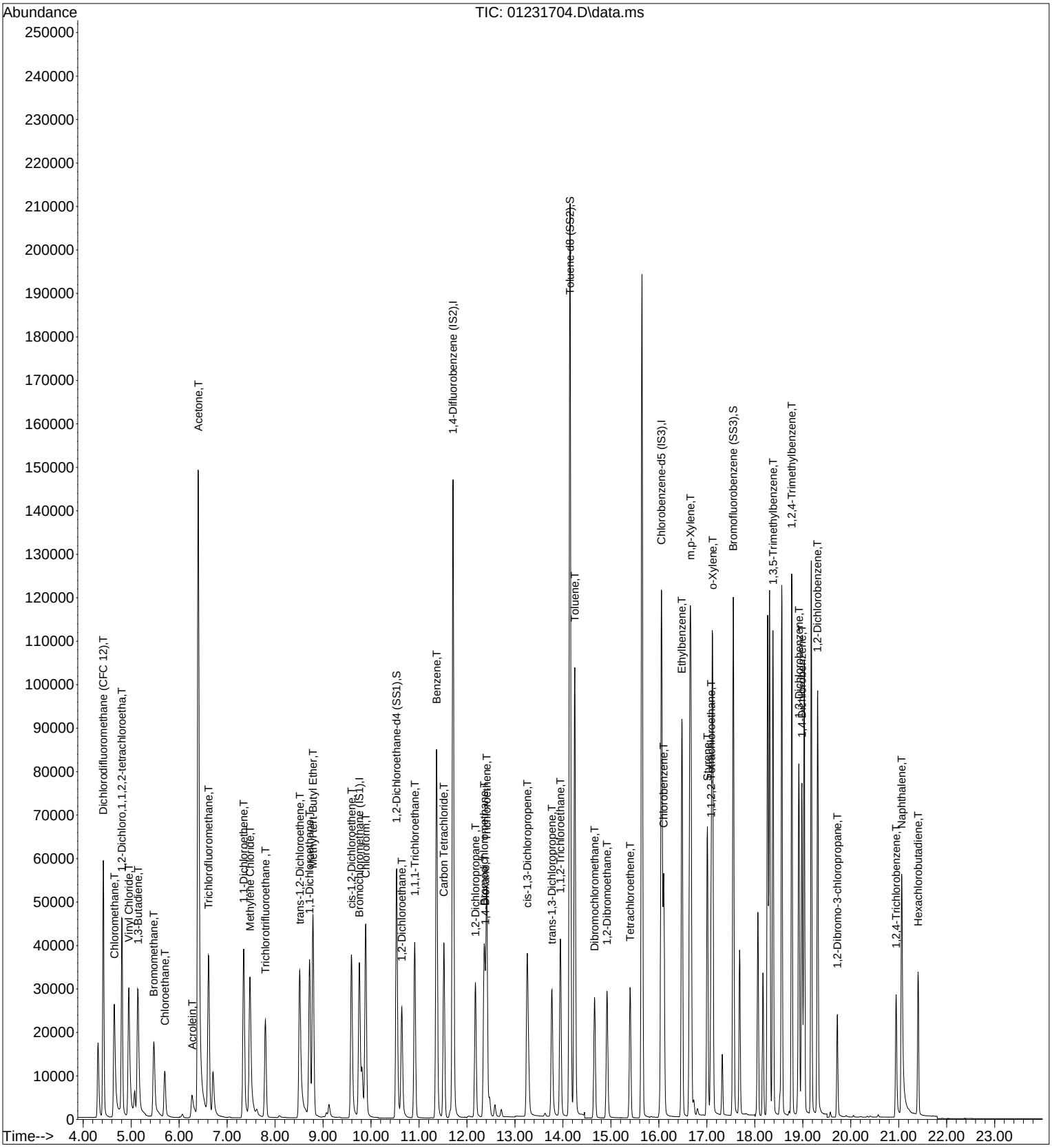


Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane		1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771		25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride		2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488		11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors: 5 | 50 | 250 | 1000 | 5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704		
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703		
4ng/L Std. ID:	S29-01171706					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

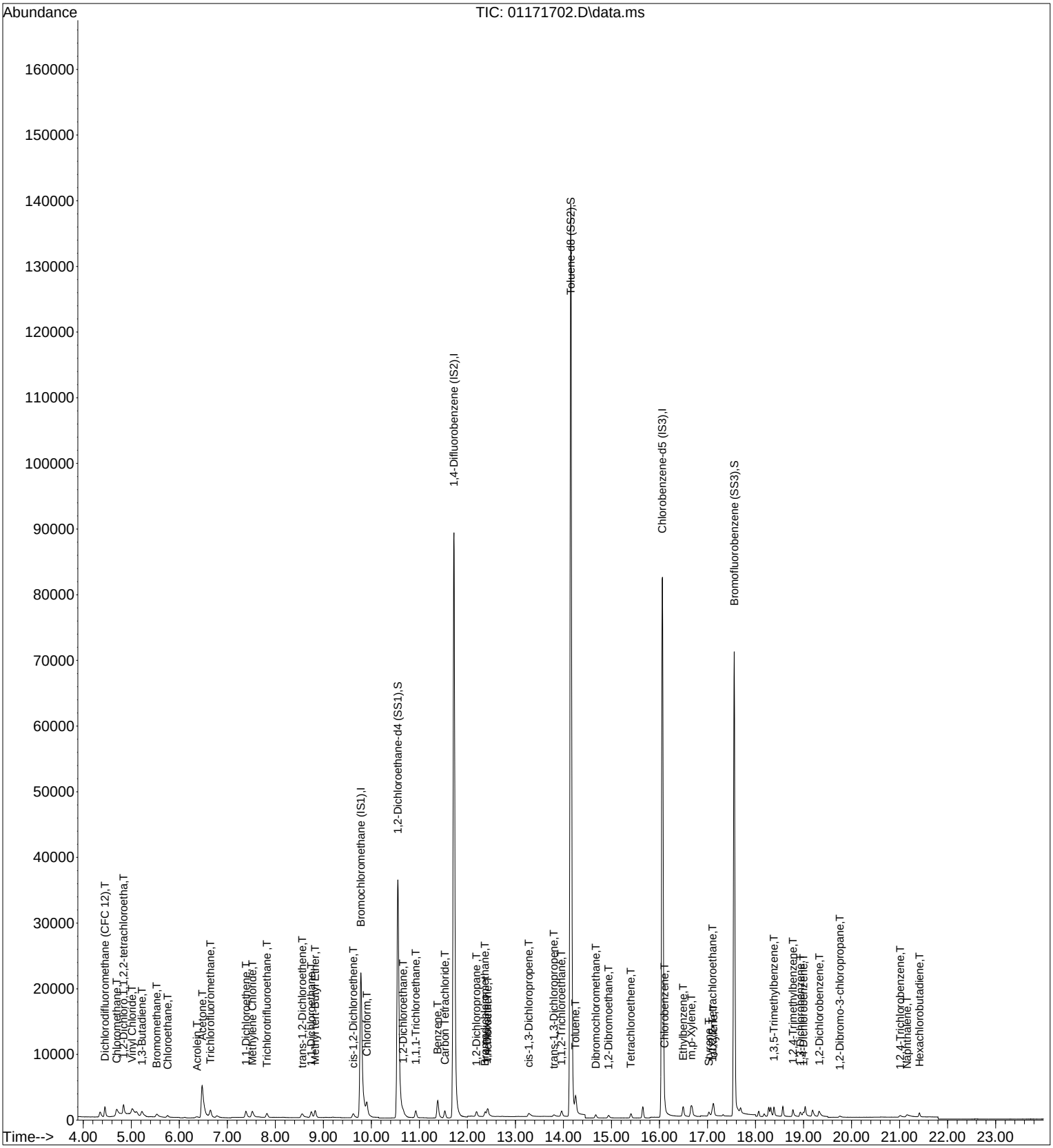
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

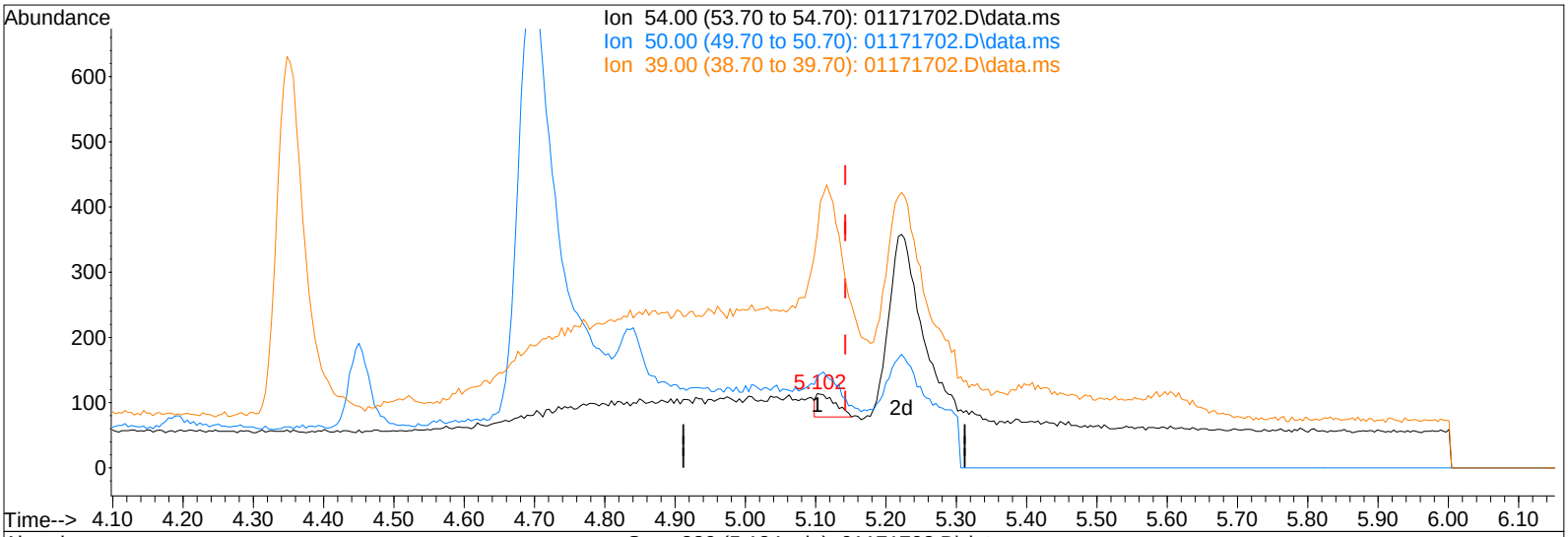
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

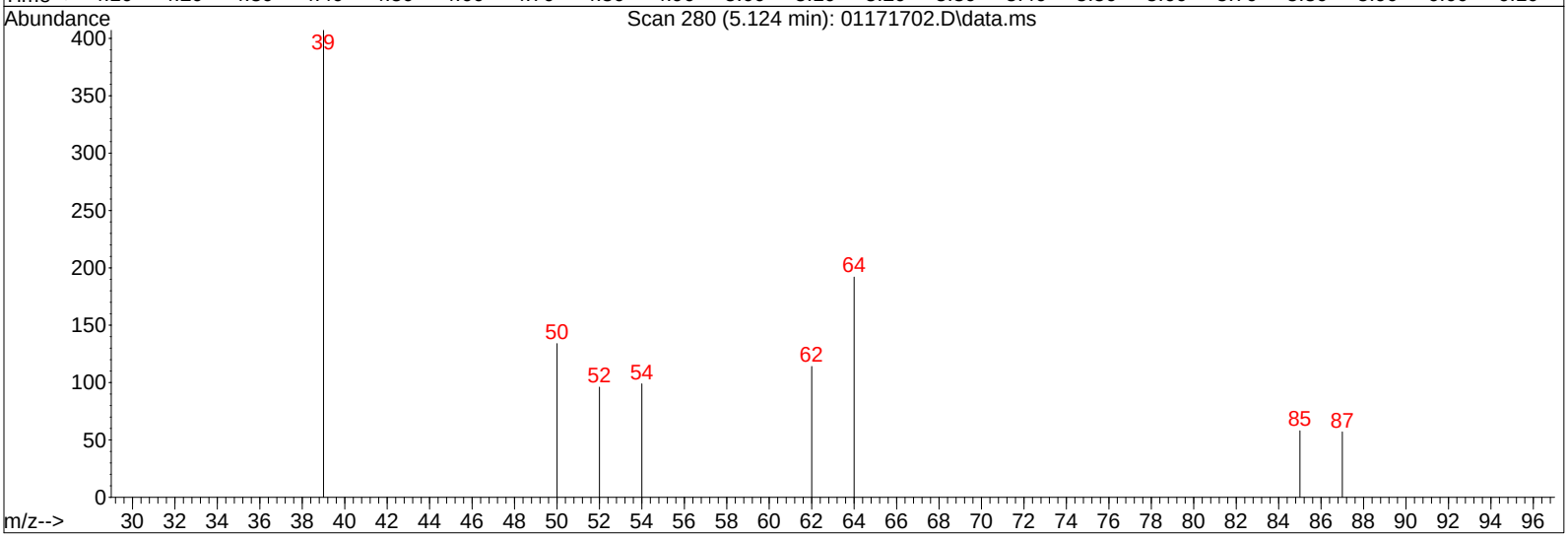


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

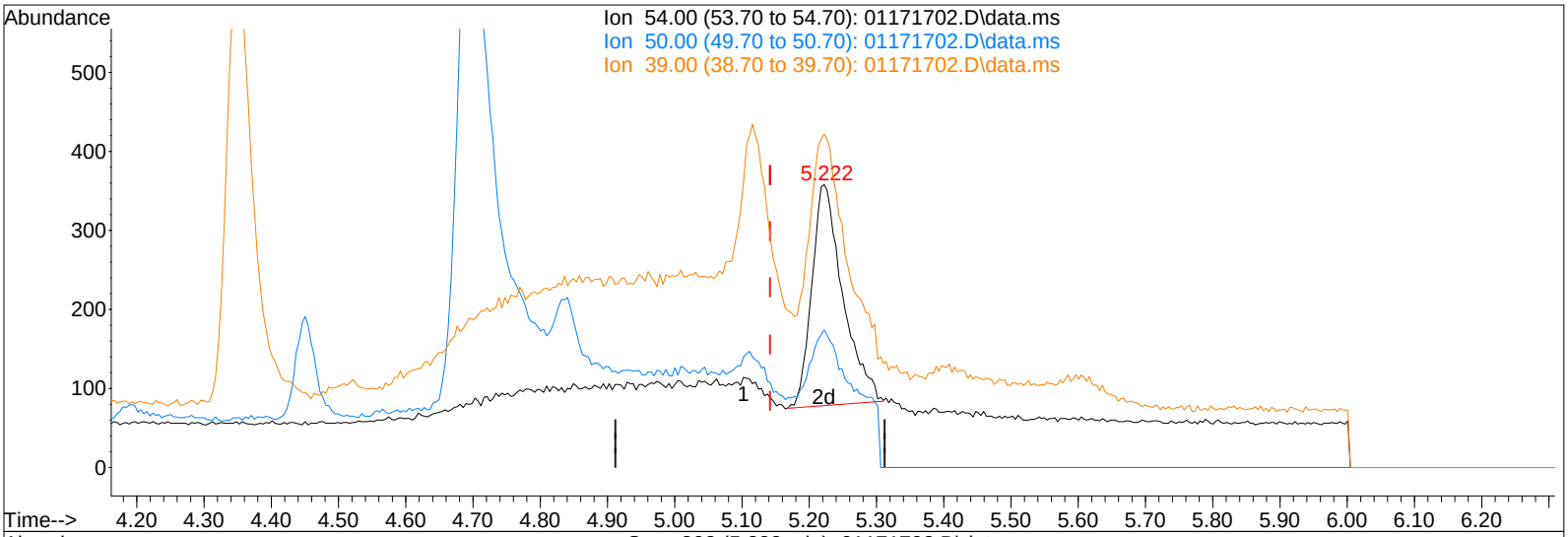
response 67

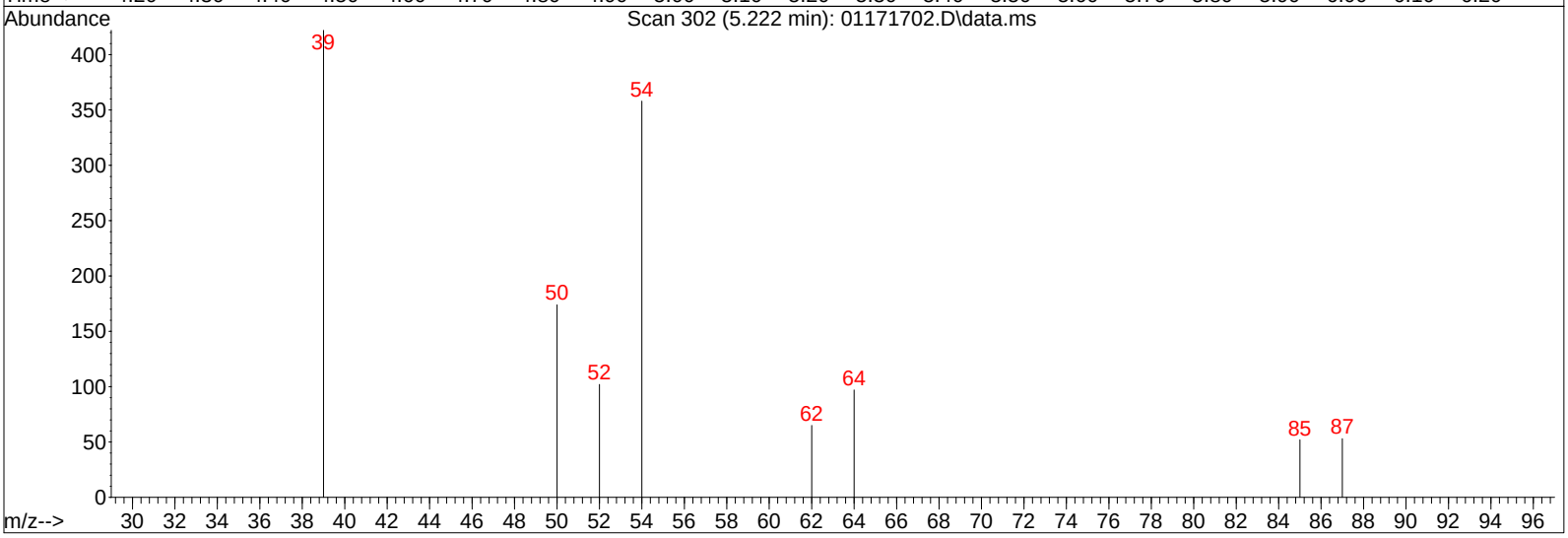
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

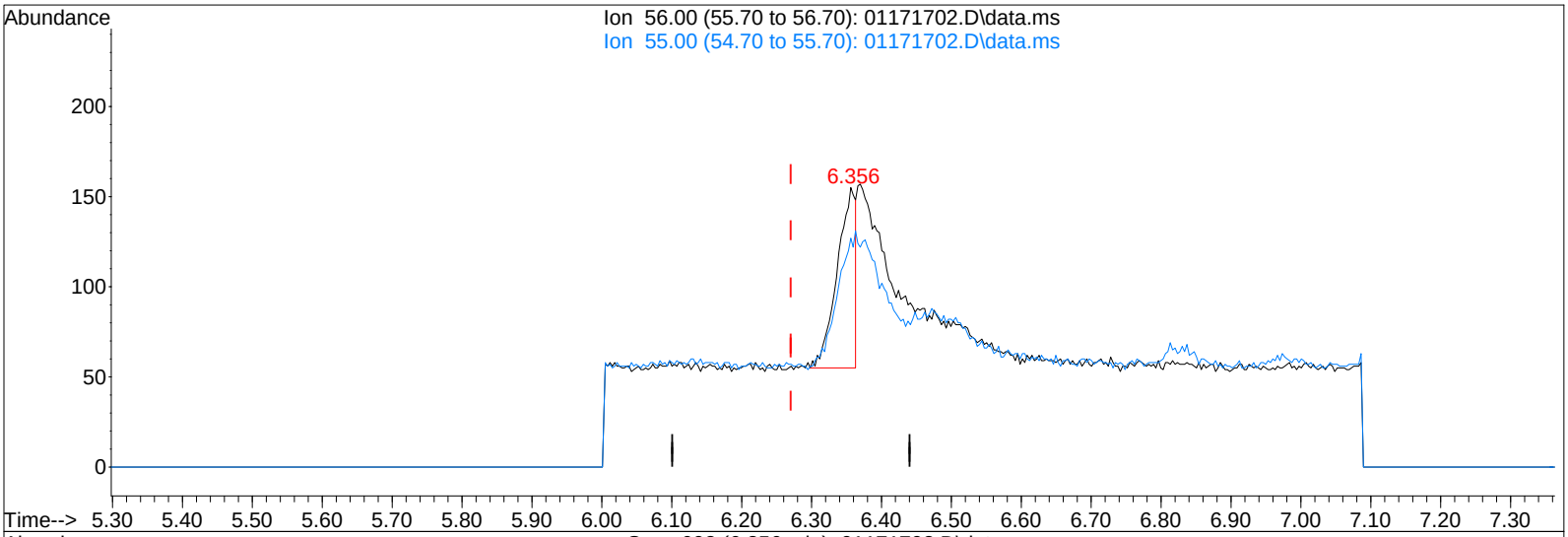
CL 1/18/17

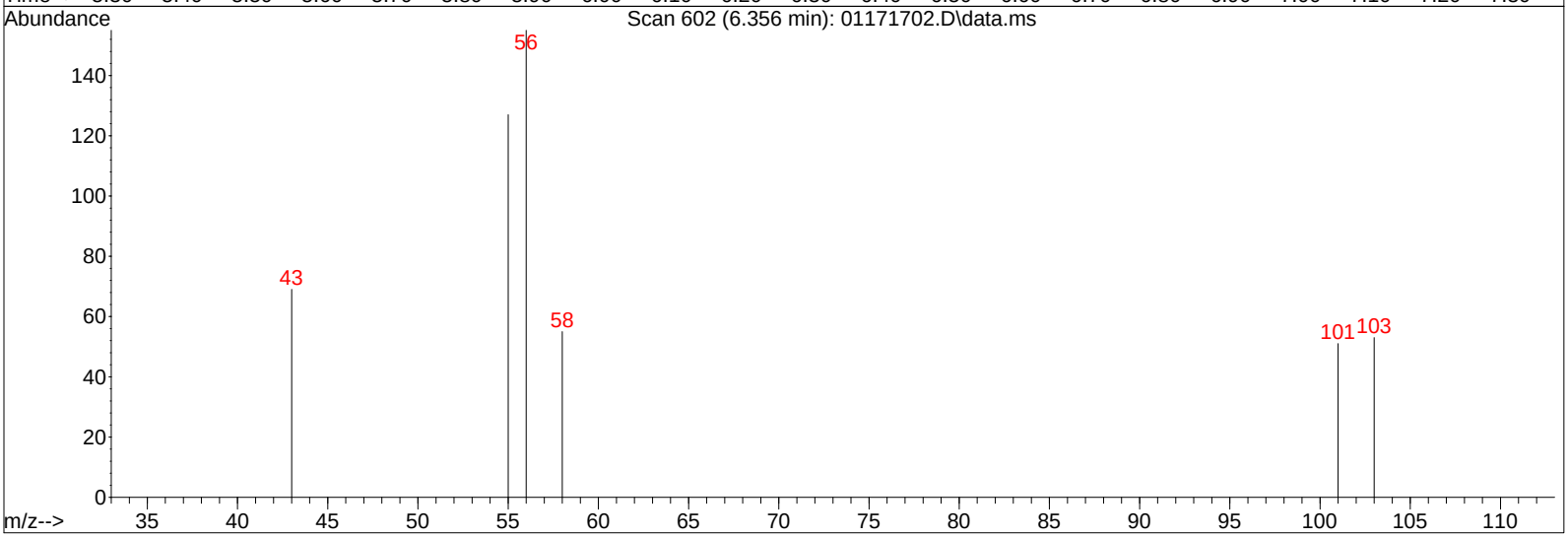
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

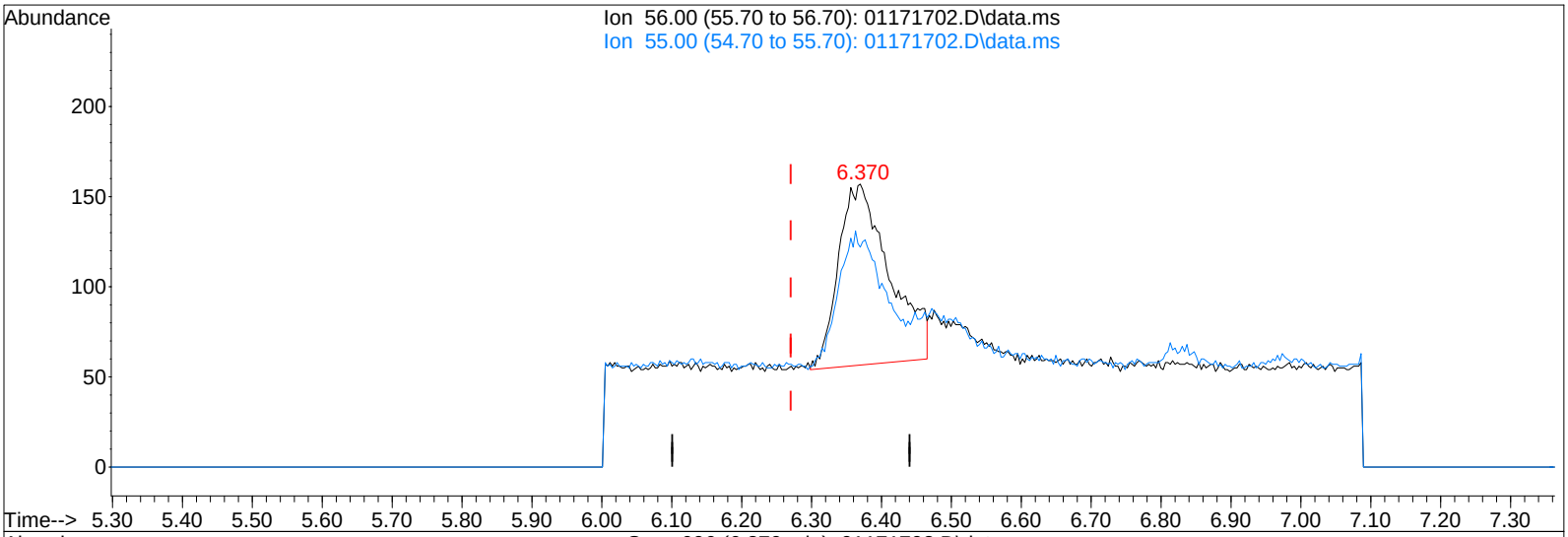
response 183

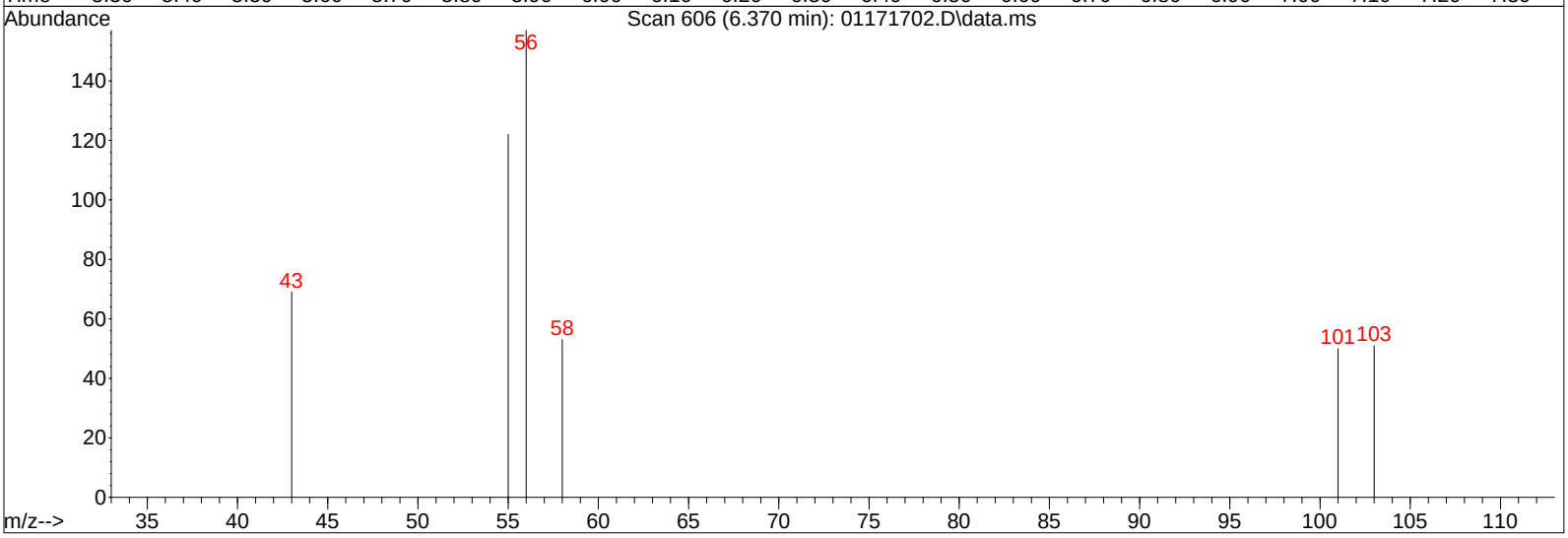
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

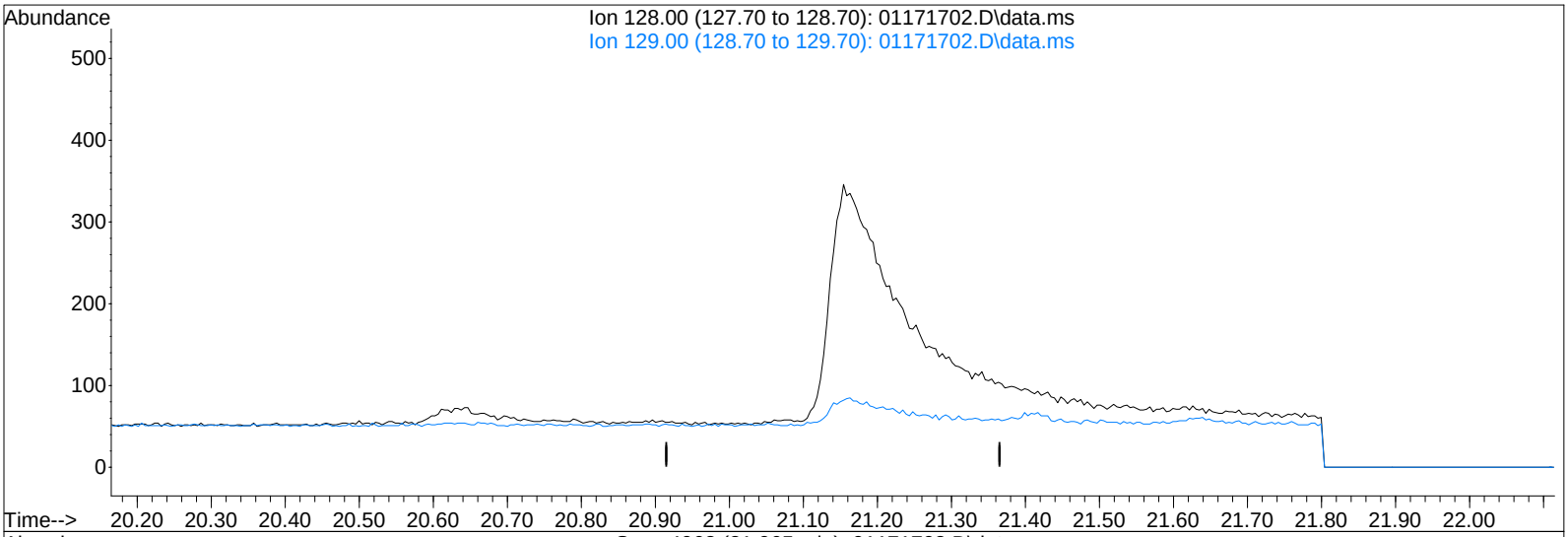
CL 1/18/17

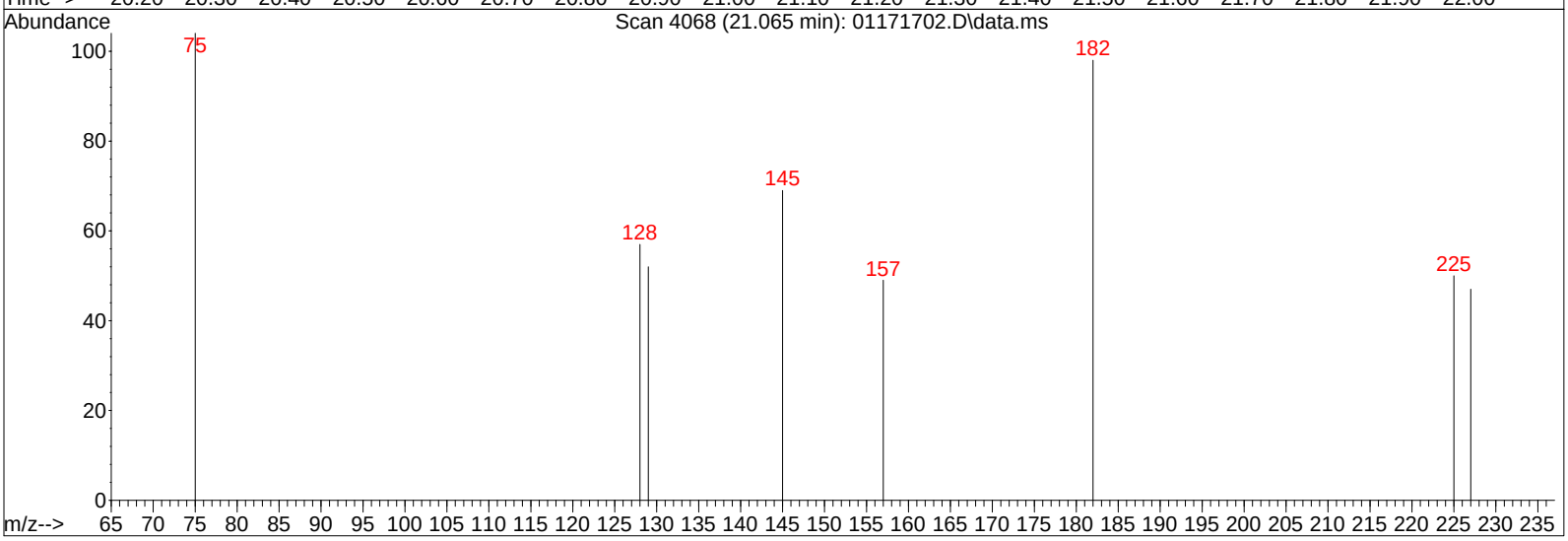
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

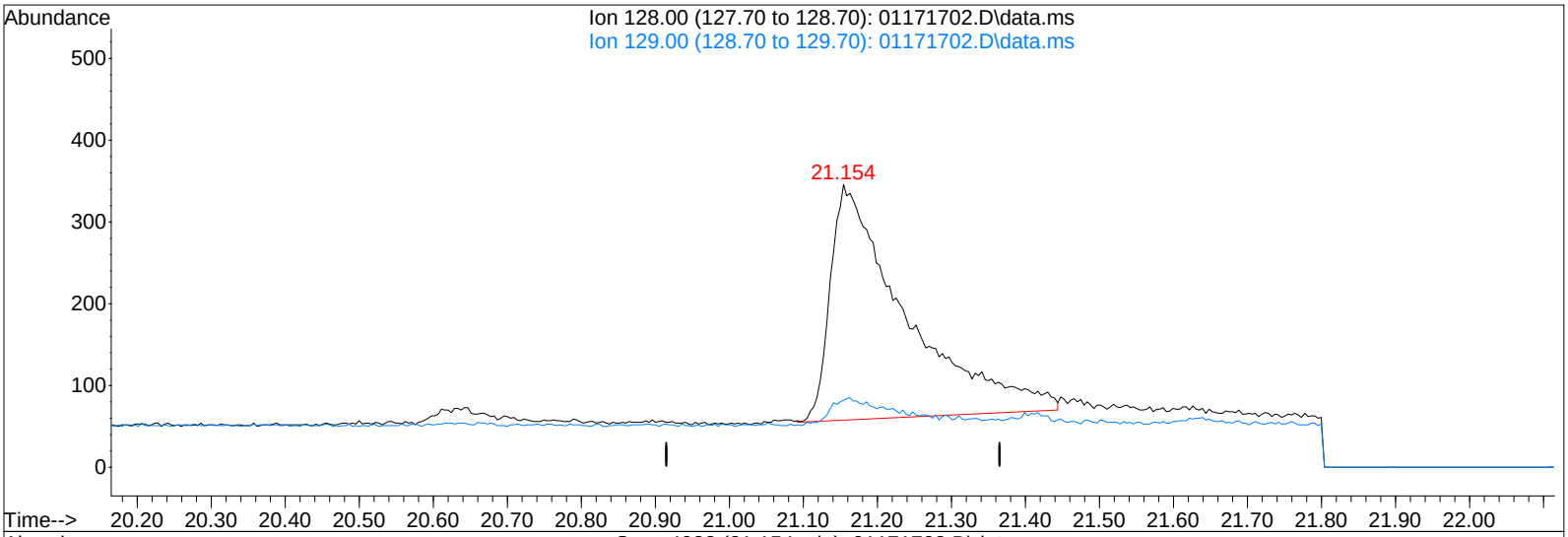
response 0

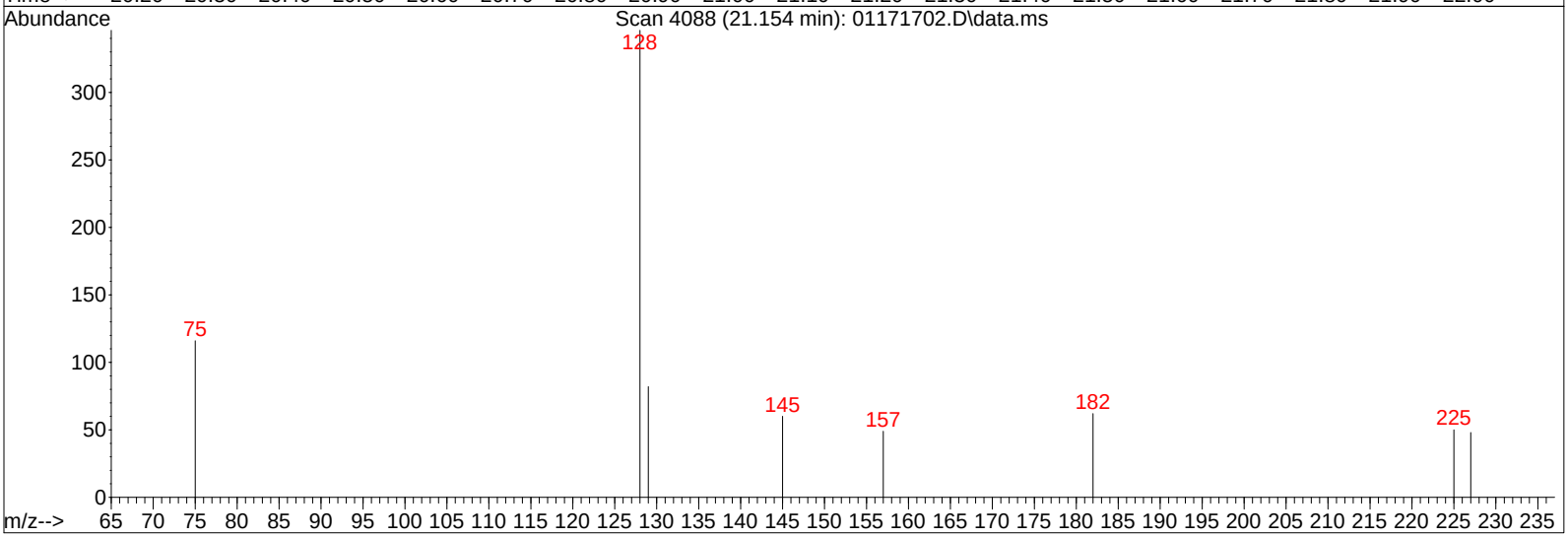
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

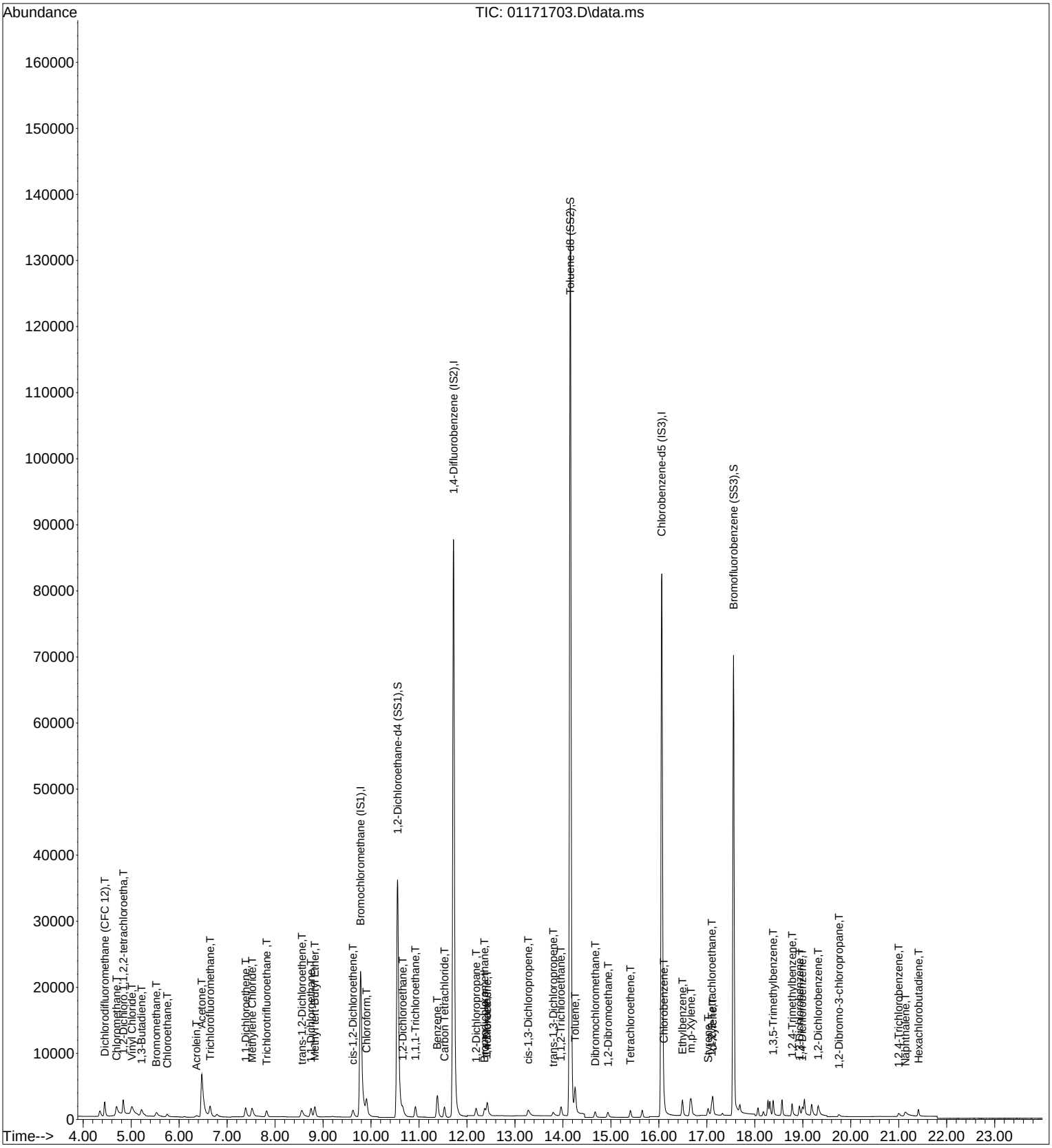
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

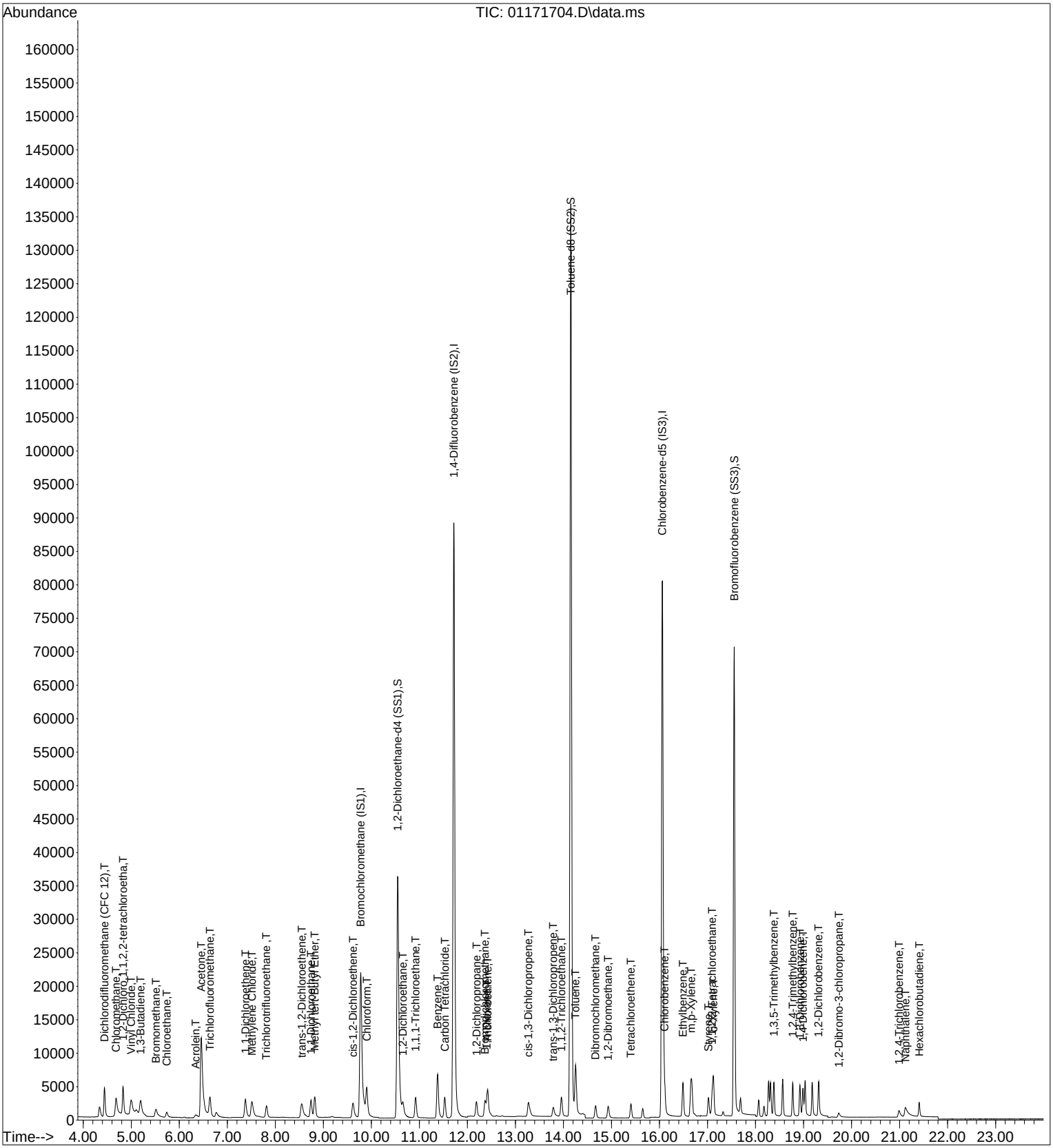
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

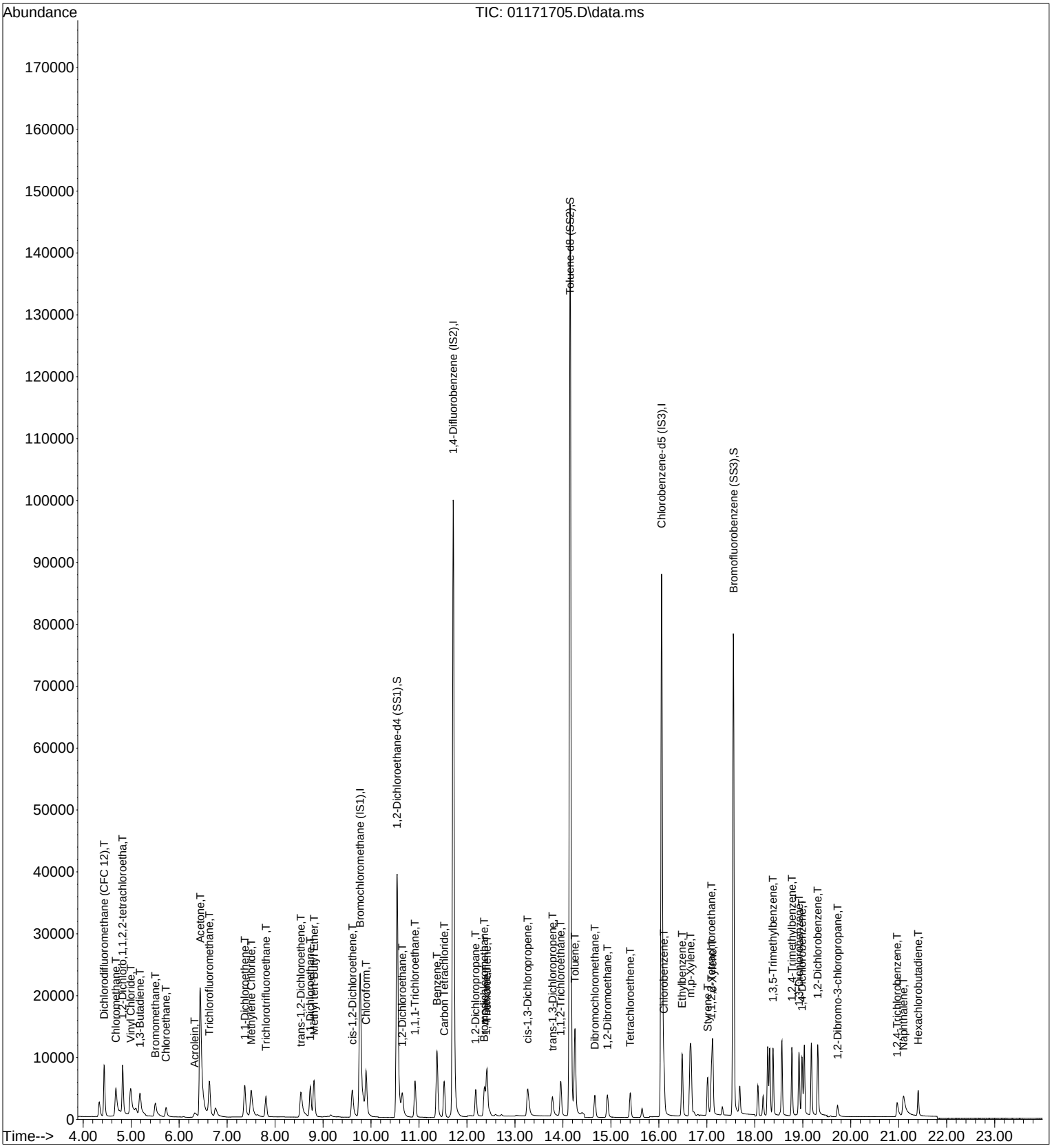
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

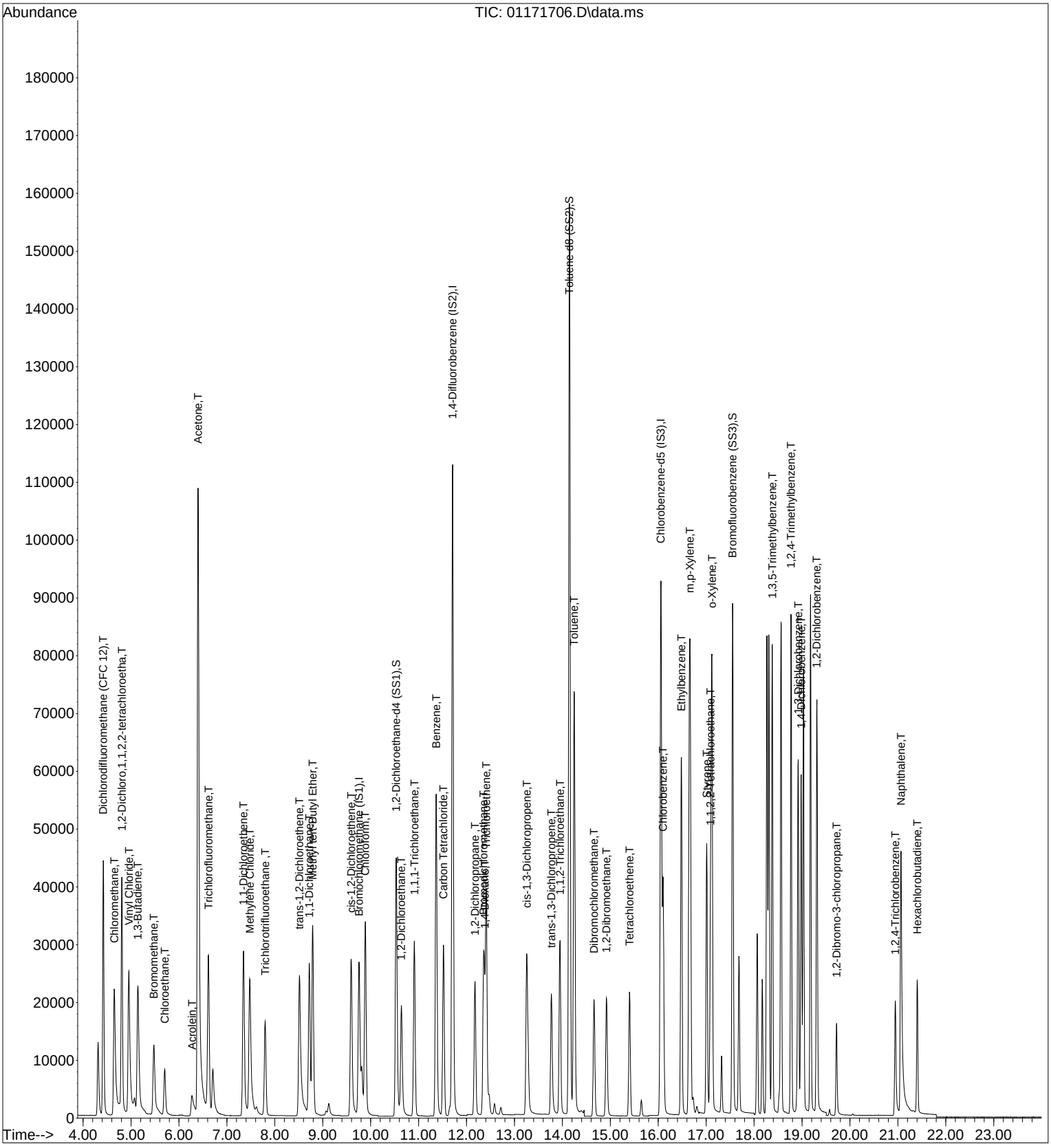
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

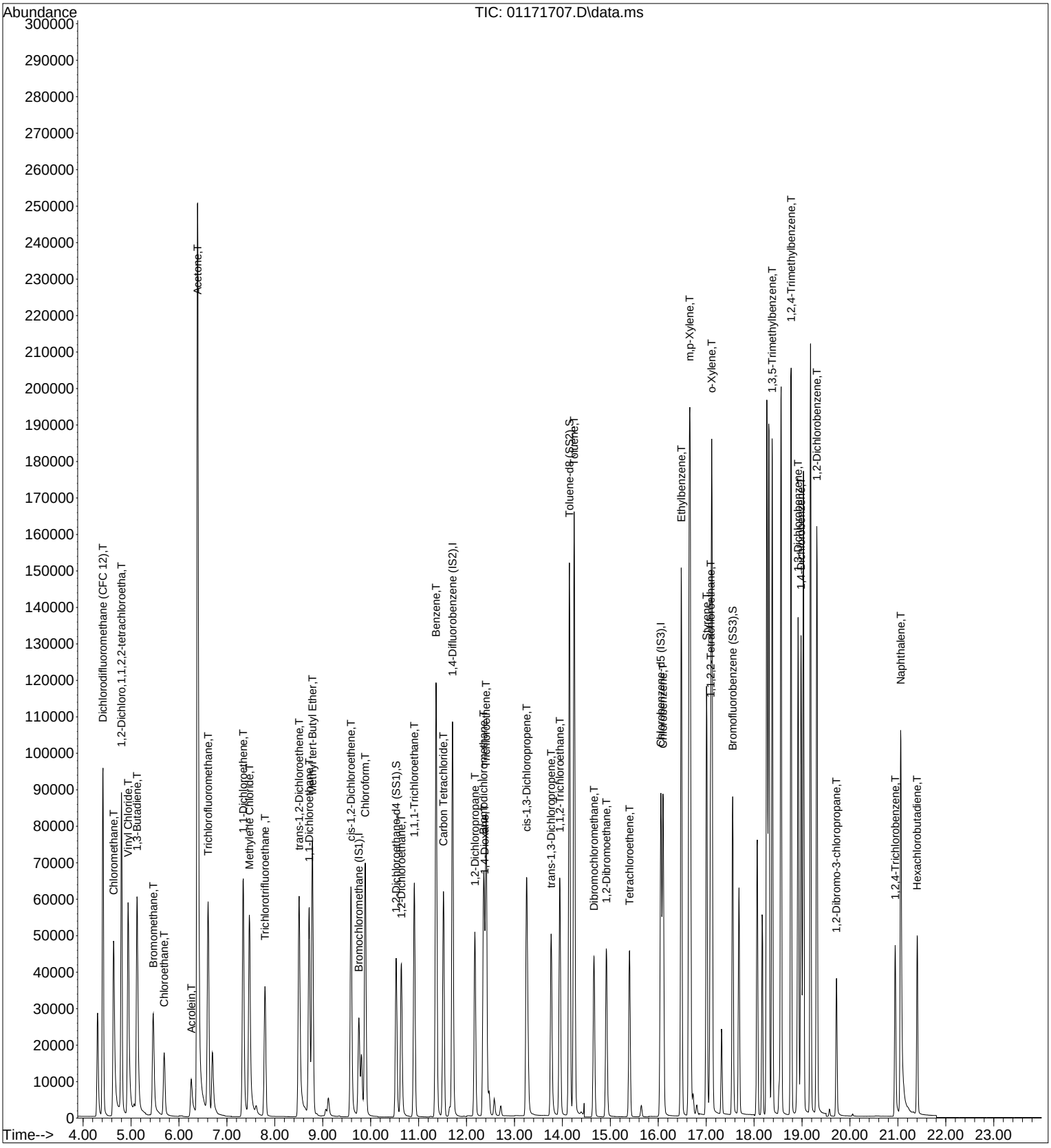
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

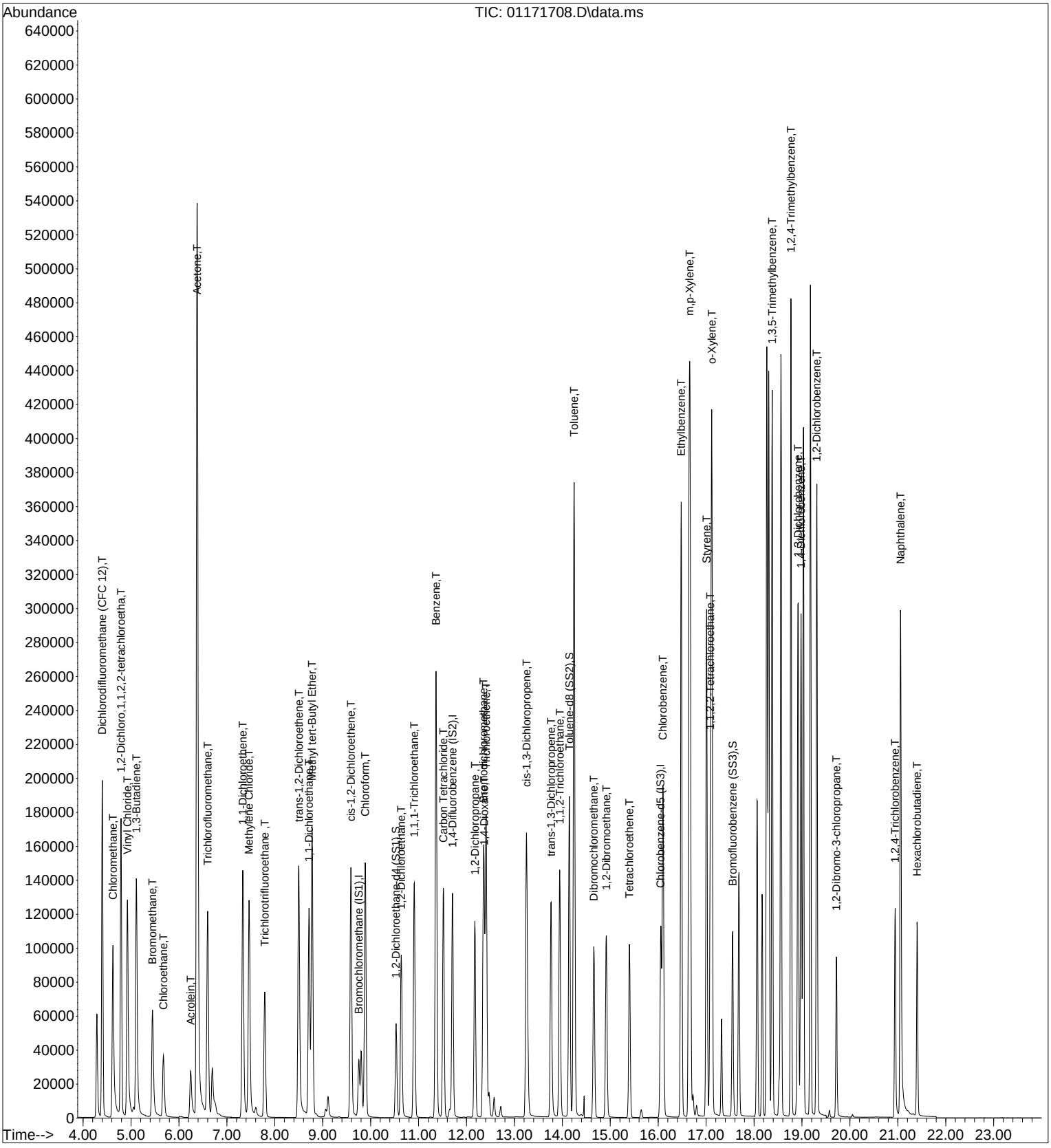
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%		
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%		
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944 pg	100
3) Chloromethane	4.61	52	162688	4785.564 pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926 pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389 pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564 pg	99
7) Bromomethane	5.44	94	222851	4643.991 pg	100
8) Chloroethane	5.66	64	179461	5258.665 pg	100
9) Acrolein	6.24	56	140240	5967.932 pg	99
10) Acetone	6.38	58	838814	25814.022 pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282 pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913 pg	99
13) Methylene Chloride	7.47	84	297672	4889.177 pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498 pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436 pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227 pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907 pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430 pg	100
19) Chloroform	9.89	83	522733	4780.247 pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905 pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873 pg	100
23) Benzene	11.36	78	1167900	4536.841 pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159 pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114 pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606 pg	100
28) Trichloroethene	12.41	130	299094	4425.611 pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520 pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385 pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769 pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991 pg	99
34) Toluene	14.25	91	1167322	4708.699 pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519 pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632 pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535 pg	100
39) Chlorobenzene	16.10	112	788966	3880.853 pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214 pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622 pg	100
42) Styrene	17.01	104	851189	4927.183 pg	99
43) o-Xylene	17.12	106	518661	4234.000 pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849 pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868 pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829 pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246 pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465 pg	100
53) Naphthalene	21.06	128	1434819	5185.458 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

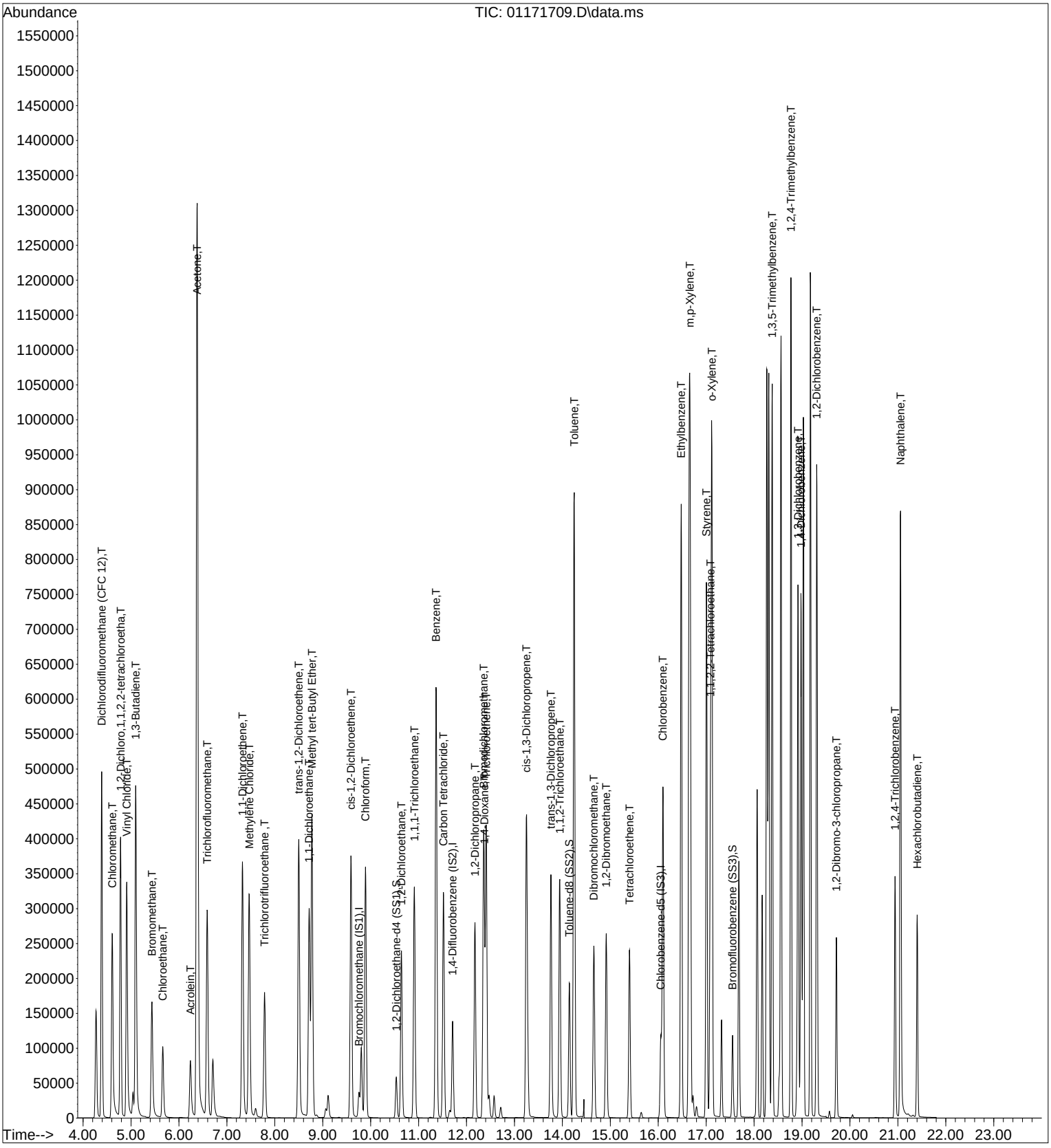
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

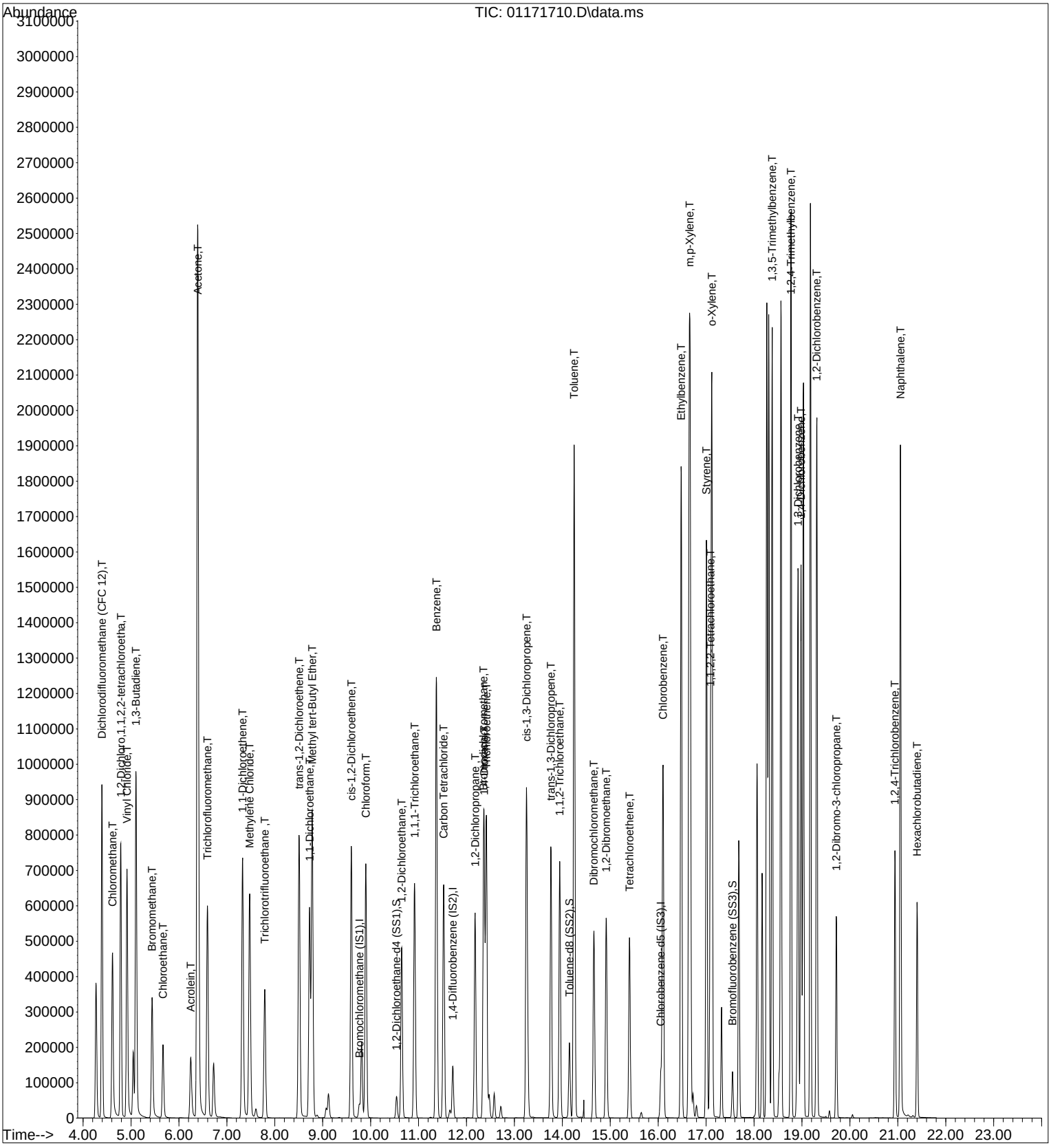
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

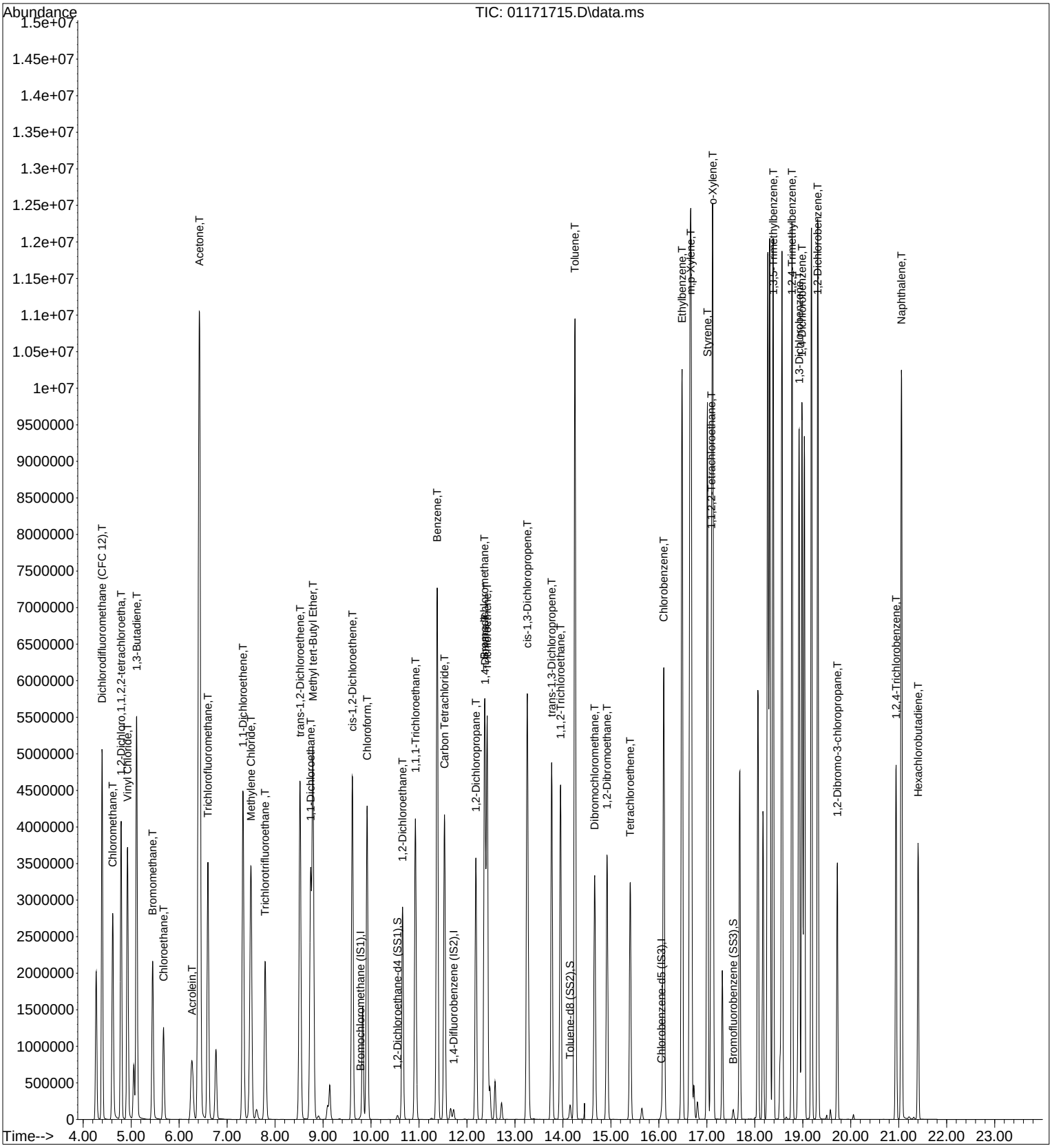
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

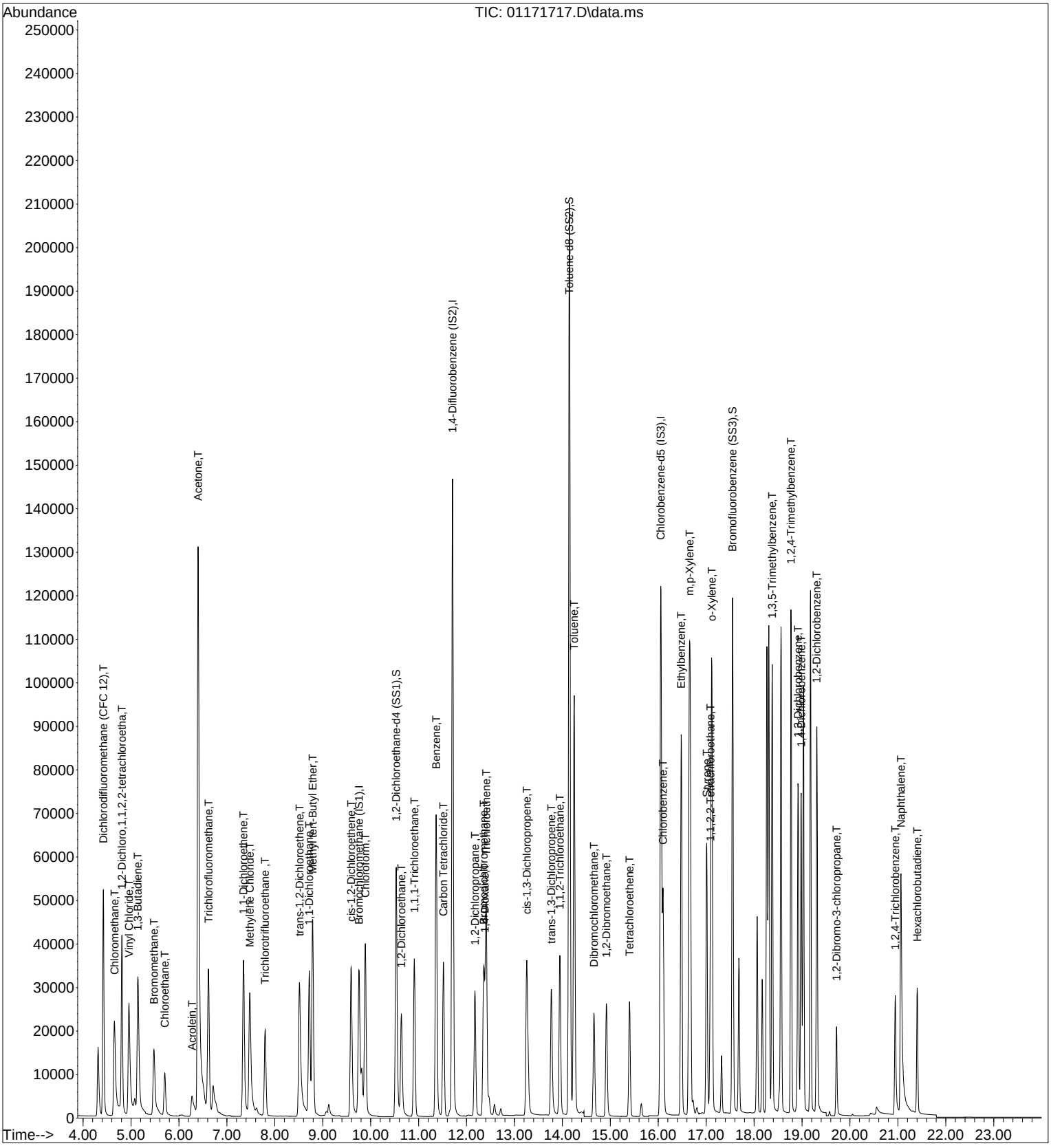
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23 CL 1/18/17
Acq. Method File: TO15SIM.M

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	136	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.237	11.4	123	0.04
3	T	Chloromethane	0.753	0.556	26.2	96	0.05
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.014	19.0	110	0.04
5	T	Vinyl Chloride	2.415	1.948	19.3	106	0.04
6	T	1,3-Butadiene	1.436	1.310	8.8	156	0.04
7	T	Bromomethane	0.972	0.868	10.7	127	0.04
8	T	Chloroethane	0.743	0.628	15.5	121	0.04
9	T	Acrolein	0.528	0.366	30.7#	111	0.02
10	T	Acetone	0.682	0.592	13.2	121	0.00
11	T	Trichlorofluoromethane	1.728	1.606	7.1	126	0.02
12	T	1,1-Dichloroethene	1.083	0.943	12.9	128	0.02
13	T	Methylene Chloride	1.175	1.064	9.4	123	0.00
14	T	Trichlorotrifluoroethane	1.080	0.971	10.1	131	0.01
15	T	trans-1,2-Dichloroethene	1.167	1.027	12.0	129	0.00
16	T	1,1-Dichloroethane	2.070	1.806	12.8	124	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.744	11.2	134	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.091	10.9	130	-0.02
19	T	Chloroform	2.177	1.962	9.9	126	-0.02
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.628	6.0	129	-0.02
21	T	1,2-Dichloroethane	1.676	1.410	15.9	122	-0.01
22	T	1,1,1-Trichloroethane	2.021	1.677	17.0	128	-0.01
23	T	Benzene	4.797	4.282	10.7	125	-0.01
24	T	Carbon Tetrachloride	1.623	1.458	10.2	129	-0.01
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	134	-0.01
26	T	1,2-Dichloropropane	0.255	0.200	21.6	124	0.00
27	T	Bromodichloromethane	0.352	0.285	19.0	125	0.00
28	T	Trichloroethene	0.260	0.224	13.8	130	0.00
29	T	1,4-Dioxane	0.191	0.160	16.2	132	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.300	12.5	134	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.256	8.2	137	0.00
32	T	1,1,2-Trichloroethane	0.215	0.176	18.1	126	0.00
33	S	Toluene-d8 (SS2)	0.993	0.972	2.1	136	0.00
34	T	Toluene	0.928	0.815	12.2	129	0.00
35	T	Dibromochloromethane	0.257	0.219	14.8	130	0.00
36	T	1,2-Dibromoethane	0.243	0.216	11.1	130	0.00
37	T	Tetrachloroethene	0.270	0.231	14.4	131	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	130	0.00
39	T	Chlorobenzene	3.855	3.578	7.2	129	0.00
40	T	Ethylbenzene	5.685	5.461	3.9	137	0.00
41	T	m,p-Xylene	4.264	4.287	-0.5	134	0.00
42	T	Styrene	2.987	3.004	-0.6	135	0.00
43	T	o-Xylene	2.190	2.191	-0.0	132	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.299	8.7	124	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.050	-12.1	140	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.726	-4.7	130	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.725	-6.7	131	0.00
48	T	1,3-Dichlorobenzene	2.723	2.801	-2.9	124	0.00
49	T	1,4-Dichlorobenzene	2.835	2.738	3.4	124	0.00
50	T	1,2-Dichlorobenzene	2.775	2.729	1.7	126	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.859	-2.4	136	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.592	3.0	131	0.00
53	T	Naphthalene	5.215	5.104	2.1	117	0.00
54	T	Hexachlorobutadiene	1.299	1.237	4.8	134	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	60738	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	300562	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	46758	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	98881	940.024	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.00%			
33) Toluene-d8 (SS2)	14.15	98	292237	978.822	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.88%			
45) Bromofluorobenzene (SS3)	17.56	174	95864	1120.699	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.07%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.43	85	71134	463.589	pg	100
3) Chloromethane	4.66	52	16968	371.176	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	61480	407.250	pg	100
5) Vinyl Chloride	4.96	62	60506	412.477	pg	99
6) 1,3-Butadiene	5.16	54	42055	482.208	pg	94
7) Bromomethane	5.49	94	26178	443.625	pg	100
8) Chloroethane	5.71	64	19235	426.202	pg	99
9) Acrolein	6.28	56	11573	360.975	pg	97
10) Acetone	6.41	58	95465	2303.025	pg	100
11) Trichlorofluoromethane	6.63	101	51171	487.582	pg	100
12) 1,1-Dichloroethene	7.35	96	30317	461.097	pg	97
13) Methylene Chloride	7.49	84	34160	478.763	pg	95
14) Trichlorotrifluoroethane	7.81	151	30927	471.473	pg	100
15) trans-1,2-Dichloroethene	8.52	96	33291	469.667	pg	99
16) 1,1-Dichloroethane	8.73	63	55928	444.736	pg	100
17) Methyl tert-Butyl Ether	8.80	73	88845	473.453	pg	99
18) cis-1,2-Dichloroethene	9.60	96	35248	473.873	pg	100
19) Chloroform	9.89	83	63026	476.594	pg	100
21) 1,2-Dichloroethane	10.64	62	45050	442.542	pg	99
22) 1,1,1-Trichloroethane	10.91	97	54707	445.650	pg	100
23) Benzene	11.37	78	136817	469.578	pg	100
24) Carbon Tetrachloride	11.52	117	46706	473.832	pg	100
26) 1,2-Dichloropropane	12.18	63	31933	417.111	pg	100
27) Bromodichloromethane	12.36	83	45606	431.389	pg	100
28) Trichloroethene	12.41	130	35728	457.214	pg	100
29) 1,4-Dioxane	12.39	88	25521	444.774	pg	98
30) cis-1,3-Dichloropropene	13.26	75	50353	488.994	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40976	488.979	pg	99
32) 1,1,2-Trichloroethane	13.95	83	28100	433.932	pg	98
34) Toluene	14.25	91	128975	462.511	pg	99
35) Dibromochloromethane	14.66	129	34984	453.044	pg	100
36) 1,2-Dibromoethane	14.92	107	34218	468.526	pg	100
37) Tetrachloroethene	15.40	166	36762	453.722	pg	100
39) Chlorobenzene	16.10	112	88751	492.378	pg	100
40) Ethylbenzene	16.48	91	134698	506.754	pg	99
41) m,p-Xylene	16.66	91	212804	1067.387	pg	100
42) Styrene	17.01	104	74524	533.541	pg	100
43) o-Xylene	17.12	106	53996	527.201	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	56752	482.247	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	115902	549.182	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	116203	560.967	pg	100
48) 1,3-Dichlorobenzene	18.92	146	69271	544.082	pg	100
49) 1,4-Dichlorobenzene	18.98	146	67731	510.969	pg	100
50) 1,2-Dichlorobenzene	19.31	146	67497	520.223	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	21156	539.401	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	38820	505.477	pg	100
53) Naphthalene	21.07	128	129243	529.978	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

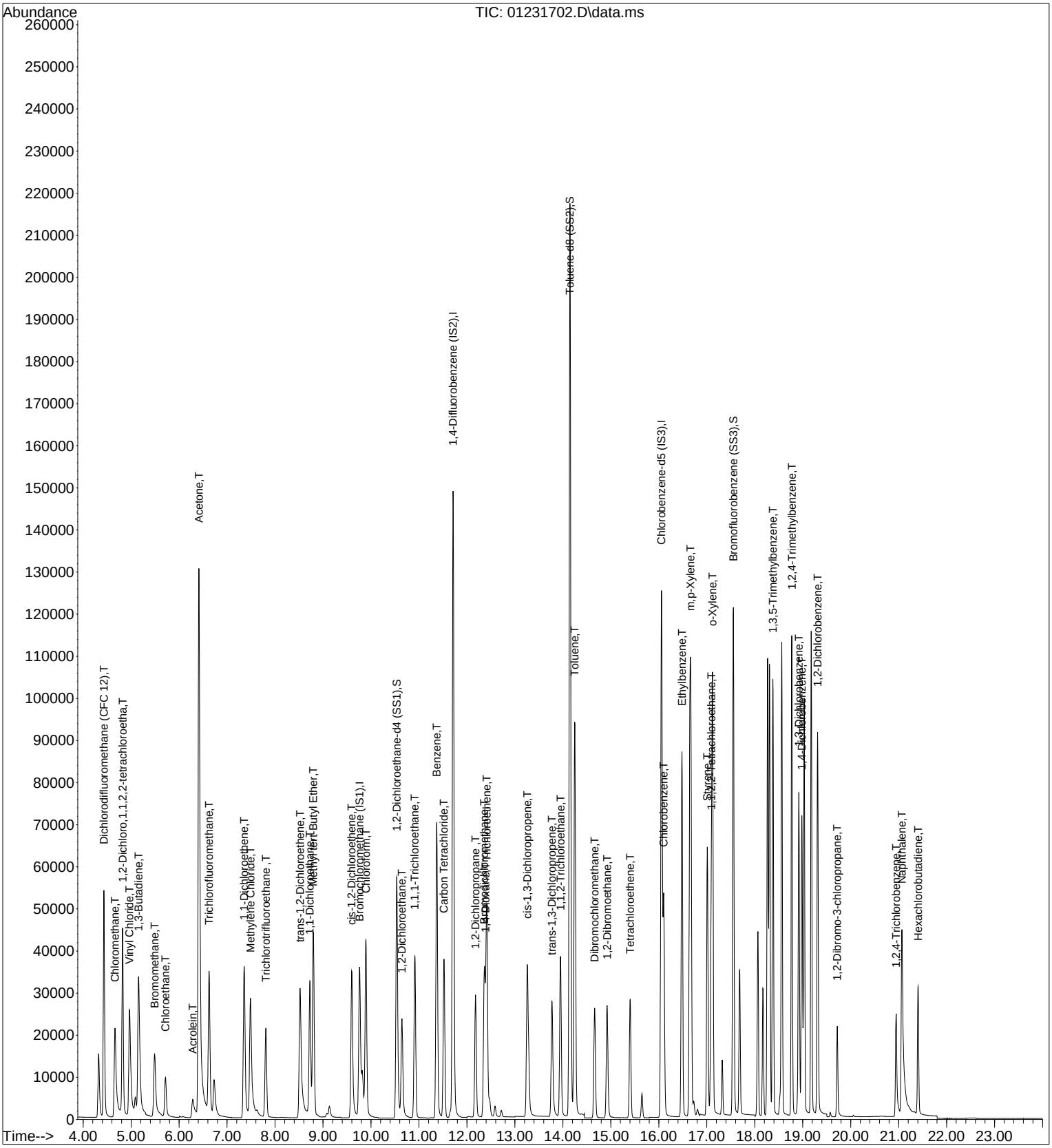
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	30615	503.881	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



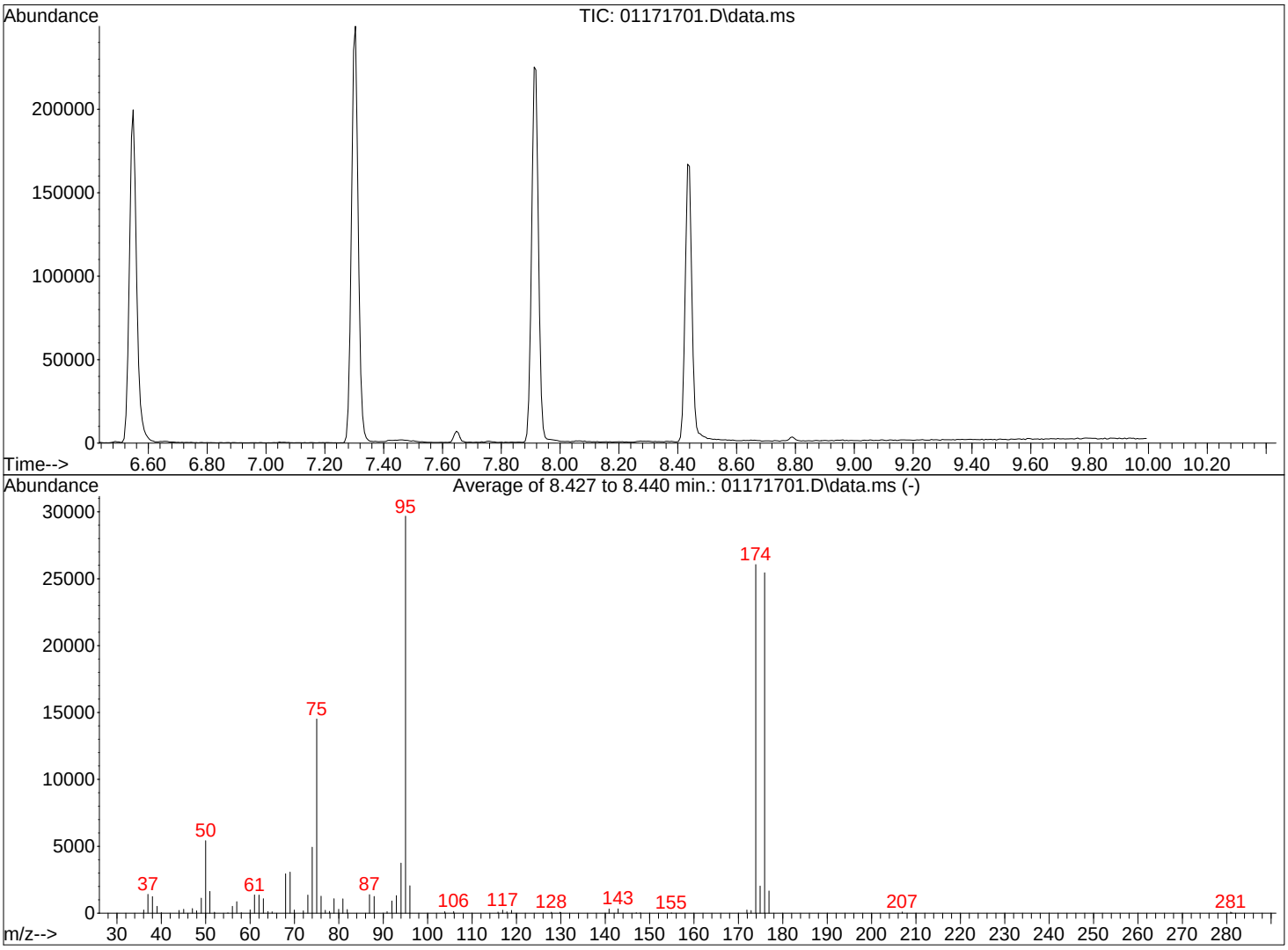
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

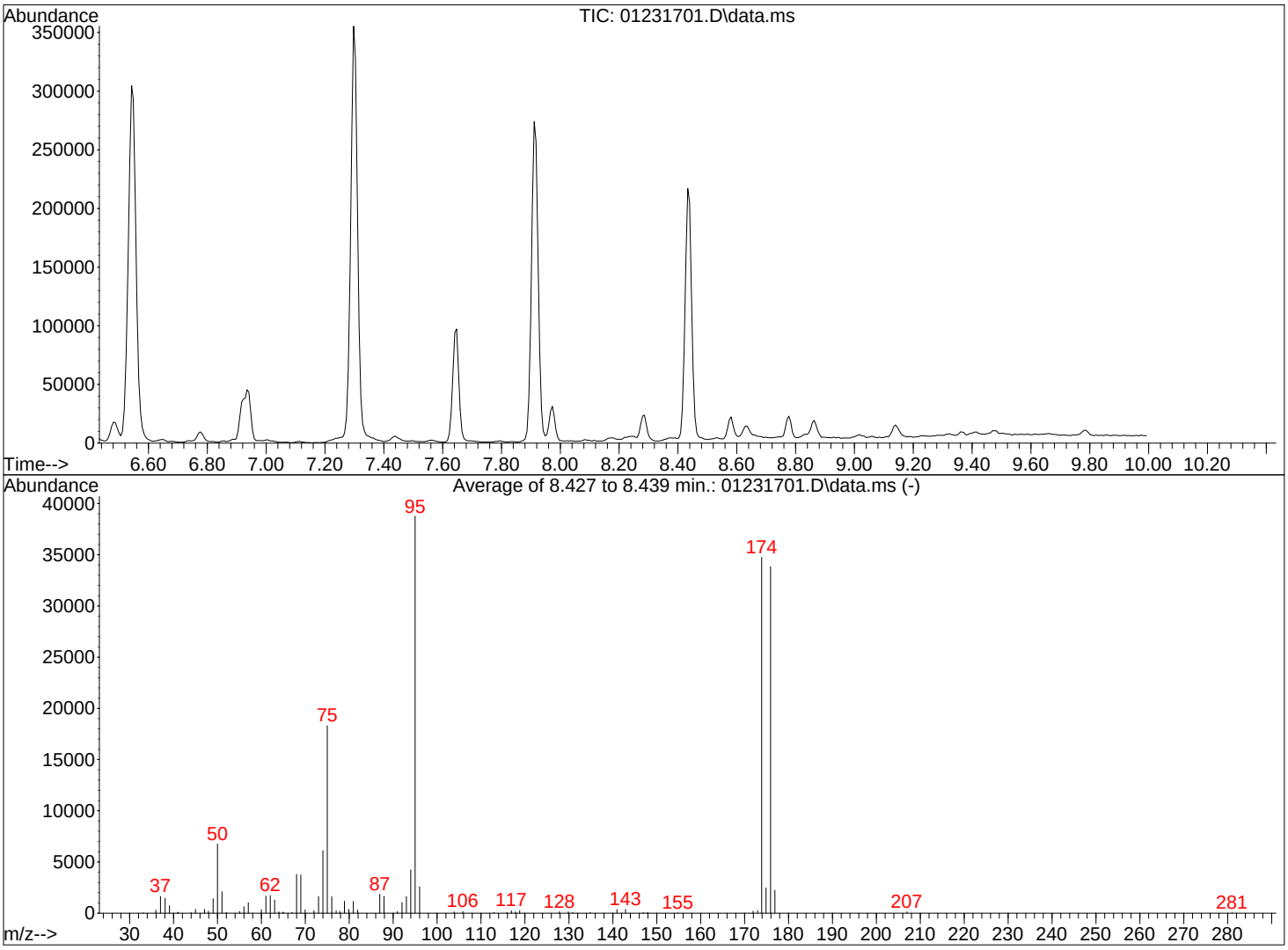
BFB

Data Path : I:\MS19\DATA\2017 01\23\
Data File : 01231701.D
Acq On : 23 Jan 2017 7:17
Operator : CL
Sample : BFB S19012317
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/23/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.4	6746	PASS
75	95	30	66	47.2	18311	PASS
95	95	100	100	100.0	38765	PASS
96	95	5	9	6.7	2586	PASS
173	174	0.00	2	0.8	264	PASS
174	95	50	120	89.6	34739	PASS
175	174	4	9	7.1	2472	PASS
176	174	93	101	97.4	33829	PASS
177	176	5	9	6.6	2237	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\23\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/23/17 7:17	01231701.D	BFB S19012317	S29-12201602	CL	2	Pass
2	1/23/17 7:35	01231702.D	CCV S19012317_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
3	1/23/17 8:06	01231703.D	MB S19012317_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/23/17 8:38	01231704.D	LCS S19012317_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
5	1/23/17 9:09	01231705.D	LCSD S19012317_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/23/17 10:15	01231706.D	P1700173-001 (1000mL)	S29-12201602	CL	1	
7	1/23/17 10:47	01231707.D	P1700173-002 (1000mL)	S29-12201602	CL	3	
8	1/23/17 11:18	01231708.D	P1700173-003 (1000mL)	S29-12201602	CL	4	
9	1/23/17 11:49	01231709.D	P1700173-004 (1000mL)	S29-12201602	CL	5	
10	1/23/17 12:20	01231710.D	P1700173-005 (1000mL)	S29-12201602	CL	6	
11	1/23/17 12:51	01231711.D	blank	S29-12201602	CL	2	No IS
12	1/23/17 13:23	01231712.D	P1700234-001 (1000mL)	S29-12201602	CL	7	
13	1/23/17 13:55	01231713.D	P1700234-002 (1000mL)	S29-12201602	CL	8	
14	1/23/17 14:26	01231714.D	P1700234-003 (1000mL)	S29-12201602	CL	9	
15	1/23/17 14:57	01231715.D	P1700234-004 (1000mL)	S29-12201602	CL	10	
16	1/23/17 15:28	01231716.D	P1700234-005 (1000mL)	S29-12201602	CL	11	
17	1/23/17 16:11	01231717.D	P1700234-006 (1000mL)	S29-12201602	CL	12	
18	1/23/17 16:50	01231718.D	blank	S29-12201602	CL	2	No IS
19	1/23/17 17:21	01231719.D	P1700234-007 (1000mL)	S29-12201602	CL	13	IS1 Fail
20	1/23/17 17:53	01231720.D	P1700234-007dup (1000mL)	S29-12201602	CL	13	Use for run
21	1/23/17 18:24	01231721.D	P1700234-008 (1000mL)	S29-12201602	CL	14	
22	1/23/17 18:55	01231722.D	P1700234-009 (1000mL)	S29-12201602	CL	15	
23	1/23/17 19:27	01231723.D	P1700234-010 (1000mL)	S29-12201602	CL	1	
24	1/23/17 19:58	01231724.D	blank	S29-12201602	CL	2	No IS
25	1/23/17 20:29	01231725.D	P1700234-011 (1000mL)	S29-12201602	CL	3	
26	1/23/17 21:01	01231726.D	P1700234-012 (1000mL)	S29-12201602	CL	4	
27	1/23/17 21:32	01231727.D	P1700234-013 (1000mL)	S29-12201602	CL	5	
28	1/23/17 22:04	01231728.D	P1700234-014 (1000mL)	S29-12201602	CL	6	
29	1/23/17 22:35	01231729.D	CCV S19012417_500pg_End	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
30	1/23/17 23:06	01231730.D	blank	S29-12201602	CL	2	No IS
31	1/24/17 1:04	01231731.D	blank	S29-12201602	CL	2	No IS

CL 1/24/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271612.D
Acq On : 27 Dec 2016 7:07 pm
Operator : JM
Sample : AC01611 FCA01086
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 09:40:24 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

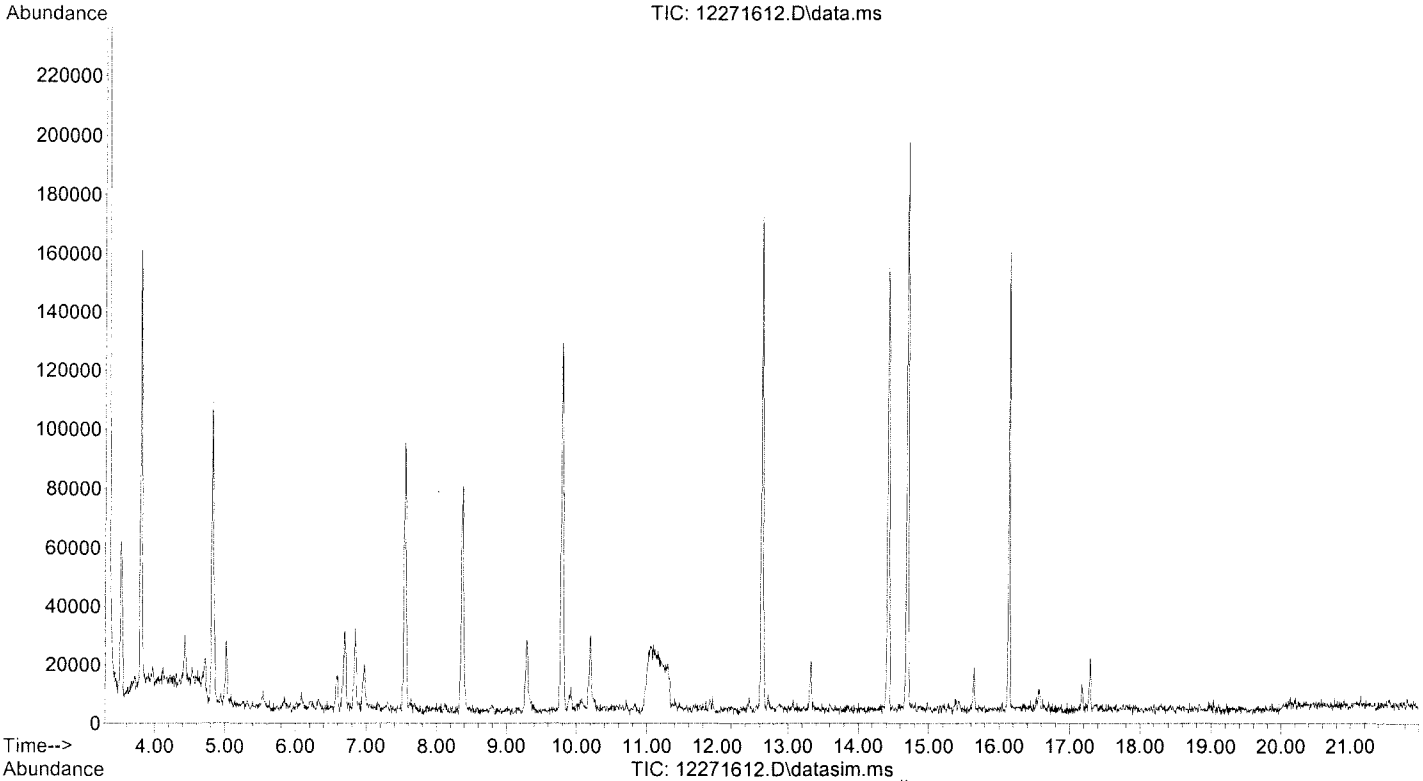
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37818	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	140534	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116108	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73600	988.182	pg		0.00
Spiked Amount 1000.000			Recovery = 98.82%				
57) Toluene-d8 (SS2)	12.63	98	128076	902.710	pg		0.00
Spiked Amount 1000.000			Recovery = 90.27%				
74) Bromofluorobenzene (SS3)	16.14	174	43416	929.128	pg		0.00
Spiked Amount 1000.000			Recovery = 92.91%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7858	103.524	pg		82
10) * Ethanol	4.43	45	16095	310.894	pg		97
12) * Acrolein	4.71	56	6470	149.175	pg		98
13) * Acetone	4.82	58	57555	1177.033	pg	#	41
15) * 2-Propanol (Isopropa...	5.02	45	24594	185.631	pg		97
18) tert-Butanol	5.54	59	2947	36.905	pg		92
22) * Carbon Disulfide	5.84	76	3919	19.626	pg		98
26) * Vinyl Acetate	6.70	86	4915	479.278	pg	#	10
27) * 2-Butanone (MEK)	6.97	72	4818	164.159	pg		96
30) * Ethyl Acetate	7.63	61	500	33.323	pg		97
41) 1-Butanol	9.29	56	13824	455.022	pg	#	49
53) * 4-Methyl-2-pentanone	11.71	58	329	11.236	pg		95
58) * Toluene	12.74	91	2527	15.399	pg		99
59) * 2-Hexanone	13.07	58	926	32.987	pg	#	92
69) Cyclohexanone	15.44	98	189	15.738	pg	#	63
83) tert-Butylbenzene	17.28	134	363	17.075	pg	#	1

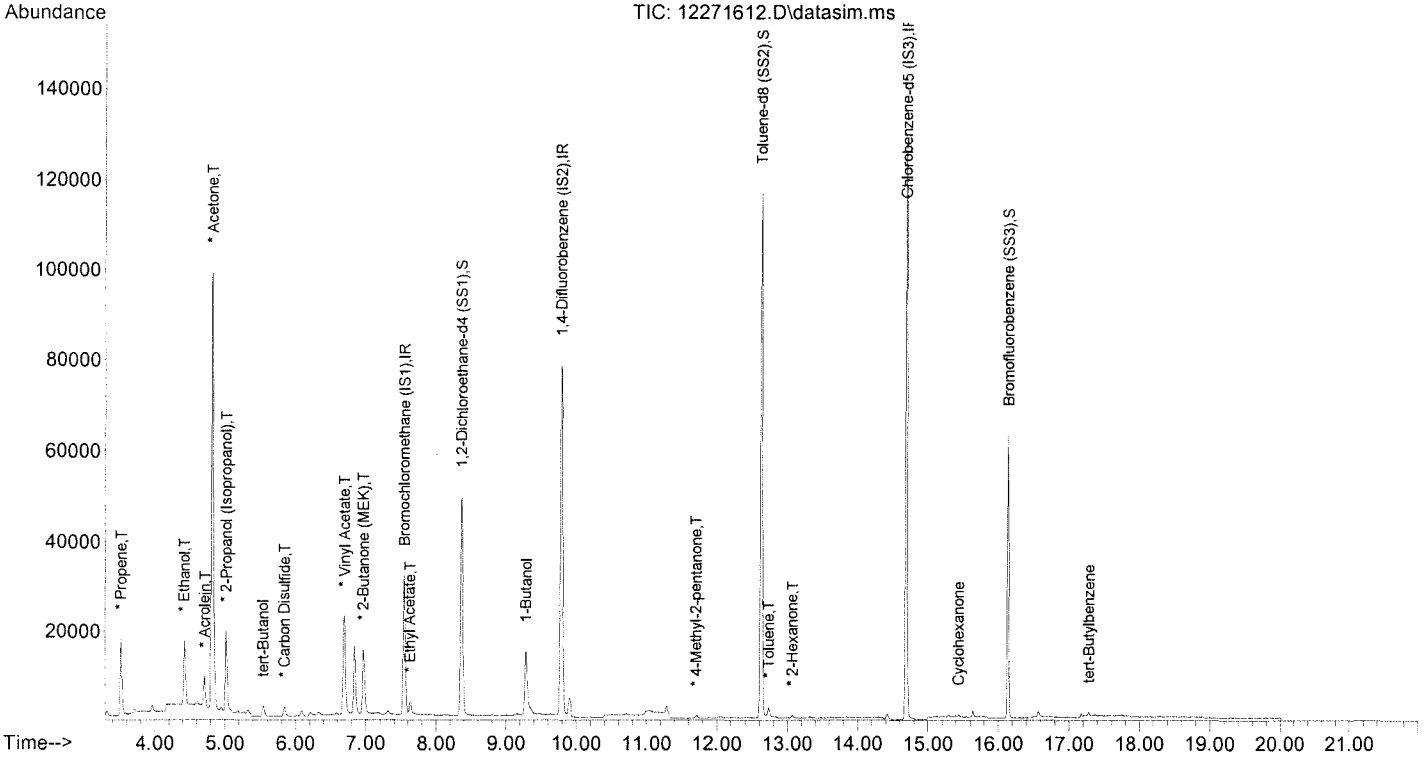
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271612.D
Acq On : 27 Dec 2016 7:07 pm
Operator : JM
Sample : AC01611 FCA01086
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 28 09:40:24 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231612.D
Acq On : 23 Dec 2016 12:51 pm
Operator : SM
Sample : AS00663 FCA00023
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Dec 27 08:41:23 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

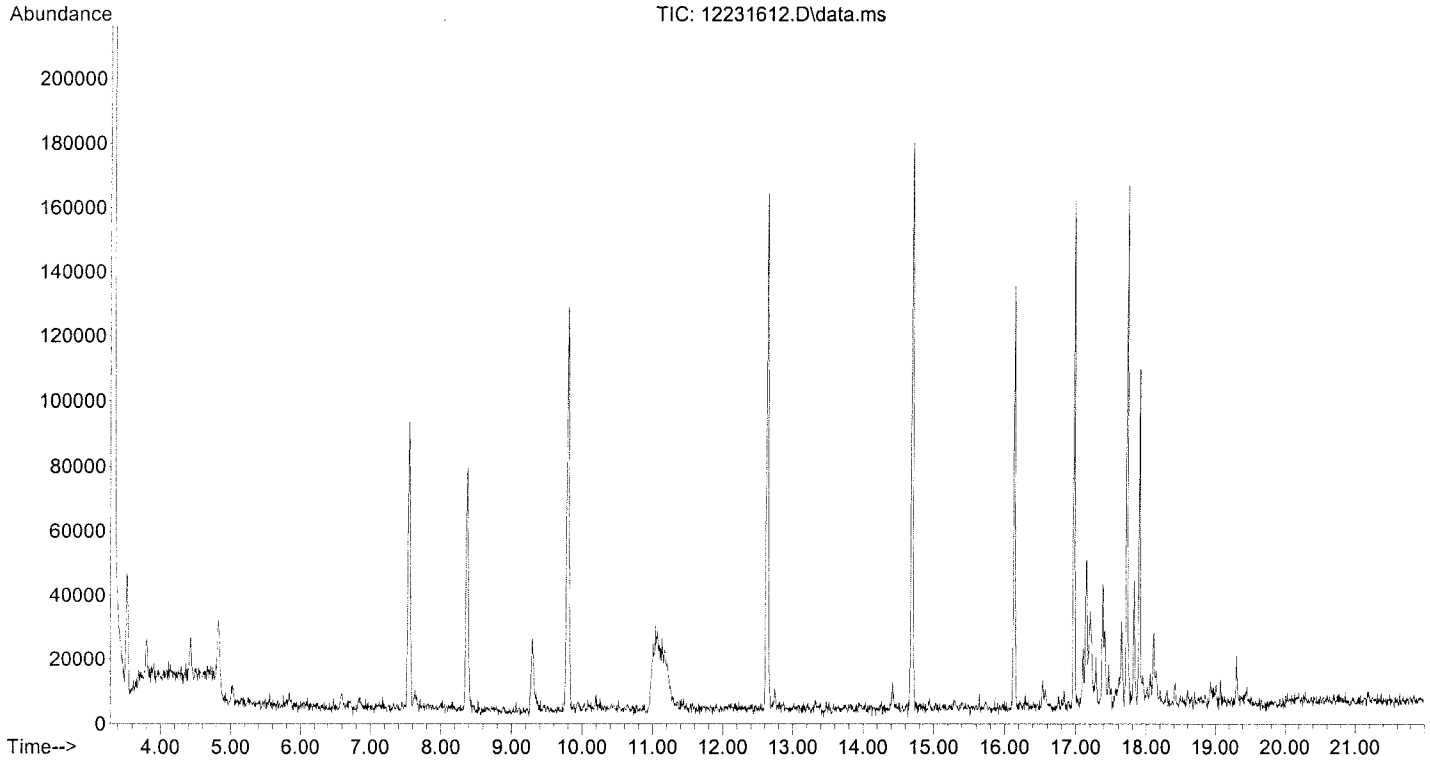
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37086	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	139542	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105204	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	72315	990.094 pg		0.00
Spiked Amount 1000.000			Recovery =	99.01%		
57) Toluene-d8 (SS2)	12.63	98	123070	957.332 pg		0.00
Spiked Amount 1000.000			Recovery =	95.73%		
74) Bromofluorobenzene (SS3)	16.14	174	38448	908.091 pg		0.00
Spiked Amount 1000.000			Recovery =	90.81%		
Target Compounds						Qvalue
2) * Propene	3.53	42	6643	89.245 pg	#	75
10) * Ethanol	4.43	45	12461	245.450 pg		100
13) * Acetone	4.83	58	7273	151.673 pg		69
15) * 2-Propanol (Isopropa...	5.02	45	5390	41.486 pg		92
22) * Carbon Disulfide	5.84	76	4130	21.091 pg		100
26) * Vinyl Acetate	6.71	86	245	24.362 pg	#	9
30) * Ethyl Acetate	7.64	61	764	51.923 pg		87
41) 1-Butanol	9.30	56	13698	454.080 pg	#	48
58) * Toluene	12.74	91	3892	26.175 pg		99
67) * m- & p-Xylenes	15.29	91	1895	19.450 pg		93
84) * 1,2,4-Trimethylbenzene	17.26	105	2221	28.657 pg		88
85) * Benzyl Chloride	17.38	126	179	22.910 pg	#	1
88) n-Decane	17.38	85	4504	303.956 pg	#	40
96) n-Undecane	18.41	85	451	53.228 pg		76
98) * Naphthalene	19.29	128	554	16.748 pg	#	90
99) n-Dodecane	19.31	85	661	124.209 pg		87

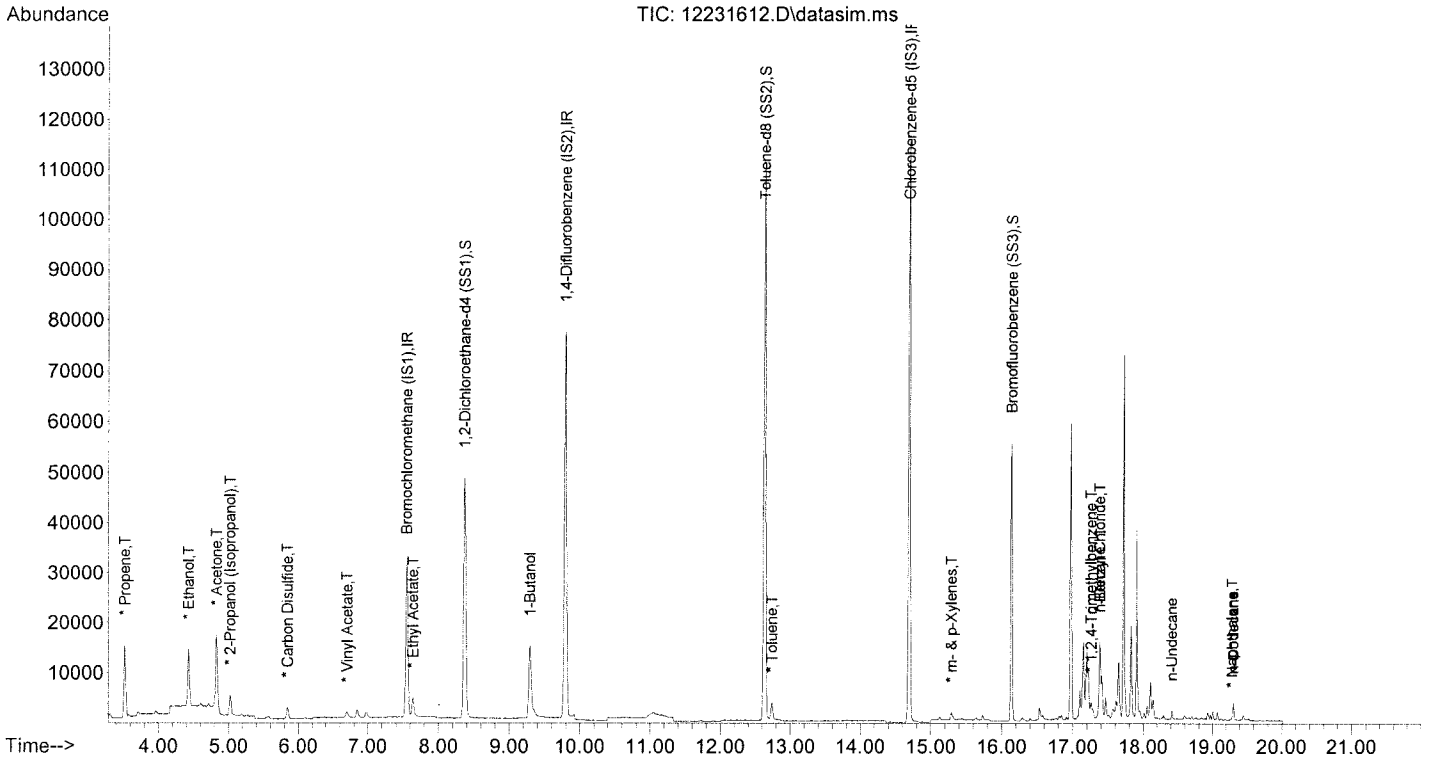
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231612.D
Acq On : 23 Dec 2016 12:51 pm
Operator : SM
Sample : AS00663 FCA00023
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Dec 27 08:41:23 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291608.D
Acq On : 29 Dec 2016 1:20 pm
Operator : JM
Sample : AS01159 FCA01085
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Dec 30 09:45:57 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

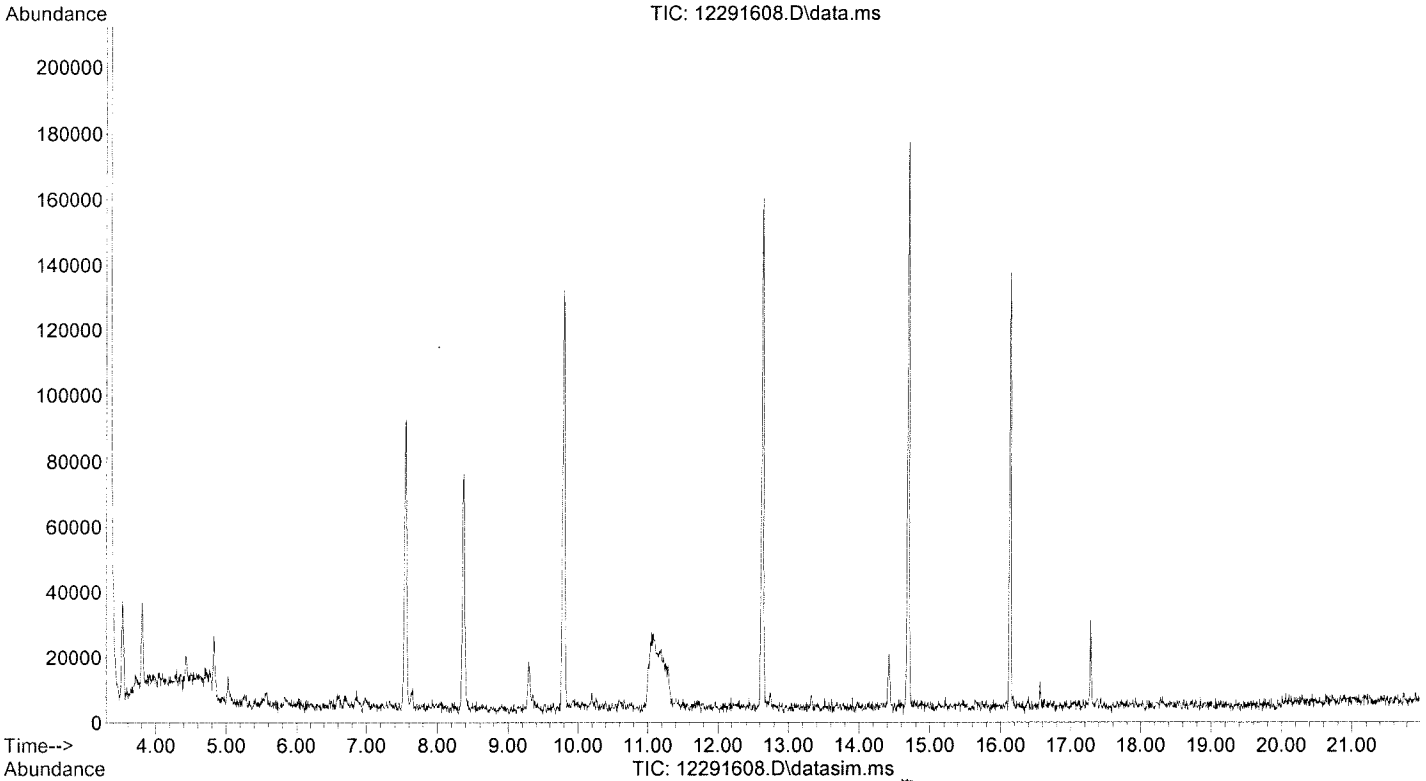
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38887	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138402	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106040	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72276	943.729	pg		0.00
Spiked Amount 1000.000			Recovery = 94.37%				
57) Toluene-d8 (SS2)	12.63	98	122844	948.040	pg		0.00
Spiked Amount 1000.000			Recovery = 94.80%				
74) Bromofluorobenzene (SS3)	16.14	174	38448	900.931	pg		0.00
Spiked Amount 1000.000			Recovery = 90.09%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6899	88.391	pg	#	75
10) * Ethanol	4.43	45	7016	131.797	pg		92
12) * Acrolein	4.71	56	1085	24.329	pg		96
13) * Acetone	4.83	58	8459	168.236	pg	#	66
15) * 2-Propanol (Isopropa...	5.03	45	7053	51.771	pg		100
19) * Methylene Chloride	5.57	84	1075	19.194	pg		98
22) * Carbon Disulfide	5.84	76	3357	16.350	pg		95
26) * Vinyl Acetate	6.71	86	348	33.002	pg	#	10
27) * 2-Butanone (MEK)	6.98	72	465	15.408	pg		67
30) * Ethyl Acetate	7.64	61	500	32.407	pg		95
41) 1-Butanol	9.30	56	7876	263.235	pg	#	50
58) * Toluene	12.74	91	2615	17.448	pg		99
83) tert-Butylbenzene	17.28	134	475	24.464	pg	#	1
85) * Benzyl Chloride	17.36	126	87	11.047	pg	#	1

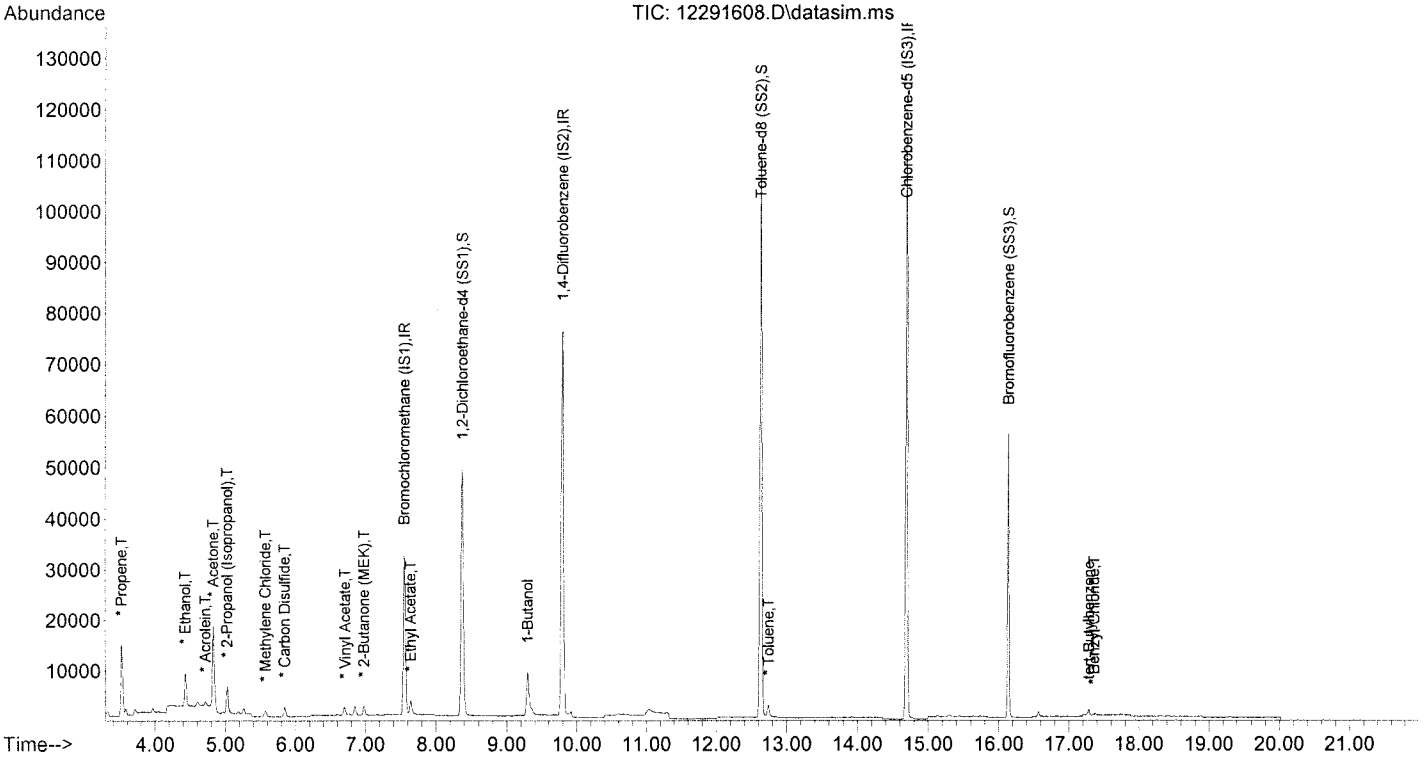
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291608.D
Acq On : 29 Dec 2016 1:20 pm
Operator : JM
Sample : AS01159 FCA01085
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Dec 30 09:45:57 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271614.D
Acq On : 27 Dec 2016 8:54 pm
Operator : JM
Sample : AS01180 FCA01023
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 28 09:40:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

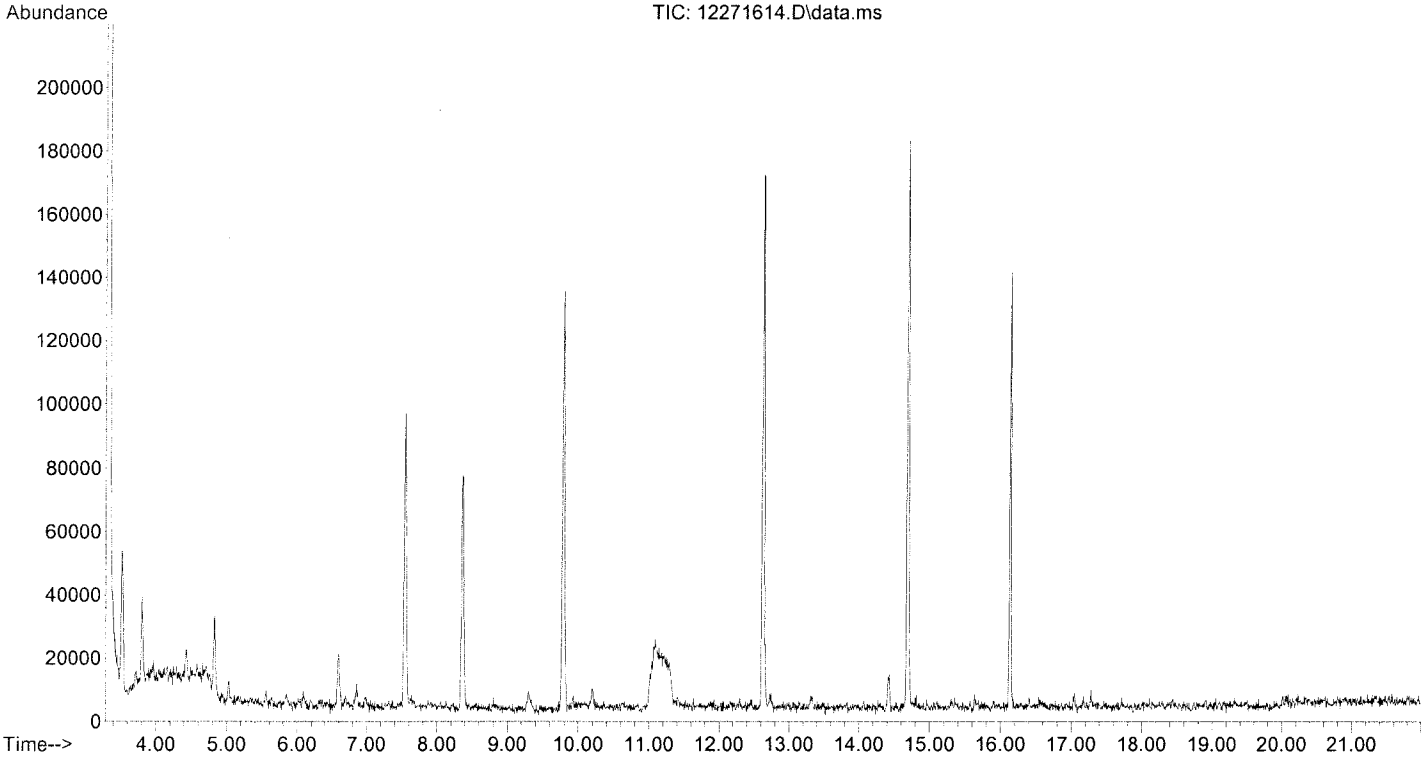
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38265	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	137481	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109391	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74486	988.396	pg		0.00
Spiked Amount 1000.000			Recovery = 98.84%				
57) Toluene-d8 (SS2)	12.63	98	128107	958.371	pg		0.00
Spiked Amount 1000.000			Recovery = 95.84%				
74) Bromofluorobenzene (SS3)	16.14	174	39900	906.315	pg		0.00
Spiked Amount 1000.000			Recovery = 90.63%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6897	89.802	pg		81
4) * Chloromethane	3.71	50	1318	10.777	pg		92
10) * Ethanol	4.43	45	7268	138.750	pg		97
12) * Acrolein	4.71	56	1462	33.315	pg		99
13) * Acetone	4.83	58	11588	234.213	pg		70
15) * 2-Propanol (Isopropa...	5.03	45	6719	50.121	pg		97
18) tert-Butanol	5.55	59	1422	17.599	pg		90
22) * Carbon Disulfide	5.84	76	4691	23.218	pg		95
26) * Vinyl Acetate	6.71	86	433	41.730	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	857	28.859	pg		92
30) * Ethyl Acetate	7.64	61	314	20.682	pg		98
41) 1-Butanol	9.31	56	2805	94.378	pg	#	45
58) * Toluene	12.74	91	2037	13.175	pg		98
81) alpha-Methylstyrene	17.04	118	1045	28.943	pg		99

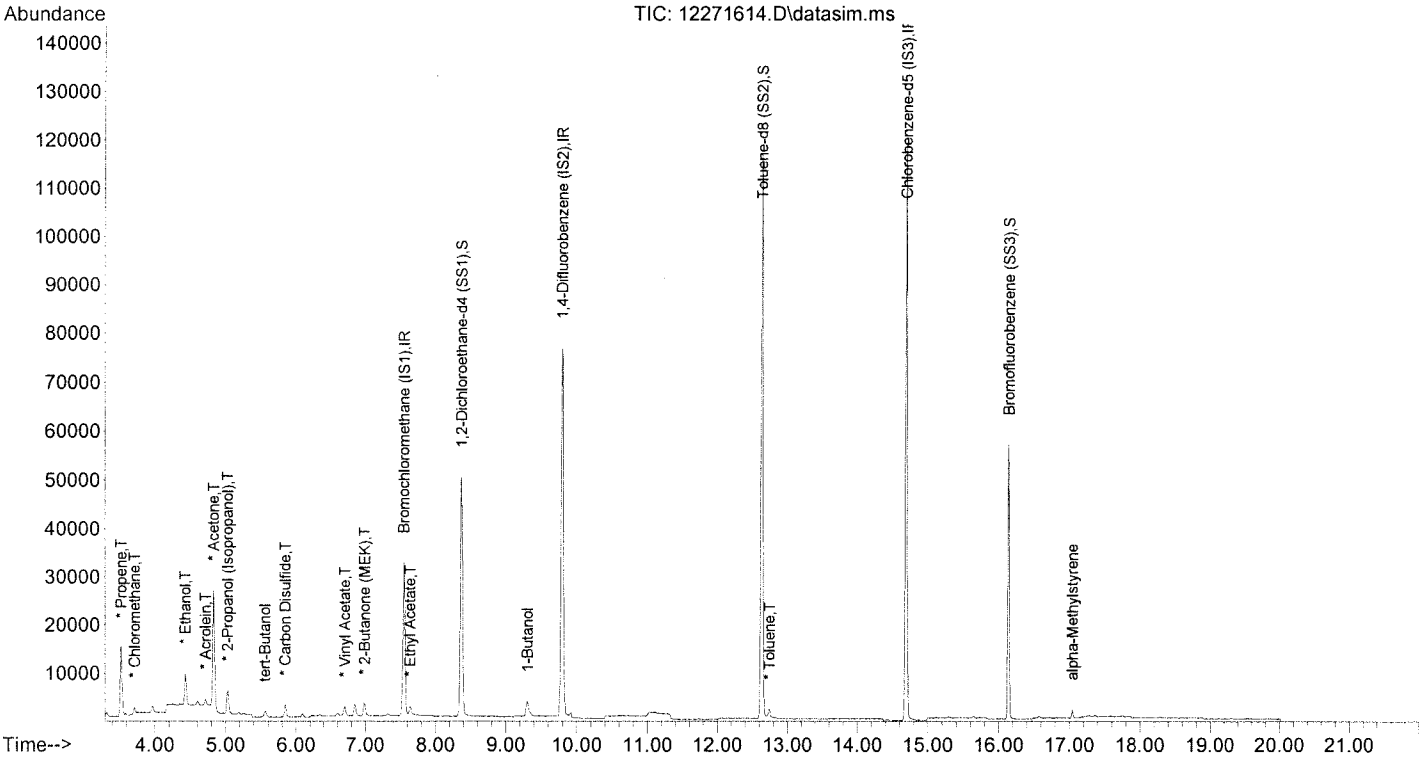
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271614.D
Acq On : 27 Dec 2016 8:54 pm
Operator : JM
Sample : AS01180 FCA01023
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 28 09:40:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281620.D
Acq On : 29 Dec 2016 12:45 am
Operator : JM
Sample : AC01178 FCA00849
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 29 10:06:43 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

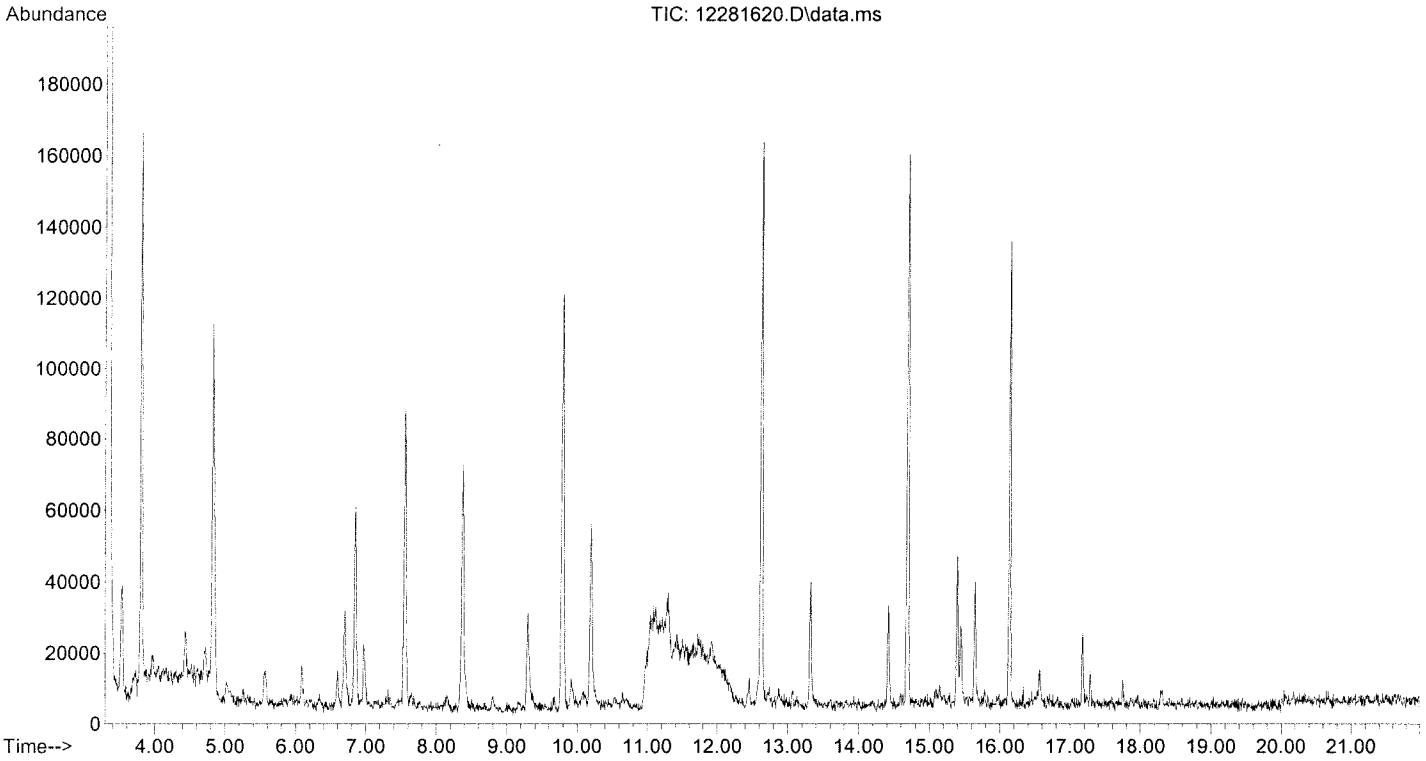
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	35197	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	128923	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	99032	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	65761	948.682	pg		0.00
Spiked Amount 1000.000			Recovery =	94.87%			
57) Toluene-d8 (SS2)	12.63	98	120652	997.015	pg		0.00
Spiked Amount 1000.000			Recovery =	99.70%			
74) Bromofluorobenzene (SS3)	16.14	174	39298	986.013	pg		0.00
Spiked Amount 1000.000			Recovery =	98.60%			
Target Compounds							Qvalue
2) * Propene	3.53	42	8319	117.759	pg		86
3) * Dichlorodifluoromethane	3.59	85	1752	11.642	pg		96
4) * Chloromethane	3.71	50	1528	13.583	pg		89
10) * Ethanol	4.43	45	15797	327.860	pg		98
11) * Acetonitrile	4.60	41	2391	19.792	pg		93
12) * Acrolein	4.71	56	7470	185.057	pg		98
13) * Acetone	4.83	58	68444	1503.952	pg	#	21
15) * 2-Propanol (Isopropa...	5.03	45	7273	58.983	pg		98
18) tert-Butanol	5.55	59	4716	63.455	pg		87
19) * Methylene Chloride	5.57	84	2353	46.416	pg		97
22) * Carbon Disulfide	5.85	76	3060	16.466	pg		96
26) * Vinyl Acetate	6.71	86	5629	589.777	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	5082	186.048	pg		97
30) * Ethyl Acetate	7.65	61	256	18.332	pg		93
34) * Tetrahydrofuran	8.14	71	272	12.424	pg	#	1
39) * Benzene	9.36	78	2158	14.514	pg		95
41) 1-Butanol	9.30	56	15489	555.742	pg	#	47
53) * 4-Methyl-2-pentanone	11.72	58	595	22.151	pg	#	67
58) * Toluene	12.74	91	2336	16.689	pg		98
59) * 2-Hexanone	13.07	58	1412	58.973	pg	#	88
69) Cyclohexanone	15.44	98	800	78.103	pg	#	53
93) * D-Limonene	17.75	68	871	27.114	pg		94

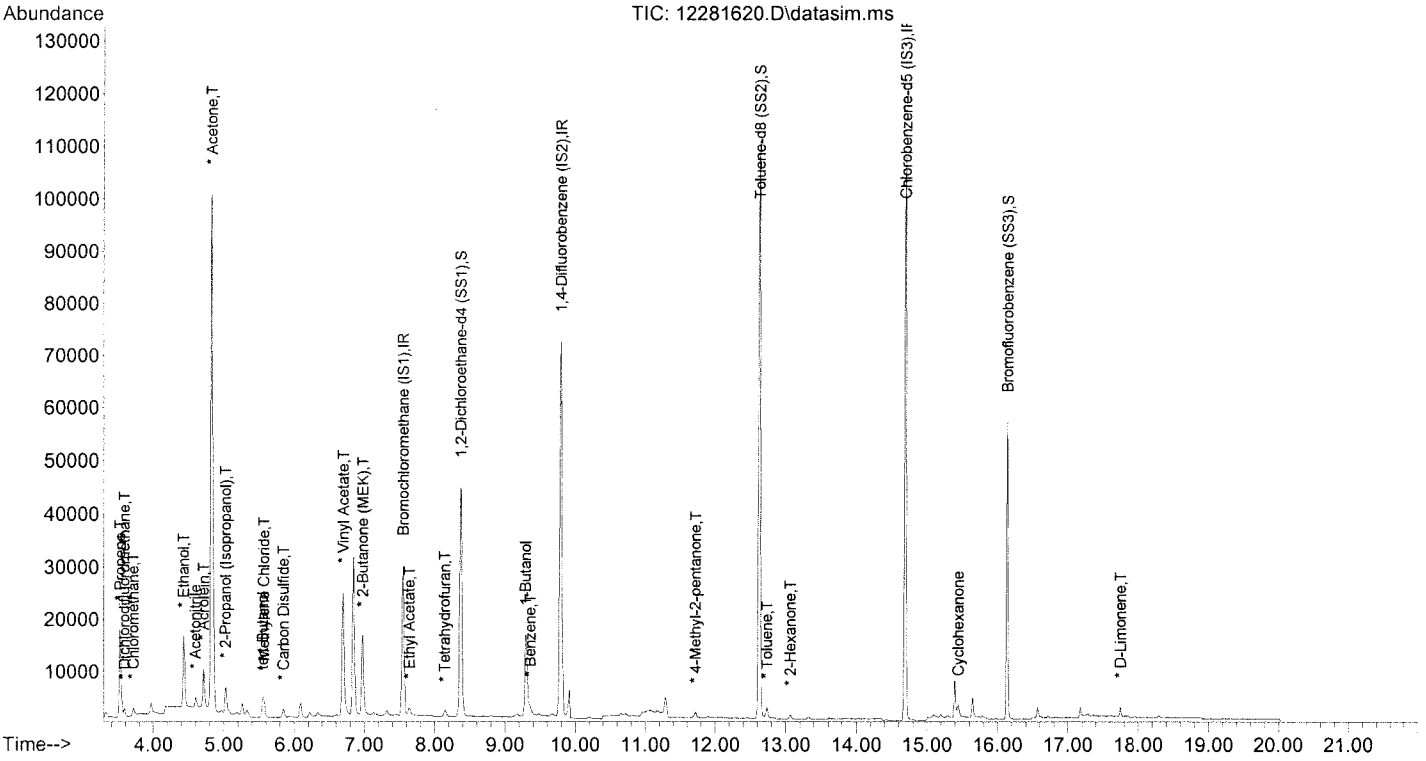
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281620.D
Acq On : 29 Dec 2016 12:45 am
Operator : JM
Sample : AC01178 FCA00849
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 29 10:06:43 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





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www.alsglobal.com

LABORATORY REPORT

January 29, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 16, 2017. For your reference, these analyses have been assigned our service request number P1700183.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 11:52 am, Jan 29, 2017

Sue Anderson
Project Manager

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F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700183

CASE NARRATIVE

The samples were received intact under chain of custody on January 16, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700183
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/17/2017
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
17M567-1-01	P1700183-001	Air	1/11/2017	07:25	AS00825	-3.69	3.64	X
17M567-1-02	P1700183-002	Air	1/11/2017	07:27	AC00745	-2.07	3.62	X
17M567-1-03	P1700183-003	Air	1/11/2017	07:26	AS00997	-2.64	3.72	X
17M567-A-01	P1700183-004	Air	1/11/2017	07:28	AS00943	0.62	3.61	X
17M126-1-01-N	P1700183-005	Air	1/11/2017	09:10	AS00837	-7.47	4.25	X
17M126-1-02-N	P1700183-006	Air	1/11/2017	09:11	AC01934	-7.67	3.67	X
17M126-1-04-N	P1700183-007	Air	1/11/2017	09:09	AS00132	-8.91	4.00	X
17M326-1-02-N	P1700183-008	Air	1/11/2017	09:12	AC02084	-7.00	4.64	X
17M126-A-01-N	P1700183-009	Air	1/11/2017	09:16	AS00163	-0.91	3.89	X

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 003
PAGE 1 of 1

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:** P1700183	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M567-1-01	16528	FCA01018	1/11/17	0725	-30.48	-8.36	6L	8hr	X				X
2	17M567-1-02	2373	FCA00784	1/11/17	0727	-30.14	-5.04	6L	8hr	X				
3	17M567-1-03	20495	FCA00428	1/11/17	0726	-30.36	-6.25	6L	8hr	X				
4	17M567-A-01	20433	FCA01020	1/11/17	0728	-30.25	-0.2	6L	24hr	X				
5	17M126-1-01-N	00837	FCA00902	1/11/17	0910	-30.41	-16.07	6L	8hr	X				
6	17M126-1-02-N	13047	FCA00825	1/11/17	0911	-30.44	-16.47	6L	8hr	X				X
7	17M126-1-04-N	5036	FCA00977	1/11/17	0909	-30.38	-19.07	6L	8hr	X				
8	17M326-1-02-N	2084	FCA00829	1/11/17	0912	-30.36	-15.14	6L	8hr	X				
9	17M126-A-01-N	4857	FCA01081	1/11/17	0916	-30.23	-3.26	6L	24hr	X				

Samples -001 thru -007 were received 1/17/17; Samples -008 & -009 were received 1/16/17. K Kelpe ALS- Simi Valley

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date	Received By (signature) K Kelpe 01/16/17 @ 0950	Date
Company NOREAS	Time	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 01/17/17
Company	Time	Company	Time 0930

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700183

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/16 - 17/17 Date opened: 1/16 - 17/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700183-001.01	6.0 L Silonite Can					AS00825 / S/N 16528
P1700183-002.01	6.0 L Ambient Can					AC00745 / Asset Tag#2373
P1700183-003.01	6.0 L Silonite Can					AS00997 / S/N 20495
P1700183-004.01	6.0 L Silonite Can					AS00943 / S/N 20433
P1700183-005.01	6.0 L Silonite Can					AS00837 / Can ID 00837
P1700183-006.01	6.0 L Ambient Can					AC001934 / S/N 5036
P1700183-007.01	6.0 L Silonite Can					AS00132 / S/N 5036
P1700183-008.01	6.0 L Ambient Can					AC02084 / Can ID 2084
P1700183-009.01	6.0 L Silonite Can					AS00163 / S/N 4857

Explain any discrepancies: (include lab sample ID numbers):

Cans for samples -001 thru -007 were receivexd on 1/16/17; Cans for samples -008 & -009 were received on 1/17/17.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M567-1-01** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-001

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00825
Initial Pressure (psig): -3.69 Final Pressure (psig): 3.64

Canister Dilution Factor: 1.67

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.042	0.033	0.013	**U**
75-35-4	1,1-Dichloroethene	**0.059**	0.042	0.035	0.014	
156-60-5	trans-1,2-Dichloroethene	**0.015**	0.042	0.035	0.012	**J**
75-34-3	1,1-Dichloroethane	**0.097**	0.042	0.033	0.010	
156-59-2	cis-1,2-Dichloroethene	**0.076**	0.042	0.035	0.015	
79-01-6	Trichloroethene	**2.7**	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.074**	0.042	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M567-1-02** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-002

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00745
Initial Pressure (psig): -2.07 Final Pressure (psig): 3.62

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	**0.055**	0.036	0.030	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.016**	0.036	0.030	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.095**	0.036	0.029	0.0088	
156-59-2	cis-1,2-Dichloroethene	**0.074**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**2.7**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.075**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M567-1-03** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-003

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00997

Initial Pressure (psig): -2.64 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.031	0.038	0.031	0.012	**U**
75-35-4	1,1-Dichloroethene	**0.069**	0.038	0.032	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.013**	0.038	0.032	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.15**	0.038	0.031	0.0093	
156-59-2	cis-1,2-Dichloroethene	**0.051**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**1.4**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.066**	0.038	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M567-A-01** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-004

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00943
Initial Pressure (psig): 0.62 Final Pressure (psig): 3.61

Canister Dilution Factor: 1.20

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.030	0.024	0.0091	**U**
75-35-4	1,1-Dichloroethene	0.025	0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.013**	0.030	0.025	0.0088	**J**
75-34-3	1,1-Dichloroethane	0.024	0.030	0.024	0.0073	**U**
156-59-2	cis-1,2-Dichloroethene	0.025	0.030	0.025	0.011	**U**
79-01-6	Trichloroethene	**0.052**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.040**	0.030	0.025	0.0098	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-01-N** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-005

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00837
Initial Pressure (psig): -7.47 Final Pressure (psig): 4.25

Canister Dilution Factor: 2.62

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.84**	0.066	0.052	0.020	
75-35-4	1,1-Dichloroethene	**0.29**	0.066	0.055	0.023	
156-60-5	trans-1,2-Dichloroethene	**0.12**	0.066	0.055	0.019	
75-34-3	1,1-Dichloroethane	**0.24**	0.066	0.052	0.016	
156-59-2	cis-1,2-Dichloroethene	**17**	0.066	0.055	0.024	
79-01-6	Trichloroethene	**13**	0.066	0.055	0.022	
127-18-4	Tetrachloroethene	**29**	0.066	0.055	0.021	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-02-N** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-006

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01934
Initial Pressure (psig): -7.67 Final Pressure (psig): 3.67

Canister Dilution Factor: 2.61

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**1.3**	0.065	0.052	0.020	
75-35-4	1,1-Dichloroethene	**0.43**	0.065	0.055	0.022	
156-60-5	trans-1,2-Dichloroethene	**0.16**	0.065	0.055	0.019	
75-34-3	1,1-Dichloroethane	**0.35**	0.065	0.052	0.016	
156-59-2	cis-1,2-Dichloroethene	**24**	0.065	0.055	0.024	
79-01-6	Trichloroethene	**18**	0.065	0.055	0.022	
127-18-4	Tetrachloroethene	**41**	0.065	0.055	0.021	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-04-N** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-007

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00132
Initial Pressure (psig): -8.91 Final Pressure (psig): 4.00

Canister Dilution Factor: 3.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.81**	0.081	0.065	0.025	
75-35-4	1,1-Dichloroethene	**0.26**	0.081	0.068	0.028	
156-60-5	trans-1,2-Dichloroethene	**0.10**	0.081	0.068	0.024	
75-34-3	1,1-Dichloroethane	**0.22**	0.081	0.065	0.020	
156-59-2	cis-1,2-Dichloroethene	**15**	0.081	0.068	0.030	
79-01-6	Trichloroethene	**12**	0.081	0.068	0.027	
127-18-4	Tetrachloroethene	**26**	0.081	0.068	0.026	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M326-1-02-N** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-008

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02084
Initial Pressure (psig): -7.00 Final Pressure (psig): 4.64

Canister Dilution Factor: 2.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**1.3**	0.063	0.050	0.019	
75-35-4	1,1-Dichloroethene	**0.43**	0.063	0.053	0.022	
156-60-5	trans-1,2-Dichloroethene	**0.17**	0.063	0.053	0.018	
75-34-3	1,1-Dichloroethane	**0.35**	0.063	0.050	0.015	
156-59-2	cis-1,2-Dichloroethene	**24**	0.063	0.053	0.023	
79-01-6	Trichloroethene	**19**	0.063	0.053	0.021	
127-18-4	Tetrachloroethene	**41**	0.063	0.053	0.021	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-A-01-N** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-009

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/16/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00163
Initial Pressure (psig): -0.91 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.081**	0.034	0.027	0.010	
75-35-4	1,1-Dichloroethene	**0.027**	0.034	0.028	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.023**	0.034	0.028	0.0099	**J**
75-34-3	1,1-Dichloroethane	**0.029**	0.034	0.027	0.0082	**J**
156-59-2	cis-1,2-Dichloroethene	**1.5**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**1.3**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**2.7**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170120-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700183

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/11/17
Analyst: Cory Lewis Date(s) Received: 1/16 - 1/17/17
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 1/20/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170120-MB	**97**	**102**	**98**	70-130	
Lab Control Sample	P170120-LCS	**97**	**97**	**108**	70-130	
17M567-1-01	P1700183-001	**93**	**103**	**117**	70-130	
17M567-1-02	P1700183-002	**92**	**104**	**120**	70-130	
17M567-1-03	P1700183-003	**92**	**106**	**118**	70-130	
17M567-1-03	P1700183-003DUP	**92**	**105**	**118**	70-130	
17M567-A-01	P1700183-004	**93**	**104**	**117**	70-130	
17M126-1-01-N	P1700183-005	**96**	**103**	**119**	70-130	
17M126-1-02-N	P1700183-006	**98**	**103**	**116**	70-130	
17M126-1-04-N	P1700183-007	**97**	**102**	**114**	70-130	
17M326-1-02-N	P1700183-008	**99**	**101**	**112**	70-130	
17M126-A-01-N	P1700183-009	**97**	**105**	**114**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170120-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.82**	**91**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.13**	**97**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.18**	**98**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.20**	**99**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.20**	**99**	70-121	
79-01-6	Trichloroethene	4.25	**3.94**	**93**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.92**	**92**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17M567-1-03** ALS Project ID: P1700183
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700183-003DUP

Test Code: EPA TO-15 SIM Date Collected: 1/11/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/17/17
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00997

Initial Pressure (psig): -2.64 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.53

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	-	25	
75-35-4	1,1-Dichloroethene	0.0690	0.0174	0.0805	0.0203	0.07475	**15**	25	
156-60-5	trans-1,2-Dichloroethene	0.0129	0.00324	0.0131	0.00330	0.013	**2**	25	**J**
75-34-3	1,1-Dichloroethane	0.147	0.0364	0.144	0.0356	0.1455	**2**	25	
156-59-2	cis-1,2-Dichloroethene	0.0513	0.0129	0.0502	0.0127	0.05075	**2**	25	
79-01-6	Trichloroethene	1.44	0.267	1.40	0.261	1.42	**3**	25	
127-18-4	Tetrachloroethene	0.0665	0.00981	0.0649	0.00958	0.0657	**2**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700183

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01201703.D
Analyst: Cory Lewis Date Analyzed: 1/20/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:26
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170120-LCS	01201704.D	02:58
17M567-1-01	P1700183-001	01201714.D	09:59
17M567-1-02	P1700183-002	01201715.D	10:31
17M567-1-03	P1700183-003	01201717.D	11:33
17M567-1-03 (Lab Duplicate)	P1700183-003DUP	01201718.D	12:05
17M567-A-01	P1700183-004	01201719.D	12:36
17M126-1-01-N	P1700183-005	01201720.D	13:07
17M126-1-02-N	P1700183-006	01201722.D	14:10
17M126-1-04-N	P1700183-007	01201723.D	14:41
17M326-1-02-N	P1700183-008	01201724.D	15:13
17M126-A-01-N	P1700183-009	01201725.D	15:44

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700183

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01201702.D

Analyst: Cory Lewis Date Analyzed: 1/20/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 01:55

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	55082		9.75	275080		11.71		42790		16.05	
	Upper Limit	77115		10.08	385112		12.04		59906		16.38	
	Lower Limit	33049		9.42	165048		11.38		25674		15.72	
	Client Sample ID											
01	Method Blank	54578		9.78	246137		11.72		40818		16.06	
02	Lab Control Sample	54838		9.76	276607		11.71		43344		16.05	
03	17M567-1-01	67164		9.76	344427		11.71		52852		16.05	
04	17M567-1-02	66763		9.76	338117		11.71		51687		16.05	
05	17M567-1-03	65263		9.76	328648		11.71		50703		16.05	
06	17M567-1-03 (Lab Duplicate)	66748		9.76	336015		11.71		52098		16.05	
07	17M567-A-01	66936		9.76	330182		11.71		51641		16.05	
08	17M126-1-01-N	62379		9.76	319349		11.71		49956		16.05	
09	17M126-1-02-N	60647		9.75	311310		11.71		48843		16.05	
10	17M126-1-04-N	60620		9.76	304227		11.71		48020		16.06	
11	17M326-1-02-N	58659		9.75	303212		11.71		47428		16.05	
12	17M126-A-01-N	59032		9.76	291723		11.71		46555		16.05	
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	67164	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	344427	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	52852	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	108255	930.675	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.07%			
33) Toluene-d8 (SS2)	14.15	98	353119	1032.111	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.21%			
45) Bromofluorobenzene (SS3)	17.55	174	112883	1167.498	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.75%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	211832	1248.451	pg	100
3) Chloromethane	4.64	52	11038	218.355	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	7570	45.347	pg	100
5) Vinyl Chloride	4.94	62	336	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.46	94	1063	16.291	pg	99
8) Chloroethane	5.70	64	609	12.203	pg	99
9) Acrolein	6.28	56	5189	146.366	pg	98
10) Acetone	6.41	58	96707	2109.776	pg #	44
11) Trichlorofluoromethane	6.60	101	83878	722.762	pg	100
12) 1,1-Dichloroethene	7.34	96	2585	35.554	pg	98
13) Methylene Chloride	7.48	84	17573	222.727	pg	100
14) Trichlorotrifluoroethane	7.80	151	23364	322.100	pg	100
15) trans-1,2-Dichloroethene	8.53	96	716	9.135	pg	97
16) 1,1-Dichloroethane	8.72	63	8102	58.263	pg	99
17) Methyl tert-Butyl Ether	8.81	73	856	N.D.		
18) cis-1,2-Dichloroethene	9.60	96	3748	45.567	pg	98
19) Chloroform	9.89	83	9511	65.040	pg	97
21) 1,2-Dichloroethane	10.64	62	4710	41.841	pg	100
22) 1,1,1-Trichloroethane	10.91	97	107664	793.131	pg	100
23) Benzene	11.37	78	115843	359.552	pg	100
24) Carbon Tetrachloride	11.52	117	29625	271.790	pg	99
26) 1,2-Dichloropropane	12.18	63	1228	13.997	pg	97
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.41	130	146886	1640.317	pg	99
29) 1,4-Dioxane	12.39	88	939	14.281	pg	98
30) cis-1,3-Dichloropropene	13.26	75	92	N.D.		
31) trans-1,3-Dichloropropene	13.77	75	174	N.D.		
32) 1,1,2-Trichloroethane	13.95	83	319	N.D.		
34) Toluene	14.25	91	474401	1484.565	pg	99
35) Dibromochloromethane	14.66	129	153	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	4101	44.169	pg	99
39) Chlorobenzene	0.00	112	0	N.D.	d	
40) Ethylbenzene	16.48	91	85597	284.898	pg	100
41) m,p-Xylene	16.65	91	262428	1164.520	pg	100
42) Styrene	17.01	104	9034	57.220	pg	92
43) o-Xylene	17.12	106	47086	406.725	pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.38	105	28877	121.052	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	101747	434.546	pg	88
48) 1,3-Dichlorobenzene	18.92	146	207	N.D.		
49) 1,4-Dichlorobenzene	18.99	146	2958	19.742	pg	100
50) 1,2-Dichlorobenzene	19.31	146	309	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	346	N.D.		
53) Naphthalene	21.06	128	40400	146.564	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

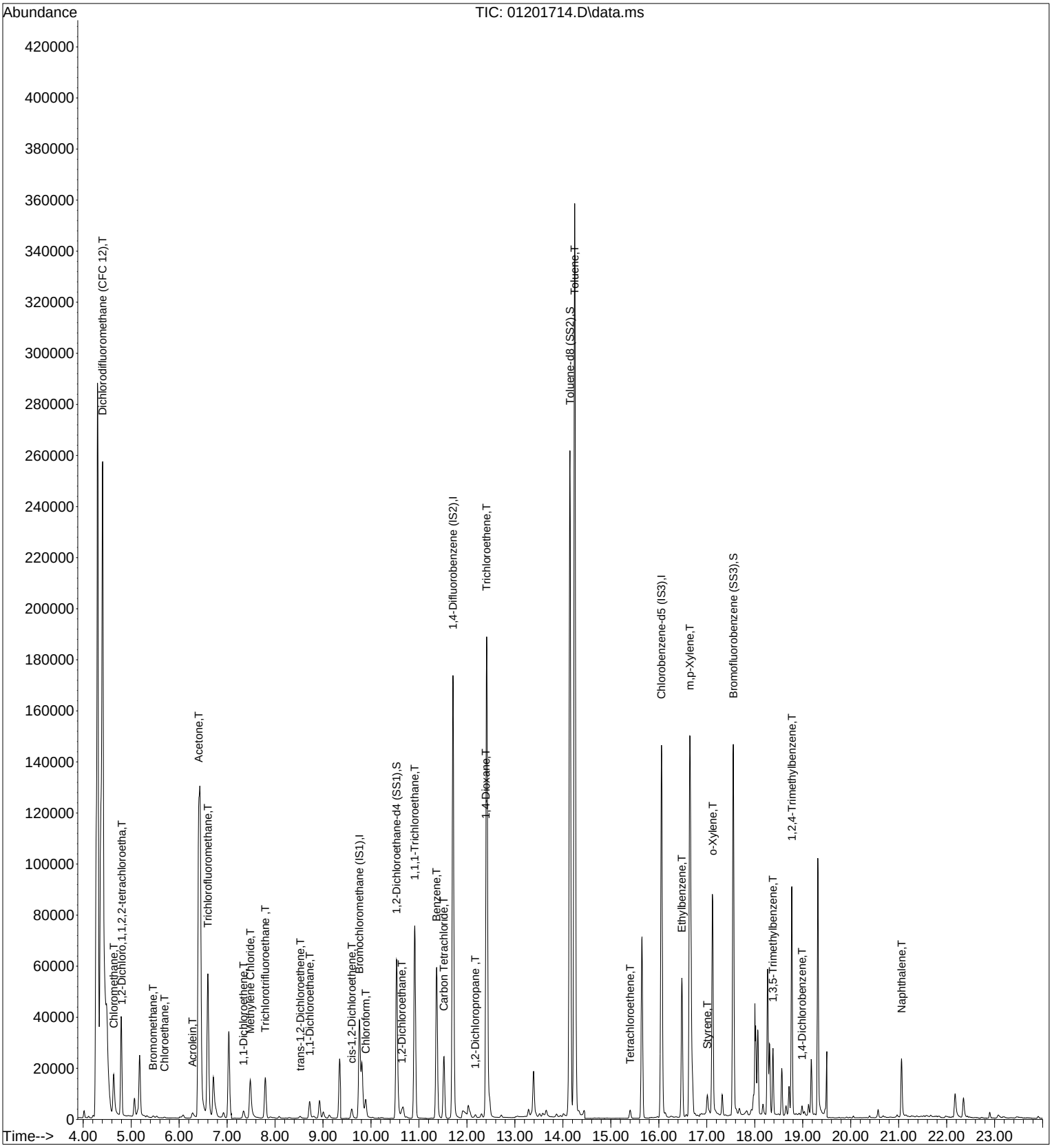
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	68	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

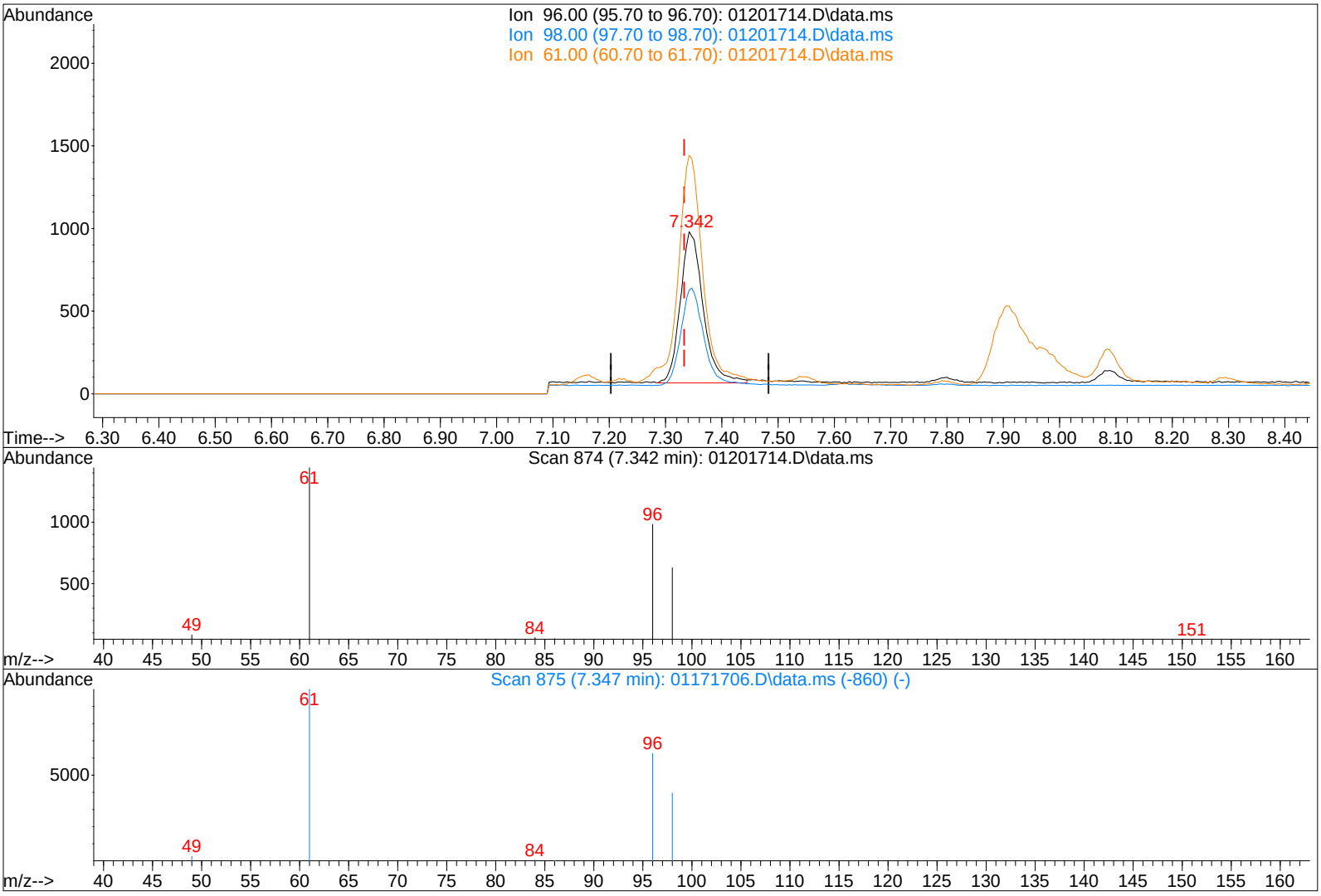
Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201714.D\data.ms

(12) 1,1-Dichloroethene (T)

7.342min (+0.009) 35.55pg

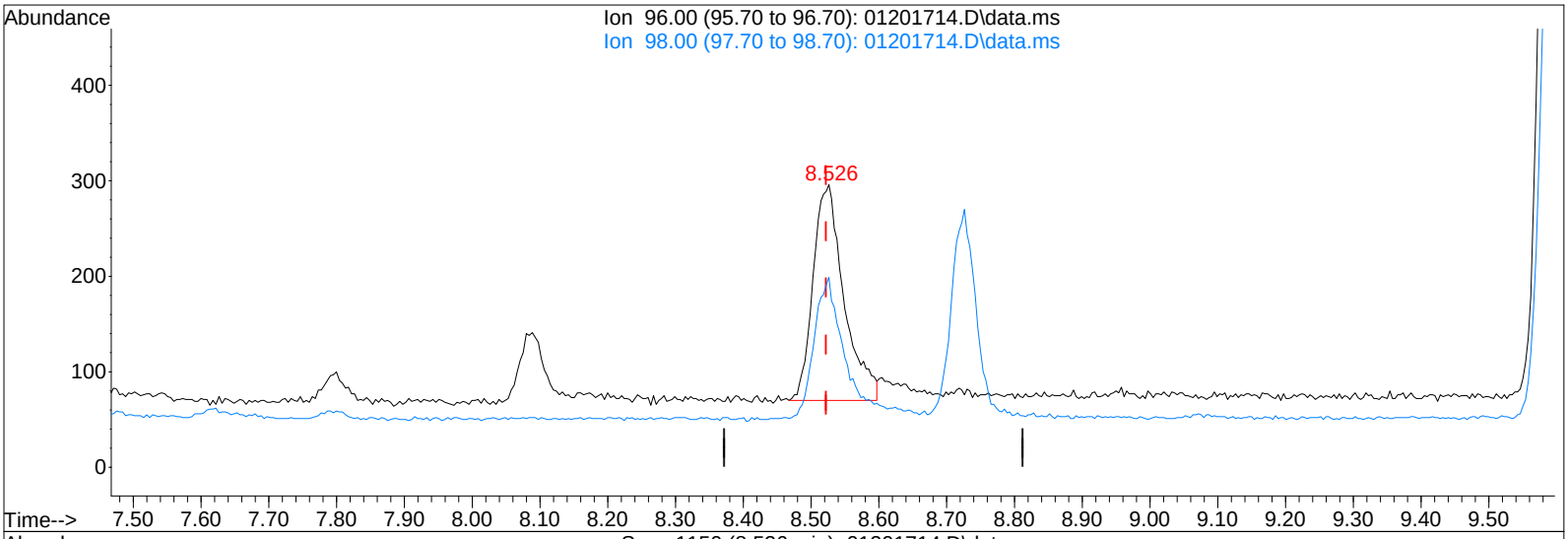
response 2585

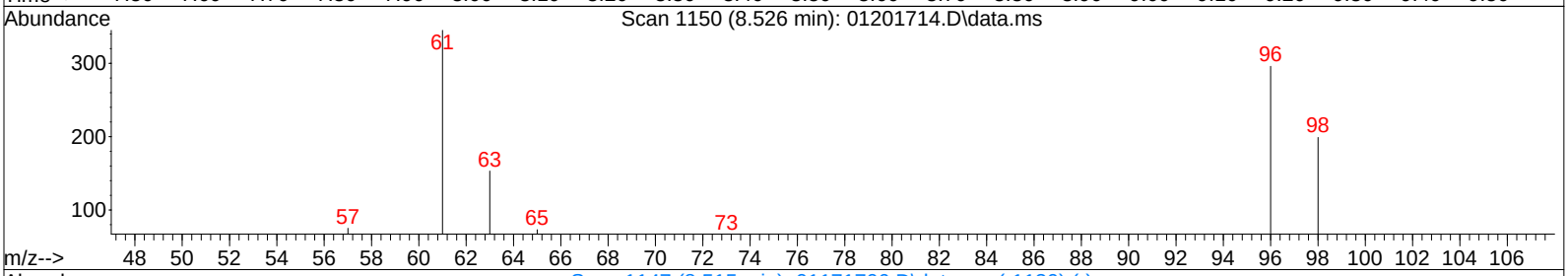
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	64.76
61.00	162.10	159.69
0.00	0.00	0.00

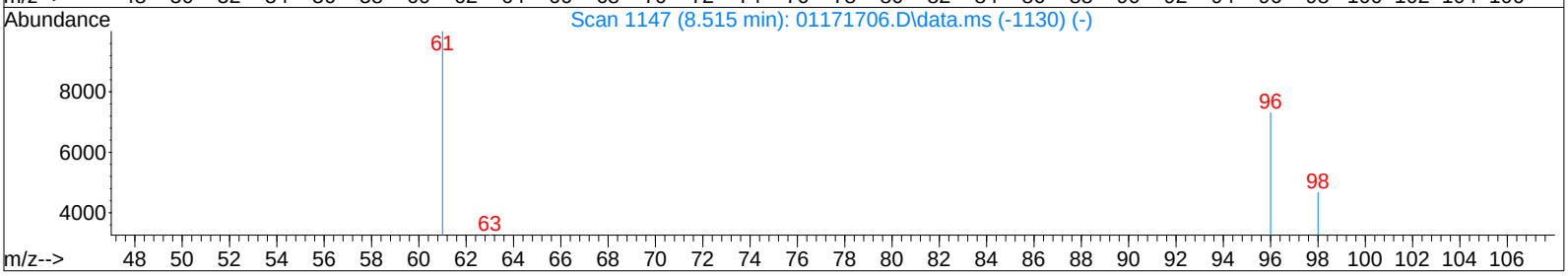
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01201714.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.526min (+0.004) 9.13pg

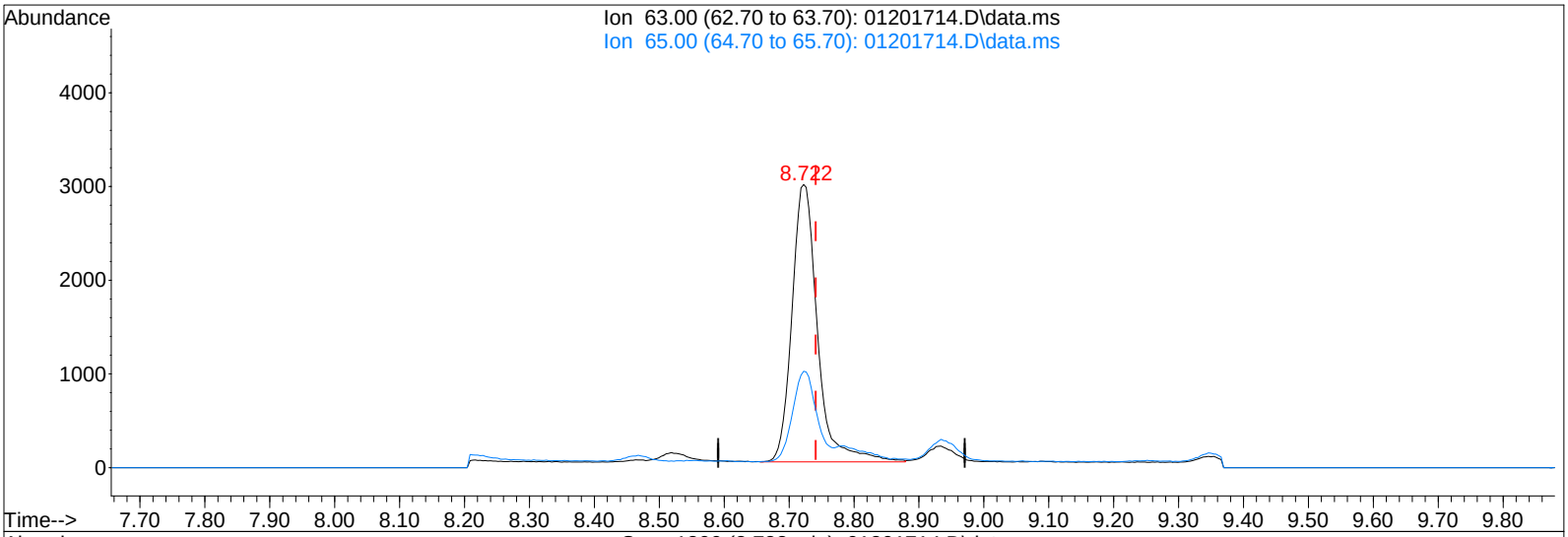
response 716

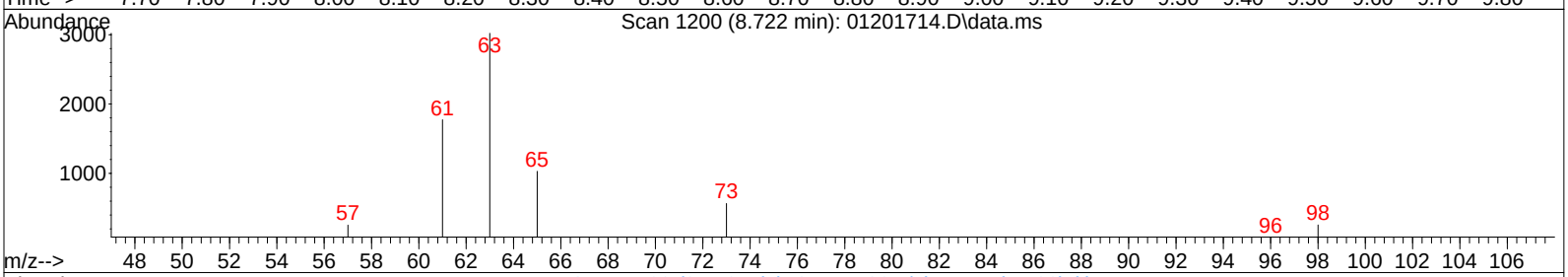
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.83
0.00	0.00	0.00
0.00	0.00	0.00

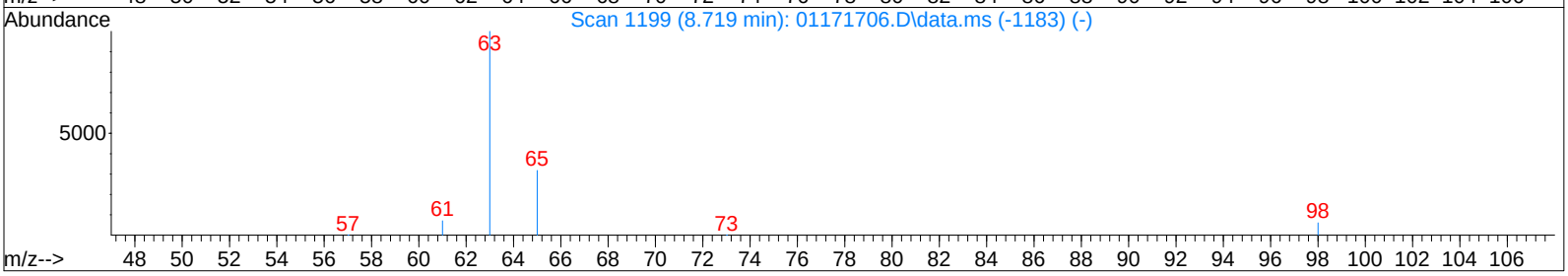
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01201714.D\data.ms

(16) 1,1-Dichloroethane (T)

8.722min (-0.019) 58.26pg

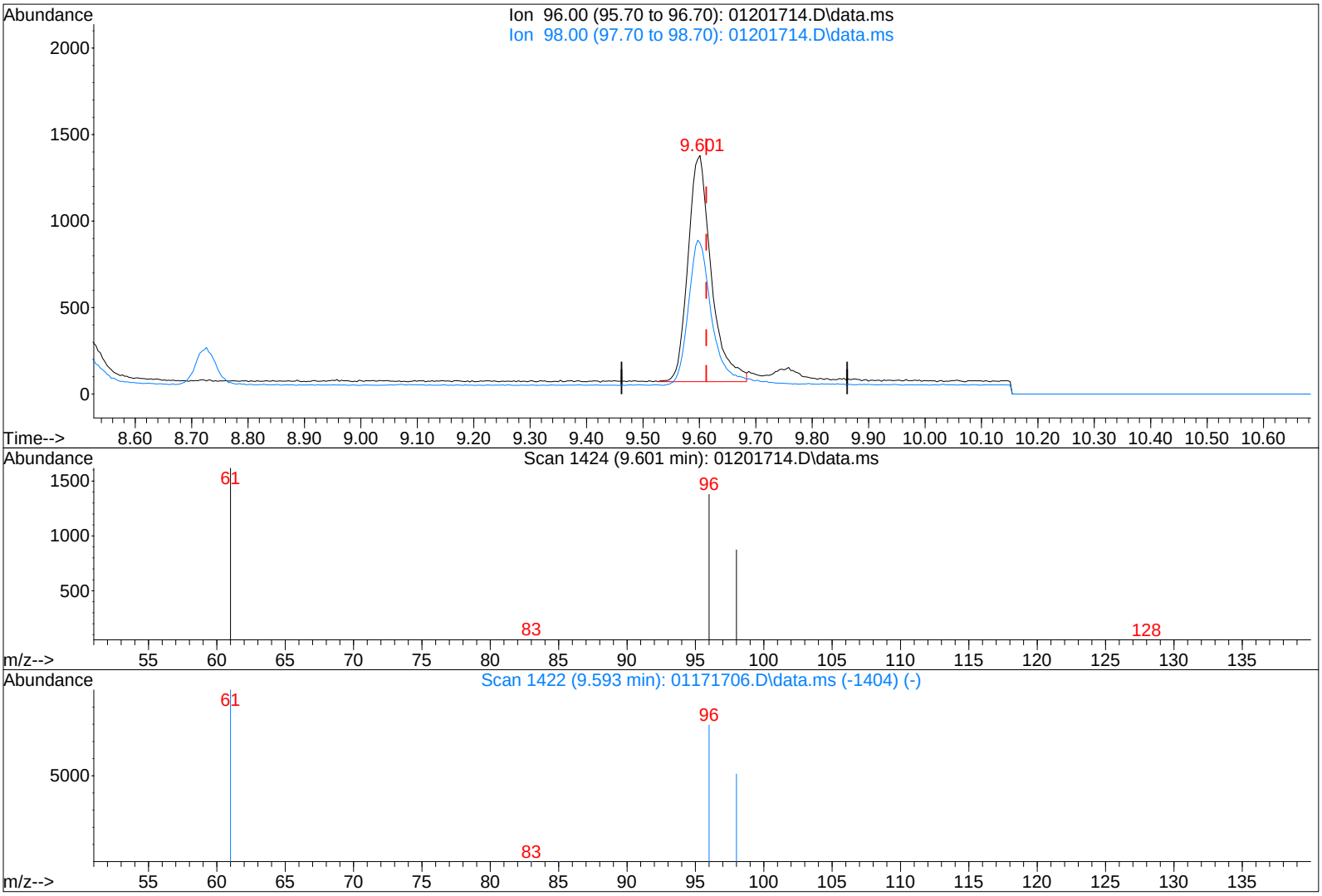
response 8102

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.03
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201714.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.601min (-0.011) 45.57pg

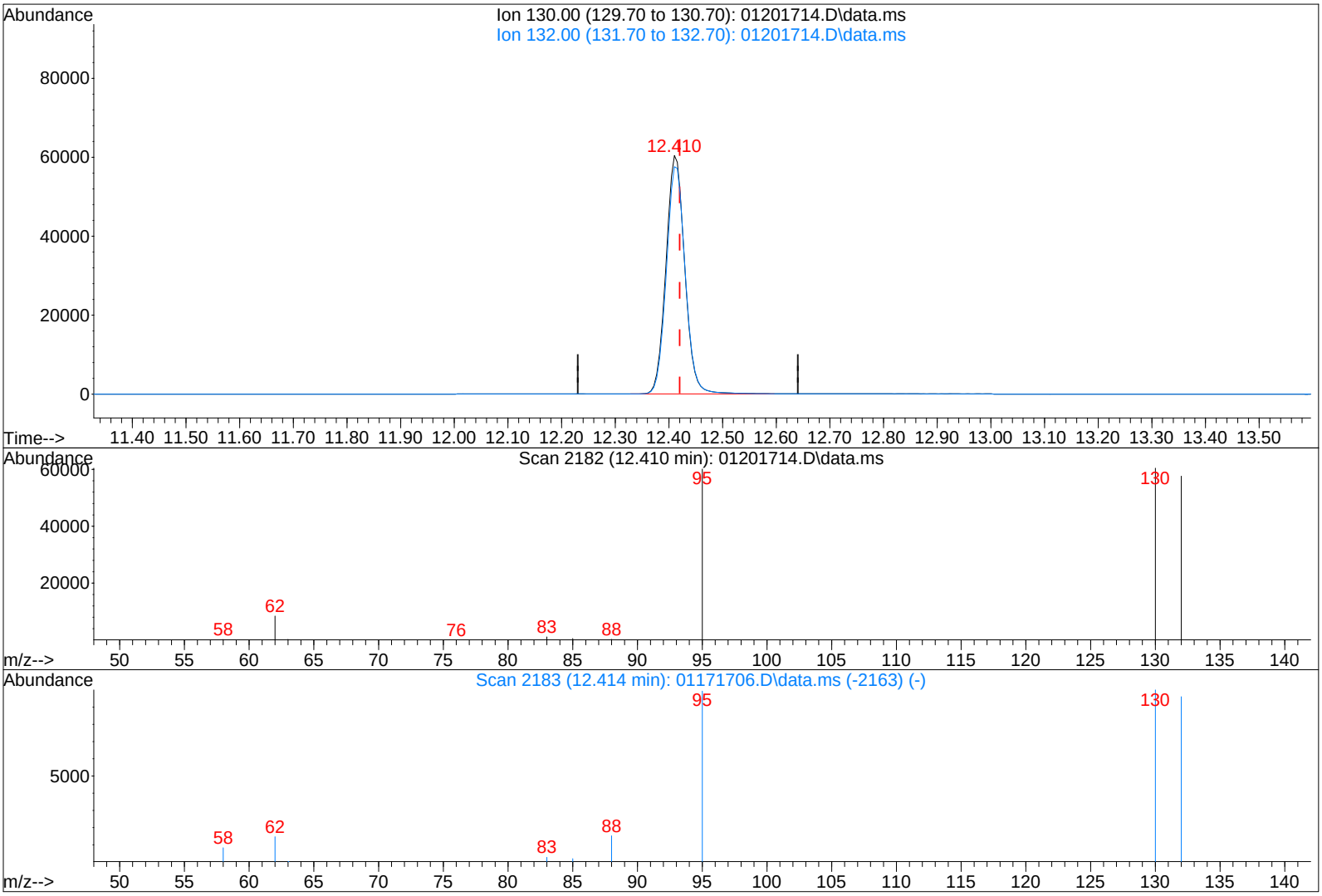
response 3748

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	65.05
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201714.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 1640.32pg

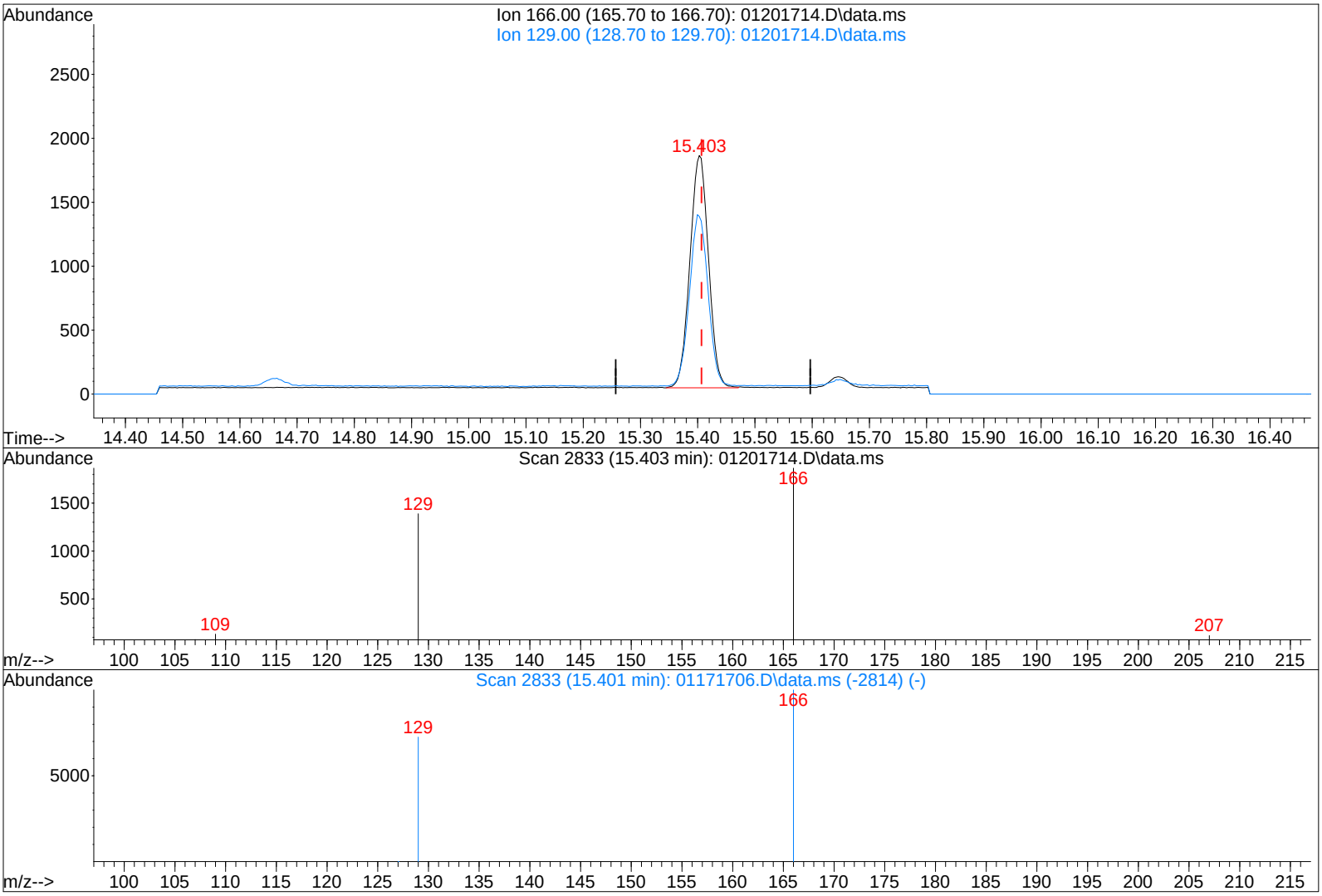
response 146886

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.04
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201714.D Vial: 1
Acq On : 20 Jan 2017 9:59 Operator: CL
Sample : P1700183-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:16:07 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201714.D\data.ms

(37) Tetrachloroethene (T)

15.403min (-0.004) 44.17pg

response 4101

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.74
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:36:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	60647	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	311310	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	48843	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	102500	975.891 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.59%		
33) Toluene-d8 (SS2)	14.15	98	318121	1028.731 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.87%		
45) Bromofluorobenzene (SS3)	17.55	174	103457	1157.835 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.78%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	173171	1130.270 pg	100
3) Chloromethane	4.65	52	7930	173.729 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	4914	32.600 pg	100
5) Vinyl Chloride	4.95	62	72303	493.638 pg	98
6) 1,3-Butadiene	5.08	54	394	N.D.	
7) Bromomethane	5.48	94	852	14.460 pg	99
8) Chloroethane	5.69	64	383	8.499 pg	95
9) Acrolein	6.26	56	7351	229.630 pg	98
10) Acetone	6.39	58	234354	5662.107 pg	96
11) Trichlorofluoromethane	6.60	101	55864	533.098 pg	100
12) 1,1-Dichloroethene	7.34	96	10706	163.074 pg	97
13) Methylene Chloride	7.48	84	14722	206.643 pg	98
14) Trichlorotrifluoroethane	7.80	151	15489	236.480 pg	100
15) trans-1,2-Dichloroethene	8.51	96	4430	62.592 pg	96
16) 1,1-Dichloroethane	8.71	63	16763	133.499 pg	98
17) Methyl tert-Butyl Ether	8.80	73	523	N.D.	
18) cis-1,2-Dichloroethene	9.58	96	689291	9280.720 pg	99
19) Chloroform	9.89	83	11569	87.615 pg	98
21) 1,2-Dichloroethane	10.64	62	5805	57.110 pg	98
22) 1,1,1-Trichloroethane	10.91	97	2242	18.291 pg	99
23) Benzene	11.37	78	43888	150.857 pg	100
24) Carbon Tetrachloride	11.52	117	17647	179.297 pg	97
26) 1,2-Dichloropropane	12.18	63	760	9.584 pg	92
27) Bromodichloromethane	12.31	83	393	N.D.	
28) Trichloroethene	12.41	130	566540	6999.741 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d	
32) 1,1,2-Trichloroethane	13.95	83	1573	23.452 pg	93
34) Toluene	14.25	91	183559	635.526 pg	99
35) Dibromochloromethane	14.66	129	92	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	1318288	15708.762 pg	100
39) Chlorobenzene	16.11	112	756	N.D.	
40) Ethylbenzene	16.48	91	39190	141.145 pg	100
41) m,p-Xylene	16.65	91	118272	567.908 pg	100
42) Styrene	17.01	104	26754	183.364 pg	100
43) o-Xylene	17.12	106	21966	205.314 pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	4278	19.405 pg	96
47) 1,2,4-Trimethylbenzene	18.77	105	14567	67.320 pg	88
48) 1,3-Dichlorobenzene	18.92	146	99	N.D.	
49) 1,4-Dichlorobenzene	18.99	146	8049	58.130 pg	99
50) 1,2-Dichlorobenzene	19.31	146	344	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	255	N.D.	
53) Naphthalene	21.06	128	19755	77.550 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:36:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

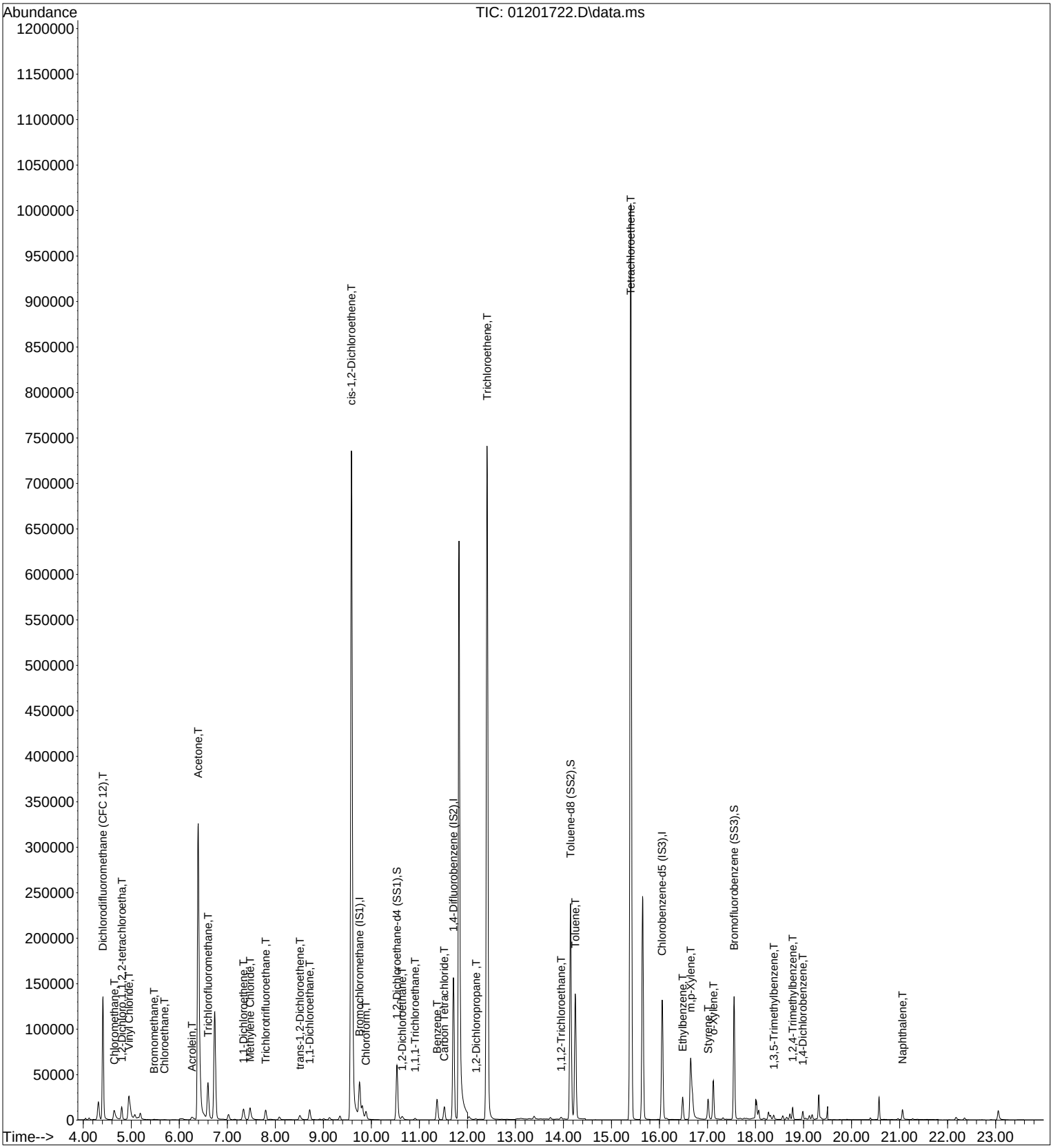
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

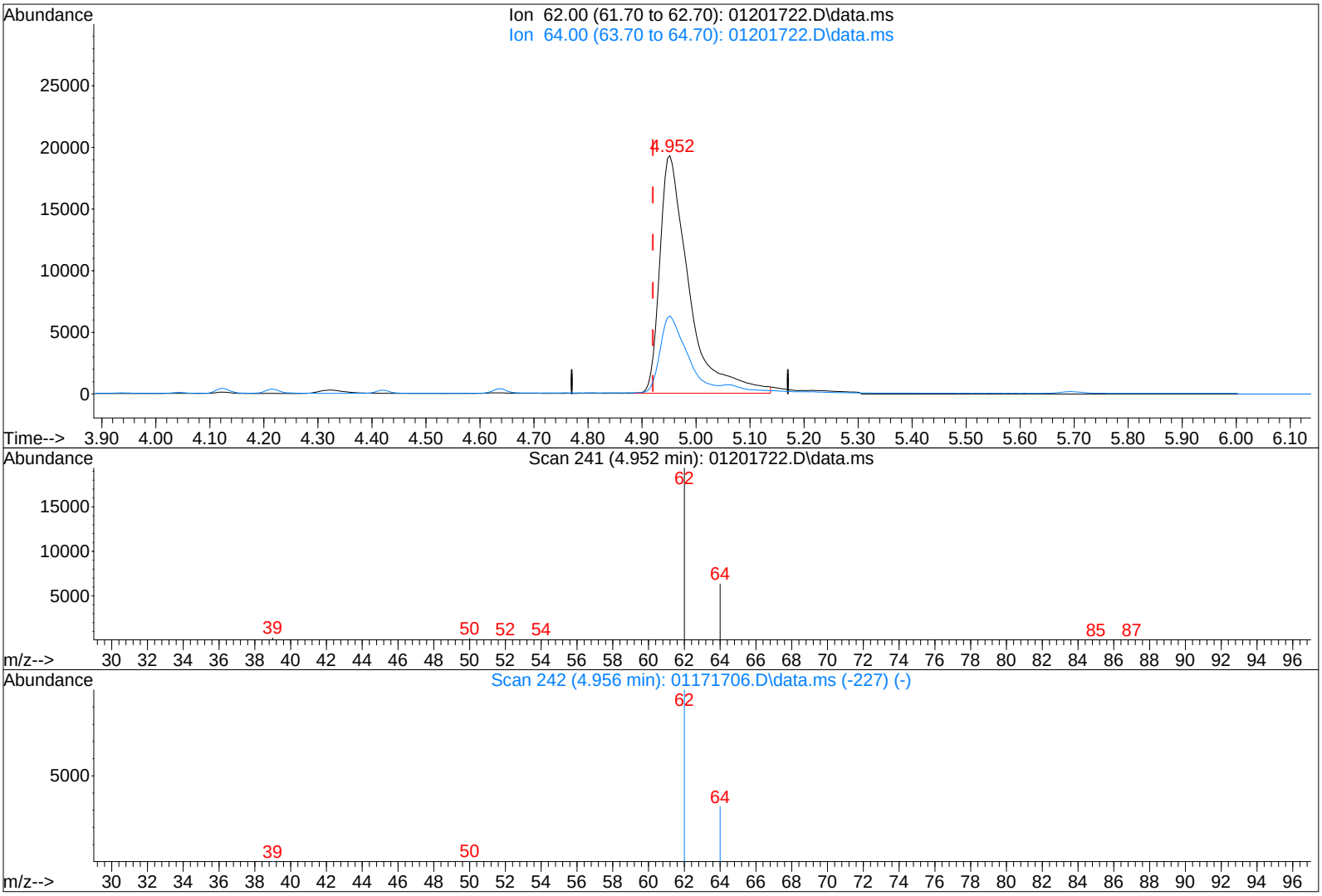
Quant Time: Jan 20 14:36:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201722.D\data.ms

(5) Vinyl Chloride (T)

4.952min (+0.032) 493.64pg

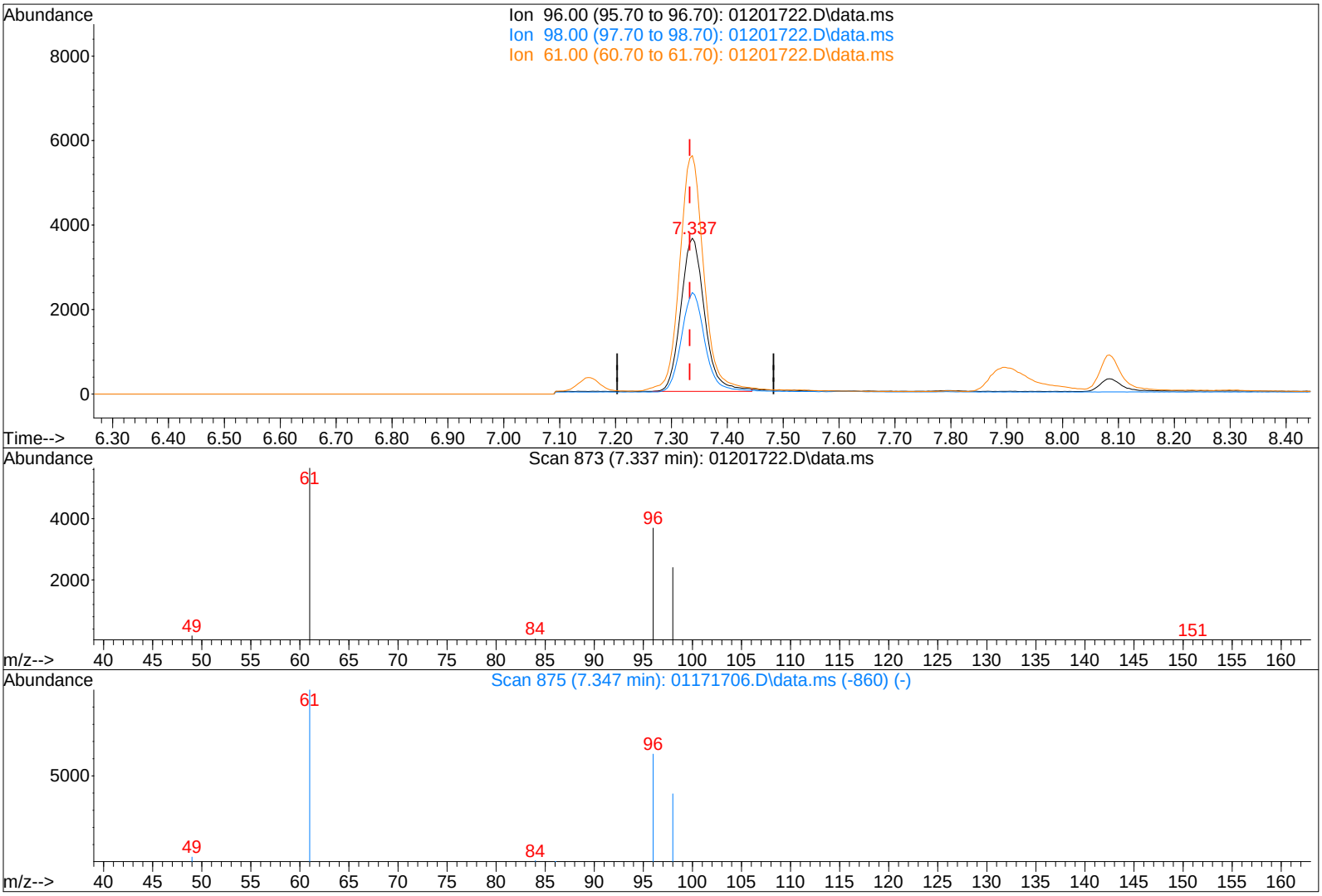
response 72303

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	32.78
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201722.D\data.ms

(12) 1,1-Dichloroethene (T)

7.337min (+0.004) 163.07pg

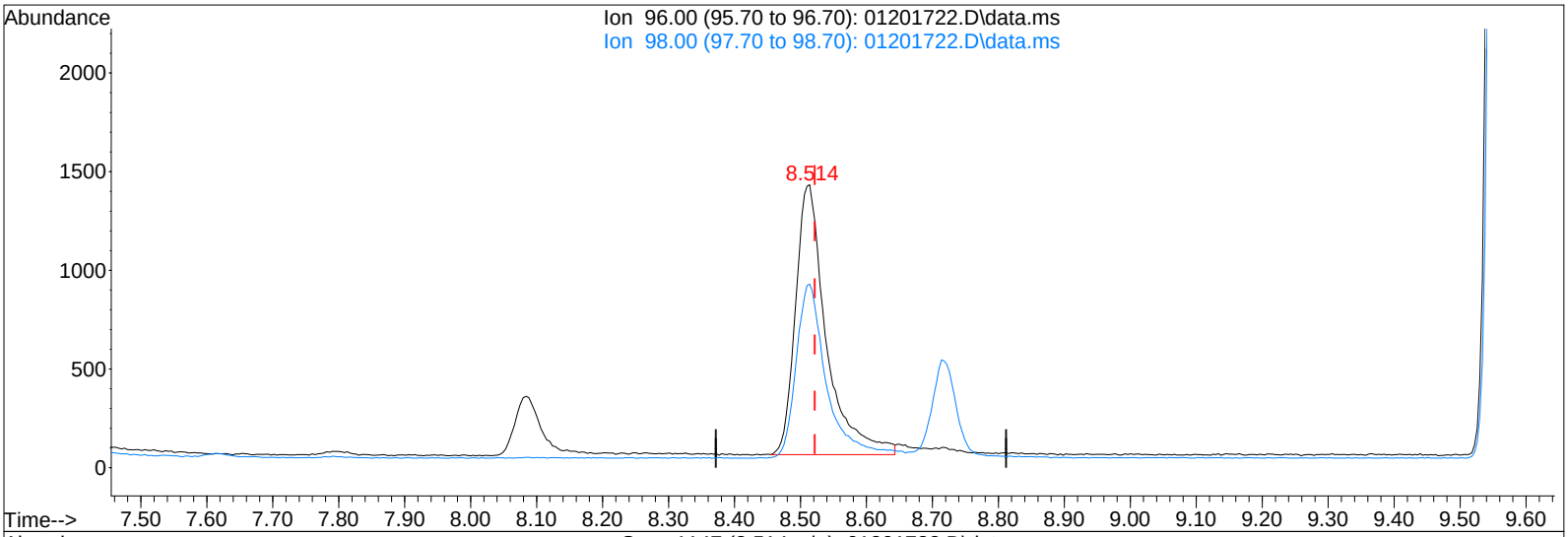
response 10706

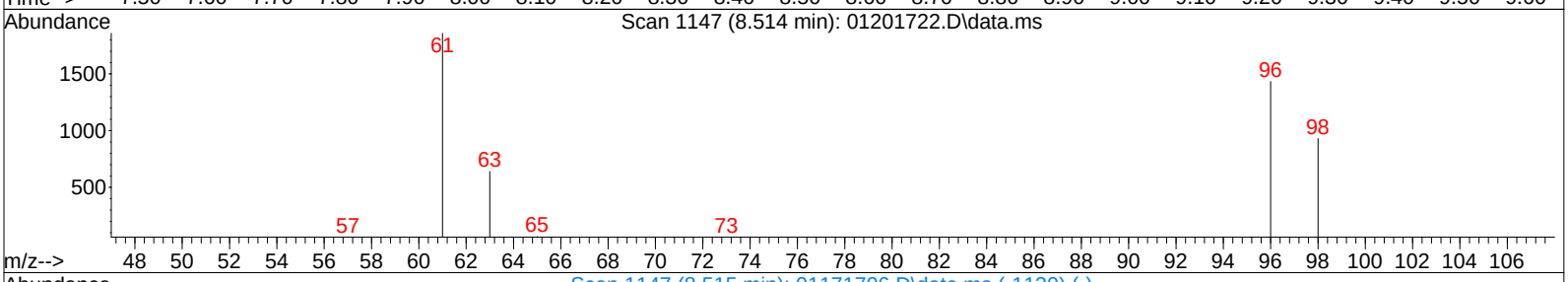
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	64.43
61.00	162.10	157.16
0.00	0.00	0.00

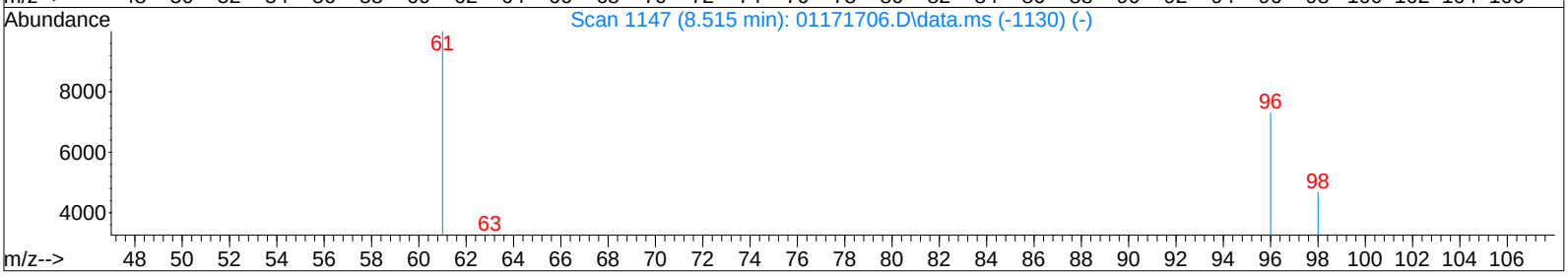
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01201722.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.514min (-0.008) 62.59pg

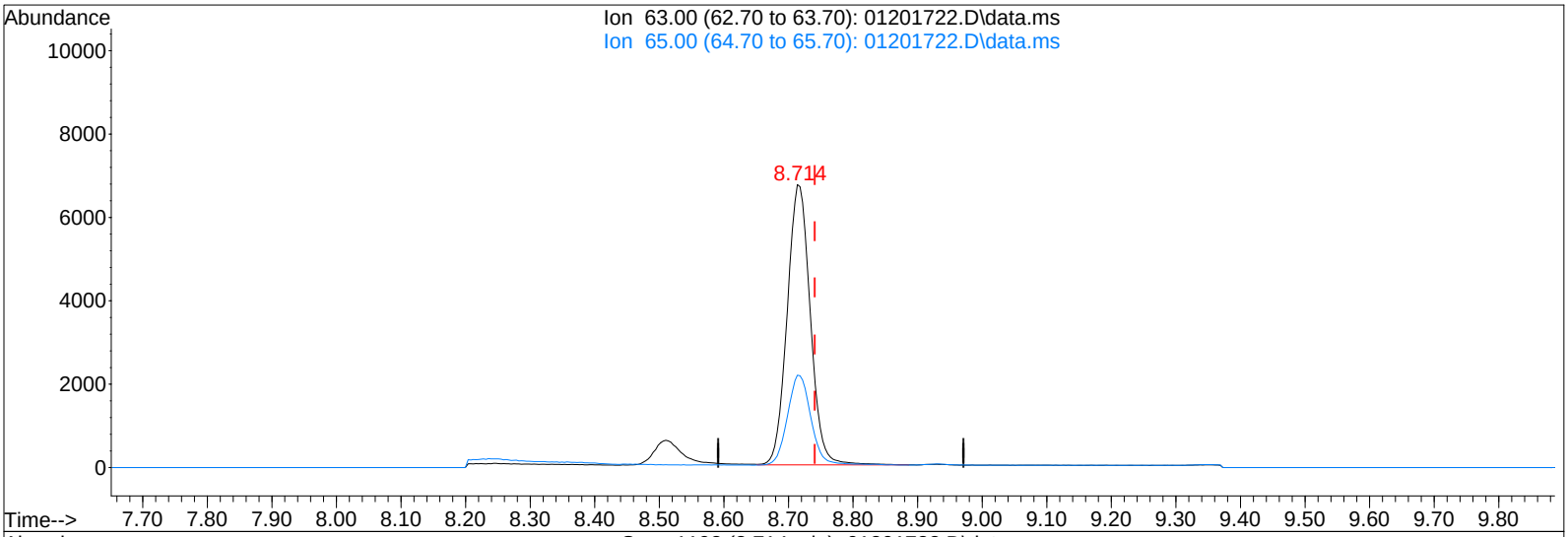
response 4430

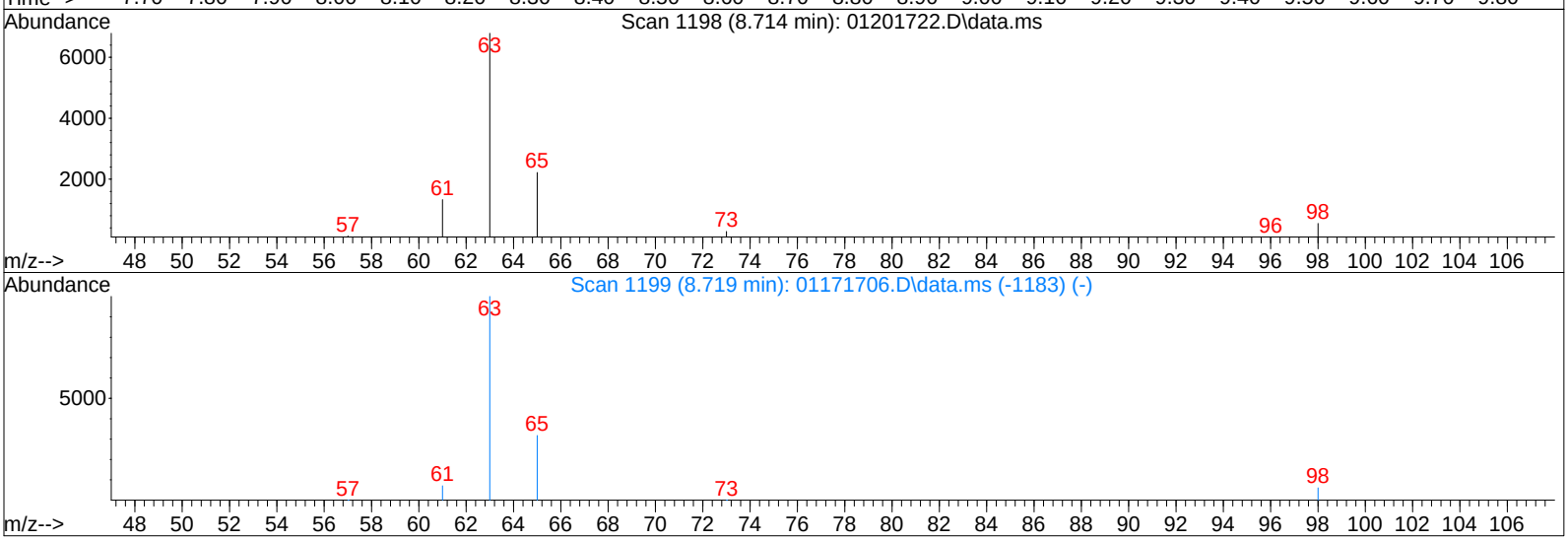
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	65.06
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01201722.D\data.ms

(16) 1,1-Dichloroethane (T)

8.714min (-0.027) 133.50pg

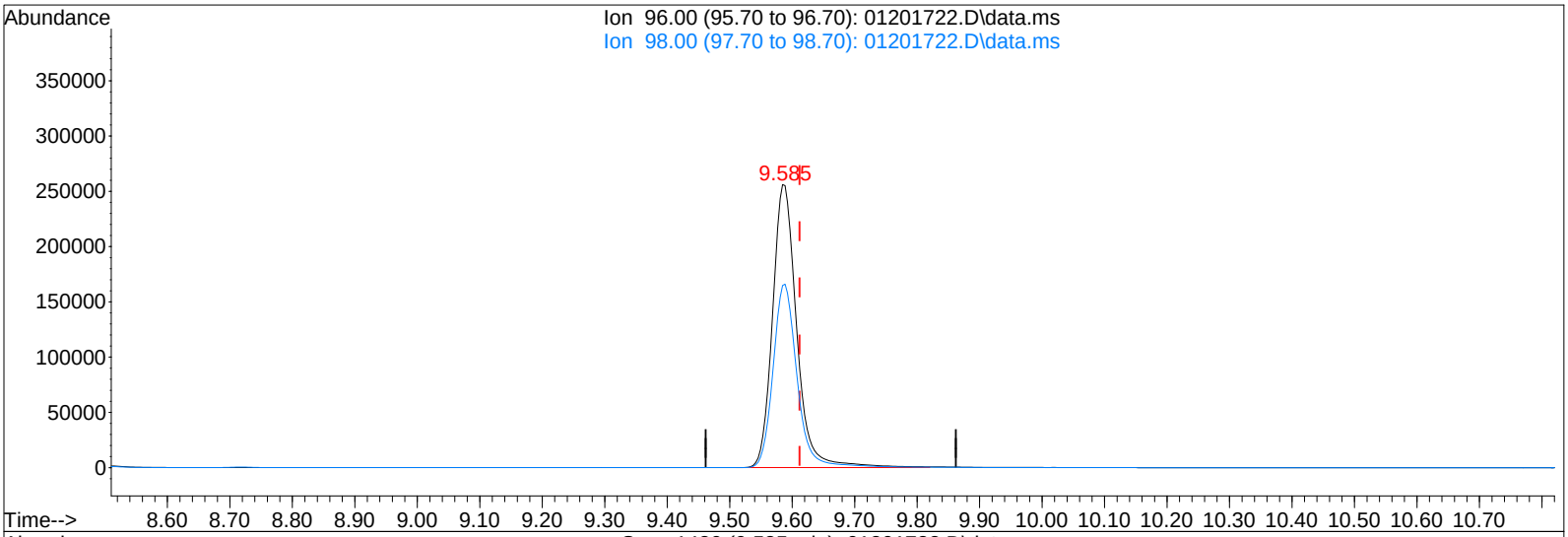
response 16763

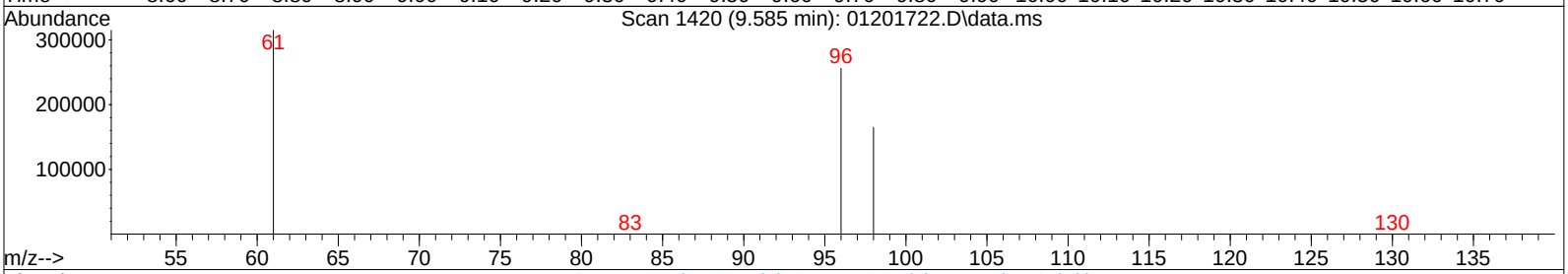
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	32.65
0.00	0.00	0.00
0.00	0.00	0.00

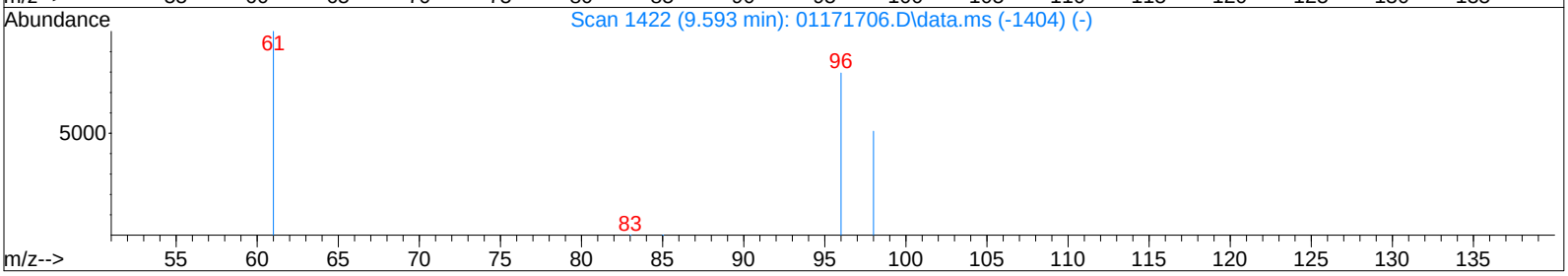
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01201722.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.585min (-0.027) 9280.72pg

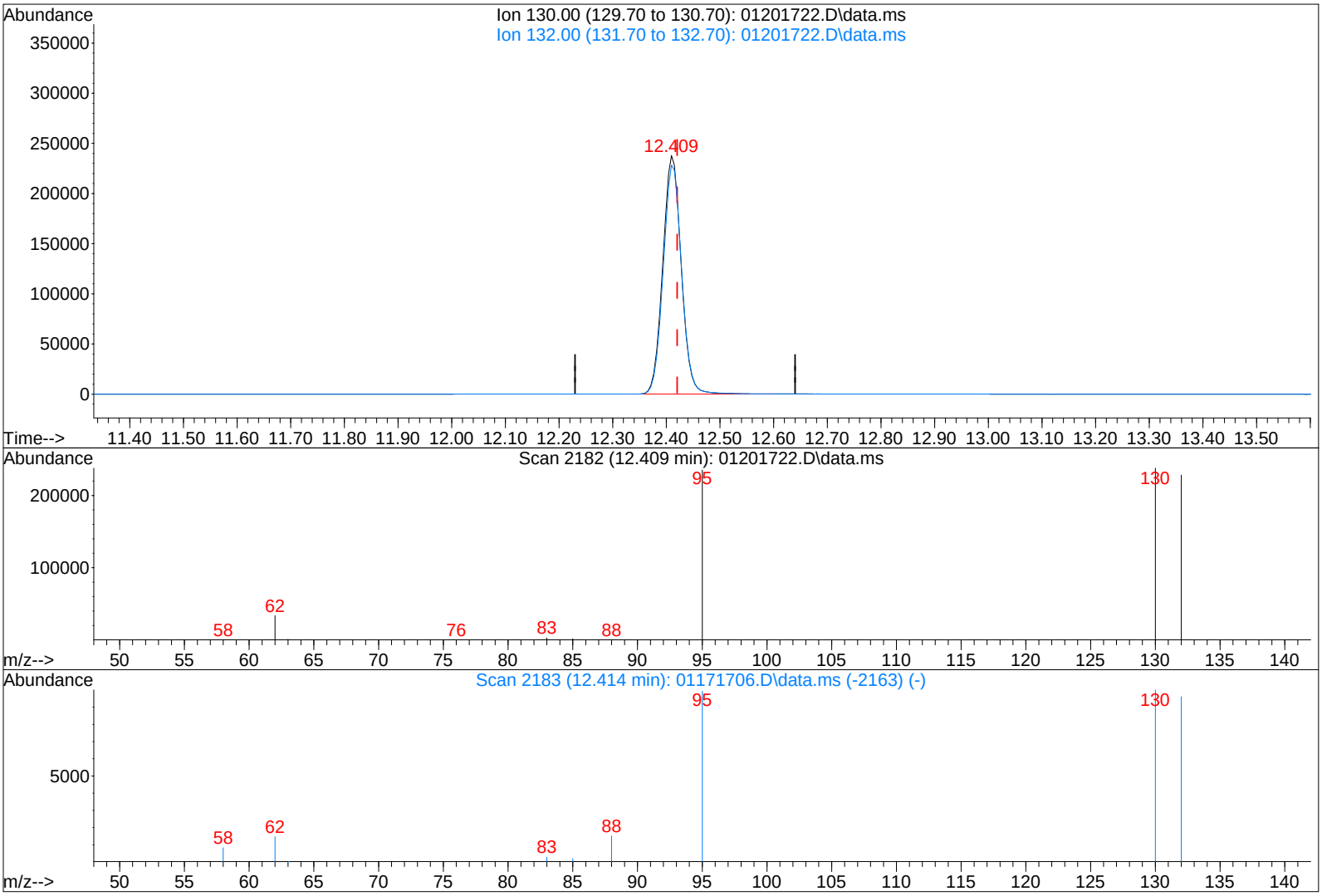
response 689291

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.52
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201722.D\data.ms

(28) Trichloroethene (T)

12.409min (-0.011) 6999.74pg

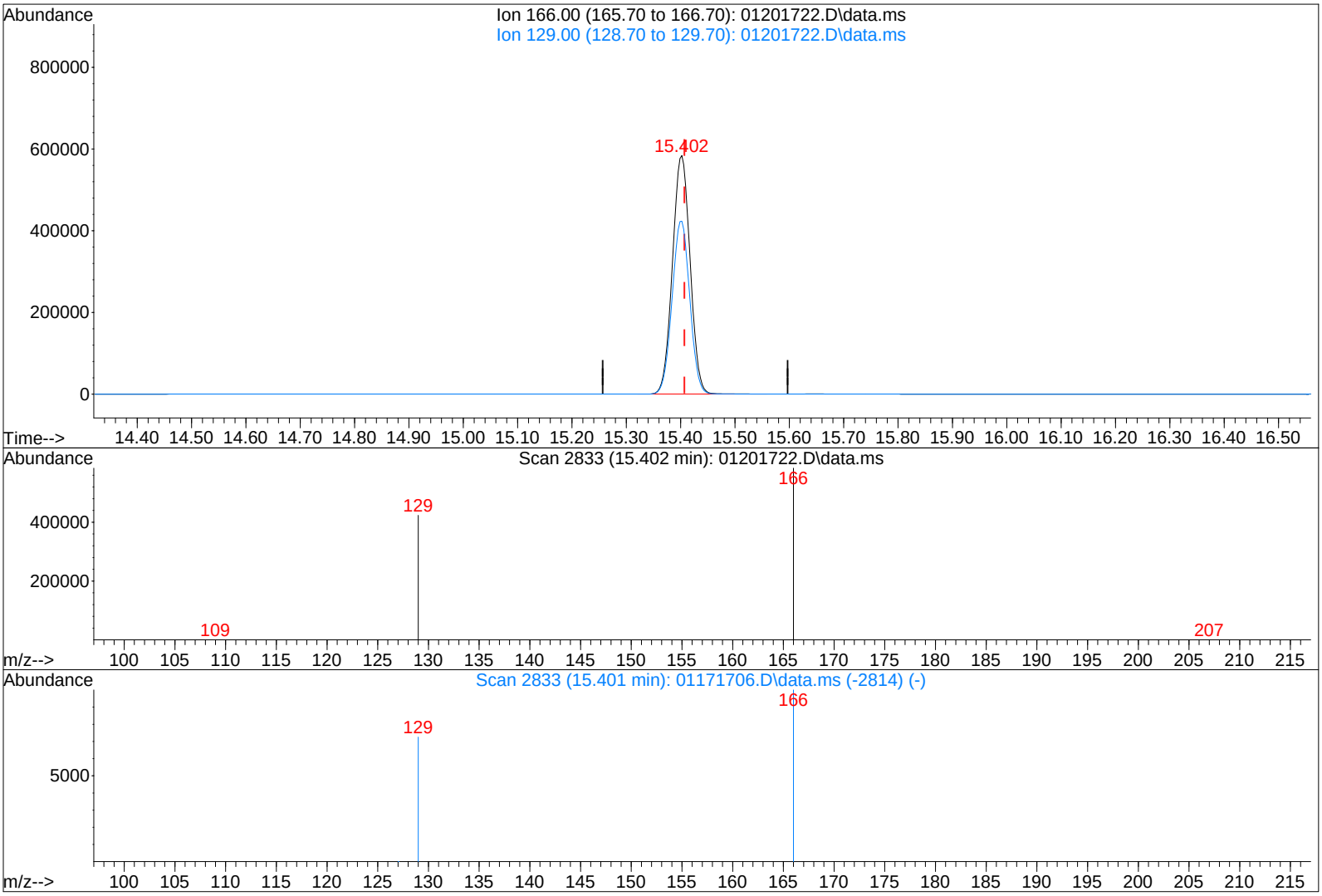
response 566540

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.22
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201722.D Vial: 7
Acq On : 20 Jan 2017 14:10 Operator: CL
Sample : P1700183-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 20 14:35:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201722.D\data.ms

(37) Tetrachloroethene (T)

15.402min (-0.005) 15708.76pg

response 1318288

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	72.79
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	54578	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	246137	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	40818	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	91993	973.249	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.32%			
33) Toluene-d8 (SS2)	14.15	98	249041	1018.584	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.86%			
45) Bromofluorobenzene (SS3)	17.56	174	73368	982.526	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	100	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	5612	150.666	pg	# 83
11) Trichlorofluoromethane	6.65	101	50	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	273	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	129	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.90	83	1239	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	4804	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.43	130	71	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	867	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.10	112	134	N.D.		
40) Ethylbenzene	16.49	91	112	N.D.		
41) m,p-Xylene	16.67	91	236	N.D.		
42) Styrene	17.04	104	150	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	119	N.D.		
46) 1,3,5-Trimethylbenzene	18.40	105	51	N.D.		
47) 1,2,4-Trimethylbenzene	18.79	105	87	N.D.		
48) 1,3-Dichlorobenzene	18.94	146	110	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	161	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	104	N.D.		
51) 1,2-Dibromo-3-chloropr...	19.73	157	57	N.D.		
52) 1,2,4-Trichlorobenzene	21.00	182	261	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

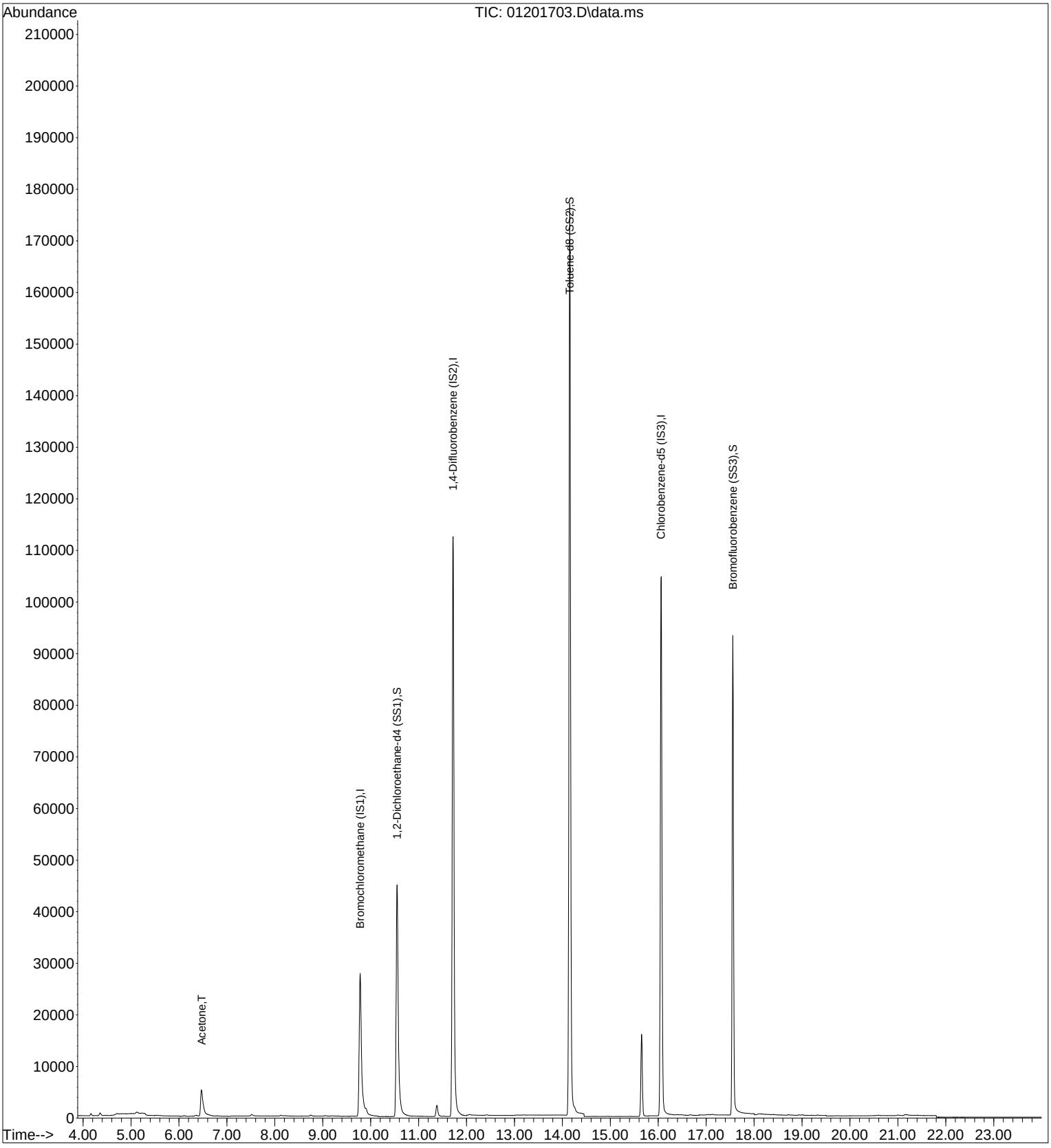
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	61	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

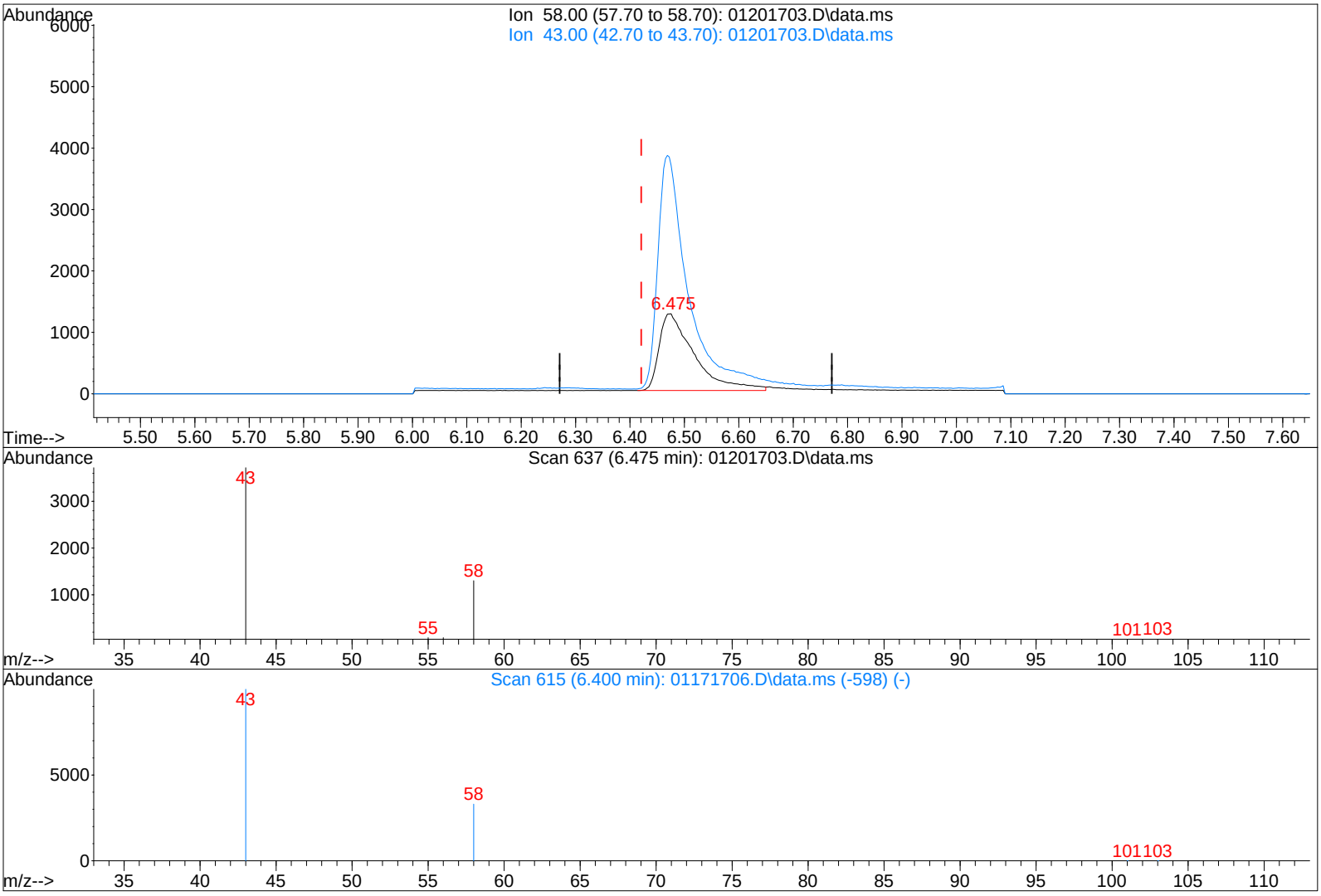
Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\20\01201703.D Vial: 2
Acq On : 20 Jan 2017 2:26 Operator: CL
Sample : MB S19012017 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 20 07:13:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01201703.D\data.ms

(10) Acetone (T)

6.475min (+0.054) 150.67pg

response 5612

Ion	Exp%	Act%
58.00	100	100
43.00	303.20	269.10#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	54838	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	276607	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	43344	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	92226	971.088	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.11%			
33) Toluene-d8 (SS2)	14.15	98	266856	971.218	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.12%			
45) Bromofluorobenzene (SS3)	17.56	174	85500	1078.267	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.83%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	72919	526.351	pg	100
3) Chloromethane	4.65	52	19174	464.558	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	59443	436.121	pg	100
5) Vinyl Chloride	4.95	62	63222	477.362	pg	100
6) 1,3-Butadiene	5.14	54	33210	421.759	pg	99
7) Bromomethane	5.47	94	27748	520.824	pg	99
8) Chloroethane	5.70	64	20498	503.053	pg	100
9) Acrolein	6.27	56	13083	451.978	pg	98
10) Acetone	6.40	58	100443	2683.818	pg	100
11) Trichlorofluoromethane	6.61	101	51844	547.143	pg	100
12) 1,1-Dichloroethene	7.35	96	30655	516.400	pg	99
13) Methylene Chloride	7.48	84	35594	552.533	pg	97
14) Trichlorotrifluoroethane	7.80	151	30842	520.763	pg	100
15) trans-1,2-Dichloroethene	8.51	96	33468	522.964	pg	96
16) 1,1-Dichloroethane	8.72	63	59581	524.759	pg	100
17) Methyl tert-Butyl Ether	8.79	73	88782	524.020	pg	99
18) cis-1,2-Dichloroethene	9.59	96	35262	525.066	pg	100
19) Chloroform	9.89	83	62277	521.598	pg	100
21) 1,2-Dichloroethane	10.64	62	46661	507.684	pg	100
22) 1,1,1-Trichloroethane	10.91	97	54093	488.057	pg	100
23) Benzene	11.37	78	153140	582.151	pg	100
24) Carbon Tetrachloride	11.52	117	46419	521.586	pg	100
26) 1,2-Dichloropropane	12.17	63	32900	466.960	pg	100
27) Bromodichloromethane	12.35	83	46359	476.488	pg	100
28) Trichloroethene	12.41	130	35444	492.861	pg	100
29) 1,4-Dioxane	12.38	88	26012	492.591	pg	99
30) cis-1,3-Dichloropropene	13.26	75	47670	503.031	pg	100
31) trans-1,3-Dichloropropene	13.77	75	39804	516.130	pg	100
32) 1,1,2-Trichloroethane	13.95	83	28587	479.684	pg	99
34) Toluene	14.25	91	131132	510.971	pg	99
35) Dibromochloromethane	14.66	129	34608	486.988	pg	100
36) 1,2-Dibromoethane	14.92	107	34344	510.977	pg	100
37) Tetrachloroethene	15.40	166	36570	490.441	pg	100
39) Chlorobenzene	16.10	112	89790	537.378	pg	100
40) Ethylbenzene	16.48	91	134211	544.692	pg	100
41) m,p-Xylene	16.66	91	215551	1166.324	pg	100
42) Styrene	17.01	104	74507	575.434	pg	100
43) o-Xylene	17.12	106	55163	581.017	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	58076	532.368	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	118602	606.239	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	119932	624.571	pg	100
48) 1,3-Dichlorobenzene	18.92	146	71280	603.960	pg	100
49) 1,4-Dichlorobenzene	18.98	146	69697	567.215	pg	100
50) 1,2-Dichlorobenzene	19.31	146	69402	577.037	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	21122	580.952	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	38691	543.479	pg	100
53) Naphthalene	21.06	128	129044	570.842	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

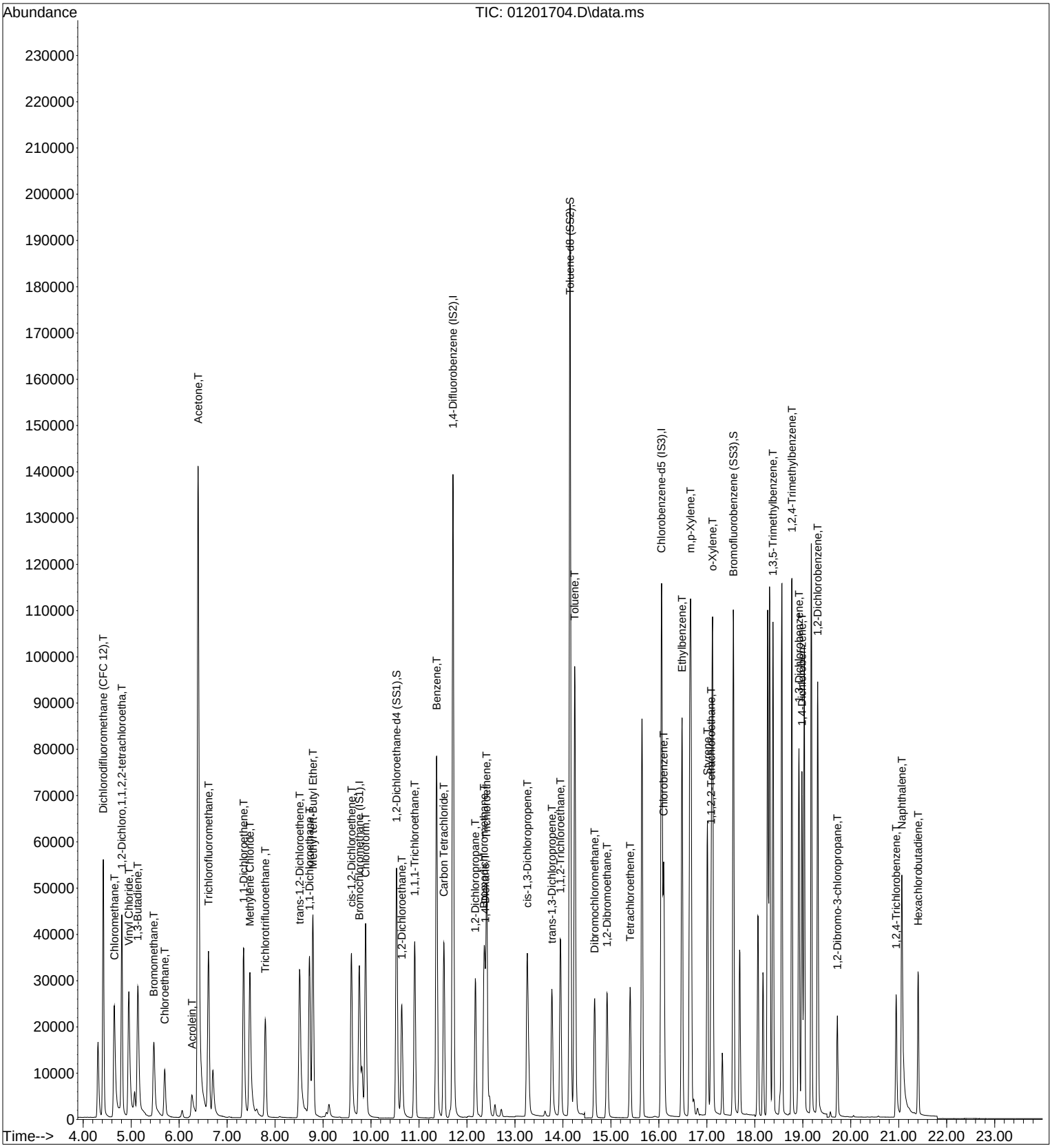
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	30662	544.404	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201704.D Vial: 2
Acq On : 20 Jan 2017 2:58 Operator: CL
Sample : LCS S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 20 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane		1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771		25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride		2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488		11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704	
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703	
4ng/L Std. ID:	S29-01171706				

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

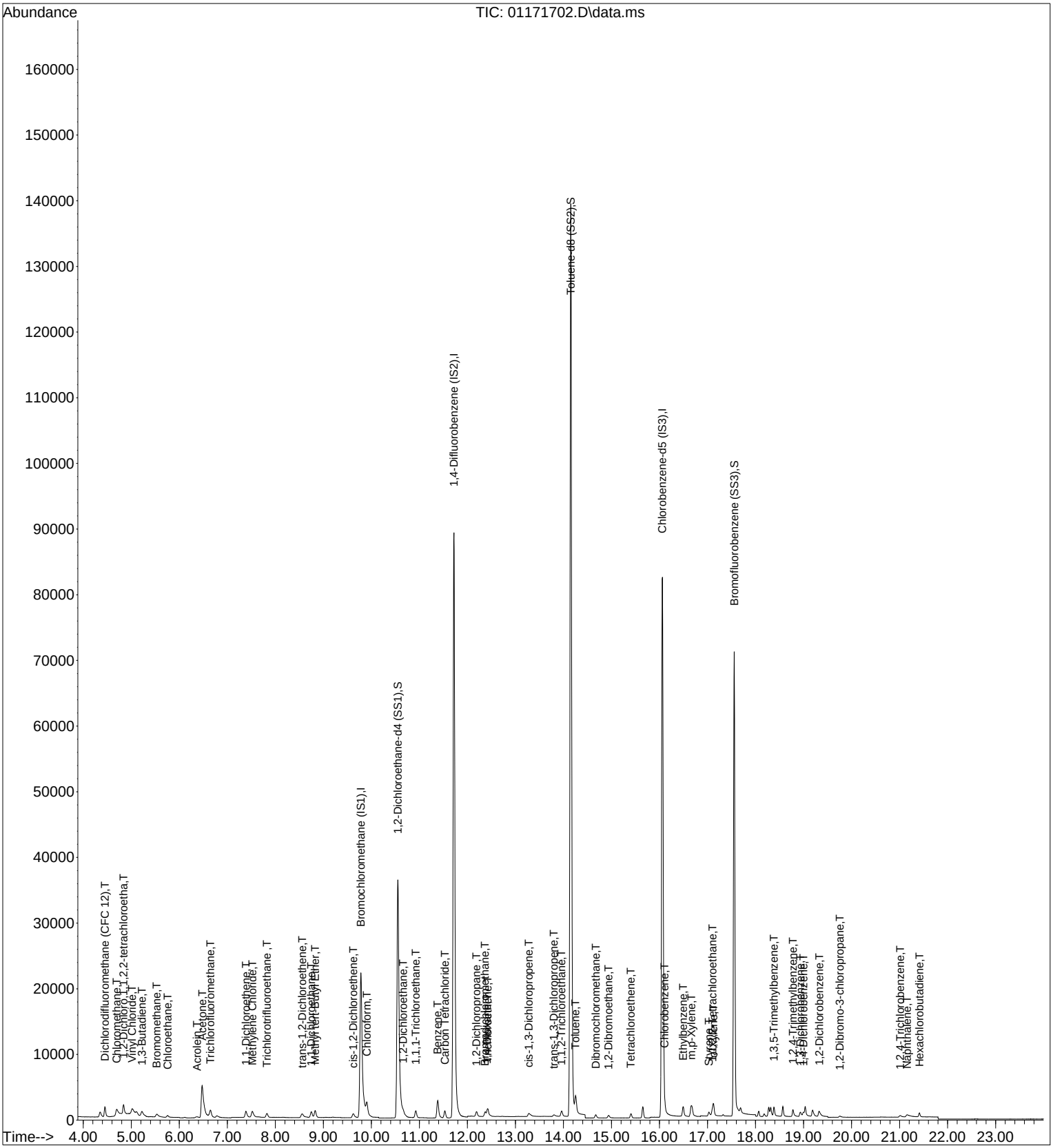
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

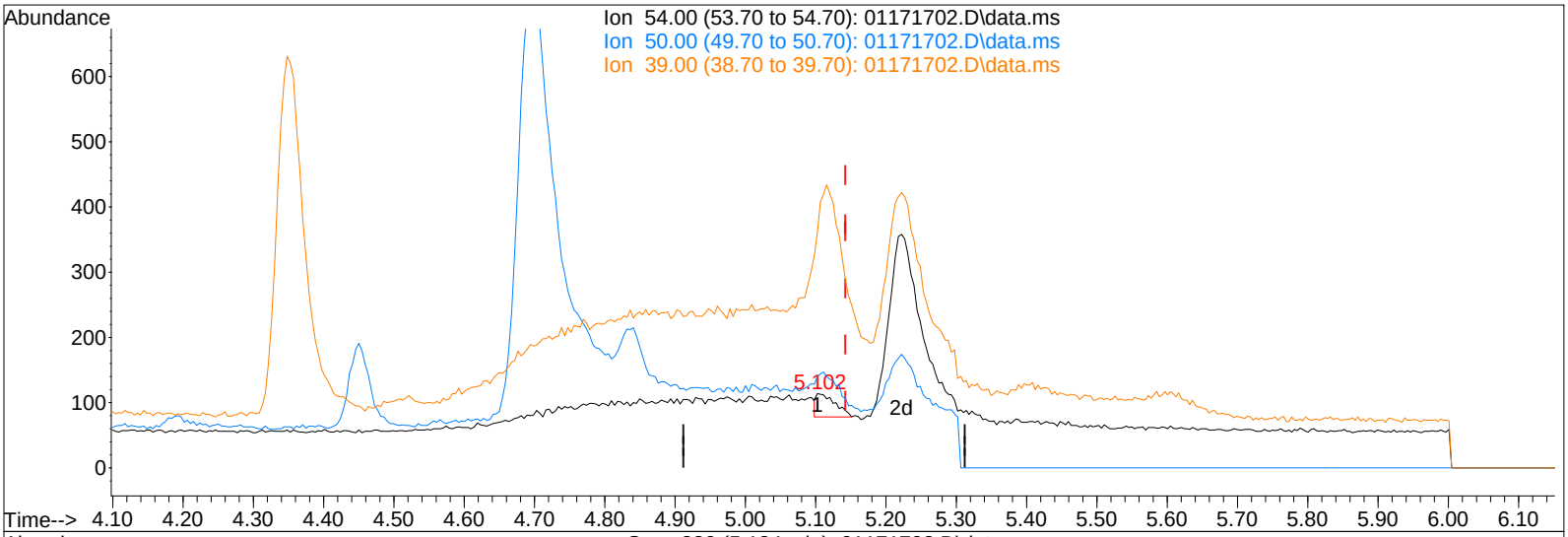
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

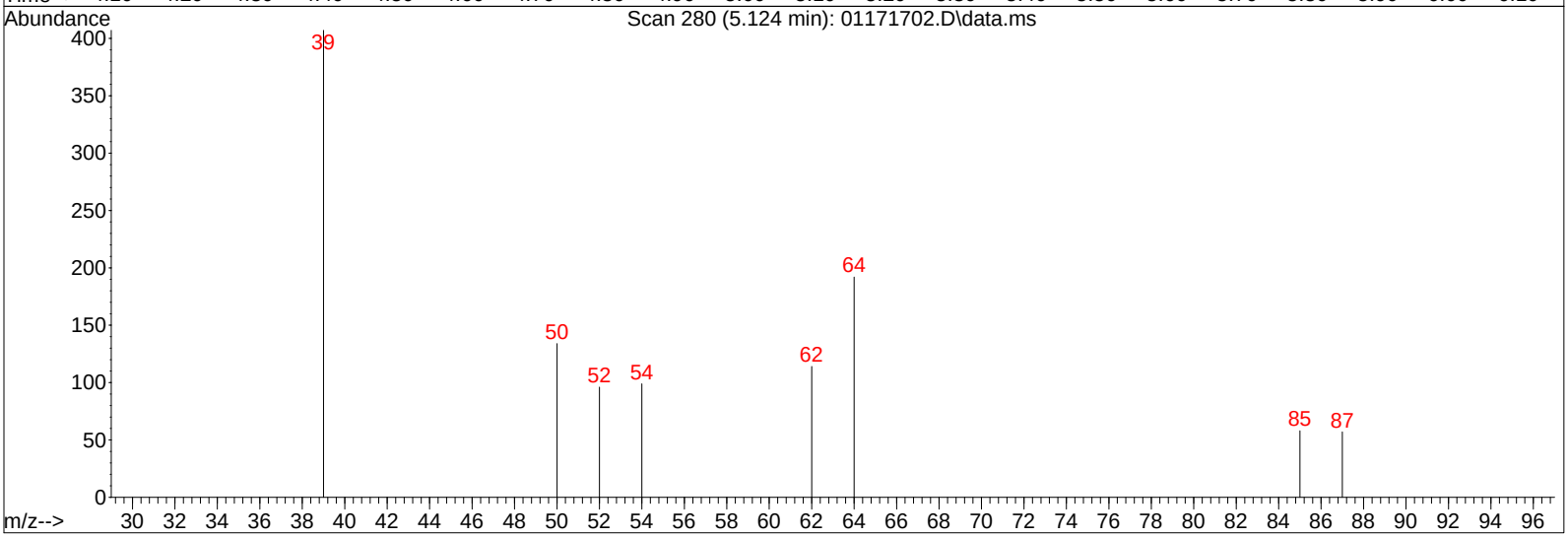


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

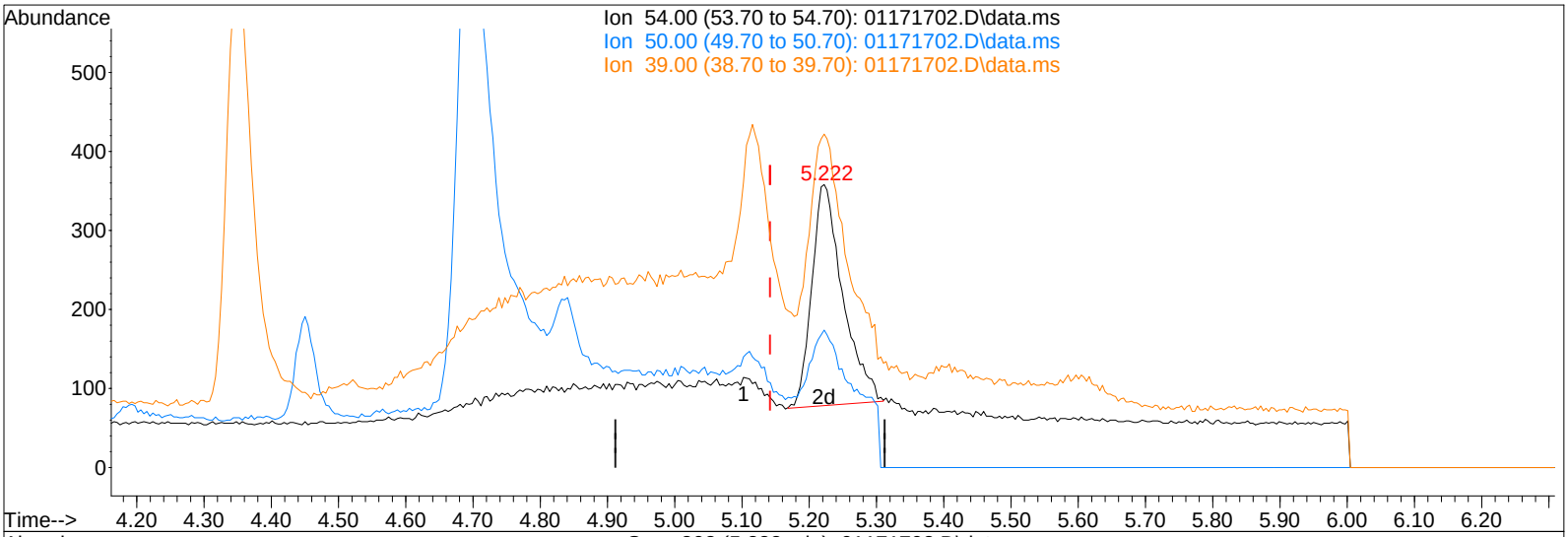
response 67

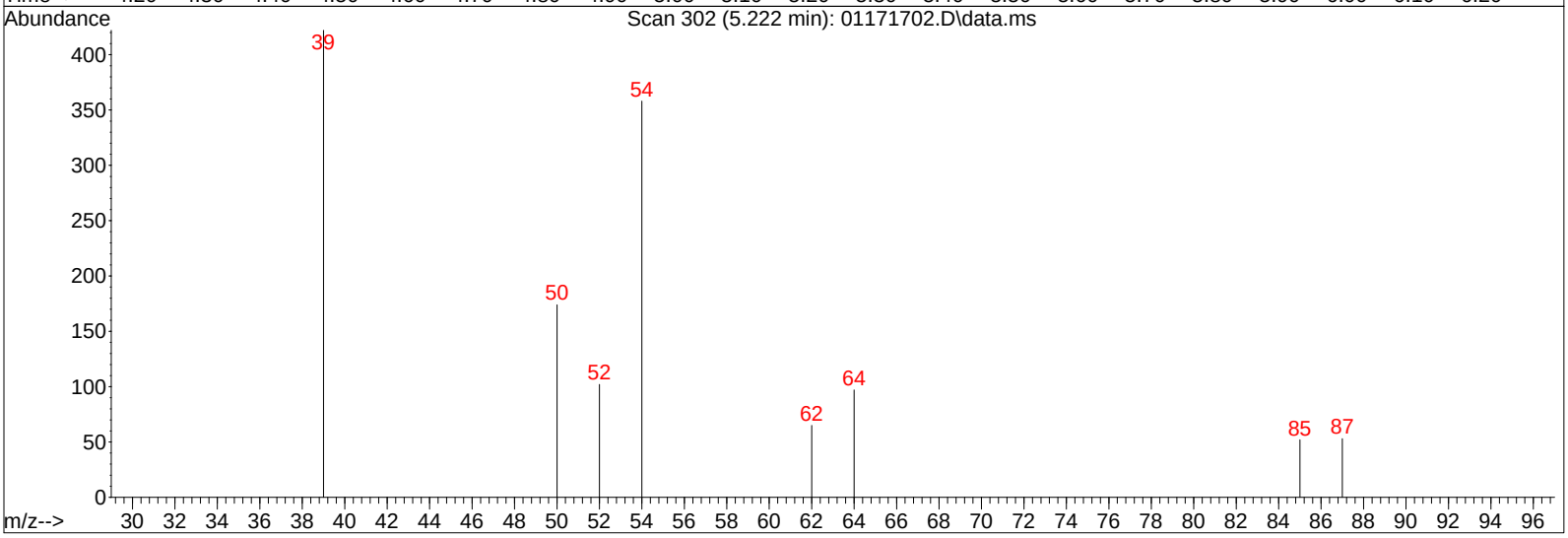
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

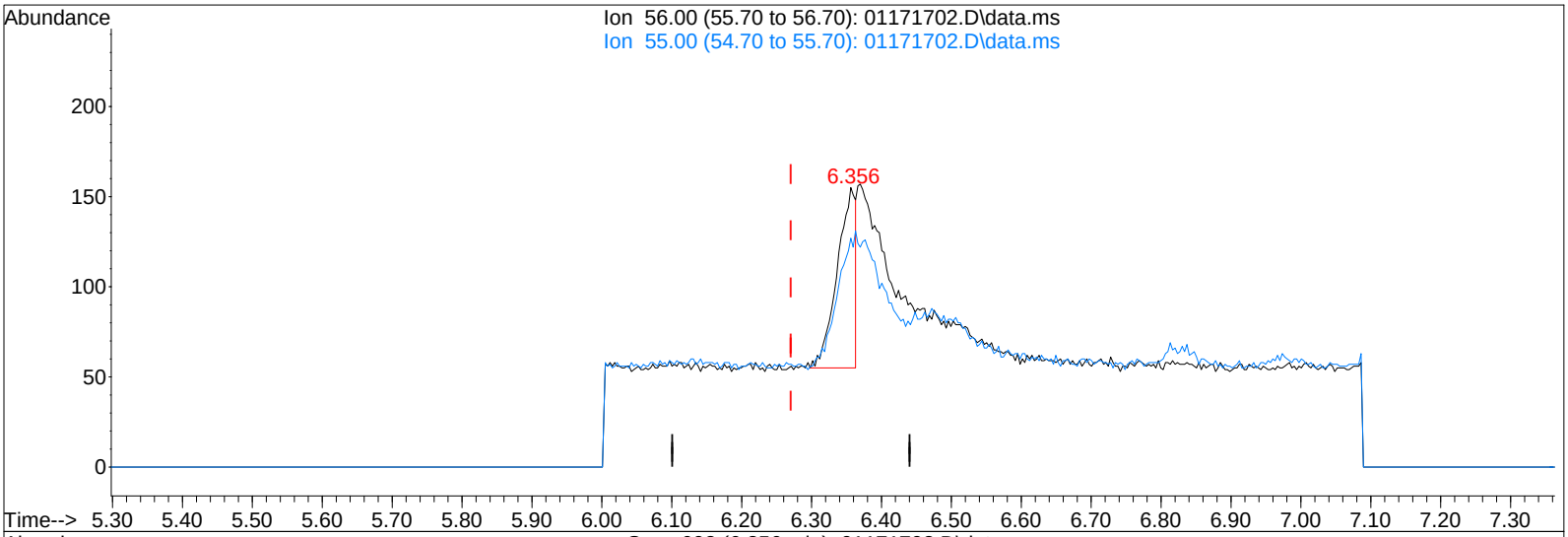
CL 1/18/17

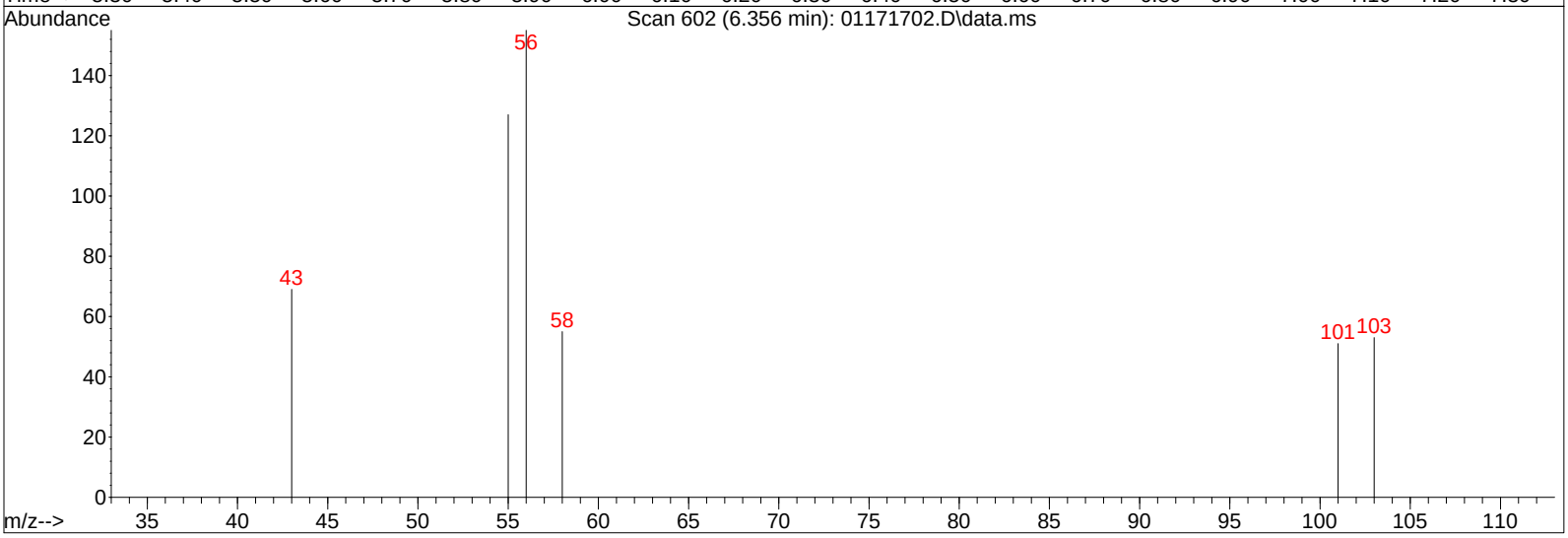
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

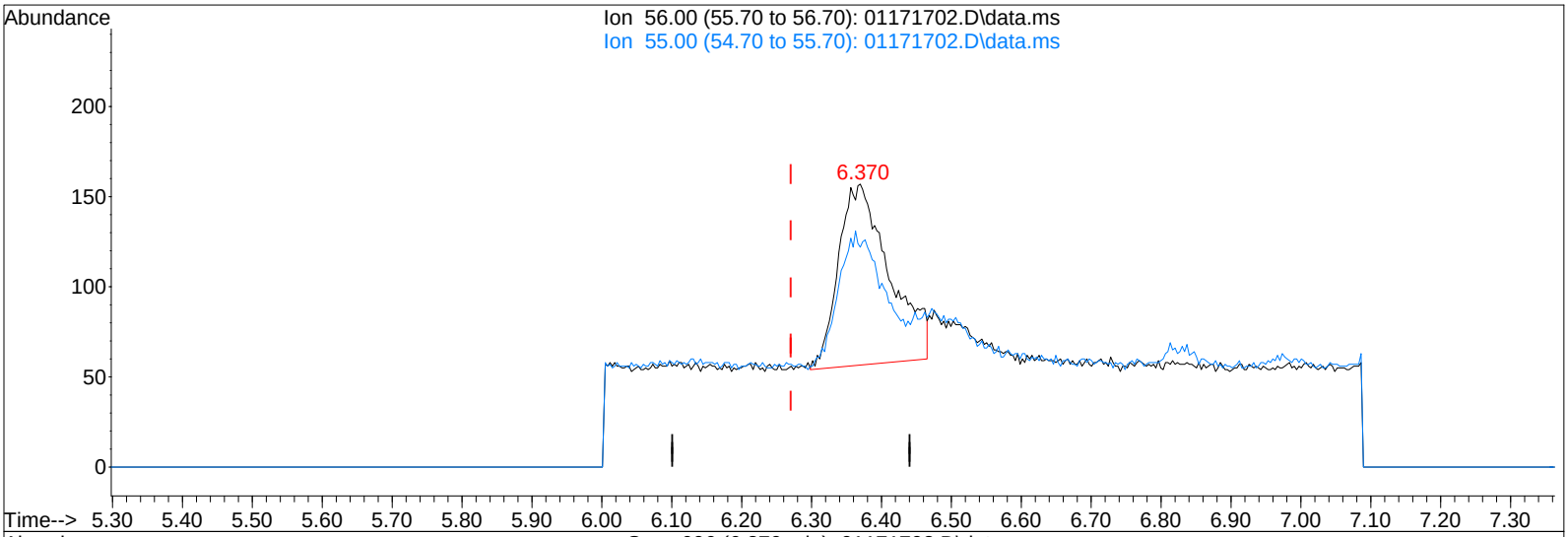
response 183

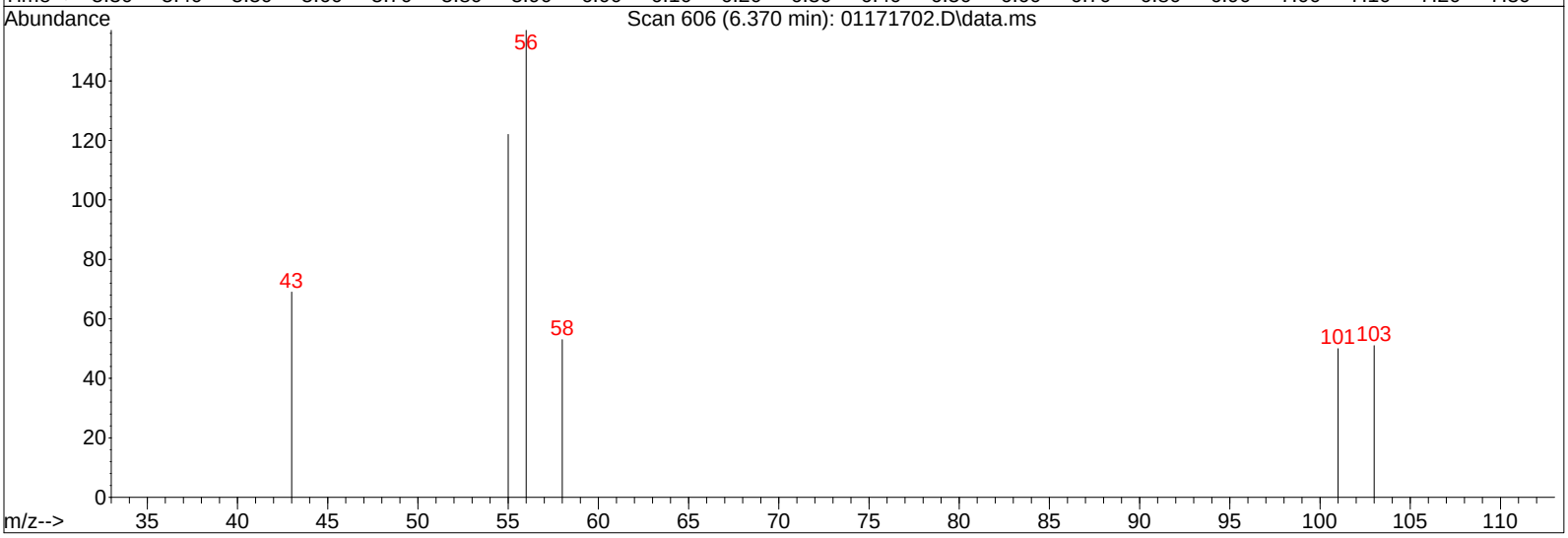
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

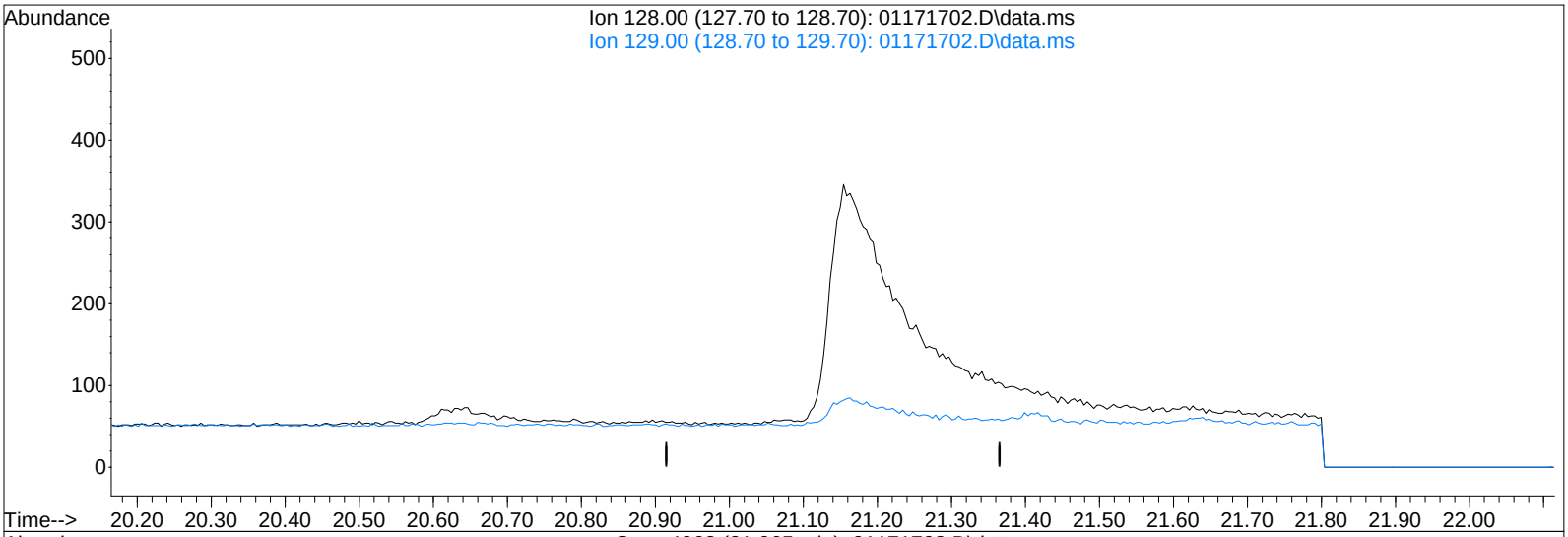
CL 1/18/17

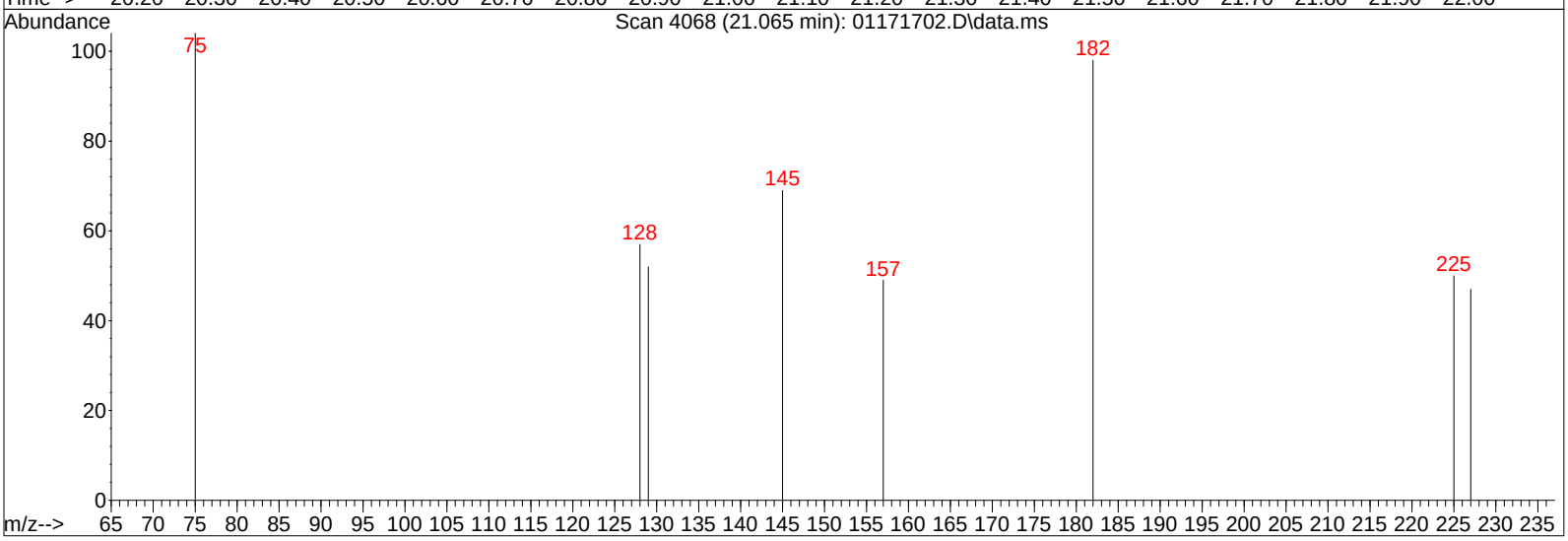
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

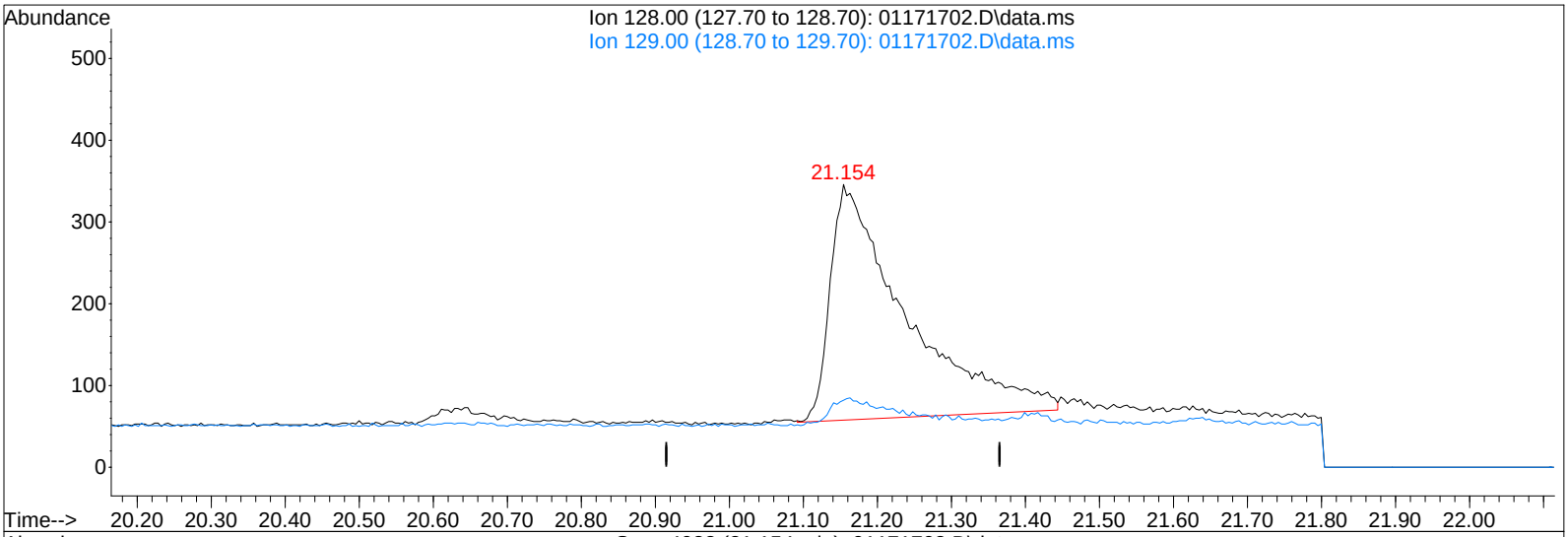
response 0

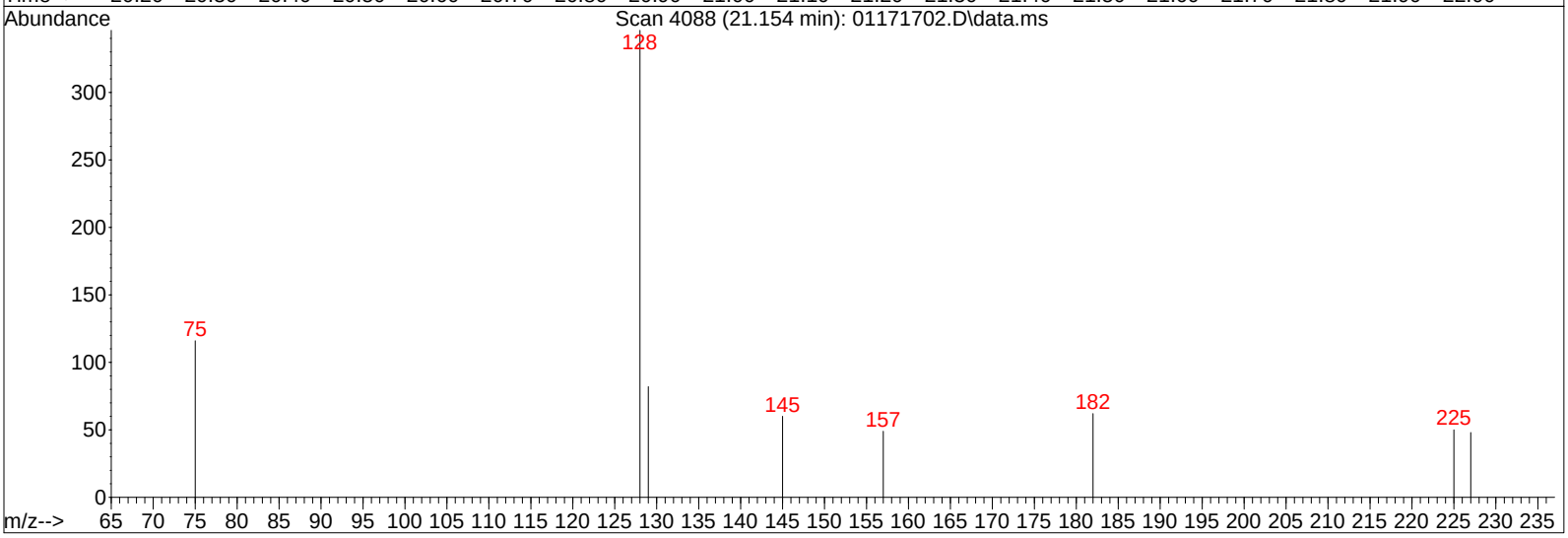
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

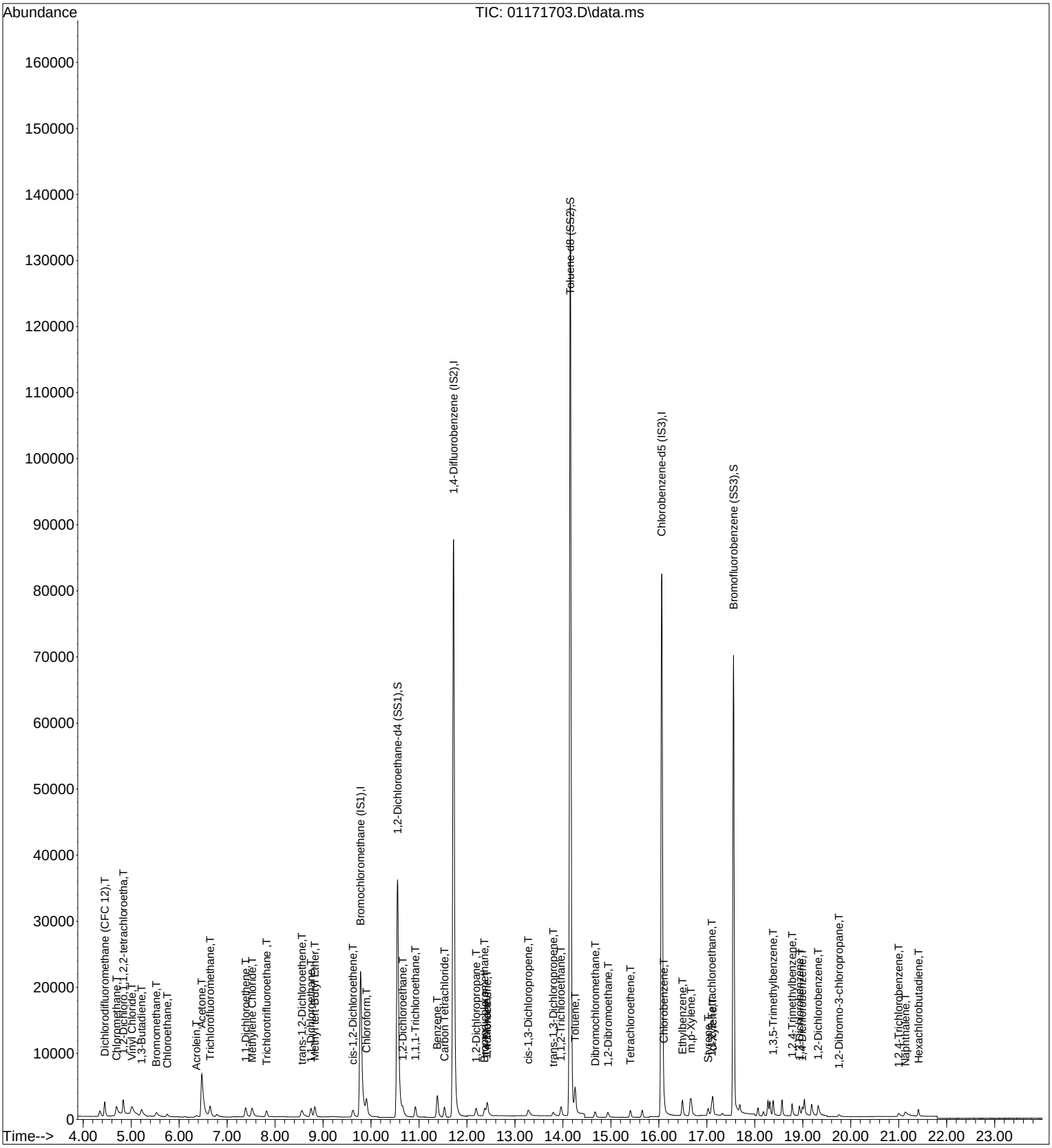
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

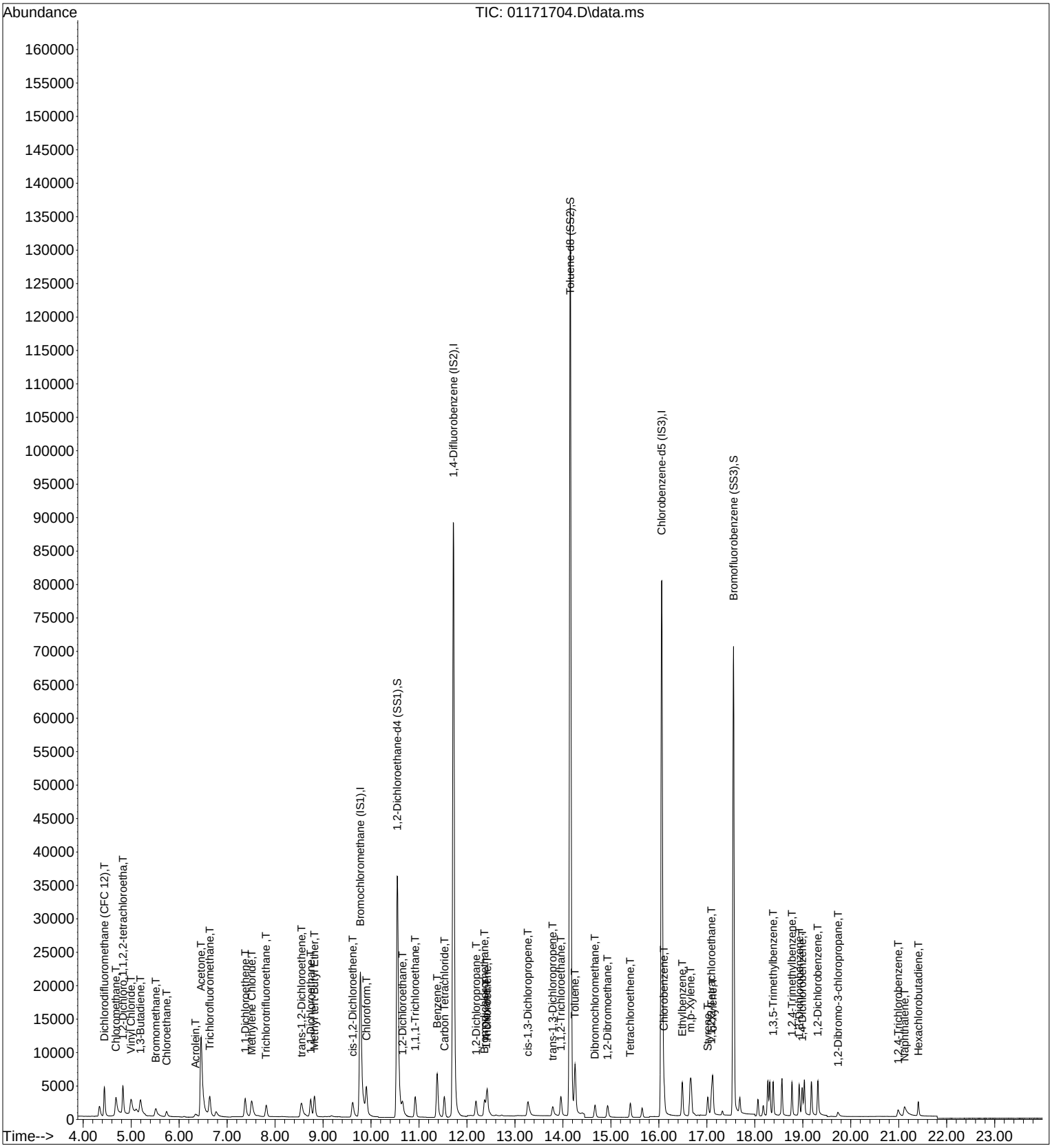
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

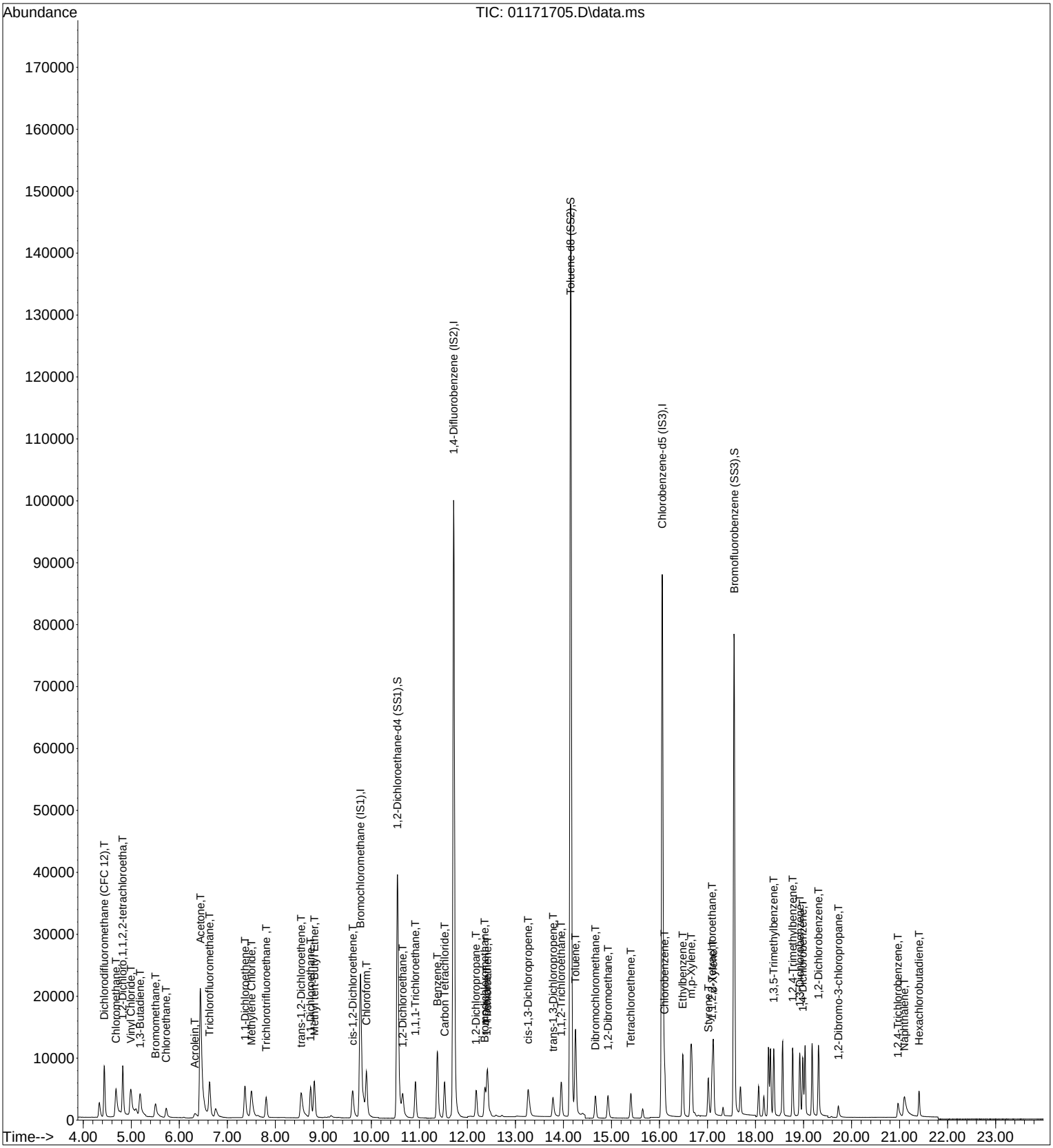
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

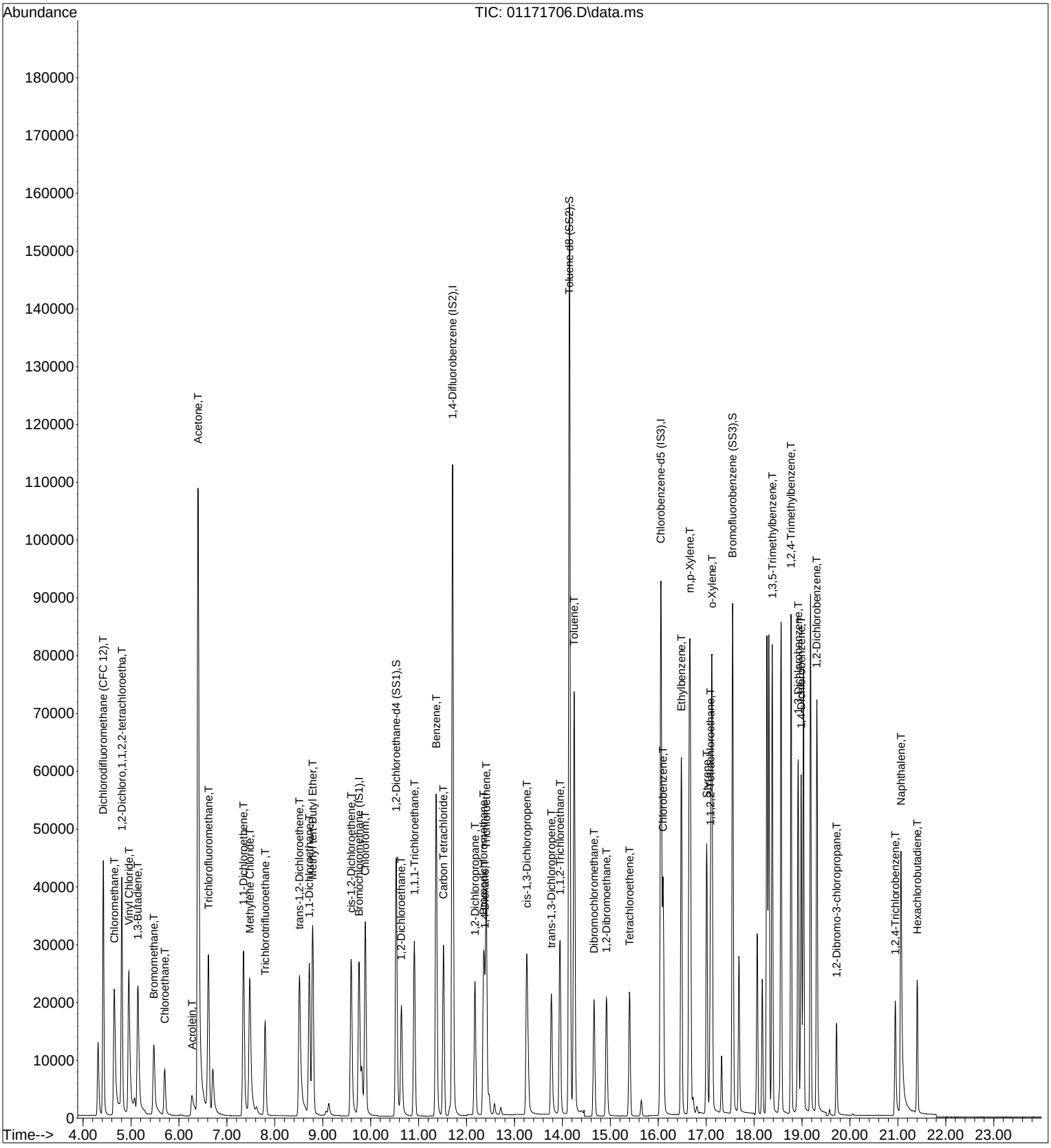
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%		
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%		
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250 pg	100
3) Chloromethane	4.64	52	35441	1282.063 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480 pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719 pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929 pg	95
7) Bromomethane	5.46	94	44725	1146.180 pg	99
8) Chloroethane	5.69	64	34327	1236.992 pg	100
9) Acrolein	6.26	56	23627	1236.477 pg	97
10) Acetone	6.39	58	166227	6290.964 pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916 pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819 pg	99
13) Methylene Chloride	7.47	84	58254	1176.655 pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618 pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554 pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958 pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583 pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938 pg	100
19) Chloroform	9.89	83	102450	1152.147 pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847 pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018 pg	100
23) Benzene	11.36	78	228212	1090.215 pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088 pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178 pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369 pg	100
28) Trichloroethene	12.41	130	58583	1084.198 pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578 pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571 pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142 pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911 pg	100
34) Toluene	14.25	91	217931	1099.513 pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190 pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718 pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938 pg	100
39) Chlorobenzene	16.10	112	147852	926.327 pg	100
40) Ethylbenzene	16.48	91	229006	938.287 pg	100
41) m,p-Xylene	16.66	91	373197	2020.962 pg	100
42) Styrene	17.01	104	132963	980.329 pg	100
43) o-Xylene	17.12	106	93607	973.294 pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258 pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026 pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626 pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867 pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511 pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018 pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904 pg	100
53) Naphthalene	21.06	128	226576	1042.971 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

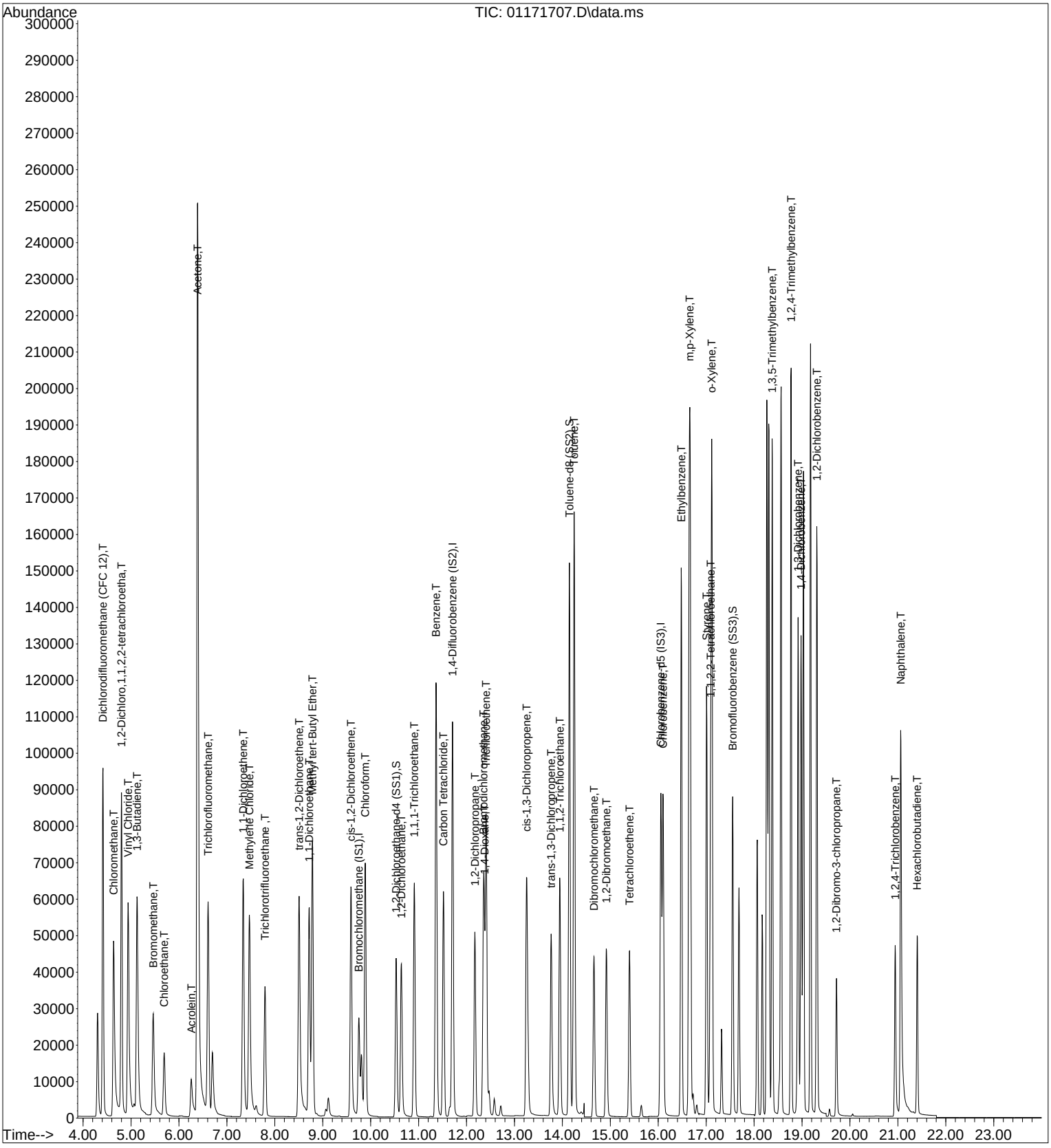
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

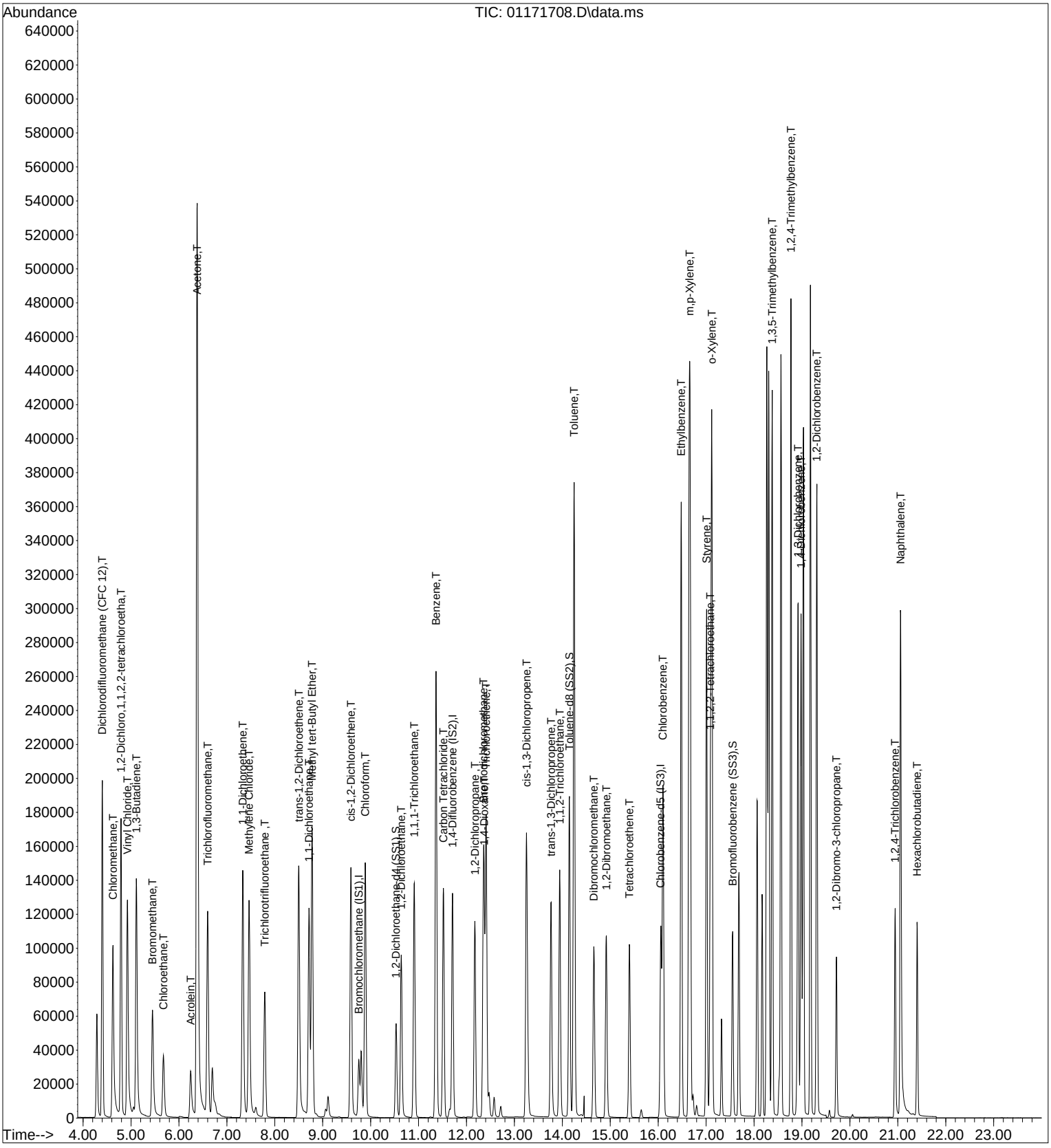
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%			
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%			
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944	pg	100
3) Chloromethane	4.61	52	162688	4785.564	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926	pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389	pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564	pg	99
7) Bromomethane	5.44	94	222851	4643.991	pg	100
8) Chloroethane	5.66	64	179461	5258.665	pg	100
9) Acrolein	6.24	56	140240	5967.932	pg	99
10) Acetone	6.38	58	838814	25814.022	pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282	pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913	pg	99
13) Methylene Chloride	7.47	84	297672	4889.177	pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498	pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436	pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227	pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907	pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430	pg	100
19) Chloroform	9.89	83	522733	4780.247	pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905	pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873	pg	100
23) Benzene	11.36	78	1167900	4536.841	pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159	pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114	pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606	pg	100
28) Trichloroethene	12.41	130	299094	4425.611	pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520	pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385	pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769	pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991	pg	99
34) Toluene	14.25	91	1167322	4708.699	pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519	pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632	pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535	pg	100
39) Chlorobenzene	16.10	112	788966	3880.853	pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214	pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622	pg	100
42) Styrene	17.01	104	851189	4927.183	pg	99
43) o-Xylene	17.12	106	518661	4234.000	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849	pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868	pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829	pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465	pg	100
53) Naphthalene	21.06	128	1434819	5185.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

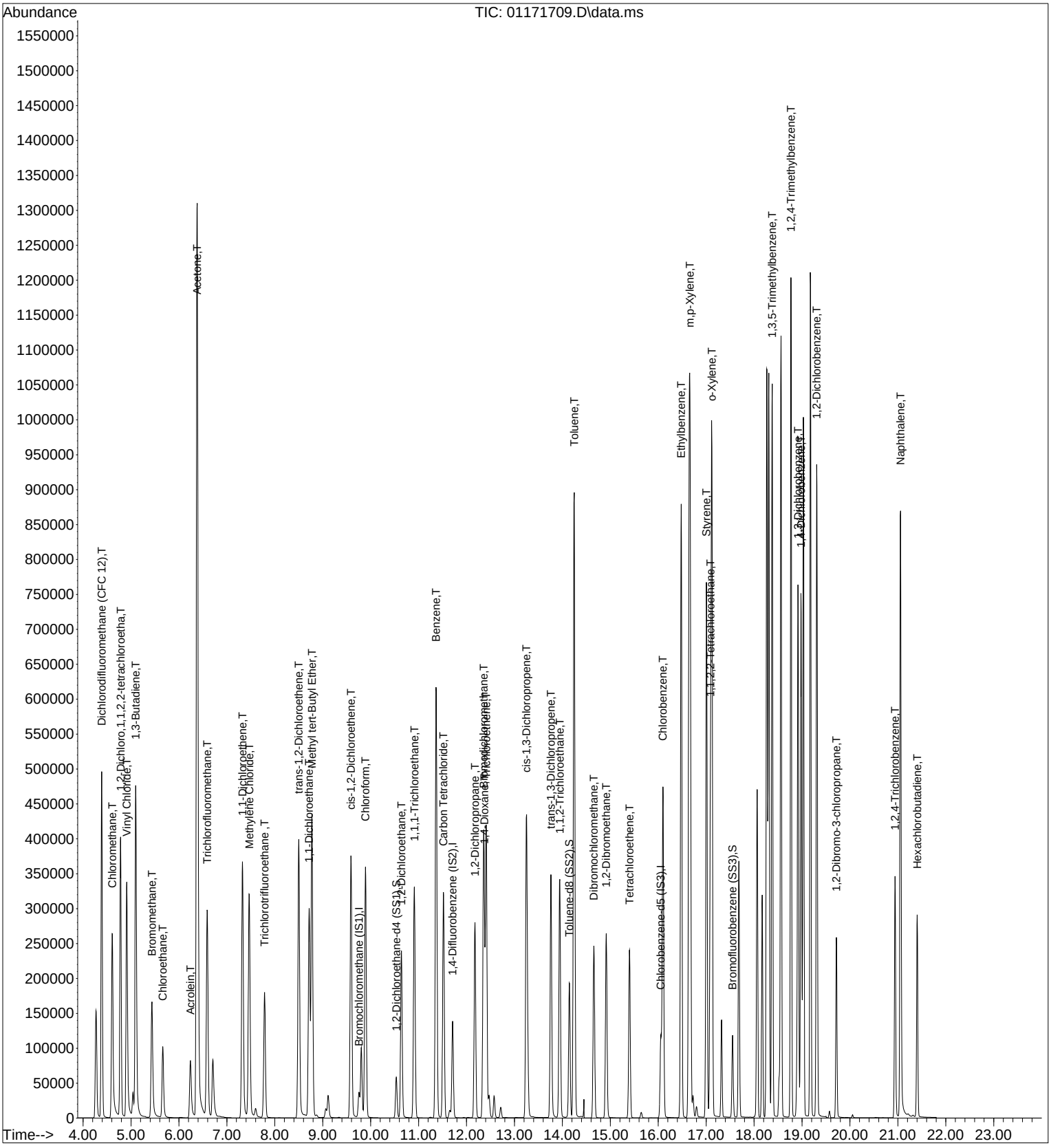
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

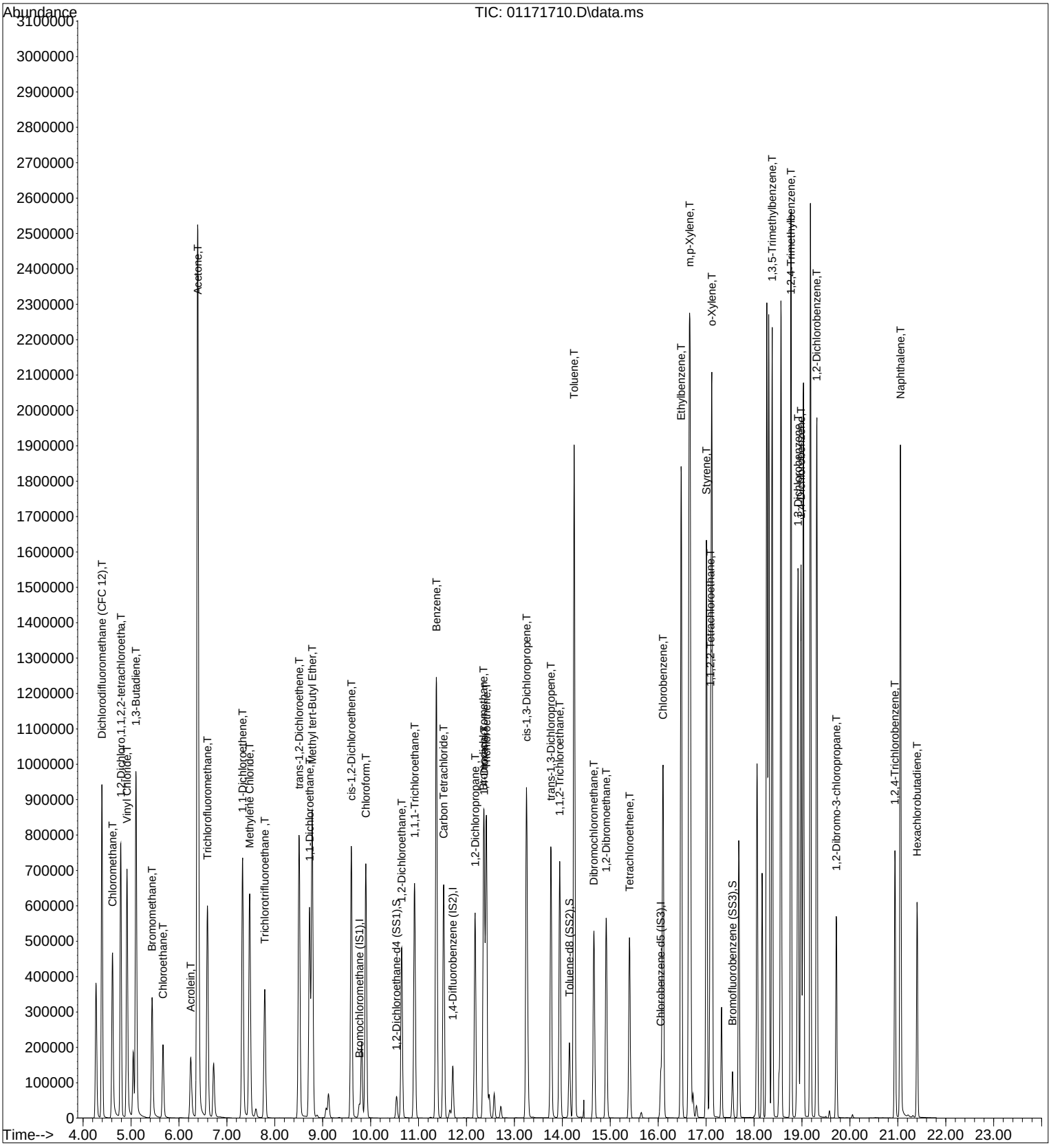
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

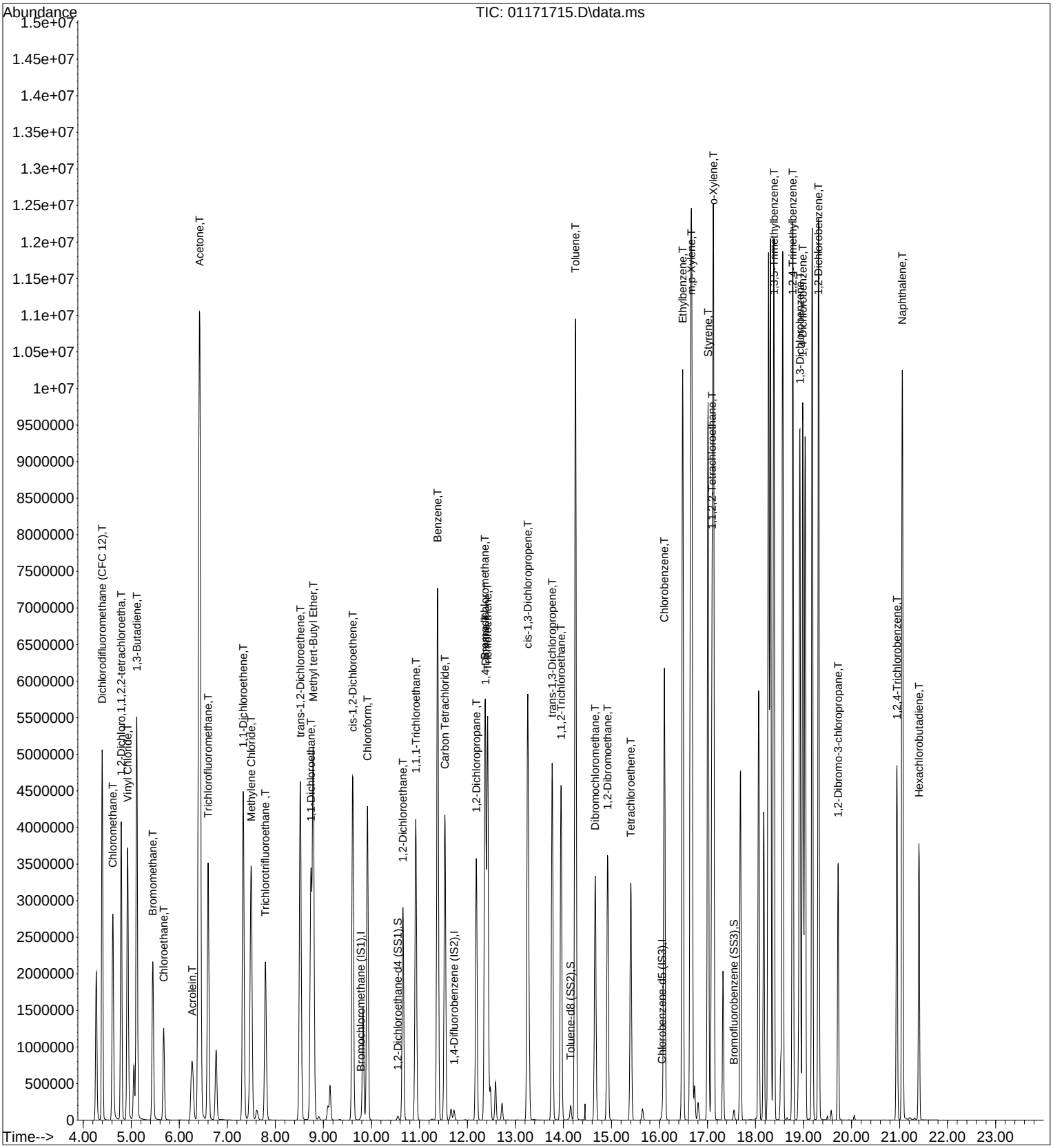
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

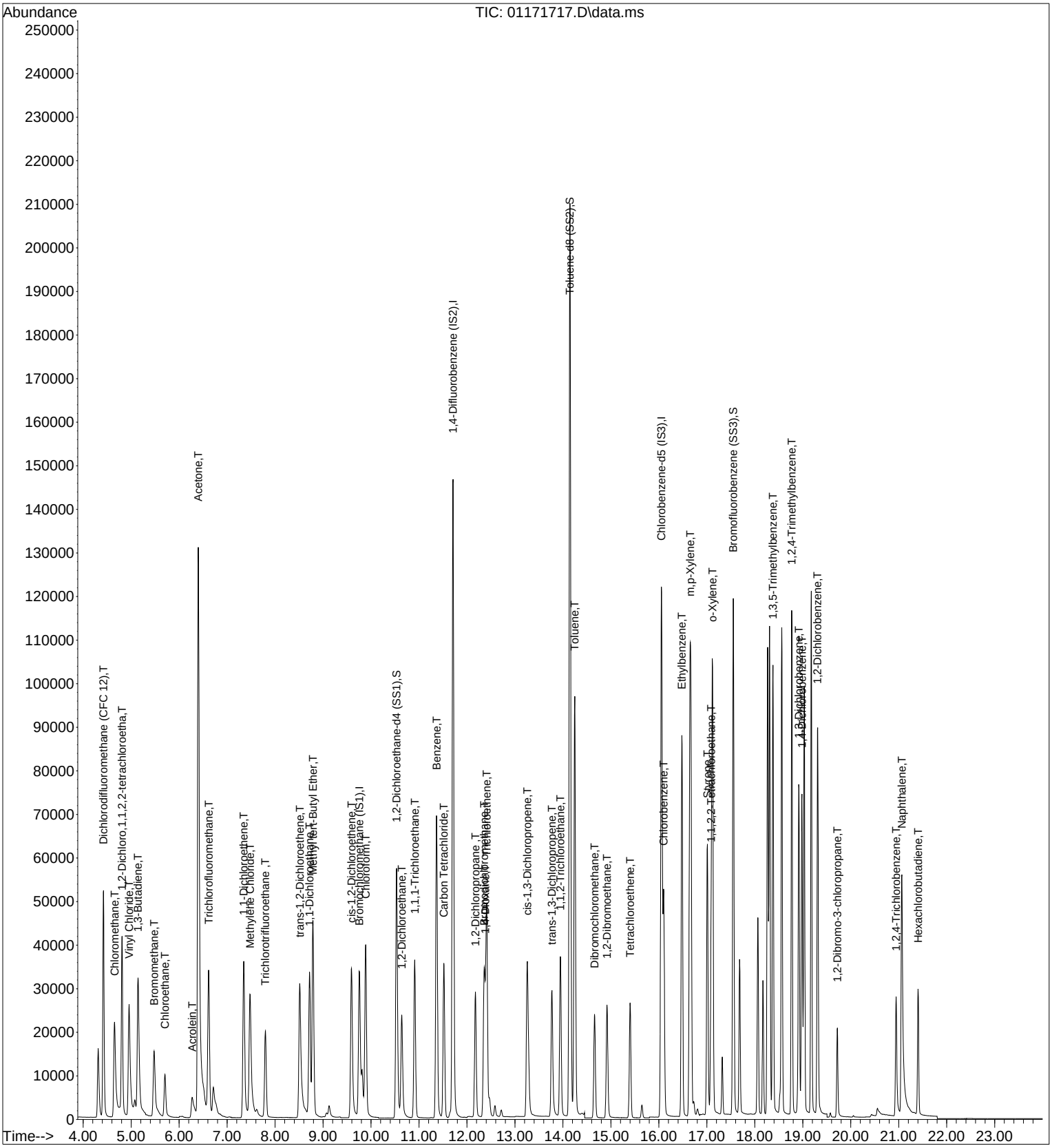
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23
Acq. Method File: TO15SIM.M

CL 1/18/17

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	123	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.336	7.5	116	0.03
3	T	Chloromethane	0.753	0.644	14.5	101	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.093	15.8	104	0.02
5	T	Vinyl Chloride	2.415	2.061	14.7	101	0.03
6	T	1,3-Butadiene	1.436	1.353	5.8	146	0.03
7	T	Bromomethane	0.972	0.905	6.9	120	0.03
8	T	Chloroethane	0.743	0.661	11.0	116	0.03
9	T	Acrolein	0.528	0.408	22.7	112	0.00
10	T	Acetone	0.682	0.617	9.5	115	-0.02
11	T	Trichlorofluoromethane	1.728	1.669	3.4	119	0.01
12	T	1,1-Dichloroethene	1.083	0.978	9.7	120	0.00
13	T	Methylene Chloride	1.175	1.115	5.1	117	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.006	6.9	123	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.063	8.9	121	0.00
16	T	1,1-Dichloroethane	2.070	1.888	8.8	117	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.796	9.5	124	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.125	8.2	121	-0.02
19	T	Chloroform	2.177	2.009	7.7	117	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.659	4.2	120	-0.02
21	T	1,2-Dichloroethane	1.676	1.486	11.3	117	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.738	14.0	120	-0.02
23	T	Benzene	4.797	4.480	6.6	119	-0.02
24	T	Carbon Tetrachloride	1.623	1.499	7.6	120	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	123	-0.02
26	T	1,2-Dichloropropane	0.255	0.207	18.8	117	0.00
27	T	Bromodichloromethane	0.352	0.292	17.0	118	0.00
28	T	Trichloroethene	0.260	0.229	11.9	121	0.00
29	T	1,4-Dioxane	0.191	0.163	14.7	123	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.302	12.0	124	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.256	8.2	125	0.00
32	T	1,1,2-Trichloroethane	0.215	0.180	16.3	118	0.00
33	S	Toluene-d8 (SS2)	0.993	0.963	3.0	123	0.00
34	T	Toluene	0.928	0.831	10.5	120	0.00
35	T	Dibromochloromethane	0.257	0.220	14.4	120	0.00
36	T	1,2-Dibromoethane	0.243	0.219	9.9	121	0.00
37	T	Tetrachloroethene	0.270	0.233	13.7	121	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	119	0.00
39	T	Chlorobenzene	3.855	3.650	5.3	120	0.00
40	T	Ethylbenzene	5.685	5.393	5.1	124	0.00
41	T	m,p-Xylene	4.264	4.309	-1.1	123	0.00
42	T	Styrene	2.987	3.004	-0.6	124	0.00
43	T	o-Xylene	2.190	2.224	-1.6	123	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.345	6.8	116	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.002	-9.5	125	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.807	-6.5	121	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.761	-7.5	121	0.00
48	T	1,3-Dichlorobenzene	2.723	2.889	-6.1	117	0.00
49	T	1,4-Dichlorobenzene	2.835	2.807	1.0	116	0.00
50	T	1,2-Dichlorobenzene	2.775	2.786	-0.4	117	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.826	1.5	119	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.553	5.4	117	0.00
53	T	Naphthalene	5.215	5.157	1.1	108	0.00
54	T	Hexachlorobutadiene	1.299	1.241	4.5	123	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/20/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	55082	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	275080	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	42790	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91395	958.075	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.81%			
33) Toluene-d8 (SS2)	14.15	98	264907	969.476	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.95%			
45) Bromofluorobenzene (SS3)	17.55	174	85685	1094.591	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.46%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	67351	484.006	pg	100
3) Chloromethane	4.65	52	17836	430.226	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	57936	423.181	pg	100
5) Vinyl Chloride	4.95	62	58068	436.504	pg	100
6) 1,3-Butadiene	5.14	54	39376	497.850	pg	94
7) Bromomethane	5.48	94	24756	462.606	pg	100
8) Chloroethane	5.70	64	18358	448.538	pg	100
9) Acrolein	6.27	56	11689	402.031	pg	99
10) Acetone	6.40	58	90230	2400.249	pg	99
11) Trichlorofluoromethane	6.61	101	48211	506.548	pg	100
12) 1,1-Dichloroethene	7.34	96	28533	478.525	pg	98
13) Methylene Chloride	7.48	84	32467	501.760	pg	97
14) Trichlorotrifluoroethane	7.80	151	29070	488.669	pg	100
15) trans-1,2-Dichloroethene	8.51	96	31240	485.987	pg	99
16) 1,1-Dichloroethane	8.72	63	53050	465.168	pg	100
17) Methyl tert-Butyl Ether	8.79	73	82096	482.410	pg	99
18) cis-1,2-Dichloroethene	9.59	96	32970	488.762	pg	99
19) Chloroform	9.88	83	58546	488.177	pg	100
21) 1,2-Dichloroethane	10.64	62	43062	466.450	pg	100
22) 1,1,1-Trichloroethane	10.91	97	51396	461.669	pg	100
23) Benzene	11.36	78	129802	491.247	pg	100
24) Carbon Tetrachloride	11.52	117	43552	487.204	pg	100
26) 1,2-Dichloropropane	12.18	63	30268	431.988	pg	100
27) Bromodichloromethane	12.36	83	42828	442.639	pg	100
28) Trichloroethene	12.41	130	33330	466.037	pg	99
29) 1,4-Dioxane	12.38	88	23760	452.442	pg	98
30) cis-1,3-Dichloropropene	13.25	75	46384	492.178	pg	100
31) trans-1,3-Dichloropropene	13.77	75	37524	489.266	pg	100
32) 1,1,2-Trichloroethane	13.95	83	26314	443.994	pg	98
34) Toluene	14.25	91	120391	471.722	pg	99
35) Dibromochloromethane	14.66	129	32173	455.237	pg	100
36) 1,2-Dibromoethane	14.92	107	31804	475.813	pg	100
37) Tetrachloroethene	15.40	166	33989	458.357	pg	100
39) Chlorobenzene	16.10	112	82852	502.275	pg	100
40) Ethylbenzene	16.48	91	121733	500.447	pg	100
41) m,p-Xylene	16.66	91	195701	1072.627	pg	100
42) Styrene	17.01	104	68187	533.441	pg	100
43) o-Xylene	17.12	106	50150	535.055	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	52983	491.970	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	107893	558.640	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	107157	565.268	pg	100
48) 1,3-Dichlorobenzene	18.92	146	65386	561.192	pg	100
49) 1,4-Dichlorobenzene	18.98	146	63543	523.827	pg	100
50) 1,2-Dichlorobenzene	19.31	146	63055	531.053	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18601	518.237	pg	100
52) 1,2,4-Trichlorobenzene	20.95	182	34660	493.161	pg	100
53) Naphthalene	21.07	128	119481	535.382	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

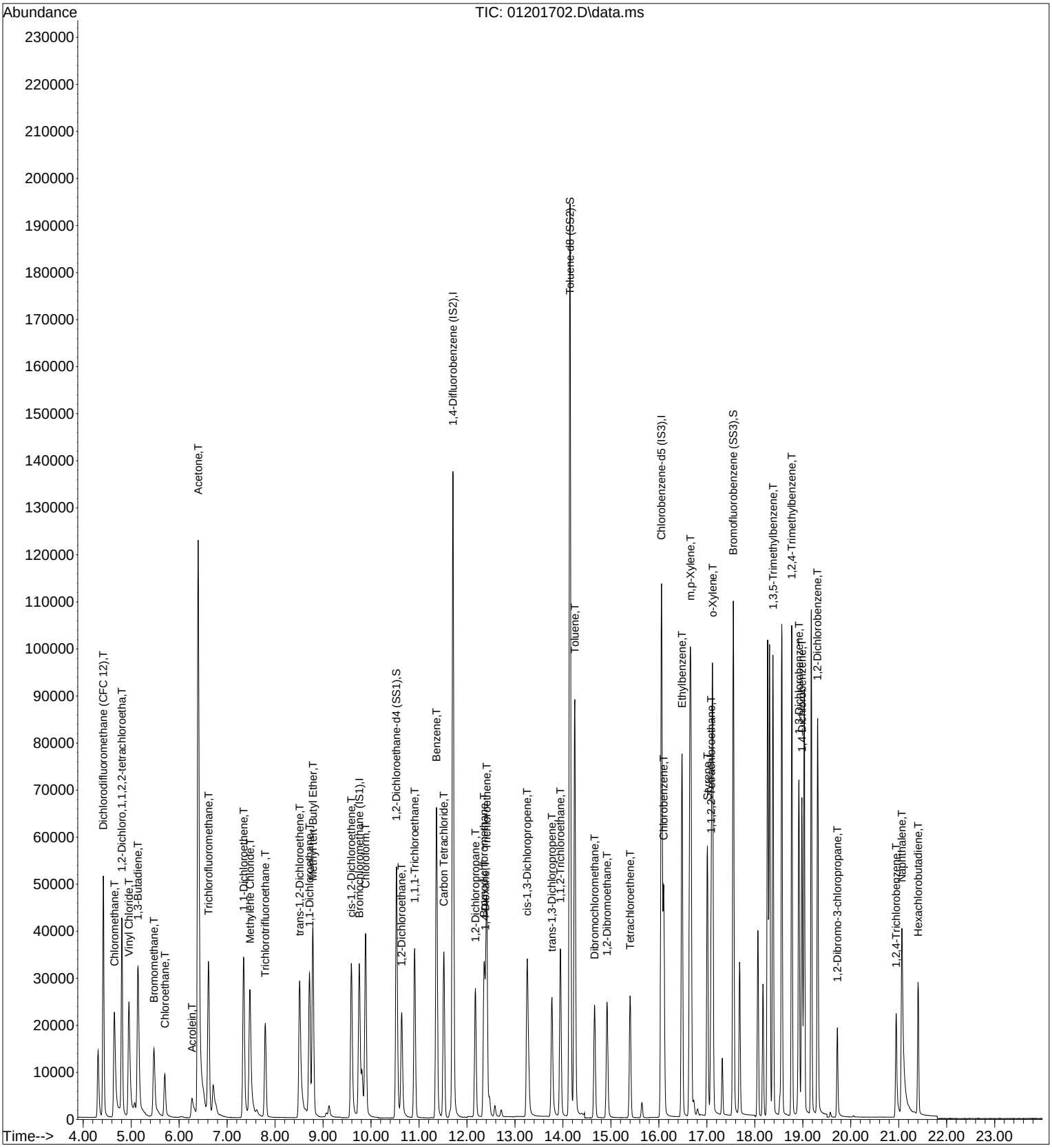
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28122	505.771	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\20\01201702.D Vial: 16
Acq On : 20 Jan 2017 1:55 Operator: CL
Sample : CCV S19012017 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 20 07:13:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



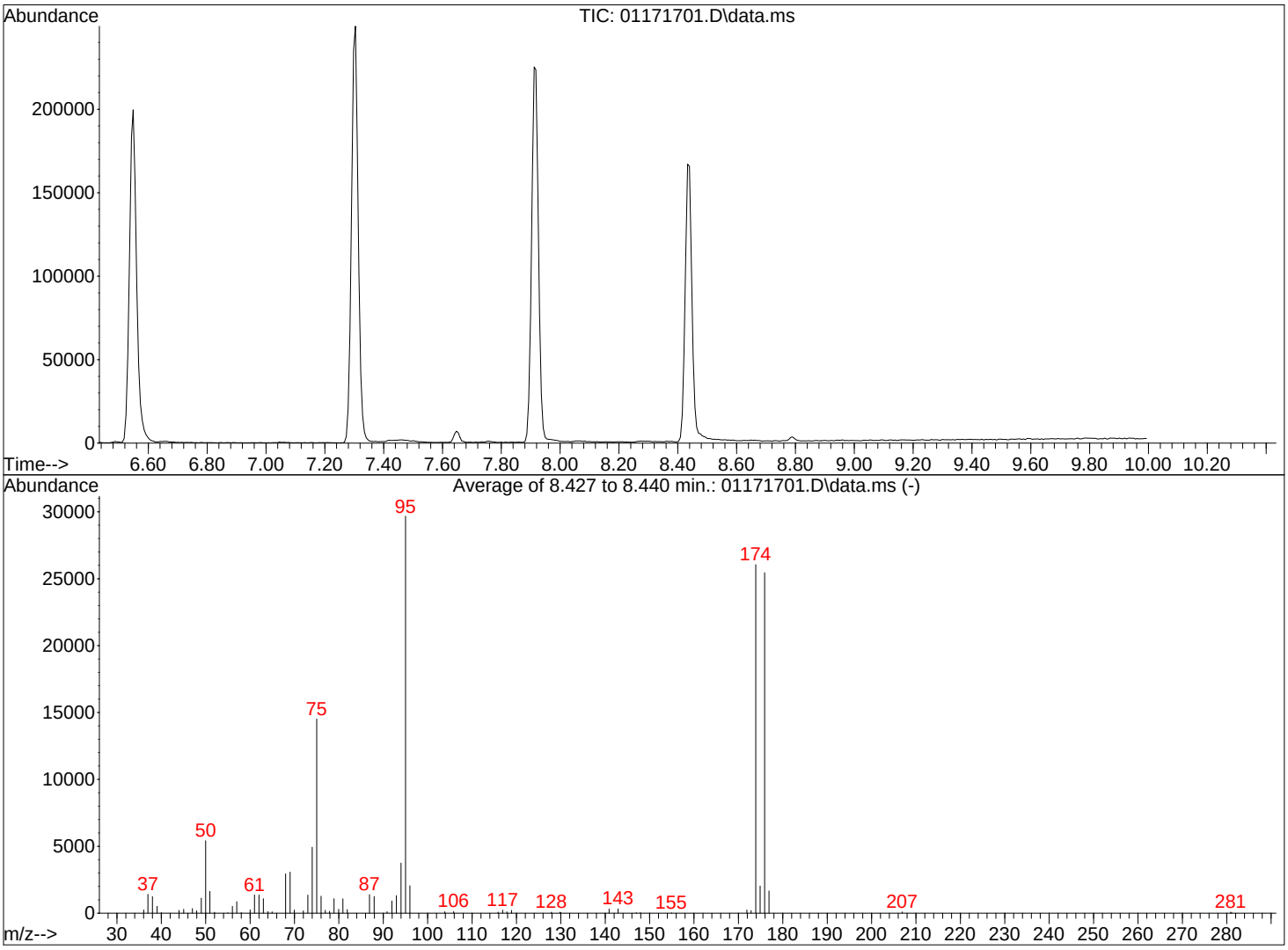
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

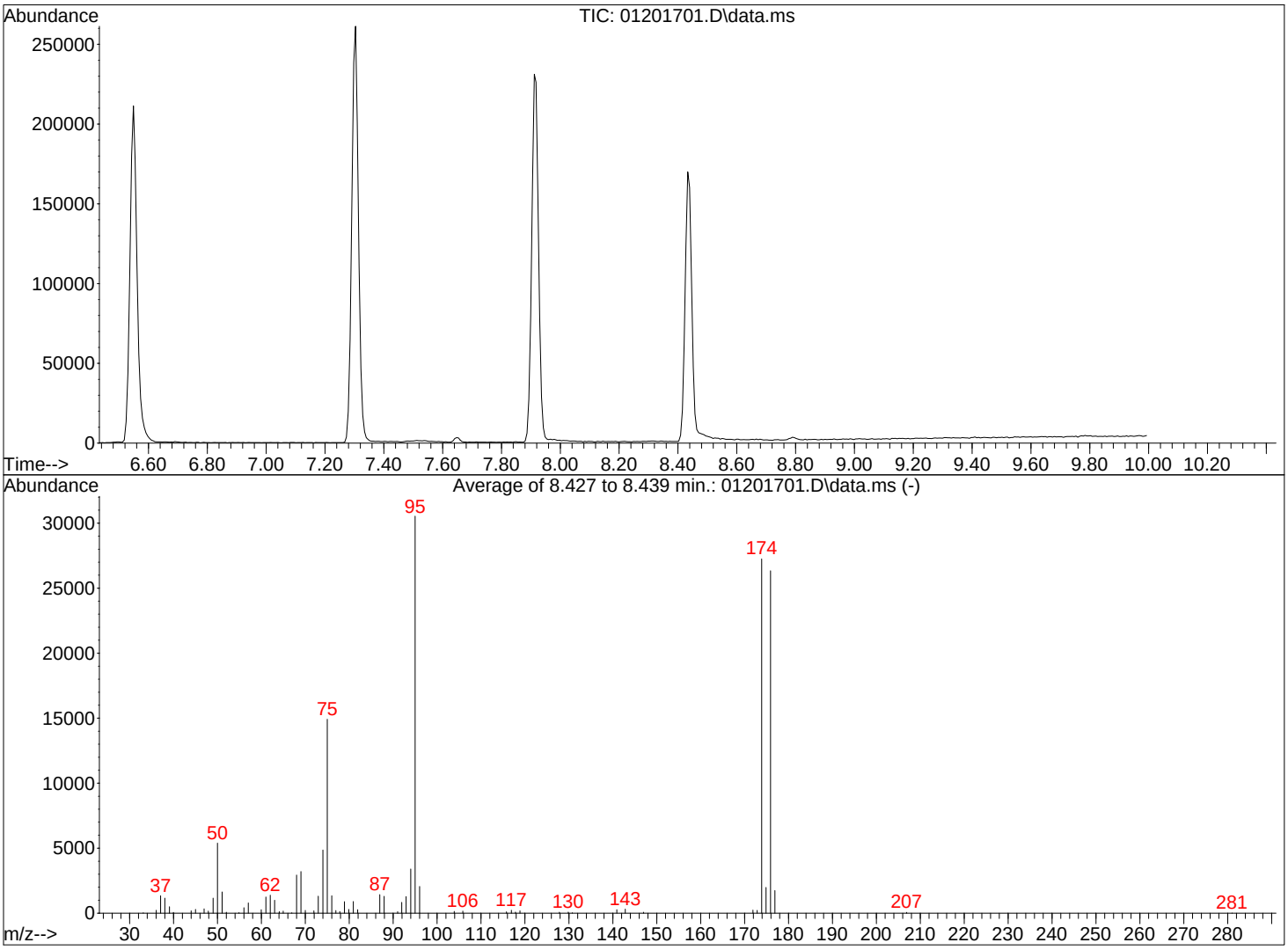
BFB

Data Path : I:\MS19\DATA\2017 01\20\
Data File : 01201701.D
Acq On : 20 Jan 2017 1:35
Operator : CL
Sample : BFB S19012017
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/20/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.6	5388	PASS
75	95	30	66	48.8	14914	PASS
95	95	100	100	100.0	30539	PASS
96	95	5	9	6.7	2056	PASS
173	174	0.00	2	0.8	219	PASS
174	95	50	120	89.2	27251	PASS
175	174	4	9	7.3	1979	PASS
176	174	93	101	96.7	26344	PASS
177	176	5	9	6.6	1739	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/20/17 1:35	01201701.D	BFB S19012017	S29-12201602	CL	2	Pass
2	1/20/17 1:55	01201702.D	CCV S19012017_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
3	1/20/17 2:26	01201703.D	MB S19012017_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/20/17 2:58	01201704.D	LCS S19012017_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
5	1/20/17 3:29	01201705.D	LCSD S19012017_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/20/17 4:01	01201706.D	P1700163-020 (1000mL)	S29-12201602	CL	7	
7	1/20/17 4:32	01201707.D	P1700163-021 (1000mL)	S29-12201602	CL	8	
8	1/20/17 5:04	01201708.D	P1700163-022 (1000mL)	S29-12201602	CL	9	
9	1/20/17 5:36	01201709.D	P1700163-023 (1000mL)	S29-12201602	CL	10	
10	1/20/17 6:07	01201710.D	P1700163-024 (1000mL)	S29-12201602	CL	11	
11	1/20/17 6:39	01201711.D	P1700163-025 (1000mL)	S29-12201602	CL	12	
12	1/20/17 8:57	01201712.D	P1700232-001 (1000mL)	S29-12201602	CL	11	
13	1/20/17 9:28	01201713.D	P1700232-002 (1000mL)	S29-12201602	CL	12	
14	1/20/17 9:59	01201714.D	P1700183-001 (1000mL)	S29-12201602	CL	1	
15	1/20/17 10:31	01201715.D	P1700183-002 (1000mL)	S29-12201602	CL	3	
16	1/20/17 11:02	01201716.D	blank	S29-12201602	CL	2	
17	1/20/17 11:33	01201717.D	P1700183-003 (1000mL)	S29-12201602	CL	4	
18	1/20/17 12:05	01201718.D	P1700183-003dup (1000mL)	S29-12201602	CL	4	Pass for Dup
19	1/20/17 12:36	01201719.D	P1700183-004 (1000mL)	S29-12201602	CL	5	
20	1/20/17 13:07	01201720.D	P1700183-005 (1000mL)	S29-12201602	CL	6	
21	1/20/17 13:39	01201721.D	blank	S29-12201602	CL	2	
22	1/20/17 14:10	01201722.D	P1700183-006 (1000mL)	S29-12201602	CL	7	
23	1/20/17 14:41	01201723.D	P1700183-007 (1000mL)	S29-12201602	CL	8	
24	1/20/17 15:13	01201724.D	P1700183-008 (1000mL)	S29-12201602	CL	9	
25	1/20/17 15:44	01201725.D	P1700183-009 (1000mL)	S29-12201602	CL	10	
26	1/20/17 16:16	01201726.D	CCV S19012017_500pg_Closing	S29-12201602/S29-01171706 (1/17)	CL	16	Pass

CL 1/23/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12221618.D
Acq On : 23 Dec 2016 3:49 am
Operator : SM
Sample : AS00825 FCA00077
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

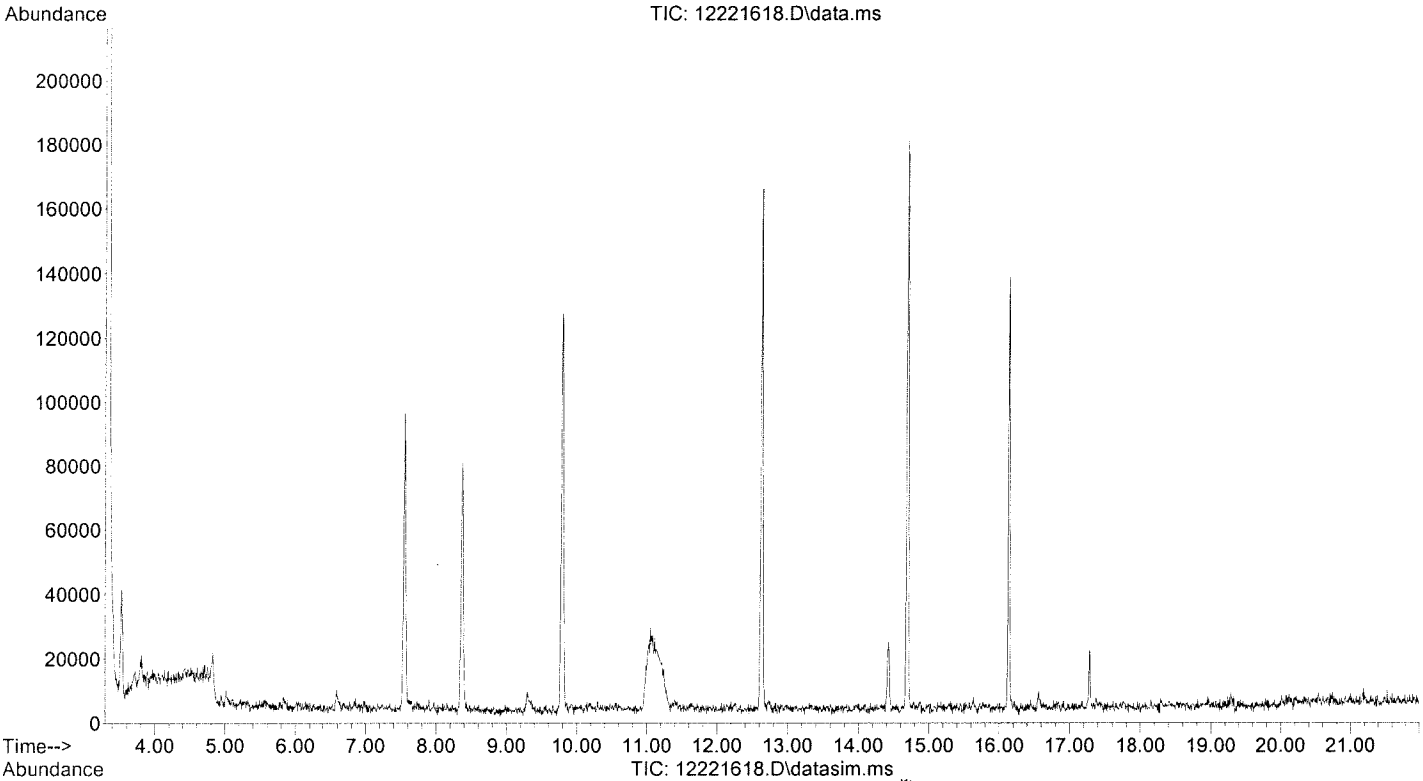
Quant Time: Dec 27 08:40:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

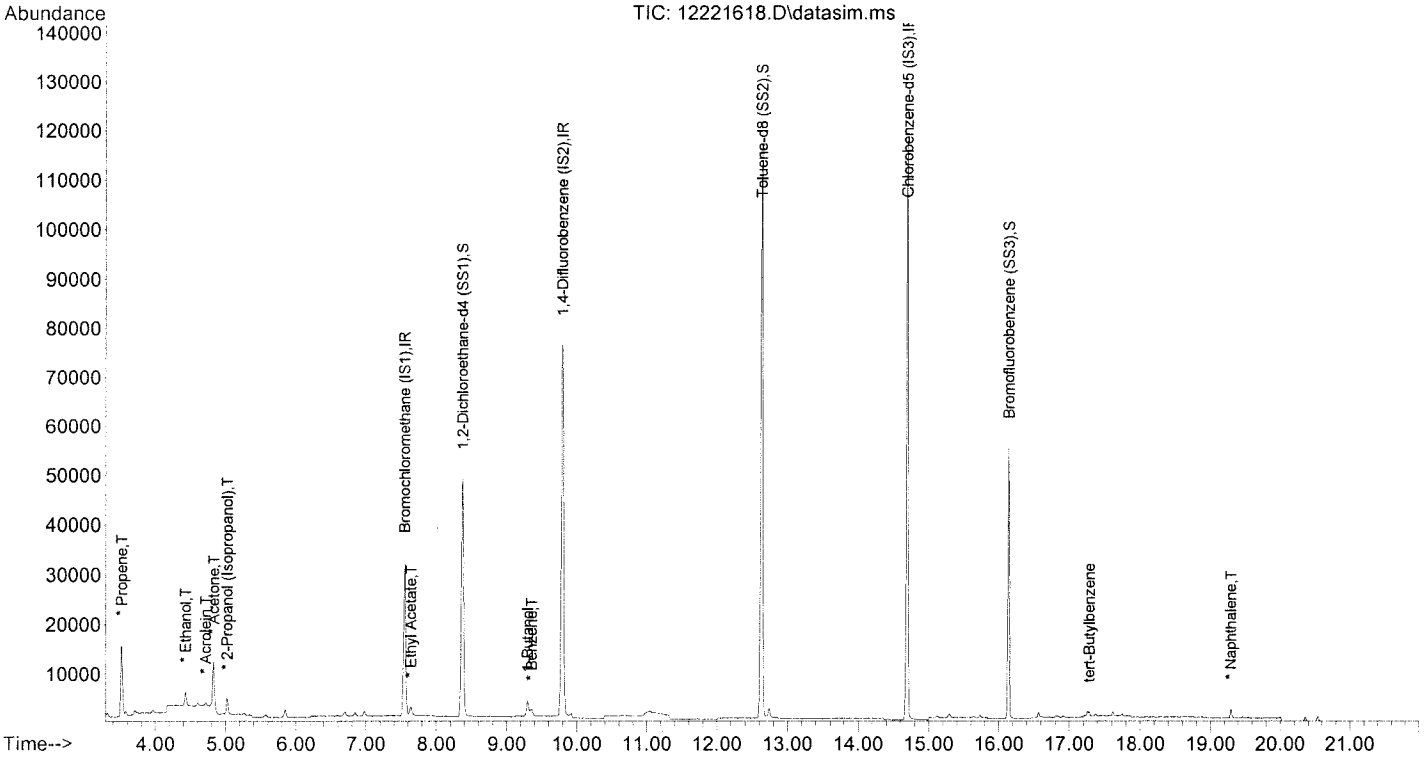
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37761	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	138783	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107208	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73642	990.239	pg		0.00
Spiked Amount 1000.000			Recovery = 99.02%				
57) Toluene-d8 (SS2)	12.63	98	126996	969.405	pg		0.00
Spiked Amount 1000.000			Recovery = 96.94%				
74) Bromofluorobenzene (SS3)	16.14	174	37724	874.336	pg		0.00
Spiked Amount 1000.000			Recovery = 87.43%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6853	90.420	pg	#	77
10) * Ethanol	4.43	45	3329	64.401	pg		88
12) * Acrolein	4.71	56	811	18.727	pg		98
13) * Acetone	4.83	58	4801	98.331	pg		76
15) * 2-Propanol (Isopropa...	5.02	45	4707	35.581	pg		91
30) * Ethyl Acetate	7.64	61	290	19.357	pg	#	79
39) * Benzene	9.36	78	2442	15.258	pg		94
41) 1-Butanol	9.30	56	2937	97.892	pg	#	49
83) tert-Butylbenzene	17.28	134	344	17.524	pg	#	1
98) * Naphthalene	19.29	128	2350	69.715	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12221618.D
Acq On : 23 Dec 2016 3:49 am
Operator : SM
Sample : AS00825 FCA00077
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 27 08:40:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271618.D
Acq On : 28 Dec 2016 12:04 am
Operator : JM
Sample : AC00745 FCA01038
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

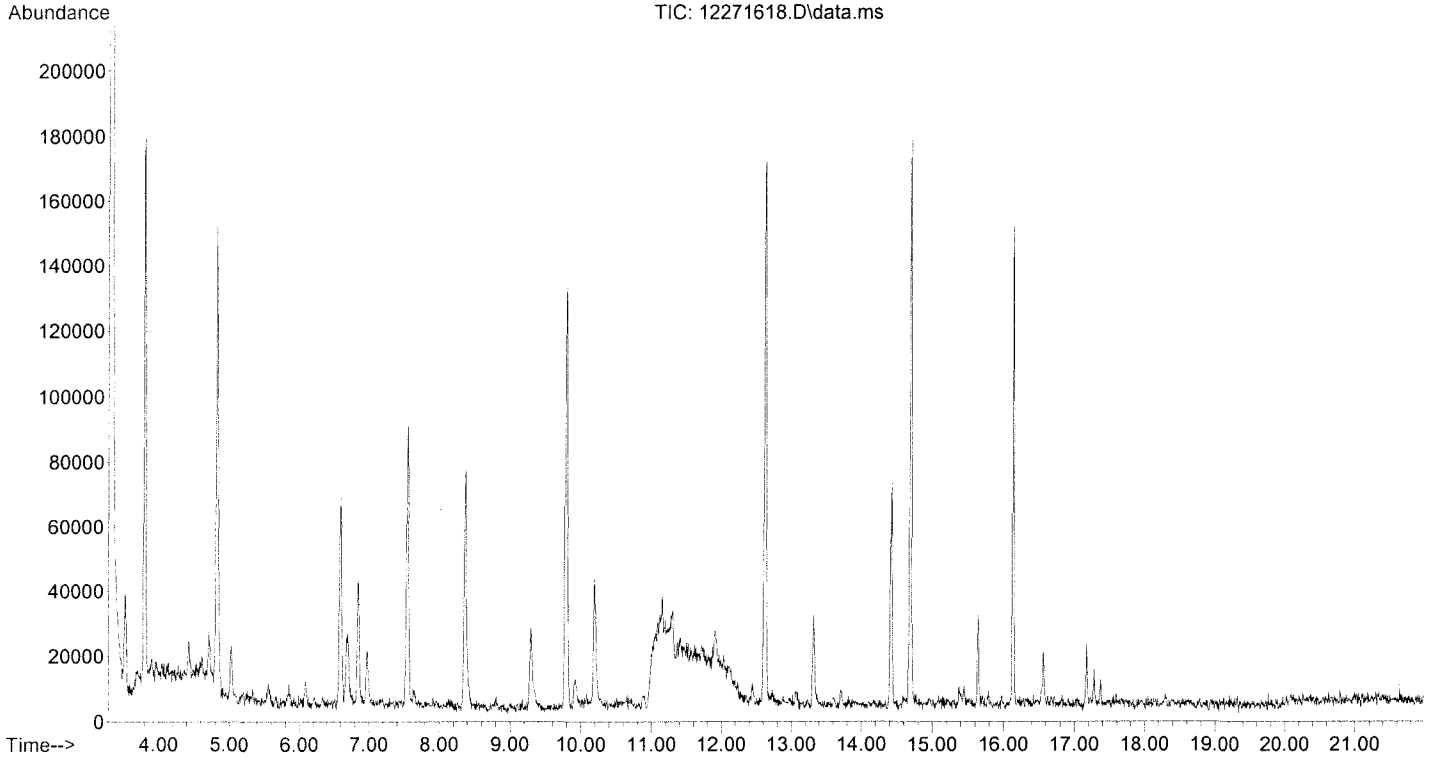
Quant Time: Dec 28 09:41:00 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

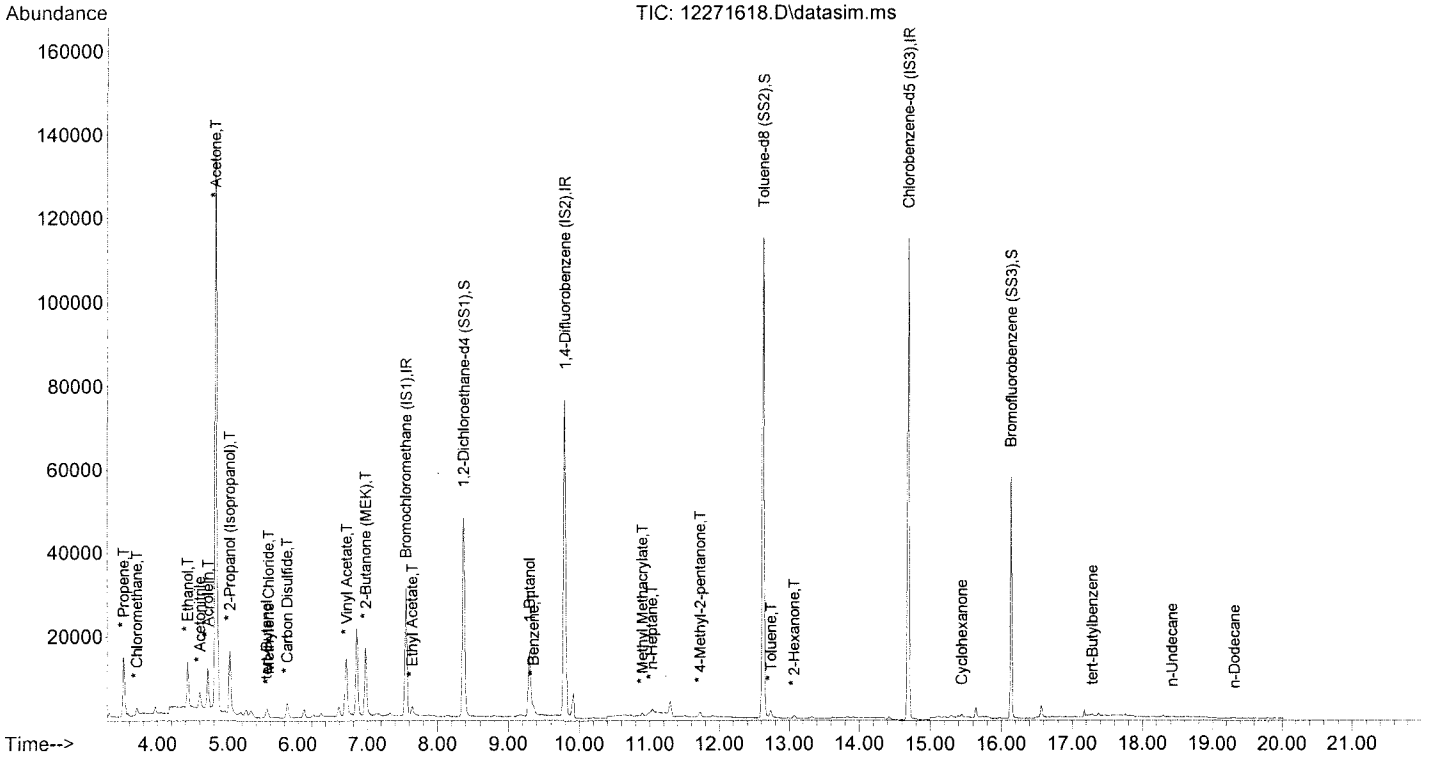
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	36762	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	137910	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106268	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70880	978.999	pg		0.00
Spiked Amount 1000.000			Recovery = 97.90%				
57) Toluene-d8 (SS2)	12.63	98	127574	982.431	pg		0.00
Spiked Amount 1000.000			Recovery = 98.24%				
74) Bromofluorobenzene (SS3)	16.14	174	40532	947.727	pg		0.00
Spiked Amount 1000.000			Recovery = 94.77%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6759	91.603	pg	#	78
4) * Chloromethane	3.71	50	1958	16.664	pg		93
10) * Ethanol	4.43	45	11815	234.777	pg		98
11) * Acetonitrile	4.60	41	4697	37.225	pg		93
12) * Acrolein	4.71	56	9768	231.684	pg		97
13) * Acetone	4.82	58	76027	1599.459	pg	#	40
15) * 2-Propanol (Isopropa...	5.03	45	20763	161.217	pg		93
18) tert-Butanol	5.55	59	2737	35.259	pg		87
19) * Methylene Chloride	5.58	84	926	17.489	pg		99
22) * Carbon Disulfide	5.84	76	6599	33.997	pg		99
26) * Vinyl Acetate	6.71	86	2824	283.288	pg	#	36
27) * 2-Butanone (MEK)	6.98	72	5048	176.936	pg		93
30) * Ethyl Acetate	7.64	61	340	23.311	pg	#	78
39) * Benzene	9.35	78	2600	16.348	pg	#	90
41) 1-Butanol	9.30	56	13867	465.122	pg	#	50
50) * Methyl Methacrylate	10.89	69	1167	29.255	pg		93
51) * n-Heptane	11.03	71	1013	12.404	pg	#	77
53) * 4-Methyl-2-pentanone	11.72	58	659	22.934	pg	#	53
58) * Toluene	12.74	91	1849	12.311	pg		98
59) * 2-Hexanone	13.07	58	1403	54.607	pg	#	92
69) Cyclohexanone	15.44	98	293	26.657	pg	#	66
83) tert-Butylbenzene	17.28	134	200	10.279	pg	#	1
96) n-Undecane	18.42	85	89	10.399	pg	#	25
99) n-Dodecane	19.31	85	102	18.975	pg	#	31

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271618.D
Acq On : 28 Dec 2016 12:04 am
Operator : JM
Sample : AC00745 FCA01038
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 28 09:41:00 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041723.D
Acq On : 5 Jan 2017 2:56 am
Operator : JM
Sample : AS00997 FCA00859
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

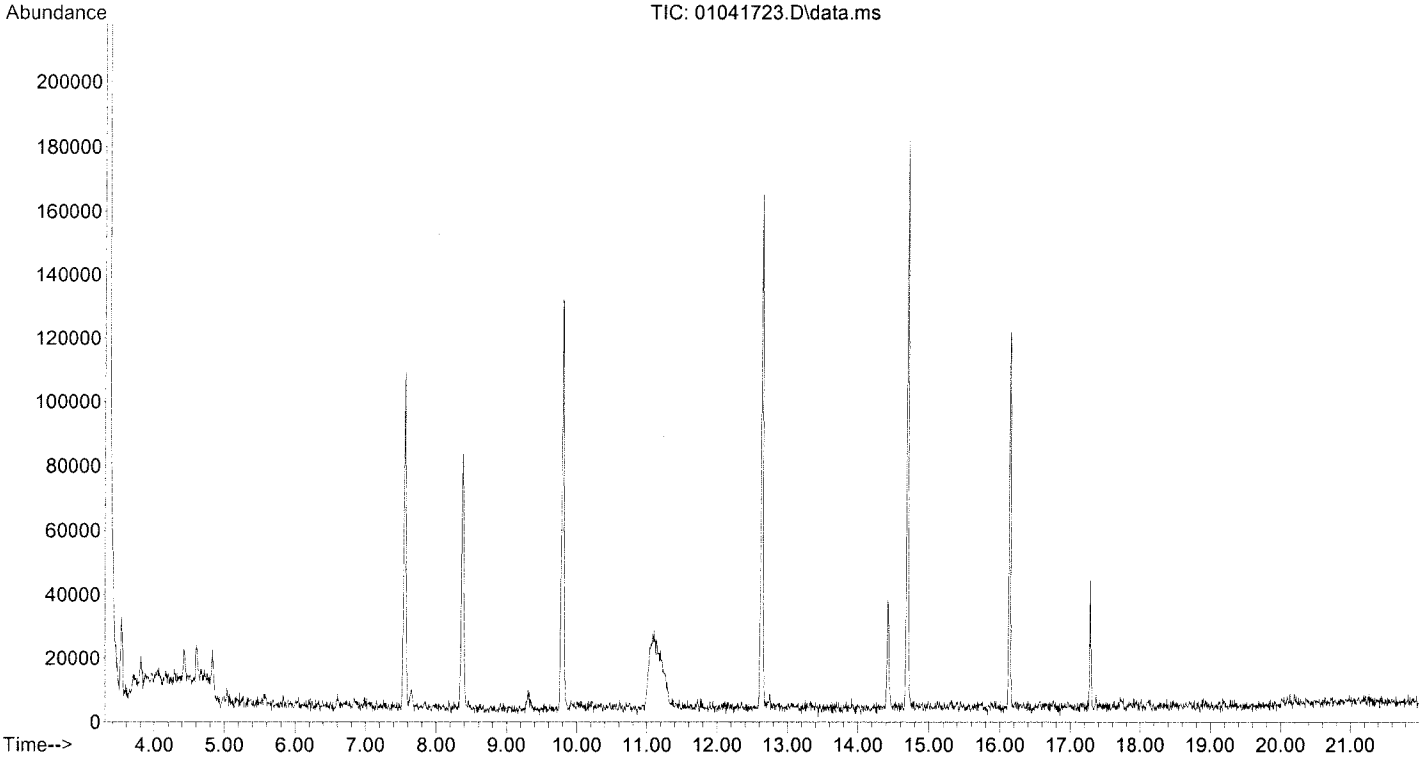
Quant Time: Jan 05 08:04:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

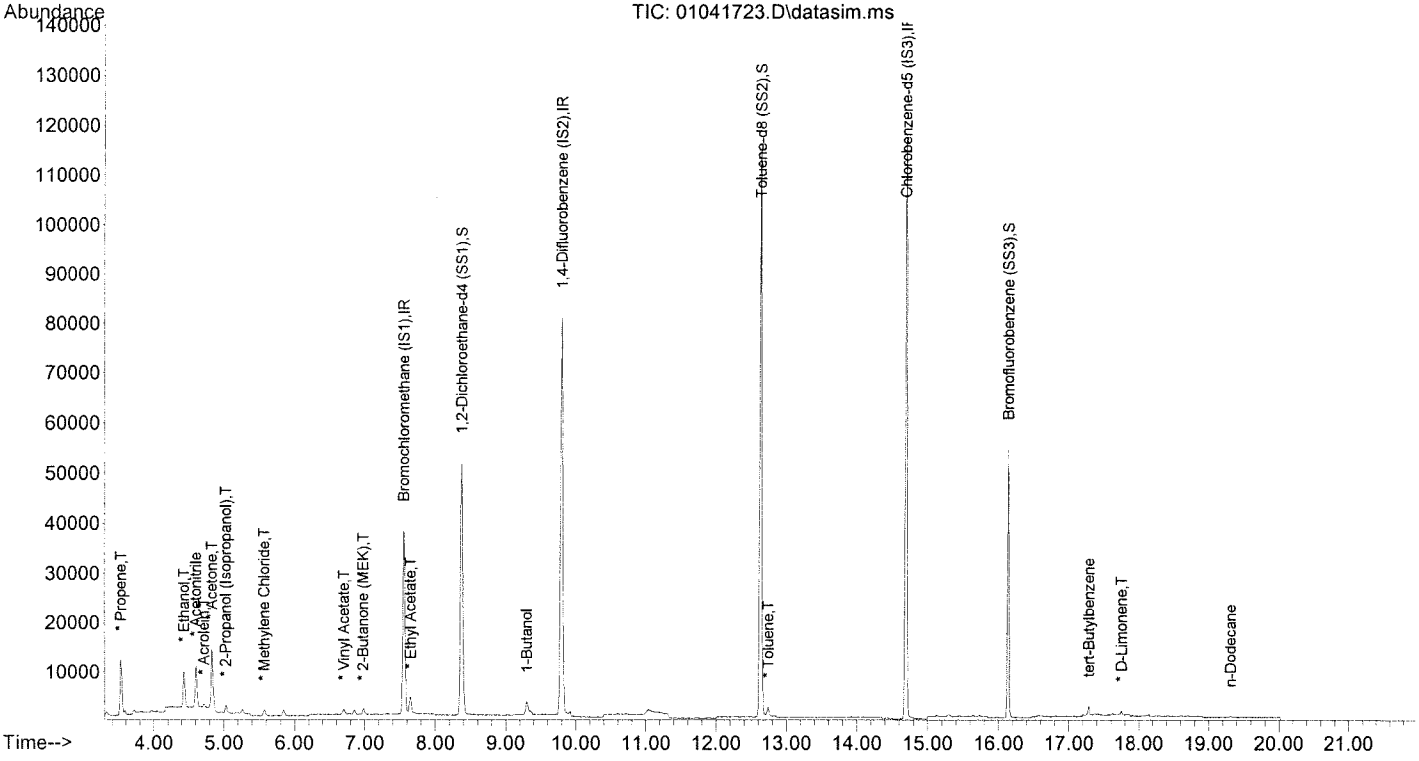
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46334	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	146600	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112394	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	76930	843.051 pg		0.00
Spiked Amount 1000.000			Recovery =	84.30%		
57) Toluene-d8 (SS2)	12.63	98	126857	923.664 pg		0.00
Spiked Amount 1000.000			Recovery =	92.37%		
74) Bromofluorobenzene (SS3)	16.14	174	37635	832.025 pg		0.00
Spiked Amount 1000.000			Recovery =	83.20%		
Target Compounds						Qvalue
2) * Propene	3.53	42	5674	61.012 pg	#	76
10) * Ethanol	4.44	45	8821	139.071 pg		97
11) * Acetonitrile	4.60	41	10498	66.011 pg		100
12) * Acrolein	4.71	56	619	11.649 pg		90
13) * Acetone	4.83	58	6590	109.999 pg	#	58
15) * 2-Propanol (Isopropa...	5.03	45	2014	12.407 pg		89
19) * Methylene Chloride	5.57	84	1299	19.465 pg		94
26) * Vinyl Acetate	6.71	86	192	15.281 pg	#	45
27) * 2-Butanone (MEK)	6.98	72	396	11.013 pg		97
30) * Ethyl Acetate	7.65	61	700	38.078 pg		97
41) 1-Butanol	9.30	56	2454	77.432 pg	#	52
58) * Toluene	12.74	91	2017	12.697 pg		98
83) tert-Butylbenzene	17.28	134	665	32.314 pg	#	1
93) * D-Limonene	17.75	68	423	11.603 pg		94
99) n-Dodecane	19.31	85	73	12.840 pg	#	30

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041723.D
Acq On : 5 Jan 2017 2:56 am
Operator : JM
Sample : AS00997 FCA00859
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 05 08:04:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041719.D
Acq On : 5 Jan 2017 12:12 am
Operator : JM
Sample : AS00943 FCA00825
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 05 08:04:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

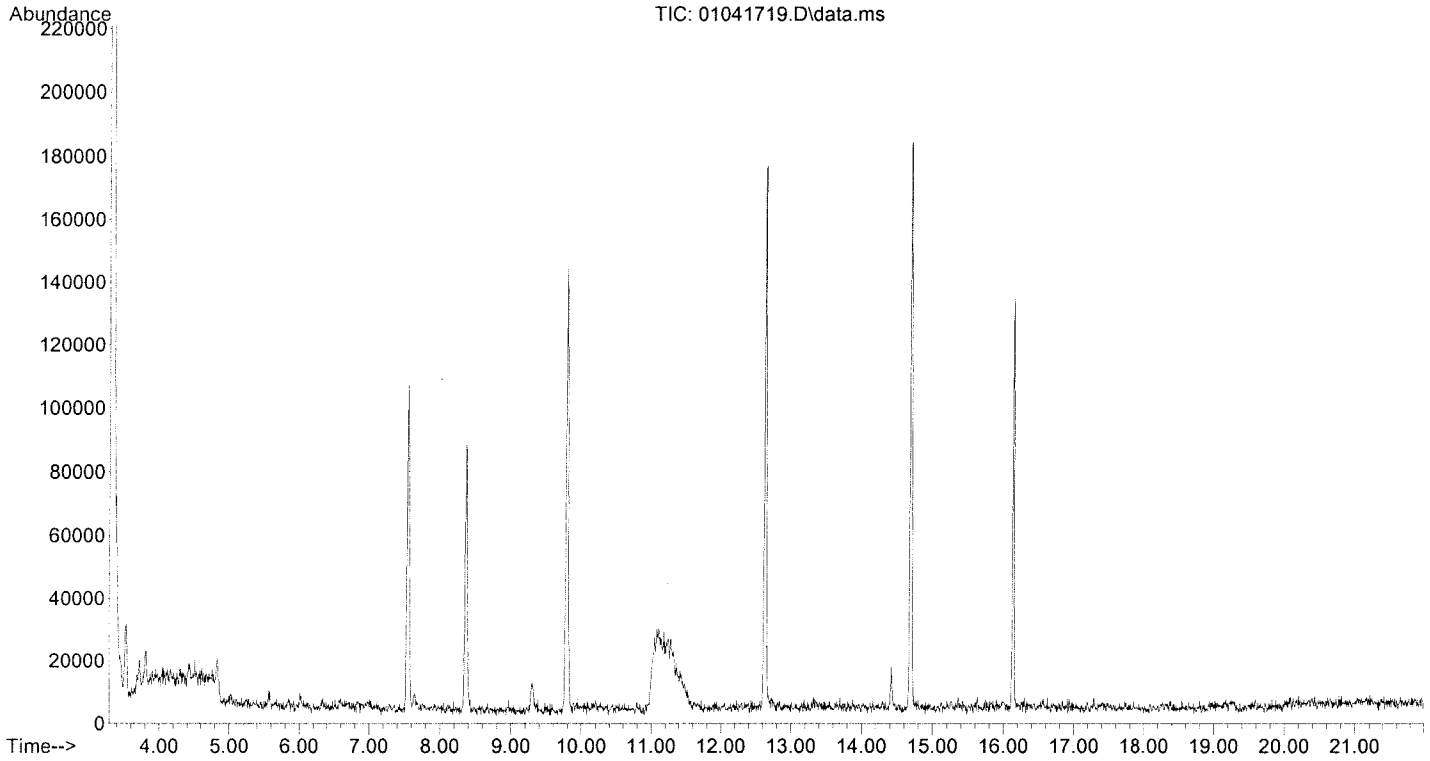
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47133	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	152864	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119484	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79609	857.620	pg		0.00
Spiked Amount 1000.000			Recovery =	85.76%			
57) Toluene-d8 (SS2)	12.63	98	136474	934.723	pg		0.00
Spiked Amount 1000.000			Recovery =	93.47%			
74) Bromofluorobenzene (SS3)	16.14	174	41024	853.131	pg		0.00
Spiked Amount 1000.000			Recovery =	85.31%			
Target Compounds							Qvalue
2) * Propene	3.53	42	5753	60.813	pg	#	77
10) * Ethanol	4.44	45	4023	62.351	pg		96
12) * Acrolein	4.71	56	655	12.117	pg		88
13) * Acetone	4.84	58	6497	106.609	pg	#	56
15) * 2-Propanol (Isopropa...	5.03	45	2505	15.171	pg	#	88
19) * Methylene Chloride	5.58	84	1254	18.473	pg		87
26) * Vinyl Acetate	6.71	86	298	23.316	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	474	12.958	pg		71
30) * Ethyl Acetate	7.63	61	609	32.566	pg		92
41) 1-Butanol	9.30	56	4861	147.096	pg	#	47

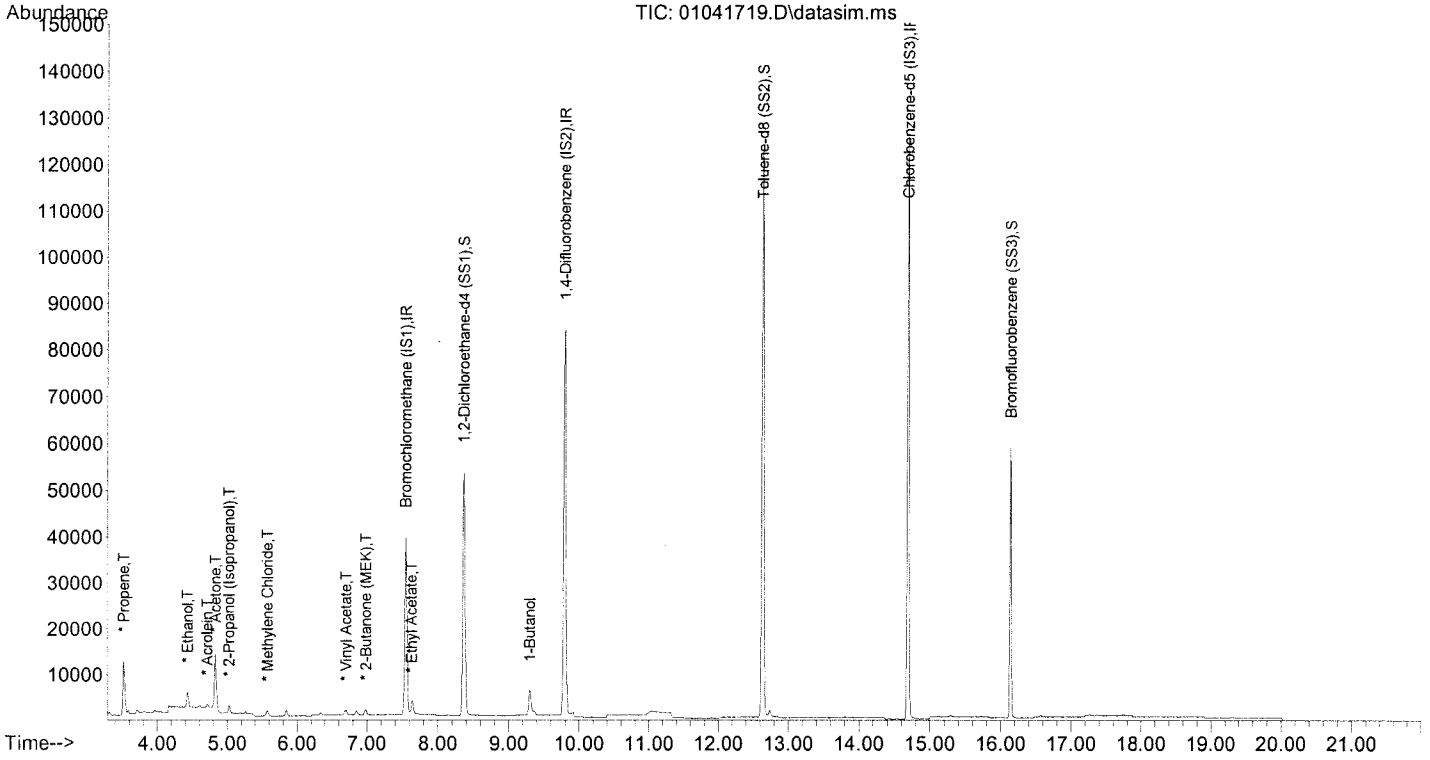
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041719.D
Acq On : 5 Jan 2017 12:12 am
Operator : JM
Sample : AS00943 FCA00825
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 05 08:04:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281615.D
Acq On : 28 Dec 2016 9:17 pm
Operator : JM
Sample : AS00837 FCA01018
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 29 09:57:12 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

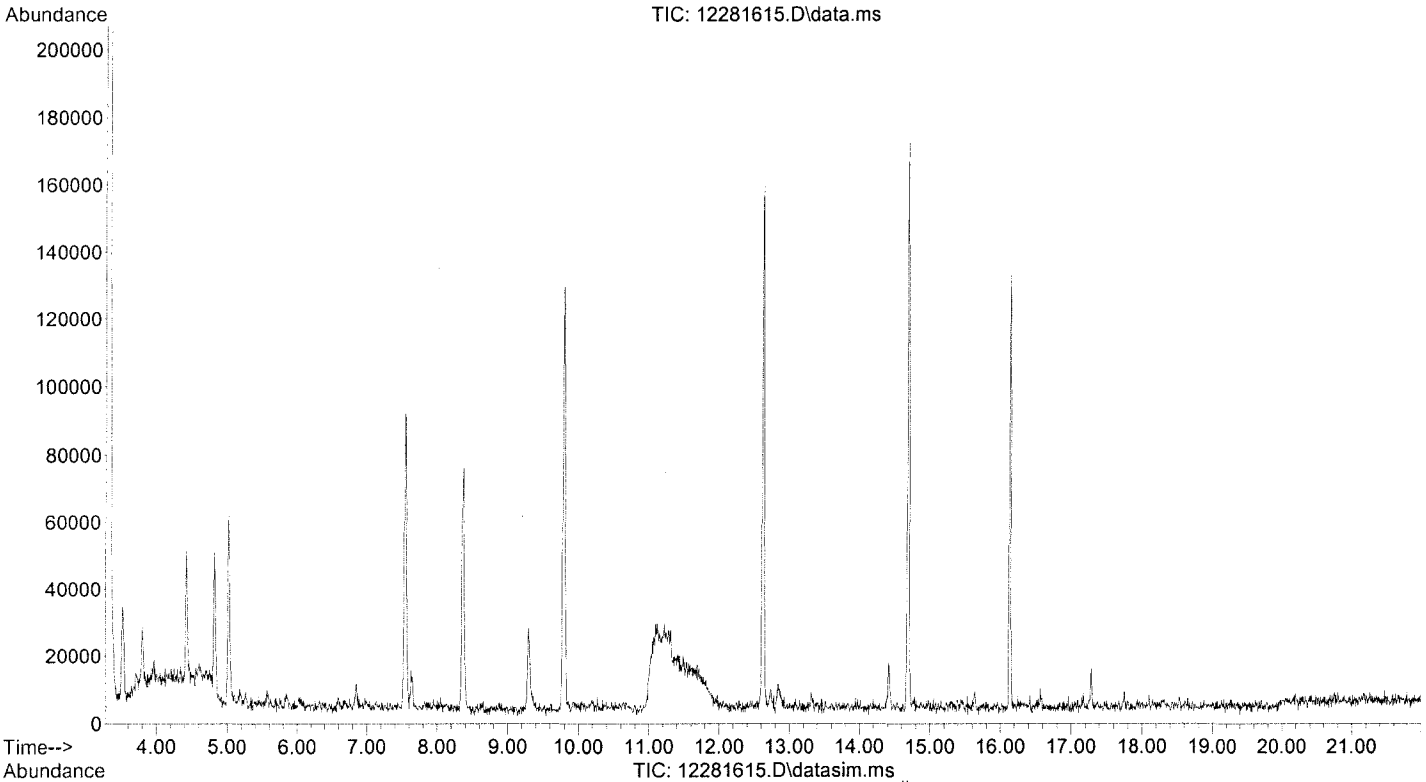
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37762	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	135261	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	101798	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70115	942.787	pg		0.00
Spiked Amount 1000.000			Recovery = 94.28%				
57) Toluene-d8 (SS2)	12.63	98	121035	973.003	pg		0.00
Spiked Amount 1000.000			Recovery = 97.30%				
74) Bromofluorobenzene (SS3)	16.14	174	37009	903.349	pg		0.00
Spiked Amount 1000.000			Recovery = 90.33%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7290	96.183	pg		80
9) * Chloroethane	4.35	64	1034	19.742	pg		96
10) * Ethanol	4.43	45	41472	802.269	pg		100
12) * Acrolein	4.71	56	819	18.911	pg		98
13) * Acetone	4.83	58	15706	321.673	pg		82
15) * 2-Propanol (Isopropa...	5.03	45	69672	526.651	pg		92
16) * Acrylonitrile	5.19	53	1578	20.522	pg		94
19) * Methylene Chloride	5.57	84	913	16.787	pg	#	69
22) * Carbon Disulfide	5.84	76	3034	15.217	pg		96
26) * Vinyl Acetate	6.71	86	176	17.188	pg		83
27) * 2-Butanone (MEK)	6.98	72	628	21.429	pg		96
29) DIPE	7.64	45	1929	11.294	pg	#	53
30) * Ethyl Acetate	7.64	61	1738	116.003	pg		99
41) 1-Butanol	9.30	56	13714	468.999	pg	#	53
58) * Toluene	12.74	91	3808	26.467	pg		99
70) * Styrene	15.63	104	613	12.213	pg		93
83) tert-Butylbenzene	17.28	134	193	10.354	pg	#	1
93) * D-Limonene	17.75	68	528	15.990	pg		96

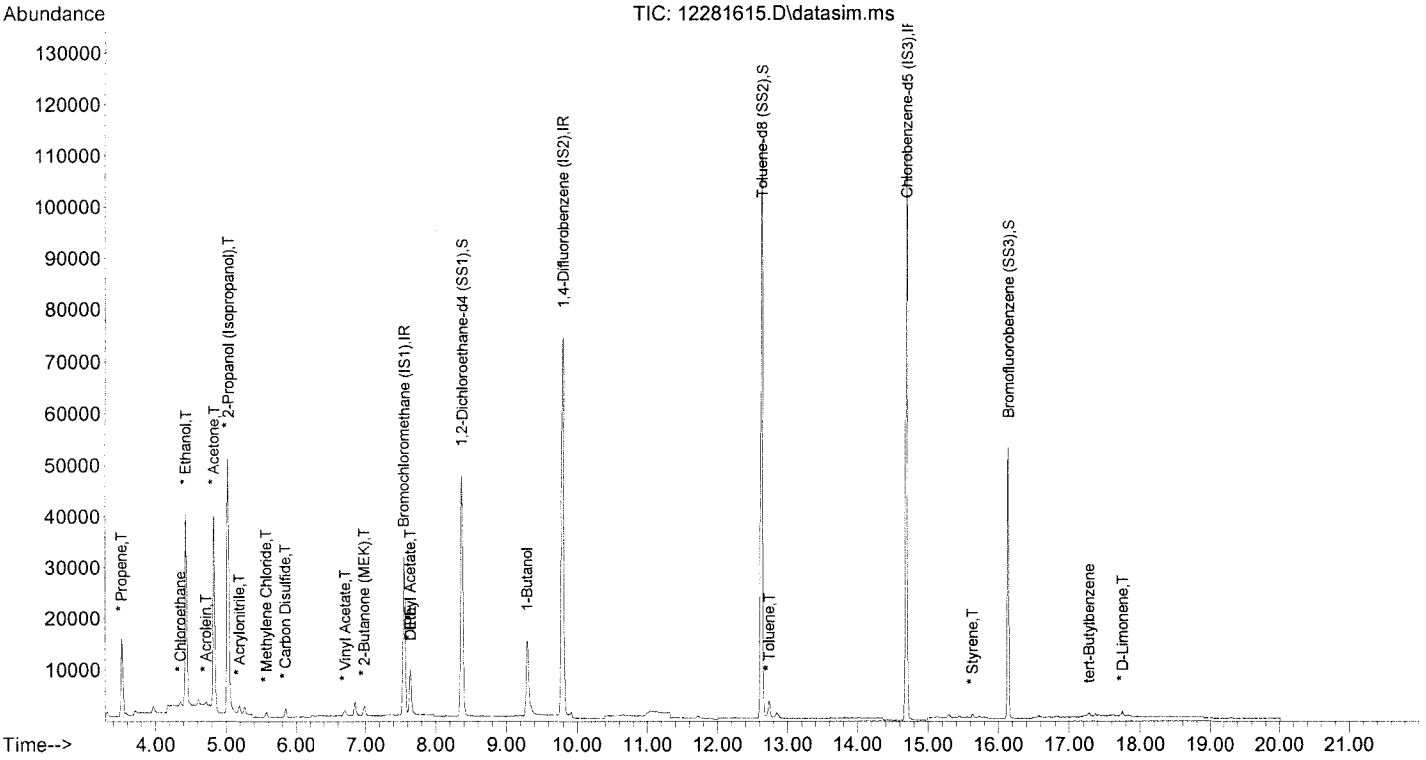
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281615.D
Acq On : 28 Dec 2016 9:17 pm
Operator : JM
Sample : AS00837 FCA01018
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 29 09:57:12 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041704.D
Acq On : 4 Jan 2017 10:32 am
Operator : SM
Sample : AC01934 FCA01007
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 05 08:02:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

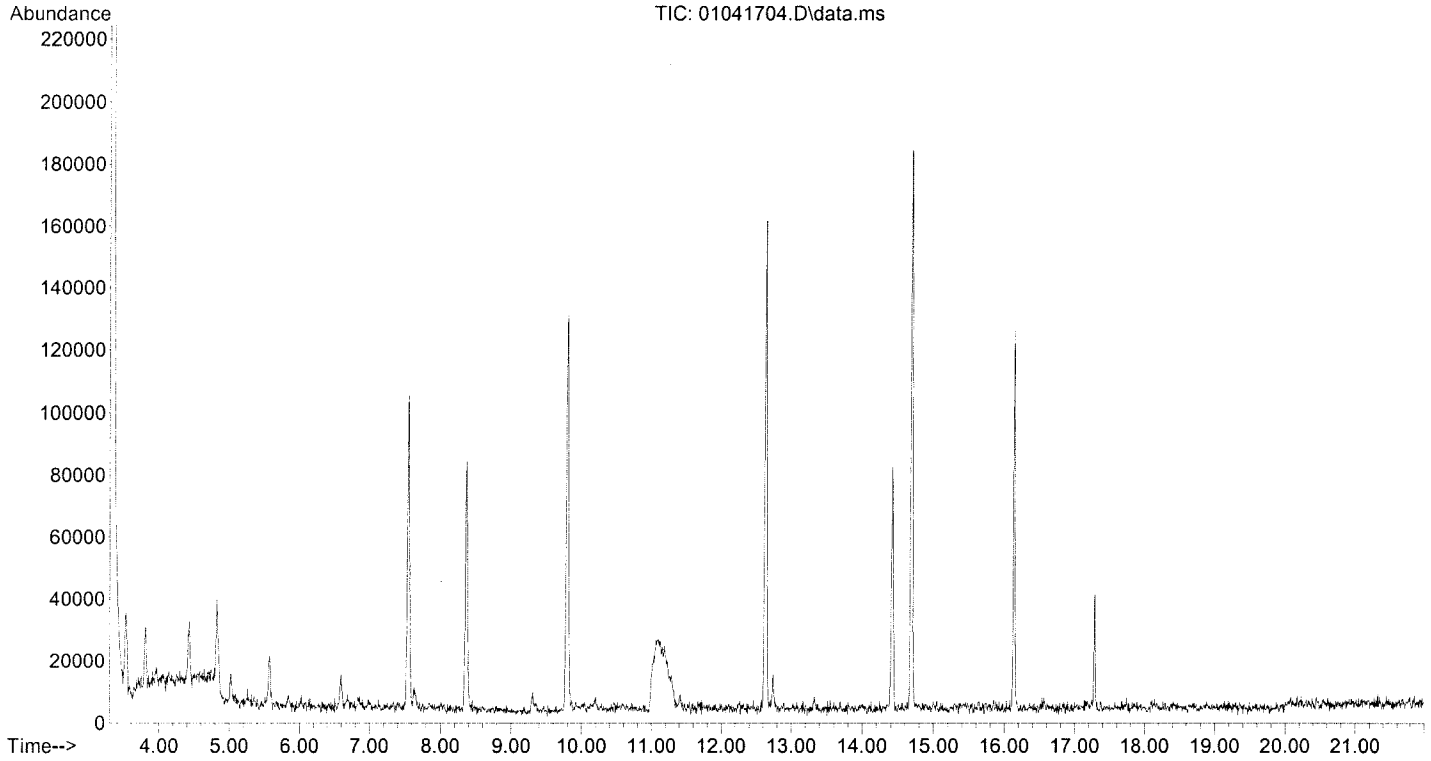
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44904	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147244	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116932	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75851	857.697	pg		0.00
Spiked Amount 1000.000			Recovery = 85.77%				
57) Toluene-d8 (SS2)	12.63	98	127371	891.415	pg		0.00
Spiked Amount 1000.000			Recovery = 89.14%				
74) Bromofluorobenzene (SS3)	16.14	174	39261	834.287	pg		0.00
Spiked Amount 1000.000			Recovery = 83.43%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7349	81.540	pg	#	73
3) * Dichlorodifluoromethane	3.58	85	2191	11.412	pg		94
10) * Ethanol	4.43	45	21832	355.164	pg		99
11) * Acetonitrile	4.60	41	1713	11.114	pg		93
12) * Acrolein	4.72	56	996	19.340	pg		99
13) * Acetone	4.83	58	11187	192.678	pg	#	54
15) * 2-Propanol (Isopropa...	5.02	45	9381	59.633	pg		94
18) tert-Butanol	5.55	59	1061	11.190	pg	#	69
19) * Methylene Chloride	5.57	84	6970	107.771	pg		100
22) * Carbon Disulfide	5.84	76	3187	13.442	pg		97
26) * Vinyl Acetate	6.70	86	387	31.783	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	716	20.546	pg		70
30) * Ethyl Acetate	7.64	61	951	53.379	pg		98
41) 1-Butanol	9.30	56	1915	60.160	pg	#	50
58) * Toluene	12.74	91	7624	46.131	pg		99
69) Cyclohexanone	15.44	98	185	15.296	pg		97
83) tert-Butylbenzene	17.28	134	721	33.675	pg	#	1

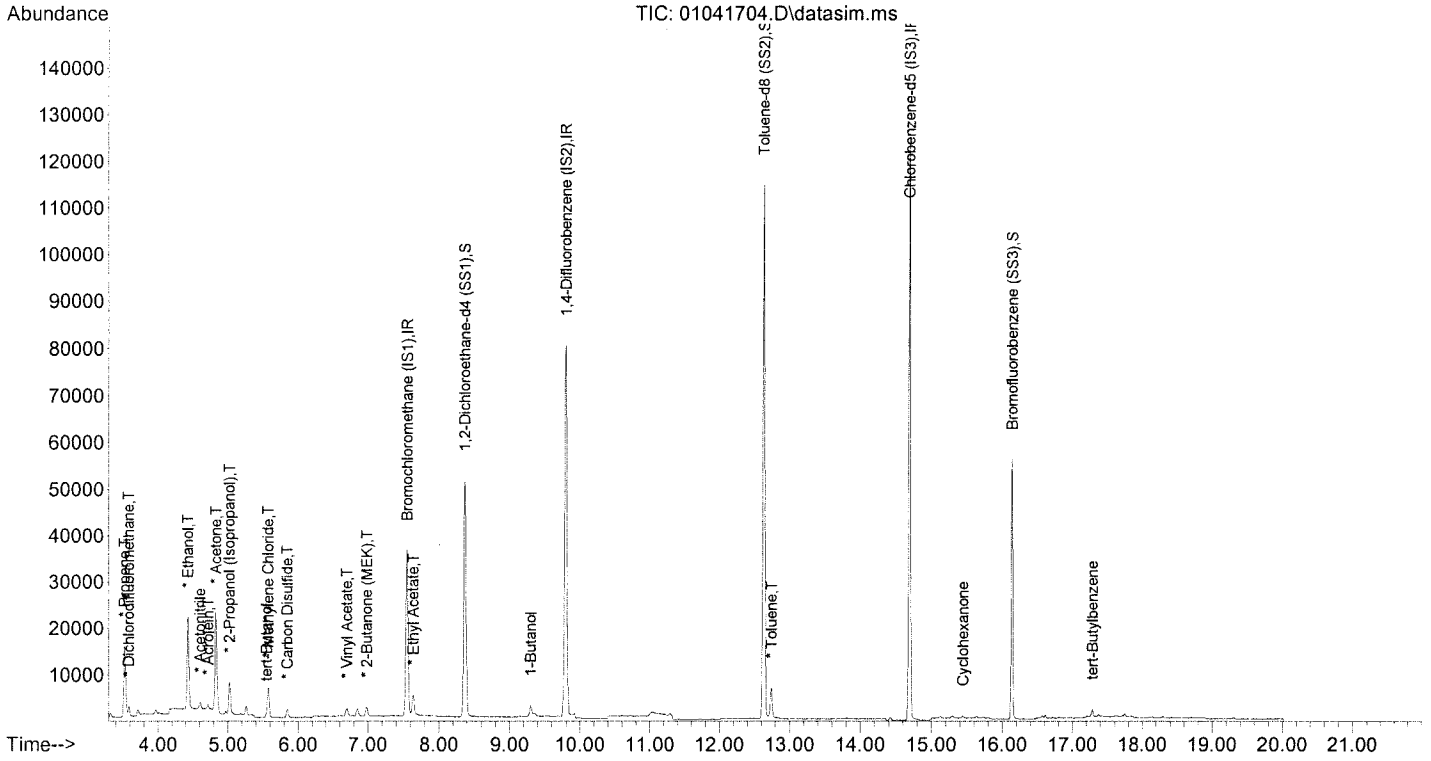
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041704.D
Acq On : 4 Jan 2017 10:32 am
Operator : SM
Sample : AC01934 FCA01007
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 05 08:02:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231607.D
Acq On : 23 Dec 2016 9:25 am
Operator : SM
Sample : AS00132 FCA00175
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Dec 27 08:40:52 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

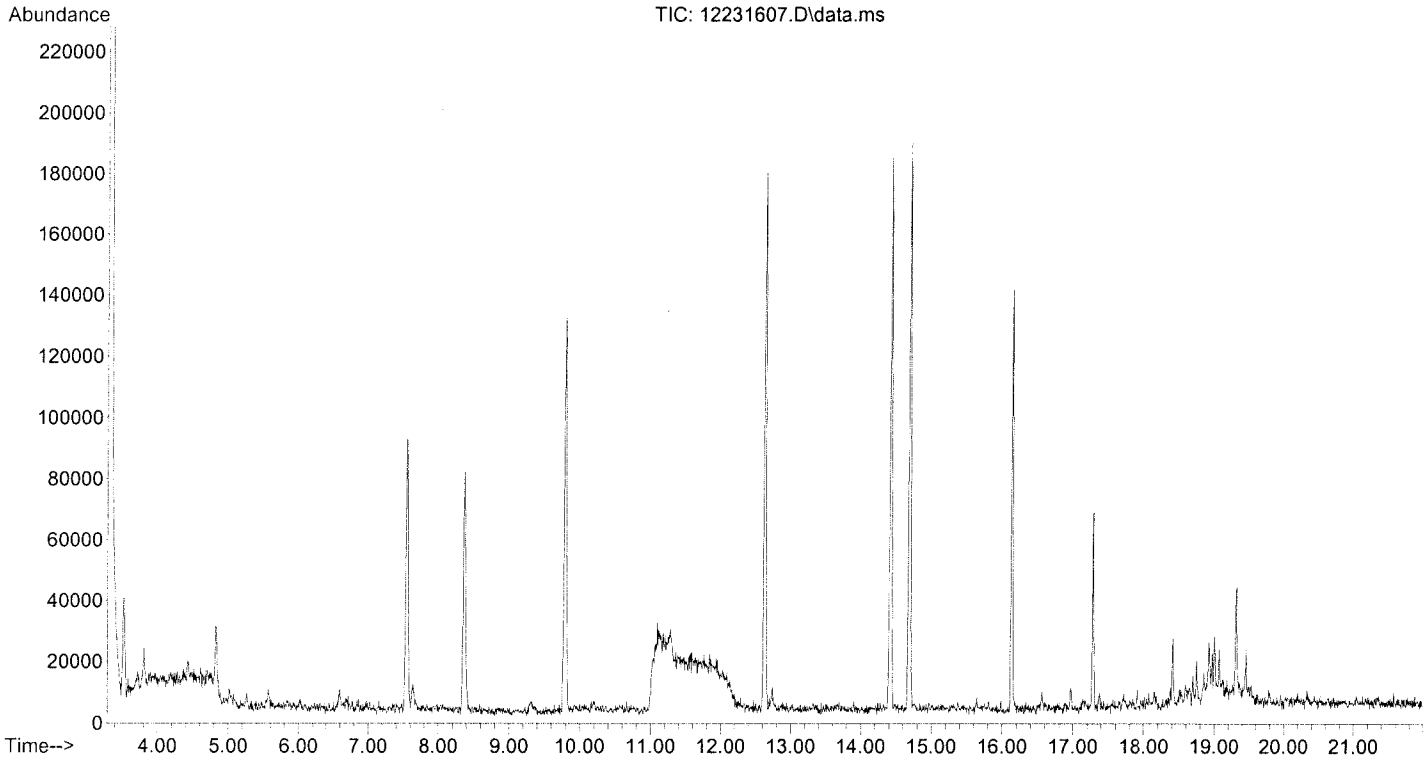
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37642	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	138011	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111562	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73025	985.047	pg		0.00
Spiked Amount 1000.000			Recovery =	98.50%			
57) Toluene-d8 (SS2)	12.63	98	131501	964.618	pg		0.00
Spiked Amount 1000.000			Recovery =	96.46%			
74) Bromofluorobenzene (SS3)	16.14	174	38245	851.817	pg		0.00
Spiked Amount 1000.000			Recovery =	85.18%			
Target Compounds							Qvalue
2) * Propene	3.52	42	9112	120.606	pg		84
10) * Ethanol	4.43	45	6477	125.696	pg		96
12) * Acrolein	4.71	56	674	15.613	pg		92
13) * Acetone	4.83	58	7027	144.378	pg		79
15) * 2-Propanol (Isopropa...	5.02	45	6531	49.525	pg		95
19) * Methylene Chloride	5.57	84	1453	26.801	pg		97
26) * Vinyl Acetate	6.71	86	182	17.830	pg	#	43
30) * Ethyl Acetate	7.64	61	1138	76.198	pg		92
41) 1-Butanol	9.31	56	1580	52.957	pg	#	55
58) * Toluene	12.74	91	3596	22.806	pg		98
83) tert-Butylbenzene	17.28	134	1179	57.717	pg	#	1
88) n-Decane	17.37	85	245	15.592	pg		71
96) n-Undecane	18.41	85	824	91.708	pg		91
98) * Naphthalene	19.29	128	742	21.153	pg		99
99) n-Dodecane	19.31	85	1966	348.378	pg		92

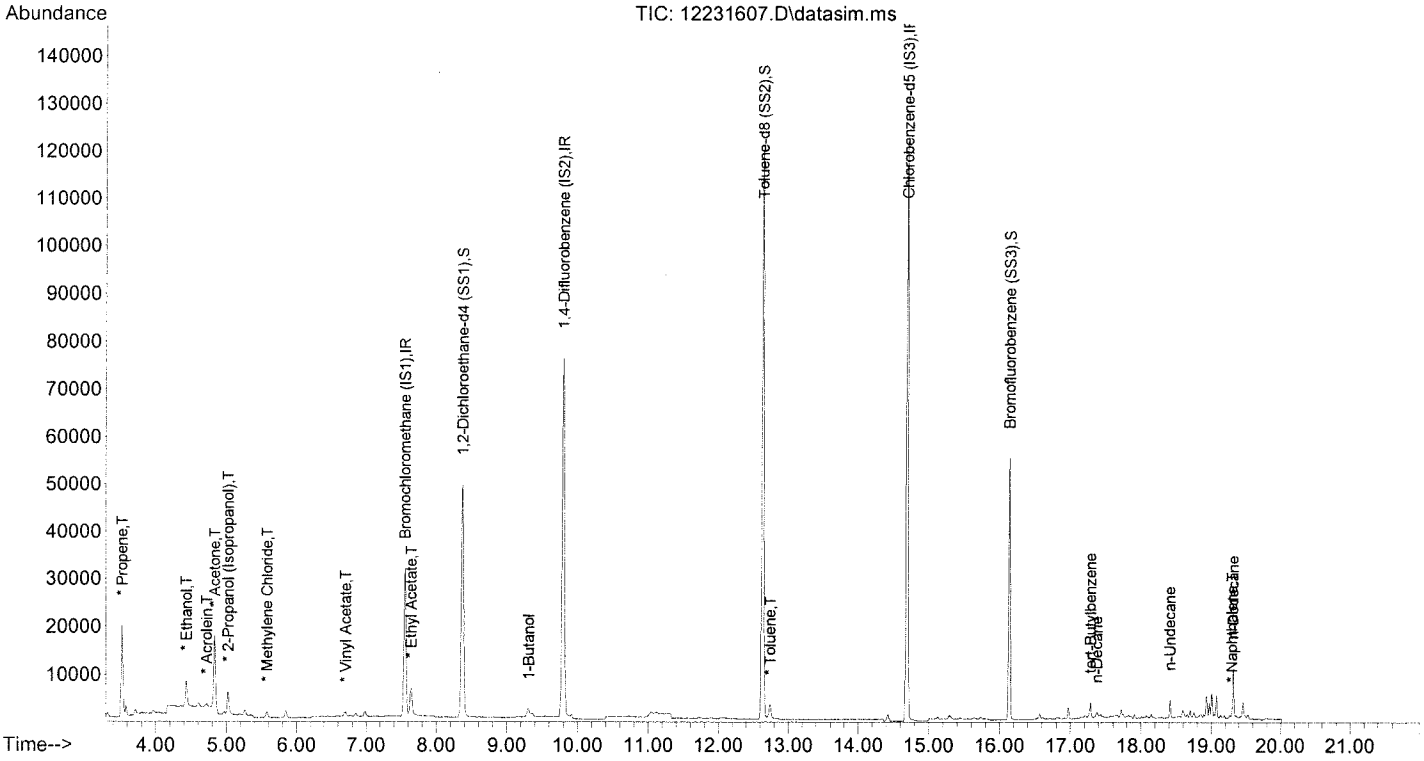
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231607.D
Acq On : 23 Dec 2016 9:25 am
Operator : SM
Sample : AS00132 FCA00175
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Dec 27 08:40:52 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041729.D
Acq On : 5 Jan 2017 7:26 am
Operator : JM
Sample : AC02084 FCA00343
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 05 08:05:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

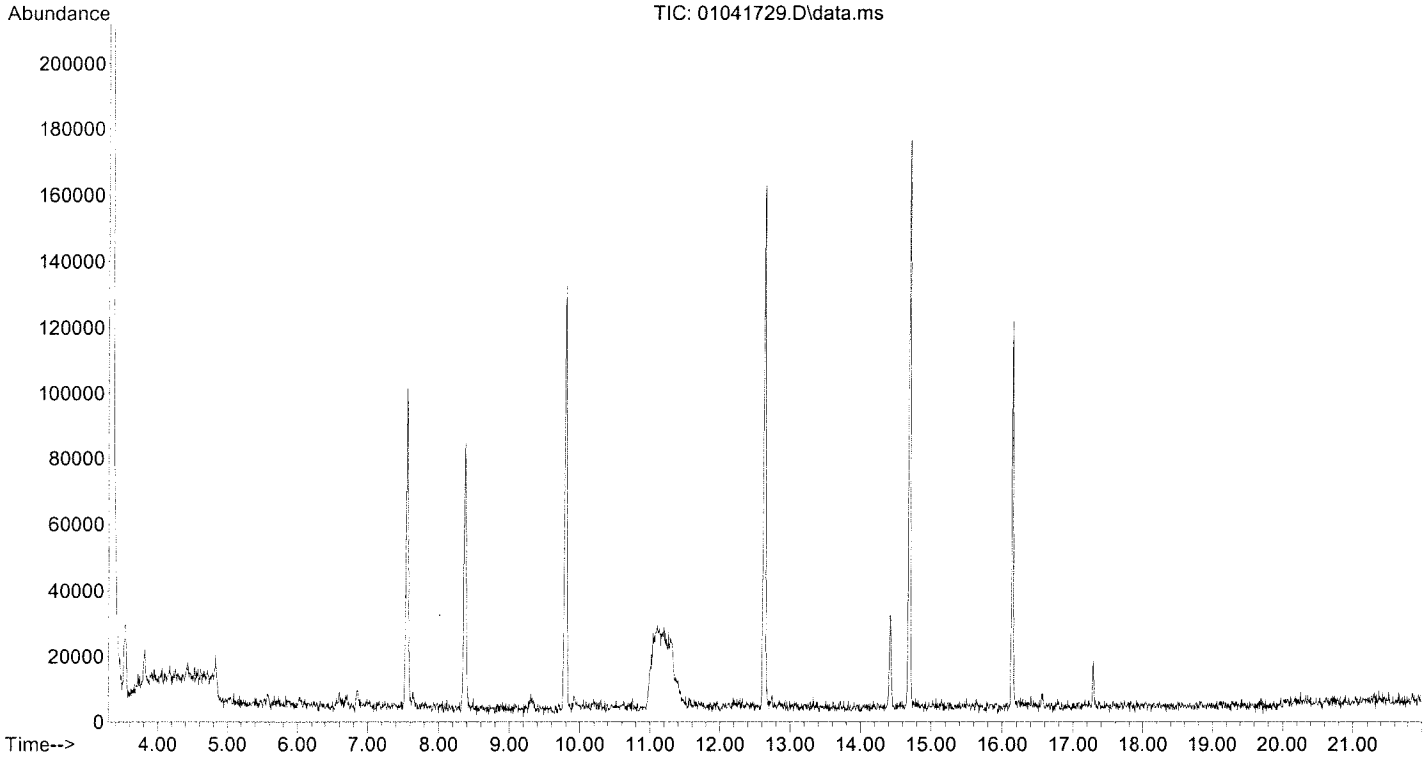
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45802	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	145668	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112756	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76708	850.382	pg		0.00
Spiked Amount 1000.000			Recovery = 85.04%				
57) Toluene-d8 (SS2)	12.63	98	127775	927.361	pg		0.00
Spiked Amount 1000.000			Recovery = 92.74%				
74) Bromofluorobenzene (SS3)	16.14	174	37409	824.374	pg		0.00
Spiked Amount 1000.000			Recovery = 82.44%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5373	58.447	pg	#	75
10) * Ethanol	4.44	45	3892	62.074	pg		93
12) * Acrolein	4.72	56	742	14.126	pg	#	77
13) * Acetone	4.84	58	5424	91.588	pg	#	54
15) * 2-Propanol (Isopropa...	5.03	45	1644	10.246	pg		91
19) * Methylene Chloride	5.58	84	1179	17.873	pg		98
26) * Vinyl Acetate	6.71	86	304	24.477	pg	#	1
30) * Ethyl Acetate	7.65	61	378	20.801	pg		91
41) 1-Butanol	9.30	56	1688	53.603	pg	#	50
83) tert-Butylbenzene	17.28	134	209	10.123	pg	#	1

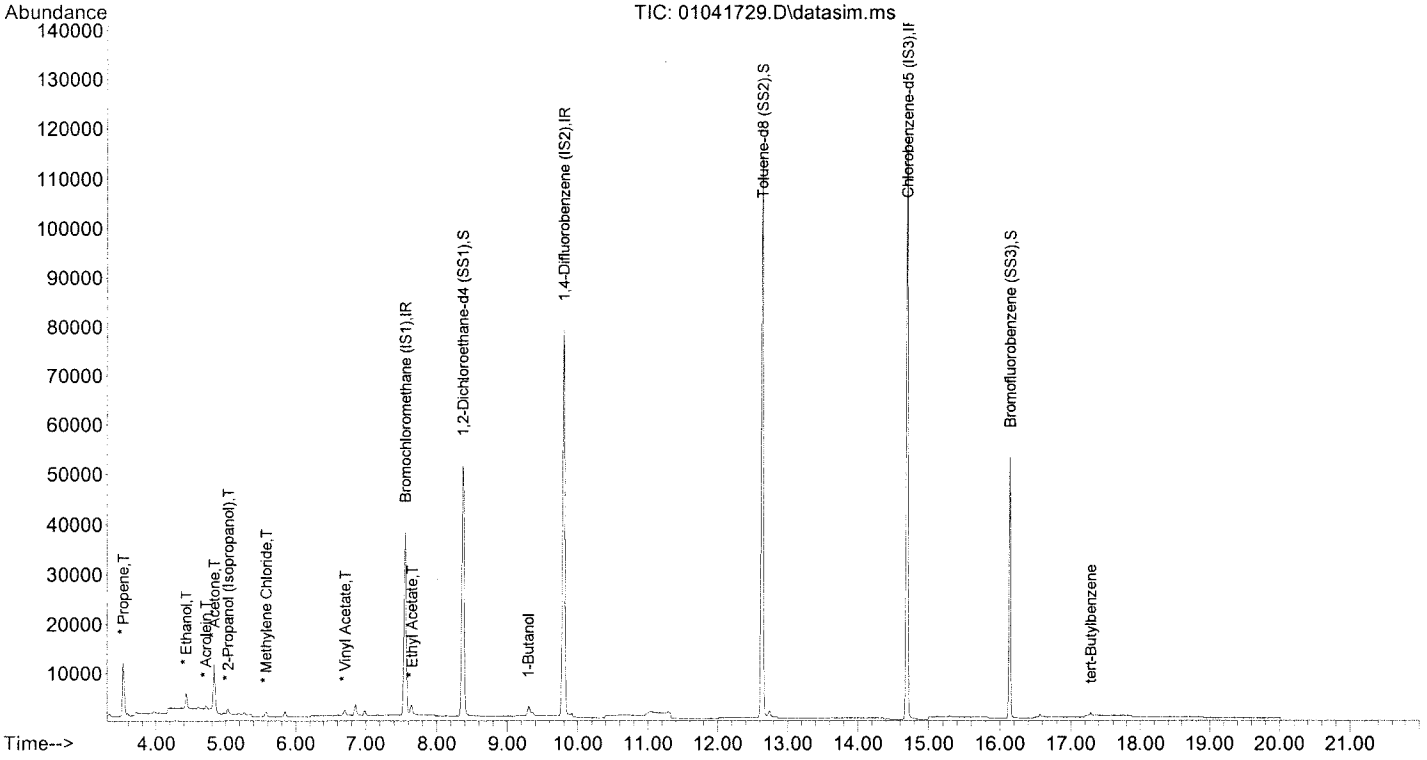
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041729.D
Acq On : 5 Jan 2017 7:26 am
Operator : JM
Sample : AC02084 FCA00343
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 05 08:05:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291626.D
Acq On : 30 Dec 2016 2:29 am
Operator : JM
Sample : AS00163 FCA00786
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 30 10:29:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

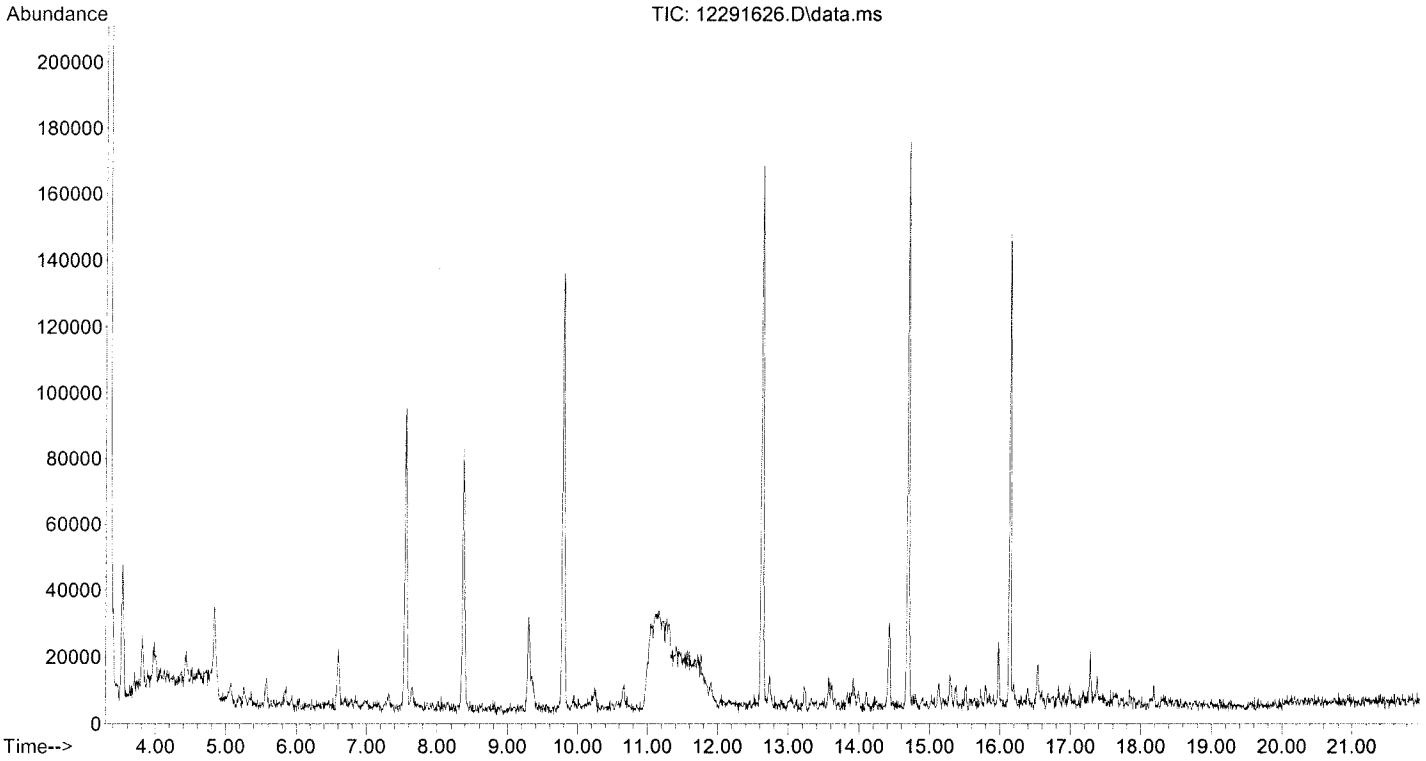
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39781	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142670	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111985	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71854	917.135	pg		0.00
Spiked Amount 1000.000			Recovery = 91.71%				
57) Toluene-d8 (SS2)	12.63	98	127295	930.238	pg		0.00
Spiked Amount 1000.000			Recovery = 93.02%				
74) Bromofluorobenzene (SS3)	16.14	174	43423	963.491	pg		0.00
Spiked Amount 1000.000			Recovery = 96.35%				
Target Compounds							Qvalue
2) * Propene	3.53	42	11838	148.262	pg		88
7) * 1,3-Butadiene	4.01	54	2978	32.982	pg	#	73
10) * Ethanol	4.44	45	7091	130.212	pg		96
11) * Acetonitrile	4.61	41	1471	10.773	pg	#	73
12) * Acrolein	4.72	56	1595	34.960	pg	#	77
13) * Acetone	4.84	58	9228	179.406	pg		68
15) * 2-Propanol (Isopropa...	5.03	45	4245	30.459	pg		94
19) * Methylene Chloride	5.58	84	3132	54.664	pg		99
22) * Carbon Disulfide	5.85	76	7604	36.202	pg		98
26) * Vinyl Acetate	6.71	86	213	19.745	pg	#	45
27) * 2-Butanone (MEK)	6.99	72	658	21.313	pg		82
30) * Ethyl Acetate	7.64	61	763	48.342	pg		96
39) * Benzene	9.36	78	6912	42.009	pg		99
41) 1-Butanol	9.30	56	16514	535.426	pg	#	50
48) * 1,4-Dioxane	10.65	88	592	17.252	pg		82
51) * n-Heptane	11.04	71	1463	17.317	pg	#	87
53) * 4-Methyl-2-pentanone	11.72	58	325	10.933	pg	#	88
58) * Toluene	12.74	91	6927	43.765	pg		99
62) * n-Butyl Acetate	13.83	56	256	13.222	pg	#	37
63) * n-Octane	13.91	85	631	25.556	pg	#	78
66) * Ethylbenzene	15.12	91	3407	25.524	pg		98
67) * m- & p-Xylenes	15.29	91	5658	54.558	pg		95
71) * o-Xylene	15.73	91	2050	20.208	pg		98
72) * n-Nonane	15.98	57	3692	80.758	pg		94
83) tert-Butylbenzene	17.28	134	260	12.680	pg	#	1
88) n-Decane	17.37	85	361	22.887	pg		89

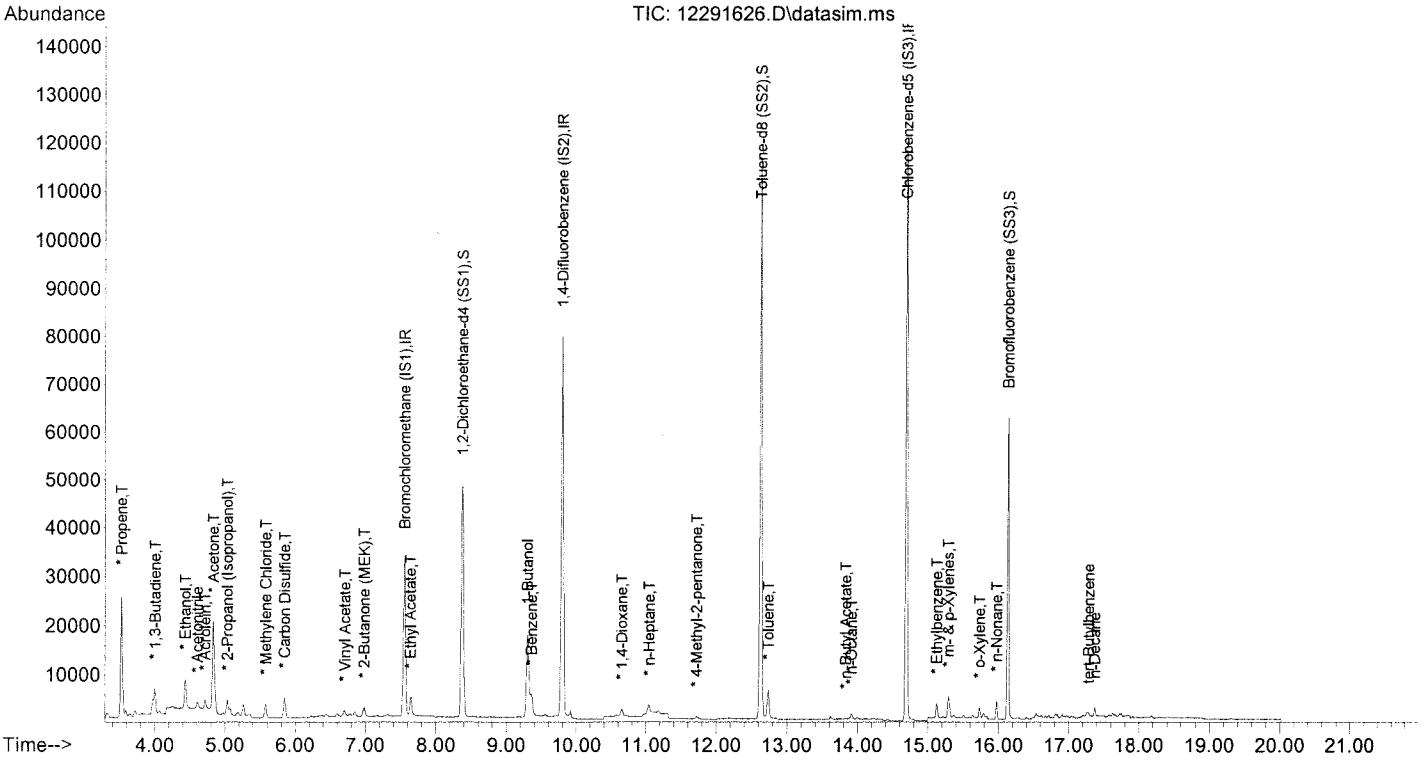
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291626.D
Acq On : 30 Dec 2016 2:29 am
Operator : JM
Sample : AS00163 FCA00786
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 30 10:29:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





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LABORATORY REPORT

February 14, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Your report number P1700234 has been amended for the samples submitted to our laboratory on January 19, 2017. The case narrative was amended to include additional information. The revised page has been indicated by the "Revised Page" footer located at the bottom right of the page

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 10:17 am, Feb 14, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700234

CASE NARRATIVE

The samples were received intact under chain of custody on January 19, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

Sample 17N243B-06-N (P1700234-027) was initially run at a full liter of sample but due to an internal standard failure the sample was re-run at 0.5L. The re-run with acceptable method controls being met has been reported.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700234
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/19/2017
Time Received: 09:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
17M010-1-01	P1700234-001	Air	1/12/2017	08:24	AS01032	0.98	3.57	X
17M010-1-02	P1700234-002	Air	1/12/2017	08:23	AS01060	-0.05	3.83	X
17M010-1-03	P1700234-003	Air	1/12/2017	08:25	AS00260	-1.60	3.62	X
17M010-1-05	P1700234-004	Air	1/12/2017	08:29	AS01083	-0.77	3.93	X
17M010-1-06	P1700234-005	Air	1/12/2017	08:22	AS00813	-1.33	3.66	X
17M010-1-07	P1700234-006	Air	1/12/2017	08:30	AS00773	-1.14	3.61	X
17M010-1-10	P1700234-007	Air	1/12/2017	08:27	AC02085	-2.25	3.59	X
17M310-1-03	P1700234-008	Air	1/12/2017	08:26	AC02015	-0.72	3.88	X
17M310-1-10	P1700234-009	Air	1/12/2017	08:28	AS01024	-1.30	3.71	X
17M010-A-01	P1700234-010	Air	1/12/2017	08:31	AS00834	0.17	3.57	X
17M012-1-02-N	P1700234-011	Air	1/12/2017	10:08	AC01119	0.00	3.85	X
17M012-C-05-N	P1700234-012	Air	1/12/2017	10:10	AS01016	0.36	3.60	X
17M015-A-01-N	P1700234-013	Air	1/12/2017	10:21	AS01125	-0.94	3.57	X
17N239-B-01-N	P1700234-014	Air	1/12/2017	07:40	AS01087	-1.51	3.53	X
17N239-B-02-N	P1700234-015	Air	1/12/2017	07:41	AS00912	-7.14	3.59	X
17N239-B-05-N	P1700234-016	Air	1/12/2017	07:06	AC01051	0.52	3.56	X
17N239-B-06-N	P1700234-017	Air	1/12/2017	07:43	AC01775	-1.65	3.67	X
17N239-1-02-N	P1700234-018	Air	1/12/2017	07:02	AC02221	-5.86	3.83	X
17N239-1-03-N	P1700234-019	Air	1/12/2017	07:32	AS01040	-4.49	3.92	X
17N239-1-05-N	P1700234-020	Air	1/12/2017	07:03	AS01190	-1.09	3.72	X
17N239-1-07-N	P1700234-021	Air	1/12/2017	07:34	AC02227	-1.64	3.79	X
17N239-1-08-N	P1700234-022	Air	1/12/2017	07:00	AS01038	-1.56	3.55	X
17M339-B-01-N	P1700234-023	Air	1/12/2017	07:40	AS01176	-1.31	3.70	X
17N239-A-01-N	P1700234-024	Air	1/12/2017	07:13	AS00019	-0.21	3.73	X
17N243-B-02-N	P1700234-025	Air	1/12/2017	07:42	AS00411	-0.15	3.63	X
17N243-B-04-N	P1700234-026	Air	1/12/2017	07:46	AS00764	-0.87	3.76	X
17N243-B-06-N	P1700234-027	Air	1/12/2017	07:49	AS01128	0.70	3.89	X
17N243-B-07-N	P1700234-028	Air	1/12/2017	07:50	AS00959	-0.80	3.92	X
17N243-1-01-N	P1700234-029	Air	1/12/2017	07:27	AS00566	-2.91	3.73	X
17N243-1-02-N	P1700234-030	Air	1/12/2017	07:29	AC02230	-0.48	3.88	X
17N243-A-01-N	P1700234-031	Air	1/12/2017	07:35	AS01009	-0.67	3.69	X
17N243-A-02-N	P1700234-032	Air	1/12/2017	07:34	AS00586	-0.64	3.75	X
17N243A-B-01-N	P1700234-033	Air	1/12/2017	08:05	AC00982	-1.52	3.87	X
17N243A-1-01-N	P1700234-034	Air	1/12/2017	08:03	AS00852	-3.88	3.69	X
17N243A-1-02-N	P1700234-035	Air	1/12/2017	08:06	AS00603	-0.42	3.69	X
17M343A-1-01-N	P1700234-036	Air	1/12/2017	08:04	AC02222	0.43	3.68	X
17N243A-A-01-N	P1700234-037	Air	1/12/2017	08:00	AC02185	0.27	3.67	X

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 004 P1700234
PAGE 1 of 4

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065
Project Manager: Luis Rivero **Phone/email:** (619) 302-9651/ luis.rivero@noreasinc.com	**Laboratory Phone:** (805) 526-7161
Project Contact: Sevda Aleckson **Phone/email:** (949) 467-9117 / sevda.aleckson@noreasinc.com	**Airbill No.** FedEx

Laboratory SDG No:

ANALYSES REQUIRED

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M010-1-01	AS01032	FCA00514	1/12/17	0824	-30.45	-0.61	6L	8hr	X				
2	17M010-1-02	AS01060	FCA00686	1/12/17	0823	-30.22	-2.52	6L	8hr	X				
3	17M010-1-03	AS00260	FCA00705	1/12/17	0825	-30.23	-5.87	6L	8hr	X				X
4	17M010-1-05	AS01083	FCA00283	1/12/17	0829	-30.17	-4.14	6L	8hr	X				
5	17M010-1-06	AS00813	FCA00057	1/12/17	0822	-30.4	-5.21	6L	8hr	X				
6	17M010-1-07	AS00773	FCA000752	1/12/17	0830	-30.25	-4.67	6L	8hr	X				
7	17M010-1-10	AC02085	FCA00247	1/12/17	0827	-30.37	-6.97	6L	8hr	X				X
8	17M310-1-03	AC02015	FCA00852	1/12/17	0826	-30.25	-4.06	6L	8hr	X				
9	17M310-1-10	AS01024	FCA00501	1/12/17	0828	-30.36	-5.05	6L	8hr	X				
10	17M010-A-01	AS00834	FCA101004	1/12/17	0831	-30.22	-0.96	6L	24hr	X				
11	17M012-1-02-N	AC01119	FCA01038	1/12/17	1008	-30.25	-1.89	6L	24hr	X				X
12	17M012-C-05-N	AS01016	FCA00685	1/12/17	1010	-29.92	-0.70	6L	24hr	X				

SAF 2956

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/17/17	Received By (signature) 1/19/17	Date 0900
Company NOREAS	Time 1200	Company	Time
Relinquished By (signature):	Date	Received By (signature) 1/20/17	Date 0935
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 004 P1700234
PAGE 2 of 4

Project Name/No: NAVFAC 018 Moffett 16104
Project Location: Moffett Field IR Site 28
Company Name: NOREAS
Address: 16361 Scientific Way, Irvine, CA 92618
Project Manager: Luis Rivero
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com
Project Contact: Sevda Aleckson
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com

Purchase Order No. 16104
Laboratory Name: ALS Simi Valley Laboratory
Laboratory Contact: Sue Anderson
Laboratory Address: 2655 Park Center Drive, Suite A, Simi Valley, CA 93065
Laboratory Phone: (805) 526-7161
Airbill No. FedEx

Laboratory SDG No:

ANALYSES REQUIRED

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	laboratory SDG No:	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17M015-A-01-N	AS01125	FCA00709	1/12/17	1021	-30.27	-4.20	6L		X				
14	17N239-B-01-N	AS01087	FCA01002	1/12/17	0740	-30.35	-0.57	6L		X				X
15	17N239-B-02-N	AS00912	FCA00741	1/12/17	0741	-30.37	-16.65	6L		X				
16	17N239-B-05-N	AC01051	FCA00782	1/12/17	0706	-30.36	-1.5	6L		X				
17	17N239-B-06-N	AC01775	FCA00343	1/12/17	0743	-30.33	-5.77	6L		X				
18	17N239-1-02-N	AC02221	FCA01023	1/12/17	0702	-30.38	-14.14	6L		X				X
19	17N239-1-03-N	AS01040	FCA00975	1/12/17	0732	-30.34	-11.21	6L		X				
20	17N239-1-05-N	AS01190	FCA00278	1/12/17	0703	-30.32	-4.6	6L		X				
21	17N239-1-07-N	AC02227	FCA01087	1/12/17	0734	-29.92	-5.62	6L		X				X
22	17N239-1-08-N	AS0103	FCA01086	1/12/17	0700	-30.23	-5.57	6L		X				
23	17M339-B-01-N	AS0116	FCA00932	1/12/17	0740	-30.23	-5.15	6L		X				
24	17N239-A-01-N	AS00019	FCA01011	1/12/17	0713	-30.22	-2.84	6L		X				

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/17/17	Received By (signature)	Date 0900
Company NOREAS	Time 1200	Company	Time
Relinquished By (signature):	Date	Received By (signature) 1/20/17	Date 0935
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

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CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 004 P1700234
PAGE 3 of 4

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	laboratory SDG No:	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
25	17N243-B-02-N	AS00411	FCA00670	1/12/17	0742	-30.33	-6.14	6L		X				
26	17N243-B-04-N	AS00764	FCA00646	1/12/17	0746	-30.38	-4.02	6L		X				
27	17N243-B-06-N	AS01128	FCA00910	1/12/17	0749	-30.33	-0.87	6L		X				X
28	17N243-B-07-N	AS00959	FCA00492	1/12/17	0750	-30.47	-3.97	6L		X				
29	17N243-1-01-N	AS00566	FCA01036	1/12/17	0727	-30.36	-8.08	6L		X				
30	17N243-1-02-N	AC02230	FCA00506	1/12/17	0729	-30.27	-3.28	6L		X				
31	17N243-A-01-N	AS01009	FAC00736	1/12/17	0735	-30.47	-3.69	6L		X				
32	17N243-A-02-N	AS00586	FCA00719	1/12/17	0734	-30.21	-3.69	6L		X				
33	17N243A-B-01-N	AC00982	FCS00130	1/12/17	0805	-30.23	-5.33	6L		X				X
34	17N243A-1-01-N	AS00852	FCA01090	1/12/17	0803	-30.36	-10.19	6L		X				
35	17N243A-1-02-N	AS00603	FCA00966	1/12/17	0806	-30.4	-3.11	6L		X				
36	17M343A-1-01-N	AC02222	FCA00084	1/12/17	0804	-30.37	-1.46	6L		X				

Page 29 of 29

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/17/17	Received By (signature)	Date 0900
Company NOREAS	Time 1200	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 0935
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

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CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 004 P1700234
PAGE 4 of 4

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	laboratory SDG No:	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
17N243A-A-01-N	AC02185	FCA00497	1/12/17	0800	-30.44	-1.51	6L		X				

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature)	Date 1/17/17	Received By (signature)	Date 09:00
Company NOREAS	Time 1200	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 0935
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental

Sample Acceptance Check Form

Client: NOREAS Work order: P1700234

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/19 - 20/17 Date opened: 1/19 - 20/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700234-001.01	6.0 L Silonite Can					
P1700234-002.01	6.0 L Silonite Can					
P1700234-003.01	6.0 L Silonite Can					
P1700234-004.01	6.0 L Silonite Can					
P1700234-005.01	6.0 L Silonite Can					
P1700234-006.01	6.0 L Silonite Can					
P1700234-007.01	6.0 L Ambient Can					
P1700234-008.01	6.0 L Ambient Can					
P1700234-009.01	6.0 L Silonite Can					
P1700234-010.01	6.0 L Silonite Can					
P1700234-011.01	6.0 L Ambient Can					
P1700234-012.01	6.0 L Silonite Can					
P1700234-013.01	6.0 L Silonite Can					
P1700234-014.01	6.0 L Silonite Can					
P1700234-015.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700234

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/19 - 20/17 Date opened: 1/19 - 20/17 by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700234-016.01	6.0 L Ambient Can					
P1700234-017.01	6.0 L Ambient Can					
P1700234-018.01	6.0 L Ambient Can					
P1700234-019.01	6.0 L Silonite Can					
P1700234-020.01	6.0 L Silonite Can					
P1700234-021.01	6.0 L Ambient Can					
P1700234-022.01	6.0 L Silonite Can					Can ID is AS01038
P1700234-023.01	6.0 L Silonite Can					Can ID is AS01176
P1700234-024.01	6.0 L Silonite Can					
P1700234-025.01	6.0 L Silonite Can					
P1700234-026.01	6.0 L Silonite Can					
P1700234-027.01	6.0 L Silonite Can					
P1700234-028.01	6.0 L Silonite Can					
P1700234-029.01	6.0 L Silonite Can					
P1700234-030.01	6.0 L Ambient Can					
P1700234-031.01	6.0 L Silonite Can					
P1700234-032.01	6.0 L Silonite Can					
P1700234-033.01	6.0 L Ambient Can					
P1700234-034.01	6.0 L Silonite Can					Received 1/20/17
P1700234-035.01	6.0 L Silonite Can					Received 1/20/17
P1700234-036.01	6.0 L Ambient Can					Received 1/20/17
P1700234-037.01	6.0 L Ambient Can					Received 1/20/17

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-01** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-001

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01032
Initial Pressure (psig): 0.98 Final Pressure (psig): 3.57

Canister Dilution Factor: 1.17

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.023	0.029	0.023	0.0089	**U**
75-35-4	1,1-Dichloroethene	**0.034**	0.029	0.025	0.010	
156-60-5	trans-1,2-Dichloroethene	**0.029**	0.029	0.025	0.0085	**J**
75-34-3	1,1-Dichloroethane	**0.037**	0.029	0.023	0.0071	
156-59-2	cis-1,2-Dichloroethene	**0.38**	0.029	0.025	0.011	
79-01-6	Trichloroethene	**2.6**	0.029	0.025	0.0099	
127-18-4	Tetrachloroethene	**0.068**	0.029	0.025	0.0096	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-02** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-002

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01060
Initial Pressure (psig): -0.05 Final Pressure (psig): 3.83

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0096	**U**
75-35-4	1,1-Dichloroethene	**0.031**	0.032	0.026	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.026**	0.032	0.026	0.0092	**J**
75-34-3	1,1-Dichloroethane	**0.042**	0.032	0.025	0.0077	
156-59-2	cis-1,2-Dichloroethene	**0.35**	0.032	0.026	0.012	
79-01-6	Trichloroethene	**2.4**	0.032	0.026	0.011	
127-18-4	Tetrachloroethene	**0.064**	0.032	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-03** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-003

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00260
Initial Pressure (psig): -1.60 Final Pressure (psig): 3.62

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	**0.025**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.022**	0.035	0.029	0.010	**J**
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0085	**U**
156-59-2	cis-1,2-Dichloroethene	**0.28**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**1.9**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.064**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-05** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-004

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01083
Initial Pressure (psig): -0.77 Final Pressure (psig): 3.93

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	**0.046**	0.034	0.028	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.027**	0.034	0.028	0.0098	**J**
75-34-3	1,1-Dichloroethane	**0.042**	0.034	0.027	0.0082	
156-59-2	cis-1,2-Dichloroethene	**0.27**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**2.5**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.069**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-06** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-005

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00813
Initial Pressure (psig): -1.33 Final Pressure (psig): 3.66

Canister Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.034	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.017**	0.034	0.029	0.010	**J**
75-34-3	1,1-Dichloroethane	**0.023**	0.034	0.027	0.0084	**J**
156-59-2	cis-1,2-Dichloroethene	**0.088**	0.034	0.029	0.013	
79-01-6	Trichloroethene	**0.65**	0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.042**	0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-07** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-006

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00773

Initial Pressure (psig): -1.14 Final Pressure (psig): 3.61

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.012**	0.034	0.028	0.0099	**J**
75-34-3	1,1-Dichloroethane	0.027	0.034	0.027	0.0082	**U**
156-59-2	cis-1,2-Dichloroethene	0.028	0.034	0.028	0.012	**U**
79-01-6	Trichloroethene	**0.037**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.028**	0.034	0.028	0.011	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-10** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-007

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02085
Initial Pressure (psig): -2.25 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.037	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	**0.15**	0.037	0.031	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.048**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.18**	0.037	0.029	0.0090	
156-59-2	cis-1,2-Dichloroethene	**2.0**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**11**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M310-1-03** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-008

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02015
Initial Pressure (psig): -0.72 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	**0.025**	0.033	0.028	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.023**	0.033	0.028	0.0097	**J**
75-34-3	1,1-Dichloroethane	**0.030**	0.033	0.027	0.0081	**J**
156-59-2	cis-1,2-Dichloroethene	**0.28**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**1.9**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.056**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M310-1-10** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-009

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01024
Initial Pressure (psig): -1.30 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	**0.14**	0.034	0.029	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.054**	0.034	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.13**	0.034	0.027	0.0084	
156-59-2	cis-1,2-Dichloroethene	**1.9**	0.034	0.029	0.013	
79-01-6	Trichloroethene	**11**	0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-A-01** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-010

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00834
Initial Pressure (psig): 0.17 Final Pressure (psig): 3.57

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025		0.031	0.025	0.0093	**U**
75-35-4	1,1-Dichloroethene	0.026		0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.071**		0.031	0.026	0.0090	
75-34-3	1,1-Dichloroethane	0.025		0.031	0.025	0.0075	**U**
156-59-2	cis-1,2-Dichloroethene	**0.015**		0.031	0.026	0.011	**J**
79-01-6	Trichloroethene	**0.061**		0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.043**		0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-011

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01119
Initial Pressure (psig): 0.00 Final Pressure (psig): 3.85

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0096	**U**
75-35-4	1,1-Dichloroethene	0.026	0.032	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.061**	0.032	0.026	0.0092	
75-34-3	1,1-Dichloroethane	**0.013**	0.032	0.025	0.0077	**J**
156-59-2	cis-1,2-Dichloroethene	**0.061**	0.032	0.026	0.012	
79-01-6	Trichloroethene	**0.37**	0.032	0.026	0.011	
127-18-4	Tetrachloroethene	**0.083**	0.032	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-C-05-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-012

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01016
Initial Pressure (psig): 0.36 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.012**	0.031	0.024	0.0093	**J**
75-35-4	1,1-Dichloroethene	**0.022**	0.031	0.026	0.010	**J**
156-60-5	trans-1,2-Dichloroethene	**0.017**	0.031	0.026	0.0089	**J**
75-34-3	1,1-Dichloroethane	**0.042**	0.031	0.024	0.0074	
156-59-2	cis-1,2-Dichloroethene	**0.30**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**1.8**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.030**	0.031	0.026	0.010	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-A-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-013

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01125
Initial Pressure (psig): -0.94 Final Pressure (psig): 3.57

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.075**	0.033	0.028	0.0097	
75-34-3	1,1-Dichloroethane	0.027	0.033	0.027	0.0081	**U**
156-59-2	cis-1,2-Dichloroethene	0.028	0.033	0.028	0.012	**U**
79-01-6	Trichloroethene	**0.028**	0.033	0.028	0.011	**J**
127-18-4	Tetrachloroethene	**0.038**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-014

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01087
Initial Pressure (psig): -1.51 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.048**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0084	**U**
156-59-2	cis-1,2-Dichloroethene	**0.051**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.14**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.053**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-015

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00912
Initial Pressure (psig): -7.14 Final Pressure (psig): 3.59

Canister Dilution Factor: 2.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.048	0.061	0.048	0.018	**U**
75-35-4	1,1-Dichloroethene	0.051	0.061	0.051	0.021	**U**
156-60-5	trans-1,2-Dichloroethene	**0.038**	0.061	0.051	0.018	**J**
75-34-3	1,1-Dichloroethane	0.048	0.061	0.048	0.015	**U**
156-59-2	cis-1,2-Dichloroethene	0.051	0.061	0.051	0.022	**U**
79-01-6	Trichloroethene	**0.032**	0.061	0.051	0.021	**J**
127-18-4	Tetrachloroethene	**0.057**	0.061	0.051	0.020	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-05-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-016

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01051
Initial Pressure (psig): 0.52 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.20

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.030	0.024	0.0091	**U**
75-35-4	1,1-Dichloroethene	0.025	0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.049**	0.030	0.025	0.0088	
75-34-3	1,1-Dichloroethane	**0.0083**	0.030	0.024	0.0073	**J**
156-59-2	cis-1,2-Dichloroethene	**0.052**	0.030	0.025	0.011	
79-01-6	Trichloroethene	**0.13**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.089**	0.030	0.025	0.0098	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-06-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-017

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01775
Initial Pressure (psig): -1.65 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.035	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.054**	0.035	0.030	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0086	**U**
156-59-2	cis-1,2-Dichloroethene	**0.050**	0.035	0.030	0.013	
79-01-6	Trichloroethene	**0.14**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.12**	0.035	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-018

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02221
Initial Pressure (psig): -5.86 Final Pressure (psig): 3.83

Canister Dilution Factor: 2.10

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.042	0.053	0.042	0.016	**U**
75-35-4	1,1-Dichloroethene	0.044	0.053	0.044	0.018	**U**
156-60-5	trans-1,2-Dichloroethene	**0.051**	0.053	0.044	0.015	**J**
75-34-3	1,1-Dichloroethane	**0.015**	0.053	0.042	0.013	**J**
156-59-2	cis-1,2-Dichloroethene	**0.065**	0.053	0.044	0.019	
79-01-6	Trichloroethene	**0.16**	0.053	0.044	0.018	
127-18-4	Tetrachloroethene	**0.052**	0.053	0.044	0.017	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-03-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-019

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01040
Initial Pressure (psig): -4.49 Final Pressure (psig): 3.92

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.036		0.046	0.036	0.014	**U**
75-35-4	1,1-Dichloroethene	0.038		0.046	0.038	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	**0.049**		0.046	0.038	0.013	
75-34-3	1,1-Dichloroethane	0.036		0.046	0.036	0.011	**U**
156-59-2	cis-1,2-Dichloroethene	**0.071**		0.046	0.038	0.017	
79-01-6	Trichloroethene	**0.19**		0.046	0.038	0.015	
127-18-4	Tetrachloroethene	**0.052**		0.046	0.038	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-05-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-020

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01190
Initial Pressure (psig): -1.09 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.053**	0.034	0.028	0.0099	
75-34-3	1,1-Dichloroethane	0.027	0.034	0.027	0.0082	**U**
156-59-2	cis-1,2-Dichloroethene	**0.029**	0.034	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.080**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.051**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-07-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-021

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02227
Initial Pressure (psig): -1.64 Final Pressure (psig): 3.79

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028		0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030		0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.051**		0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	0.028		0.036	0.028	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	**0.035**		0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.094**		0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.053**		0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-08-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-022

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01038
Initial Pressure (psig): -1.56 Final Pressure (psig): 3.55

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.051**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0085	**U**
156-59-2	cis-1,2-Dichloroethene	**0.045**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.12**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.054**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M339-B-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-023

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01176
Initial Pressure (psig): -1.31 Final Pressure (psig): 3.70

Canister Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.034	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.052**	0.034	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.054**	0.034	0.027	0.0084	
156-59-2	cis-1,2-Dichloroethene	**0.052**	0.034	0.029	0.013	
79-01-6	Trichloroethene	**0.14**	0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.053**	0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-A-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-024

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00019
Initial Pressure (psig): -0.21 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.27

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0097	**U**
75-35-4	1,1-Dichloroethene	0.027	0.032	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.050**	0.032	0.027	0.0093	
75-34-3	1,1-Dichloroethane	0.025	0.032	0.025	0.0077	**U**
156-59-2	cis-1,2-Dichloroethene	0.027	0.032	0.027	0.012	**U**
79-01-6	Trichloroethene	**0.021**	0.032	0.027	0.011	**J**
127-18-4	Tetrachloroethene	**0.057**	0.032	0.027	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-025

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00411
Initial Pressure (psig): -0.15 Final Pressure (psig): 3.63

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0096	**U**
75-35-4	1,1-Dichloroethene	0.026	0.032	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.043**	0.032	0.026	0.0092	
75-34-3	1,1-Dichloroethane	**0.011**	0.032	0.025	0.0077	**J**
156-59-2	cis-1,2-Dichloroethene	**0.015**	0.032	0.026	0.012	**J**
79-01-6	Trichloroethene	**0.12**	0.032	0.026	0.011	
127-18-4	Tetrachloroethene	**0.061**	0.032	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-04-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-026

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00764
Initial Pressure (psig): -0.87 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.035**	0.033	0.028	0.0097	
75-34-3	1,1-Dichloroethane	**0.53**	0.033	0.027	0.0081	
156-59-2	cis-1,2-Dichloroethene	**0.026**	0.033	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.065**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.21**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-06-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-027

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.50 Liter(s)
Test Notes:
Container ID: AS01128
Initial Pressure (psig): 0.70 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.048	0.061	0.048	0.018	**U**
75-35-4	1,1-Dichloroethene	0.051	0.061	0.051	0.021	**U**
156-60-5	trans-1,2-Dichloroethene	**0.045**	0.061	0.051	0.018	**J**
75-34-3	1,1-Dichloroethane	0.048	0.061	0.048	0.015	**U**
156-59-2	cis-1,2-Dichloroethene	**0.082**	0.061	0.051	0.022	
79-01-6	Trichloroethene	**0.37**	0.061	0.051	0.021	
127-18-4	Tetrachloroethene	**0.18**	0.061	0.051	0.020	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-07-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-028

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00959
Initial Pressure (psig): -0.80 Final Pressure (psig): 3.92

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.013**	0.034	0.027	0.010	**J**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.045**	0.034	0.028	0.0098	
75-34-3	1,1-Dichloroethane	**0.011**	0.034	0.027	0.0082	**J**
156-59-2	cis-1,2-Dichloroethene	**0.18**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**0.45**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.32**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-1-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-029

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00566
Initial Pressure (psig): -2.91 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.031	0.039	0.031	0.012	**U**
75-35-4	1,1-Dichloroethene	0.033	0.039	0.033	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.042**	0.039	0.033	0.011	
75-34-3	1,1-Dichloroethane	0.031	0.039	0.031	0.0095	**U**
156-59-2	cis-1,2-Dichloroethene	0.033	0.039	0.033	0.014	**U**
79-01-6	Trichloroethene	**0.030**	0.039	0.033	0.013	**J**
127-18-4	Tetrachloroethene	**0.062**	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-1-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-030

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02230
Initial Pressure (psig): -0.48 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.039**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	0.026	0.033	0.026	0.0080	**U**
156-59-2	cis-1,2-Dichloroethene	**0.020**	0.033	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.058**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.11**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-A-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-031

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01009
Initial Pressure (psig): -0.67 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.043**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	0.026	0.033	0.026	0.0080	**U**
156-59-2	cis-1,2-Dichloroethene	0.028	0.033	0.028	0.012	**U**
79-01-6	Trichloroethene	**0.023**	0.033	0.028	0.011	**J**
127-18-4	Tetrachloroethene	**0.049**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-A-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-032

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00586
Initial Pressure (psig): -0.64 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.043**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	0.026	0.033	0.026	0.0080	**U**
156-59-2	cis-1,2-Dichloroethene	0.028	0.033	0.028	0.012	**U**
79-01-6	Trichloroethene	**0.026**	0.033	0.028	0.011	**J**
127-18-4	Tetrachloroethene	**0.051**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-B-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-033

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00982
Initial Pressure (psig): -1.52 Final Pressure (psig): 3.87

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.035**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	0.030	0.035	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.058**	0.035	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.023**	0.035	0.028	0.0086	**J**
156-59-2	cis-1,2-Dichloroethene	**0.59**	0.035	0.030	0.013	
79-01-6	Trichloroethene	**0.082**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.035	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-1-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-034

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00852
Initial Pressure (psig): -3.88 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034	0.043	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.036	0.043	0.036	0.015	**U**
156-60-5	trans-1,2-Dichloroethene	**0.042**	0.043	0.036	0.012	**J**
75-34-3	1,1-Dichloroethane	**0.014**	0.043	0.034	0.010	**J**
156-59-2	cis-1,2-Dichloroethene	**0.095**	0.043	0.036	0.016	
79-01-6	Trichloroethene	**0.090**	0.043	0.036	0.014	
127-18-4	Tetrachloroethene	**0.11**	0.043	0.036	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-1-02-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-035

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00603
Initial Pressure (psig): -0.42 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.032	0.026	0.0098	**U**
75-35-4	1,1-Dichloroethene	0.027	0.032	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.040**	0.032	0.027	0.0094	
75-34-3	1,1-Dichloroethane	**0.0093**	0.032	0.026	0.0079	**J**
156-59-2	cis-1,2-Dichloroethene	**0.032**	0.032	0.027	0.012	**J**
79-01-6	Trichloroethene	**0.068**	0.032	0.027	0.011	
127-18-4	Tetrachloroethene	**0.079**	0.032	0.027	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M343A-1-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-036

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02222
Initial Pressure (psig): 0.43 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.030	0.024	0.0092	**U**
75-35-4	1,1-Dichloroethene	0.025	0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.035**	0.030	0.025	0.0088	
75-34-3	1,1-Dichloroethane	**0.015**	0.030	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.097**	0.030	0.025	0.011	
79-01-6	Trichloroethene	**0.083**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.13**	0.030	0.025	0.0099	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-A-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-037

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02185
Initial Pressure (psig): 0.27 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.031	0.025	0.0093	**U**
75-35-4	1,1-Dichloroethene	0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.041**	0.031	0.026	0.0090	
75-34-3	1,1-Dichloroethane	0.025	0.031	0.025	0.0075	**U**
156-59-2	cis-1,2-Dichloroethene	**0.027**	0.031	0.026	0.011	**J**
79-01-6	Trichloroethene	**0.076**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.084**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170123-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/12/17
Analyst: Cory Lewis Date(s) Received: 1/19 - 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/23 - 1/24/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170123-MB	**95**	**102**	**104**	70-130	
Method Blank	P170124-MB	**98**	**103**	**88**	70-130	
Method Blank	P170124-MB	**90**	**101**	**104**	70-130	
Lab Control Sample	P170123-LCS	**98**	**98**	**111**	70-130	
Lab Control Sample	P170124-LCS	**96**	**96**	**101**	70-130	
Lab Control Sample	P170124-LCS	**90**	**95**	**116**	70-130	
17M010-1-01	P1700234-001	**97**	**104**	**111**	70-130	
17M010-1-02	P1700234-002	**96**	**103**	**112**	70-130	
17M010-1-03	P1700234-003	**96**	**102**	**114**	70-130	
17M010-1-05	P1700234-004	**96**	**105**	**113**	70-130	
17M010-1-06	P1700234-005	**97**	**102**	**111**	70-130	
17M010-1-07	P1700234-006	**101**	**107**	**97**	70-130	
17M010-1-10	P1700234-007	**98**	**104**	**102**	70-130	
17M310-1-03	P1700234-008	**98**	**104**	**105**	70-130	
17M310-1-10	P1700234-009	**99**	**105**	**103**	70-130	
17M010-A-01	P1700234-010	**98**	**104**	**106**	70-130	
17M012-1-02-N	P1700234-011	**97**	**103**	**106**	70-130	
17M012-C-05-N	P1700234-012	**96**	**102**	**110**	70-130	
17M015-A-01-N	P1700234-013	**96**	**101**	**106**	70-130	
17N239-B-01-N	P1700234-014	**96**	**102**	**103**	70-130	
17N239-B-02-N	P1700234-015	**98**	**102**	**96**	70-130	
17N239-B-05-N	P1700234-016	**98**	**103**	**106**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/12/17
Analyst: Cory Lewis Date(s) Received: 1/19 - 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/23 - 1/24/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
17N239-B-06-N	P1700234-017	**99**	**104**	**109**	70-130	
17N239-1-02-N	P1700234-018	**97**	**103**	**104**	70-130	
17N239-1-03-N	P1700234-019	**97**	**108**	**118**	70-130	
17N239-1-05-N	P1700234-020	**95**	**105**	**111**	70-130	
17N239-1-07-N	P1700234-021	**94**	**102**	**111**	70-130	
17N239-1-08-N	P1700234-022	**94**	**101**	**111**	70-130	
17M339-B-01-N	P1700234-023	**92**	**101**	**114**	70-130	
17N239-A-01-N	P1700234-024	**93**	**104**	**115**	70-130	
17N239-A-01-N	P1700234-024DUP	**93**	**104**	**115**	70-130	
17N243-B-02-N	P1700234-025	**90**	**101**	**110**	70-130	
17N243-B-04-N	P1700234-026	**90**	**103**	**127**	70-130	
17N243-B-06-N	P1700234-027	**85**	**101**	**119**	70-130	
17N243-B-07-N	P1700234-028	**87**	**103**	**128**	70-130	
17N243-1-01-N	P1700234-029	**89**	**104**	**124**	70-130	
17N243-1-02-N	P1700234-030	**88**	**101**	**125**	70-130	
17N243-A-01-N	P1700234-031	**90**	**101**	**121**	70-130	
17N243-A-02-N	P1700234-032	**90**	**101**	**117**	70-130	
17N243A-B-01-N	P1700234-033	**90**	**102**	**123**	70-130	
17N243A-1-01-N	P1700234-034	**91**	**100**	**116**	70-130	
17N243A-1-02-N	P1700234-035	**91**	**100**	**125**	70-130	
17M343A-1-01-N	P1700234-036	**90**	**102**	**120**	70-130	
17N243A-A-01-N	P1700234-037	**90**	**105**	**120**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170123-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.75**	**89**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.06**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.13**	**97**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.04**	**95**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.13**	**97**	70-121	
79-01-6	Trichloroethene	4.25	**3.96**	**93**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.94**	**93**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**4.19**	**100**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.10**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.07**	**95**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.01**	**94**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.17**	**98**	70-121	
79-01-6	Trichloroethene	4.25	**3.95**	**93**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.70**	**87**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.61**	**86**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.90**	**92**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.88**	**91**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.63**	**85**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.95**	**93**	70-121	
79-01-6	Trichloroethene	4.25	**3.91**	**92**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.79**	**89**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17N239-A-01-N** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-024DUP

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00019

Initial Pressure (psig): -0.21 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.27

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	-	25	
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
156-60-5	trans-1,2-Dichloroethene	0.0501	0.0126	0.0483	0.0122	0.0492	**4**	25	
75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
156-59-2	cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
79-01-6	Trichloroethene	0.0209	0.00389	0.0213	0.00396	0.0211	**2**	25	**J**
127-18-4	Tetrachloroethene	0.0565	0.00834	0.0569	0.00839	0.0567	**0.7**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01231703.D
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:06
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170123-LCS	01231704.D	08:38
17M010-1-01	P1700234-001	01231712.D	13:23
17M010-1-02	P1700234-002	01231713.D	13:55
17M010-1-03	P1700234-003	01231714.D	14:26
17M010-1-05	P1700234-004	01231715.D	14:57
17M010-1-06	P1700234-005	01231716.D	15:28
17M010-1-07	P1700234-006	01231717.D	16:11
17M010-1-10	P1700234-007	01231720.D	17:53
17M310-1-03	P1700234-008	01231721.D	18:24
17M310-1-10	P1700234-009	01231722.D	18:55
17M010-A-01	P1700234-010	01231723.D	19:27
17M012-1-02-N	P1700234-011	01231725.D	20:29
17M012-C-05-N	P1700234-012	01231726.D	21:01
17M015-A-01-N	P1700234-013	01231727.D	21:32
17N239-B-01-N	P1700234-014	01231728.D	22:04

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01241703.D
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:24
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170124-LCS	01241704.D	02:56
17N239-B-02-N	P1700234-015	01241706.D	03:58
17N239-B-05-N	P1700234-016	01241707.D	04:29
17N239-B-06-N	P1700234-017	01241708.D	05:01
17N239-1-02-N	P1700234-018	01241709.D	05:32
17N239-1-03-N	P1700234-019	01241710.D	06:03
17N239-1-05-N	P1700234-020	01241711.D	06:03
17N239-1-07-N	P1700234-021	01241713.D	09:33
17N239-1-08-N	P1700234-022	01241714.D	10:04
17M339-B-01-N	P1700234-023	01241715.D	10:35
17N239-A-01-N	P1700234-024	01241717.D	11:38
17N239-A-01-N (Lab Duplicate)	P1700234-024DUP	01241718.D	12:10
17N243-B-02-N	P1700234-025	01241719.D	12:41
17N243-B-04-N	P1700234-026	01241720.D	13:12
17N243-B-06-N	P1700234-027	01241724.D	15:17
17N243-B-07-N	P1700234-028	01241722.D	14:14
17N243-1-01-N	P1700234-029	01241725.D	15:48
17N243-1-02-N	P1700234-030	01241726.D	16:20
17N243-A-01-N	P1700234-031	01241727.D	17:14
17N243-A-02-N	P1700234-032	01241728.D	17:45
17N243A-B-01-N	P1700234-033	01241729.D	18:16

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01241734.D
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 20:41
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170124-LCS	01241735.D	21:12
17N243A-1-01-N	P1700234-034	01241737.D	22:15
17N243A-1-02-N	P1700234-035	01241738.D	22:47
17M343A-1-01-N	P1700234-036	01241739.D	23:18
17N243A-A-01-N	P1700234-037	01241740.D	23:50

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01231702.D
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 07:35
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	60738		9.76	300562		11.71		46758		16.06	
	Upper Limit	85033		10.09	420787		12.04		65461		16.39	
	Lower Limit	36443		9.43	180337		11.38		28055		15.73	
	Client Sample ID											
01	Method Blank	59572		9.79	271363		11.72		44267		16.06	
02	Lab Control Sample	58946		9.76	293467		11.71		45491		16.05	
03	17M010-1-01	53923		9.76	260535		11.71		43135		16.05	
04	17M010-1-02	55106		9.76	269320		11.71		44956		16.05	
05	17M010-1-03	54009		9.76	264170		11.71		43299		16.05	
06	17M010-1-05	54047		9.76	262728		11.71		43895		16.05	
07	17M010-1-06	53042		9.76	258452		11.71		41675		16.05	
08	17M010-1-07	38780		9.76	186582		11.71		31416		16.05	
09	17M010-1-10	39518		9.76	199660		11.71		33244		16.05	
10	17M310-1-03	39859		9.76	192689		11.71		31412		16.05	
11	17M310-1-10	38638		9.76	190484		11.71		30800		16.05	
12	17M010-A-01	39270		9.76	192028		11.71		30700		16.05	
13	17M012-1-02-N	37965		9.76	192373		11.71		30621		16.05	
14	17M012-C-05-N	41040		9.76	206252		11.71		31654		16.05	
15	17M015-A-01-N	41013		9.76	205910		11.71		31432		16.05	
16	17N239-B-01-N	40289		9.76	192149		11.71		30015		16.05	
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01241702.D

Analyst: Cory Lewis Date Analyzed: 1/24/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 01:53

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	36420		9.76	182259		11.71		26478		16.05	
	Upper Limit	50988		10.09	255163		12.04		37069		16.38	
	Lower Limit	21852		9.43	109355		11.38		15887		15.72	
	Client Sample ID											
01	Method Blank	35728		9.78	156499		11.72		25472		16.06	
02	Lab Control Sample	36539		9.76	183287		11.71		27246		16.05	
03	17N239-B-02-N	35806		9.76	169069		11.71		26305		16.05	
04	17N239-B-05-N	36690		9.76	178841		11.71		27952		16.05	
05	17N239-B-06-N	36392		9.76	174607		11.71		27728		16.05	
06	17N239-1-02-N	38225		9.75	184346		11.71		29070		16.05	
07	17N239-1-03-N	38510		9.76	186070		11.71		30034		16.05	
08	17N239-1-05-N	38204		9.76	181756		11.71		28829		16.05	
09	17N239-1-07-N	42523		9.76	203307		11.71		31296		16.05	
10	17N239-1-08-N	41137		9.76	200291		11.71		30622		16.05	
11	17M339-B-01-N	41380		9.76	212386		11.71		31643		16.05	
12	17N239-A-01-N	40706		9.76	192959		11.71		29628		16.05	
13	17N239-A-01-N (Lab Duplicate)	40564		9.77	192432		11.71		30265		16.05	
14	17N243-B-02-N	43184		9.76	214182		11.71		31984		16.05	
15	17N243-B-04-N	46134		9.77	230420		11.71		35358		16.05	
16	17N243-B-06-N	46509		9.76	218880		11.71		32859		16.05	
17	17N243-B-07-N	47264		9.76	222319		11.71		33417		16.05	
18	17N243-1-01-N	45459		9.76	214697		11.71		33246		16.05	
19	17N243-1-02-N	45690		9.76	219890		11.71		32639		16.05	
20	17N243-A-01-N	46190		9.76	221150		11.71		32972		16.05	
21	17N243-A-02-N	44105		9.76	212432		11.71		34441		16.05	
22	17N243A-B-01-N	44285		9.76	212645		11.71		32241		16.05	

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700234

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01241733.D

Analyst: Cory Lewis Date Analyzed: 1/24/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 20:10

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	41272		9.75	202075		11.71		28240		16.05	
	Upper Limit	57781		10.08	282905		12.04		39536		16.38	
	Lower Limit	24763		9.42	121245		11.38		16944		15.72	
	Client Sample ID											
01	Method Blank	41192		9.78	180390		11.72		27584		16.06	
02	Lab Control Sample	42073		9.75	208156		11.71		29367		16.05	
03	17N243A-1-01-N	41831		9.76	202360		11.71		29752		16.05	
04	17N243A-1-02-N	42384		9.76	211446		11.71		30801		16.05	
05	17M343A-1-01-N	44623		9.76	212849		11.71		32022		16.05	
06	17N243A-A-01-N	43993		9.76	206951		11.71		31419		16.05	
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 16:16:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	54009	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	264170	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	89609	958.015 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.80%		
33) Toluene-d8 (SS2)	14.15	98	268098	1021.675 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.17%		
45) Bromofluorobenzene (SS3)	17.56	174	89835	1134.114 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.41%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	219023	1605.241 pg	100
3) Chloromethane	4.64	52	11768	289.498 pg	94
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	9039	67.335 pg	100
5) Vinyl Chloride	4.97	62	316	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.49	94	950	18.105 pg	96
8) Chloroethane	5.71	64	350	8.721 pg	95
9) Acrolein	6.27	56	3240	113.650 pg	100
10) Acetone	6.39	58	656057	17798.788 pg	91
11) Trichlorofluoromethane	6.60	101	81027	868.256 pg	100
12) 1,1-Dichloroethene	7.34	96	1033	17.669 pg	93
13) Methylene Chloride	7.48	84	19988	315.041 pg	95
14) Trichlorotrifluoroethane	7.80	151	20813	356.819 pg	100
15) trans-1,2-Dichloroethene	8.52	96	970	15.390 pg	98
16) 1,1-Dichloroethane	0.00	63	0	N.D. d	
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d	
18) cis-1,2-Dichloroethene	9.60	96	13016	196.789 pg	99
19) Chloroform	9.89	83	10405	88.484 pg	99
21) 1,2-Dichloroethane	10.65	62	3913	43.228 pg	99
22) 1,1,1-Trichloroethane	10.91	97	1430	13.100 pg	100
23) Benzene	11.37	78	88122	340.131 pg	100
24) Carbon Tetrachloride	11.52	117	28899	329.707 pg	100
26) 1,2-Dichloropropane	12.18	63	8954	133.070 pg	99
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	92461	1346.231 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d	
32) 1,1,2-Trichloroethane	13.95	83	158	N.D.	
34) Toluene	14.25	91	311204	1269.733 pg	99
35) Dibromochloromethane	14.66	129	123	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	3242	45.525 pg	100
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	387374	1573.782 pg	99
41) m,p-Xylene	16.65	91	1072435	5808.863 pg	99
42) Styrene	17.01	104	9115	70.470 pg	97
43) o-Xylene	17.12	106	158891	1675.296 pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	14376	73.560 pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	49486	257.977 pg	88
48) 1,3-Dichlorobenzene	18.92	146	108	N.D.	
49) 1,4-Dichlorobenzene	18.99	146	1082	8.815 pg	99
50) 1,2-Dichlorobenzene	19.31	146	228	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	103	N.D.	
53) Naphthalene	21.06	128	5857	25.936 pg	97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 16:16:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

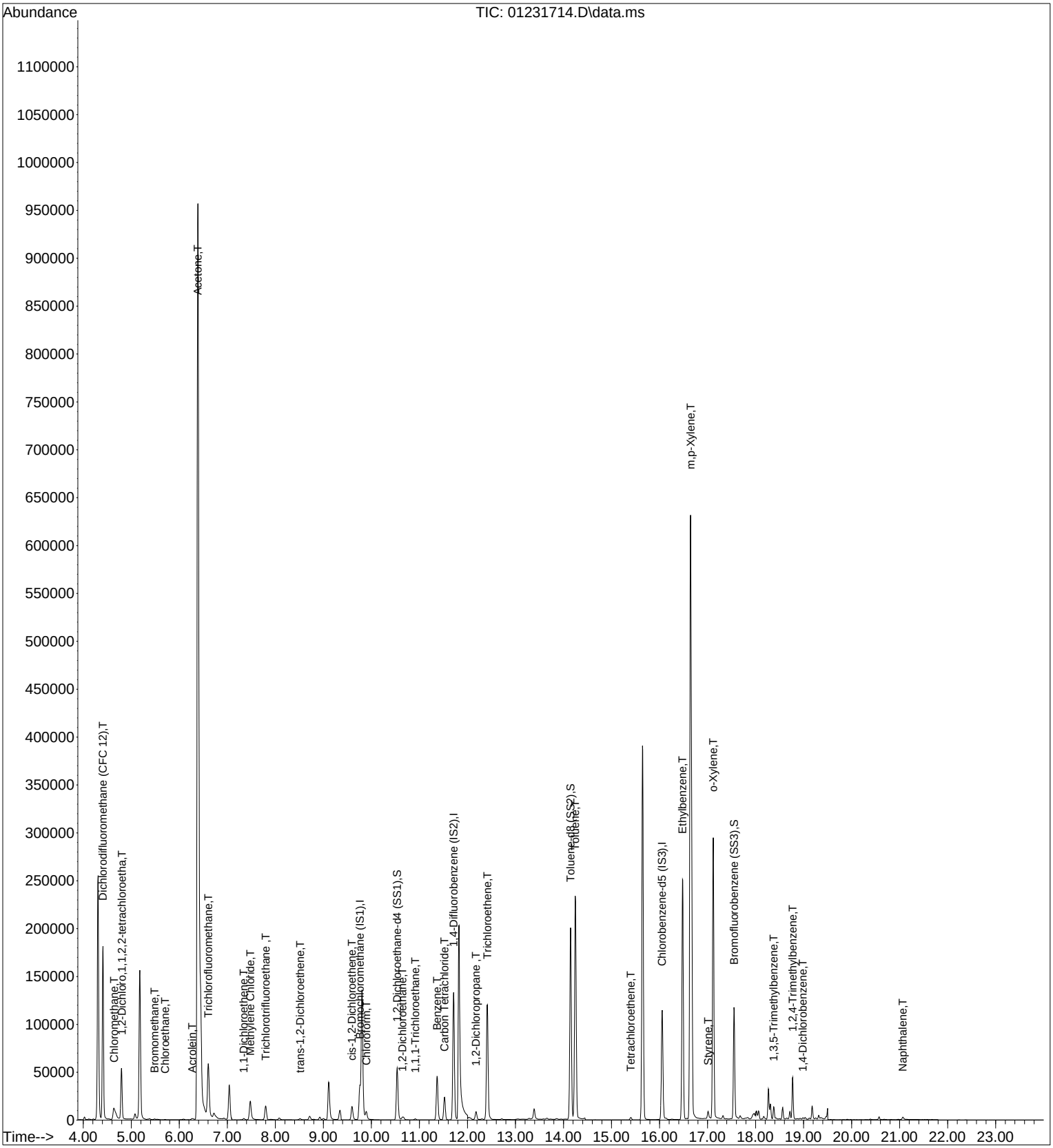
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

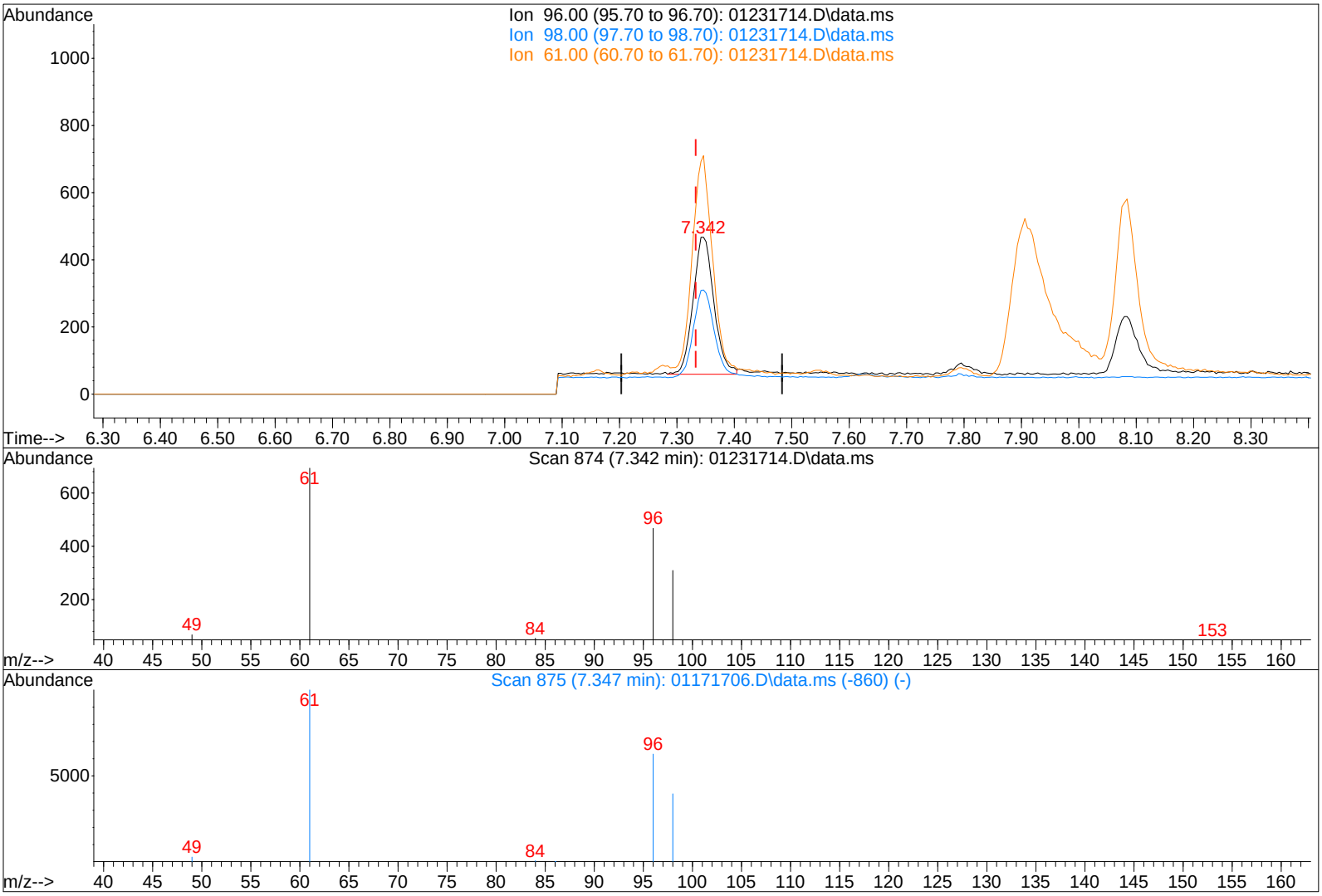
Quant Time: Jan 23 16:16:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:56:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231714.D\data.ms

(12) 1,1-Dichloroethene (T)

7.342min (+0.009) 17.67pg

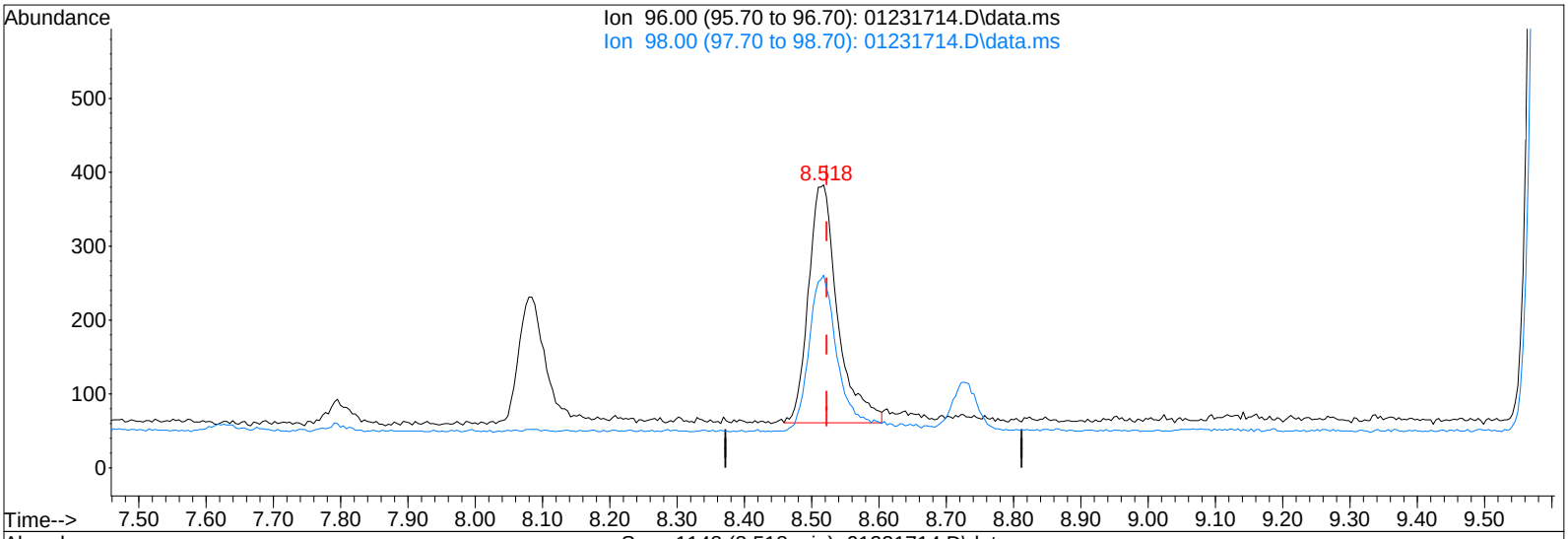
response 1033

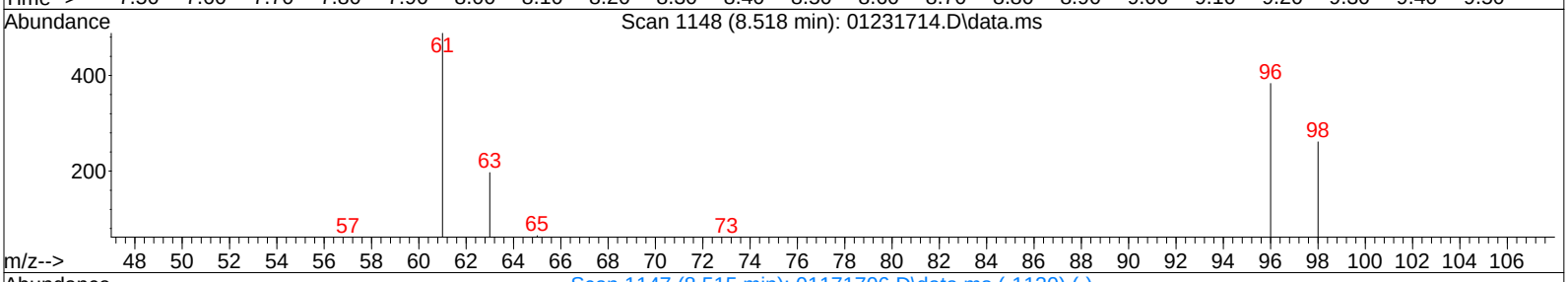
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	65.63
61.00	162.10	150.34
0.00	0.00	0.00

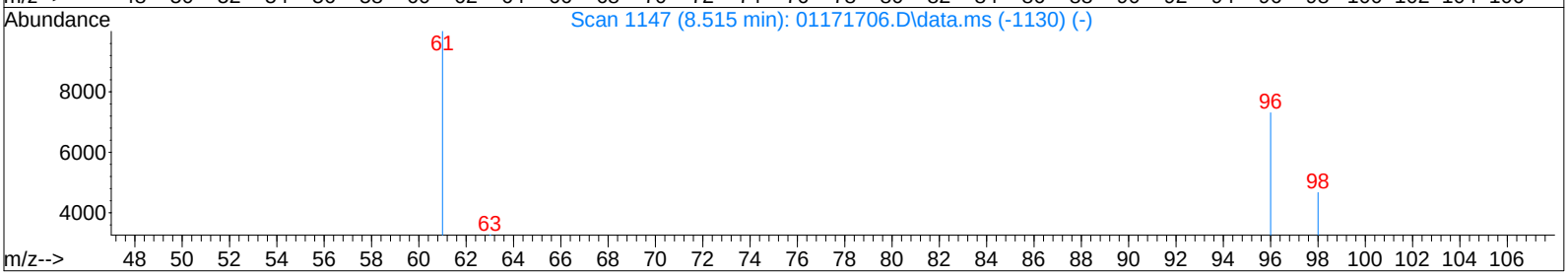
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:56:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231714.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.518min (-0.004) 15.39pg

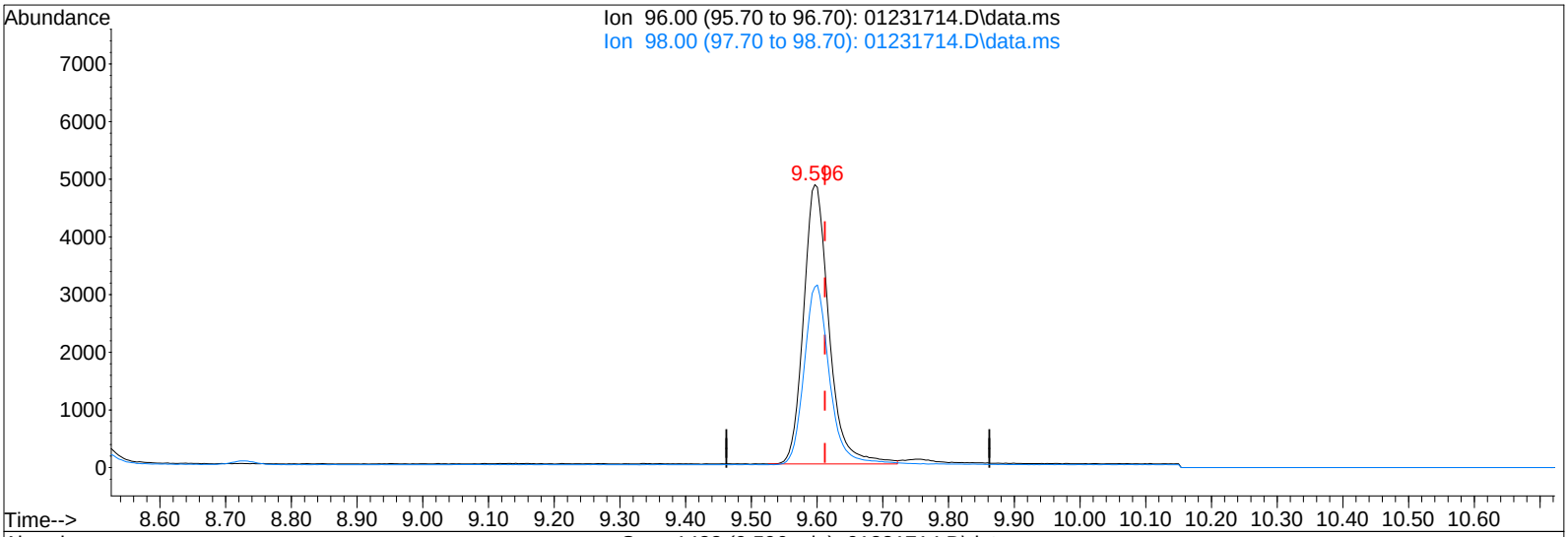
response 970

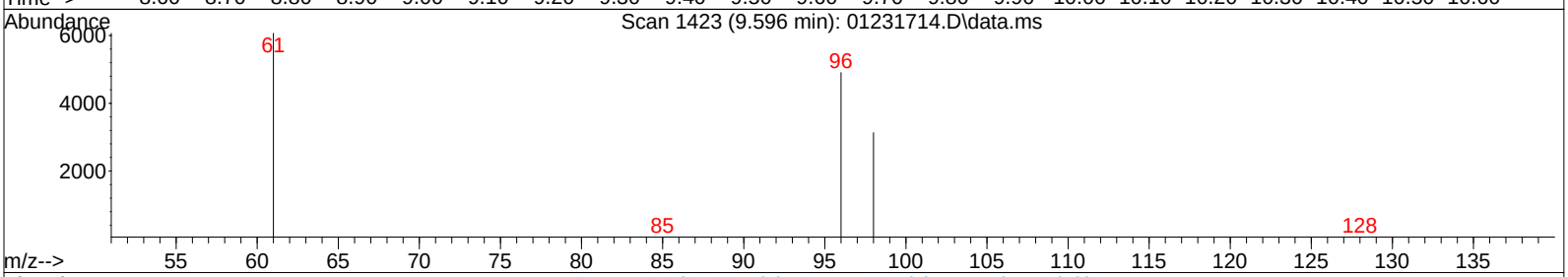
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.09
0.00	0.00	0.00
0.00	0.00	0.00

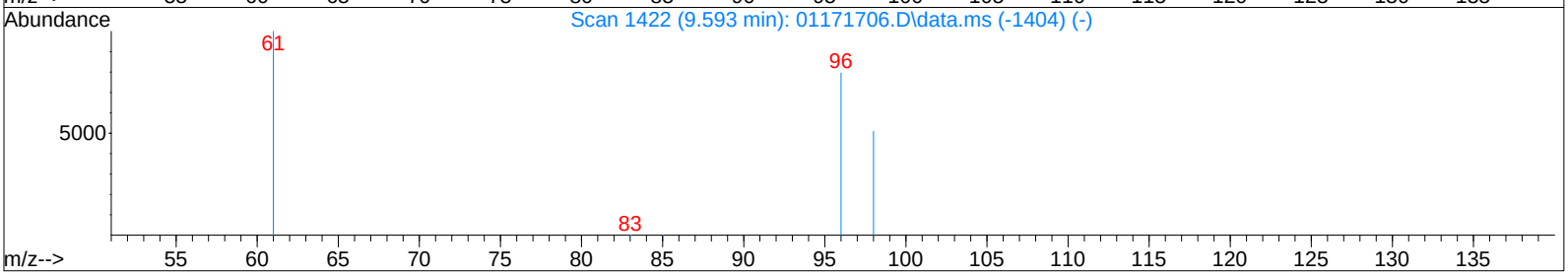
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:56:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231714.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.596min (-0.016) 196.79pg

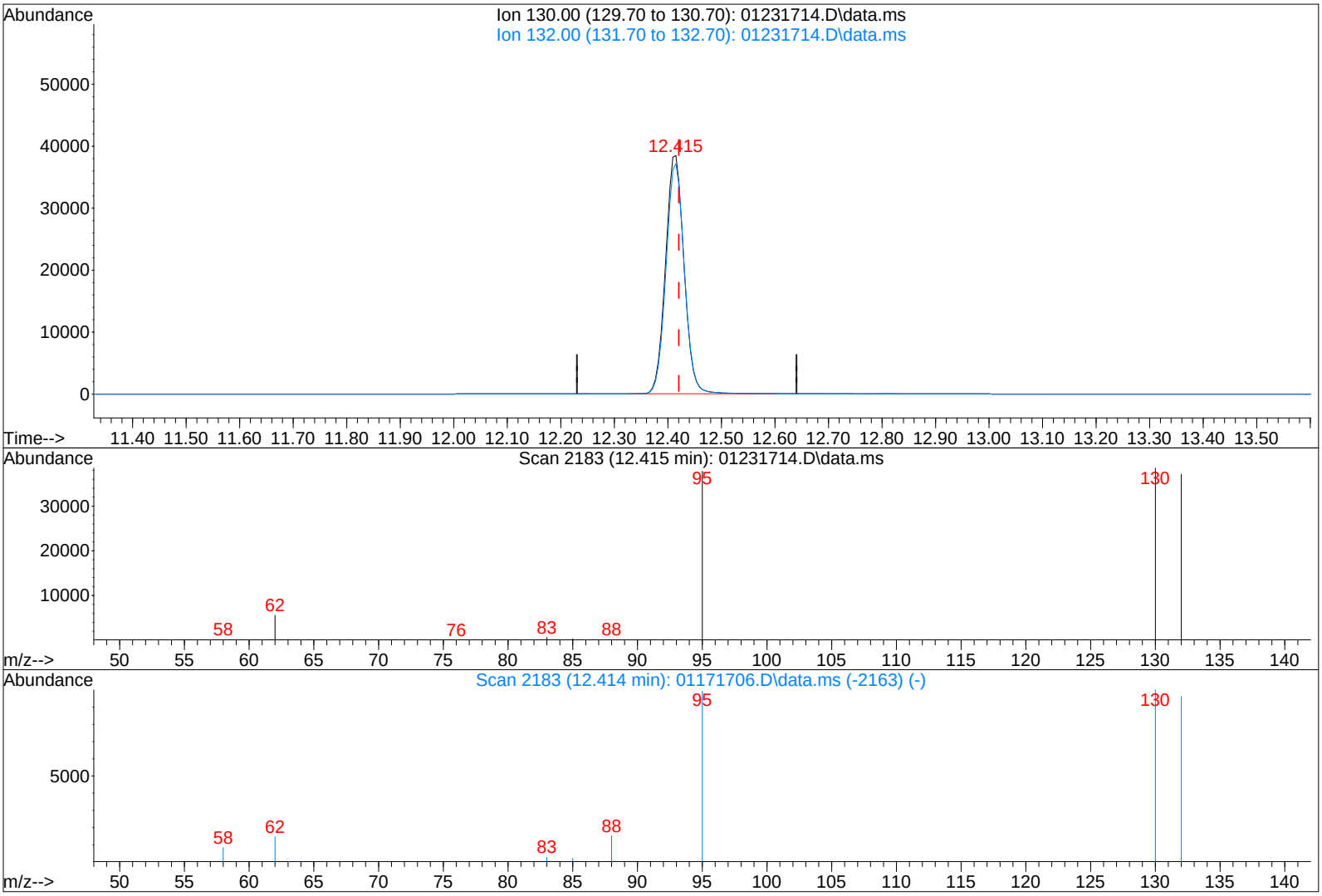
response 13016

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.51
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:56:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231714.D\data.ms

(28) Trichloroethene (T)

12.415min (-0.005) 1346.23pg

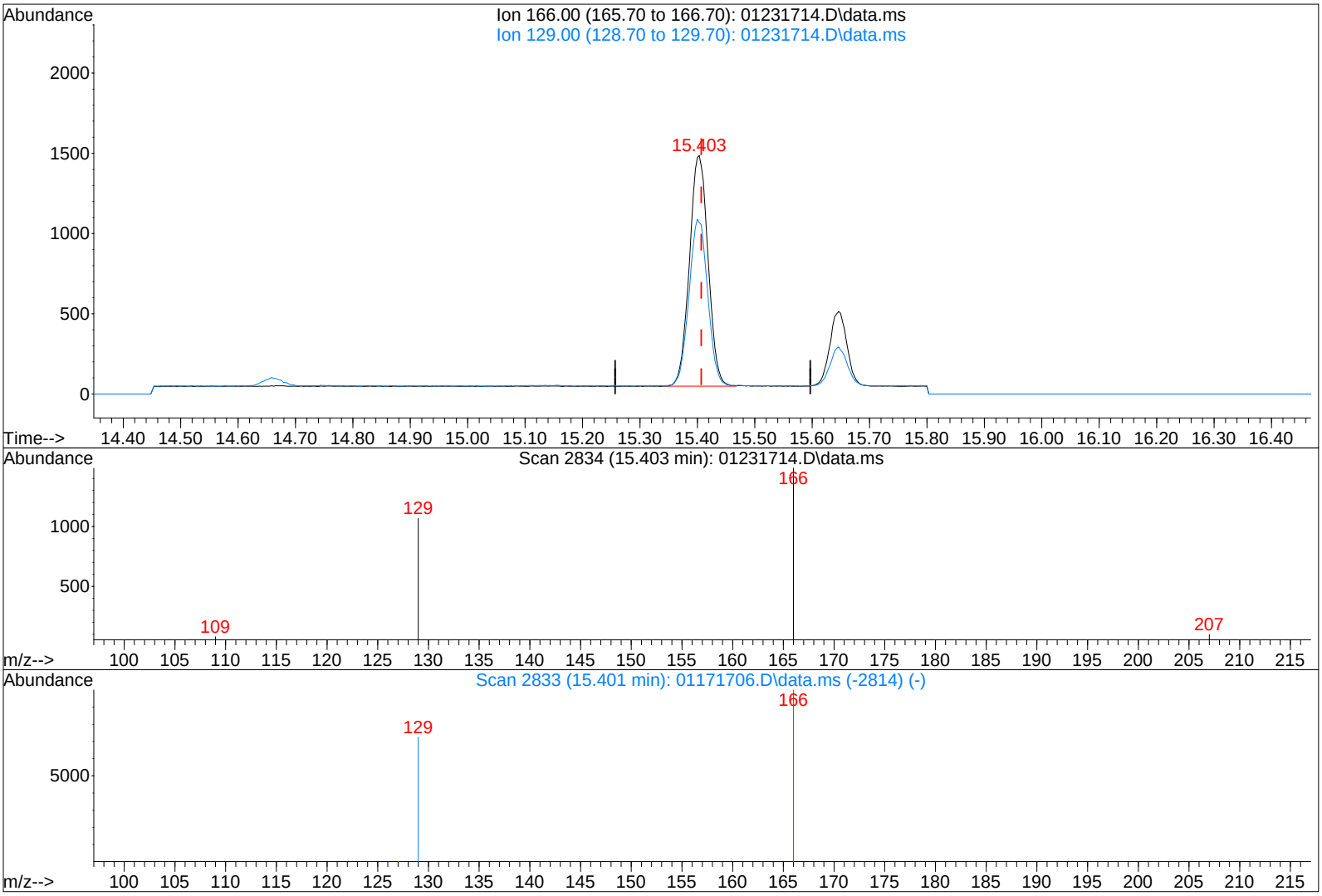
response 92461

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.89
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231714.D Vial: 9
Acq On : 23 Jan 2017 14:26 Operator: CL
Sample : P1700234-003 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 23 14:56:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231714.D\data.ms

(37) Tetrachloroethene (T)

15.403min (-0.003) 45.53pg

response 3242

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	72.52
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	39518	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	199660	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	33244	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	67253	982.660	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.27%				
33) Toluene-d8 (SS2)	14.15	98	205066	1033.964	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%				
45) Bromofluorobenzene (SS3)	17.55	174	61834	1016.724	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.67%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.41	85	164735	1650.089	pg		100
3) Chloromethane	4.65	52	6554	220.354	pg		94
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	7542	76.785	pg		100
5) Vinyl Chloride	4.95	62	563	5.899	pg		100
6) 1,3-Butadiene	5.13	54	1960	34.541	pg	#	88
7) Bromomethane	5.46	94	836	21.775	pg		85
8) Chloroethane	5.68	64	494	16.823	pg		99
9) Acrolein	6.26	56	15050	721.495	pg		99
10) Acetone	6.39	58	212761	7888.820	pg	#	72
11) Trichlorofluoromethane	6.60	101	59125	865.885	pg		100
12) 1,1-Dichloroethene	7.34	96	4343	101.522	pg		95
13) Methylene Chloride	7.47	84	9266	199.600	pg		100
14) Trichlorotrifluoroethane	7.80	151	16970	397.618	pg		100
15) trans-1,2-Dichloroethene	8.51	96	1497	32.460	pg		93
16) 1,1-Dichloroethane	8.72	63	9981	121.987	pg		96
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
18) cis-1,2-Dichloroethene	9.59	96	64945	1341.959	pg		100
19) Chloroform	9.89	83	11194	130.101	pg		99
21) 1,2-Dichloroethane	10.64	62	2597	39.210	pg		100
22) 1,1,1-Trichloroethane	10.91	97	1957	24.502	pg		99
23) Benzene	11.37	78	64412	339.782	pg		99
24) Carbon Tetrachloride	11.52	117	20550	320.427	pg		100
26) 1,2-Dichloropropane	12.18	63	6773	133.179	pg		98
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	390834	7529.146	pg		99
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.26	75	60	N.D.			
31) trans-1,3-Dichloropropene	13.73	75	120	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.25	91	471042	2542.842	pg		99
35) Dibromochloromethane	14.66	129	117	N.D.			
36) 1,2-Dibromoethane	14.91	107	55	N.D.			
37) Tetrachloroethene	15.40	166	3696	68.670	pg		95
39) Chlorobenzene	16.10	112	1662	12.969	pg		100
40) Ethylbenzene	16.48	91	34702	183.626	pg		100
41) m,p-Xylene	16.65	91	97730	689.466	pg		100
42) Styrene	17.01	104	12594	126.817	pg		98
43) o-Xylene	17.12	106	18434	253.149	pg		100
44) 1,1,2,2-Tetrachloroethane	17.12	83	368	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	10425	69.477	pg		97
47) 1,2,4-Trimethylbenzene	18.77	105	39137	265.736	pg		87
48) 1,3-Dichlorobenzene	18.92	146	157	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	1137	12.065	pg		100
50) 1,2-Dichlorobenzene	19.31	146	207	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	88	N.D.			
53) Naphthalene	21.06	128	158451	913.879	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

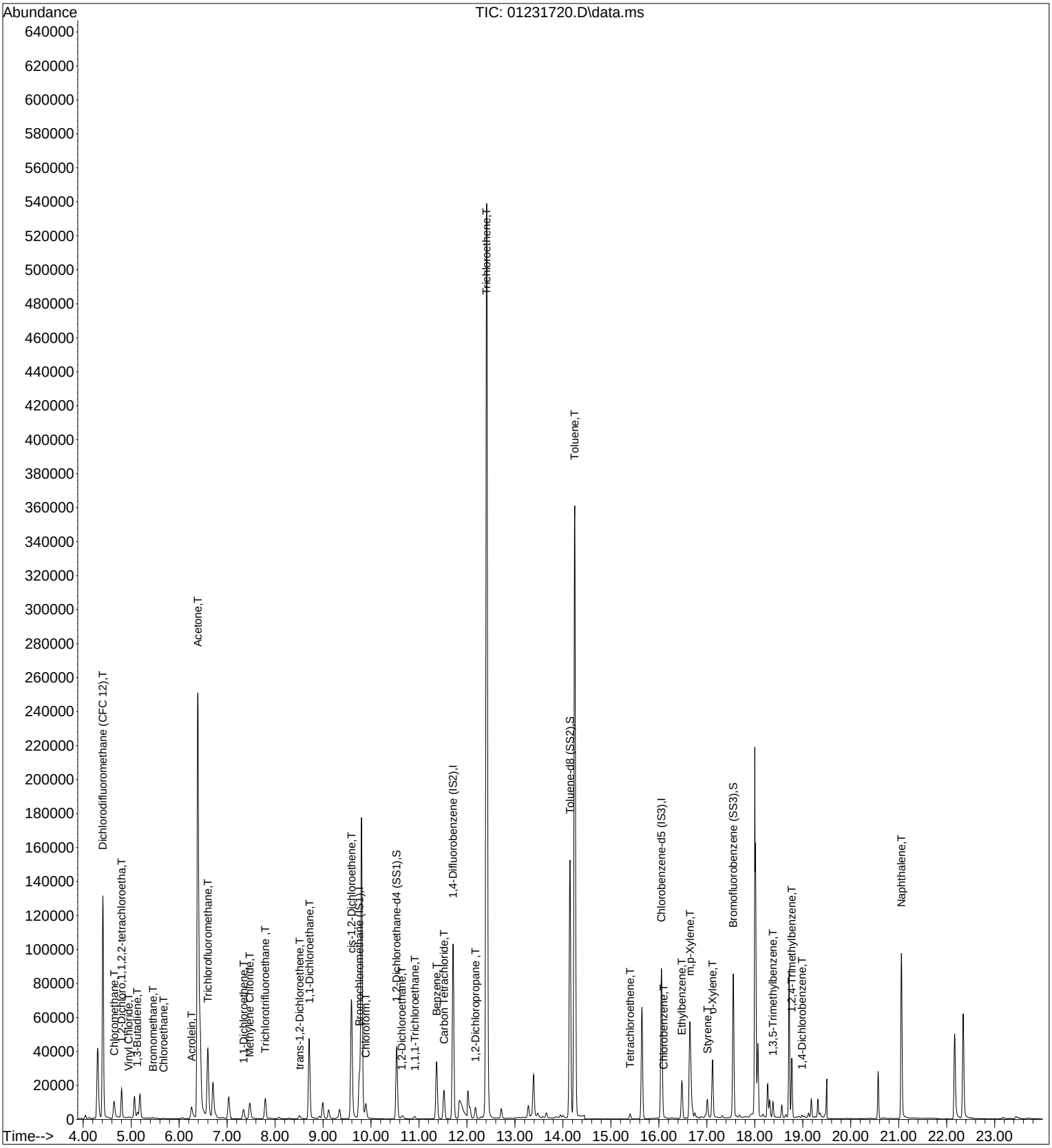
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

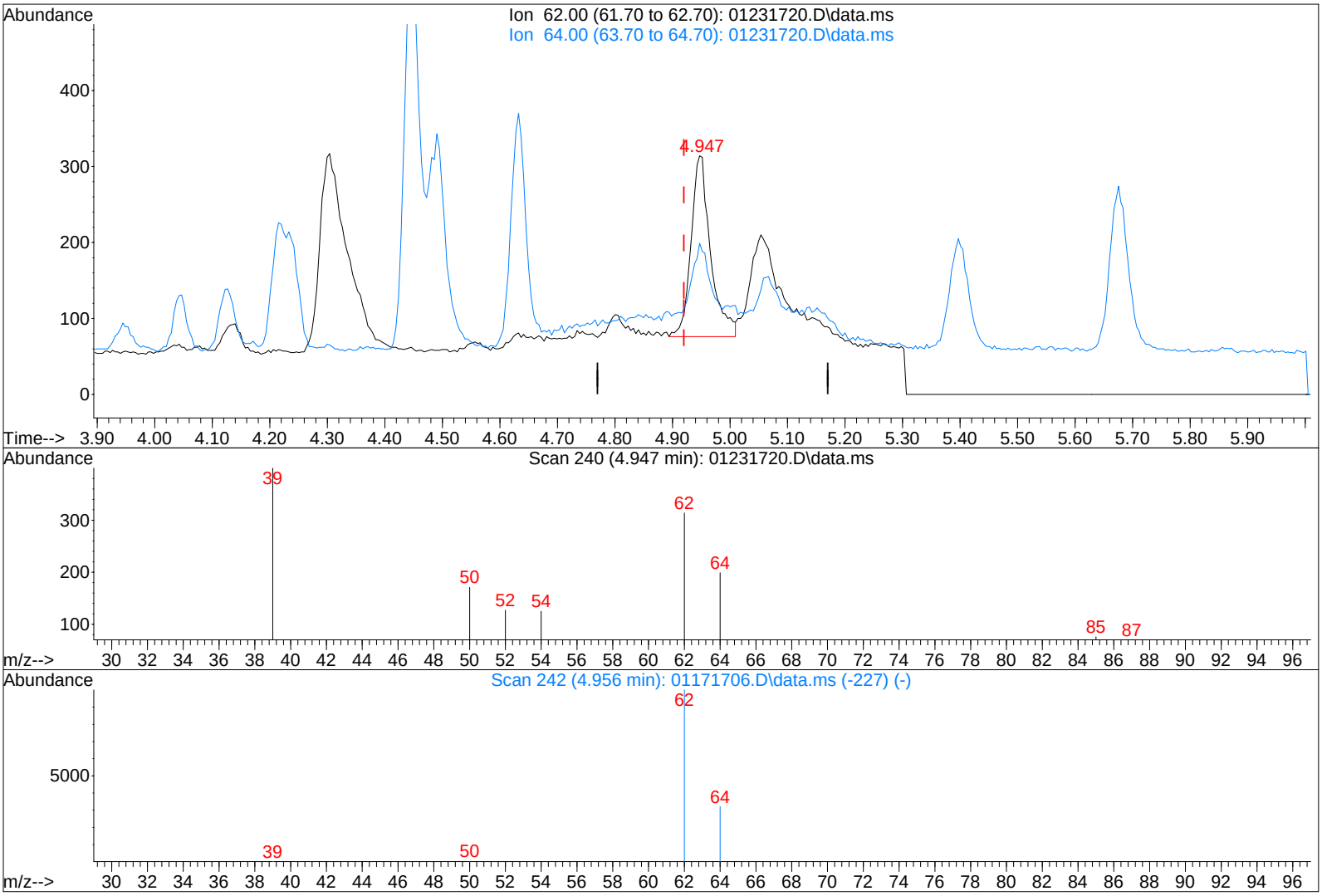
Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231720.D\data.ms

(5) Vinyl Chloride (T)

4.947min (+0.027) 5.90pg

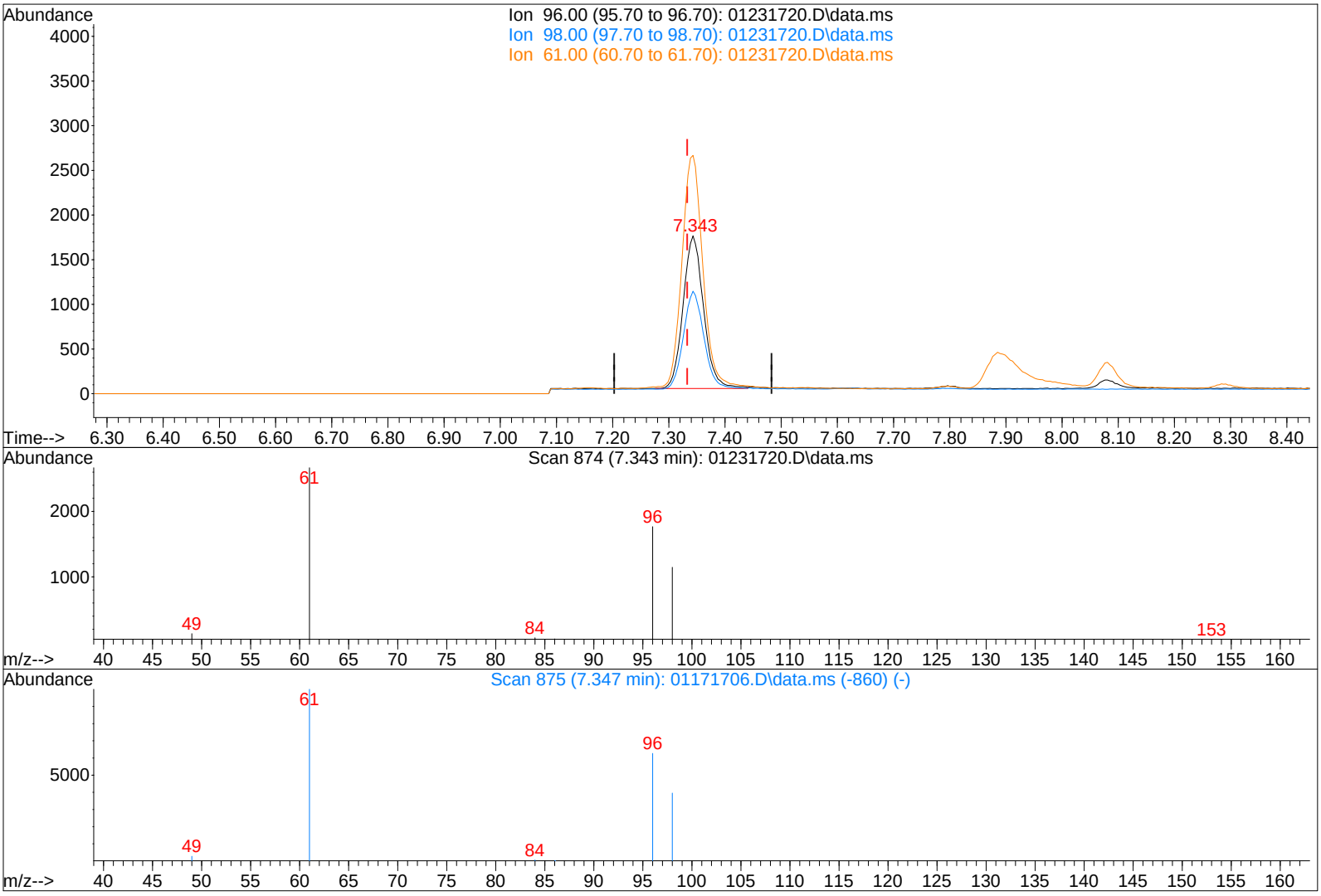
response 563

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	31.62
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231720.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 101.52pg

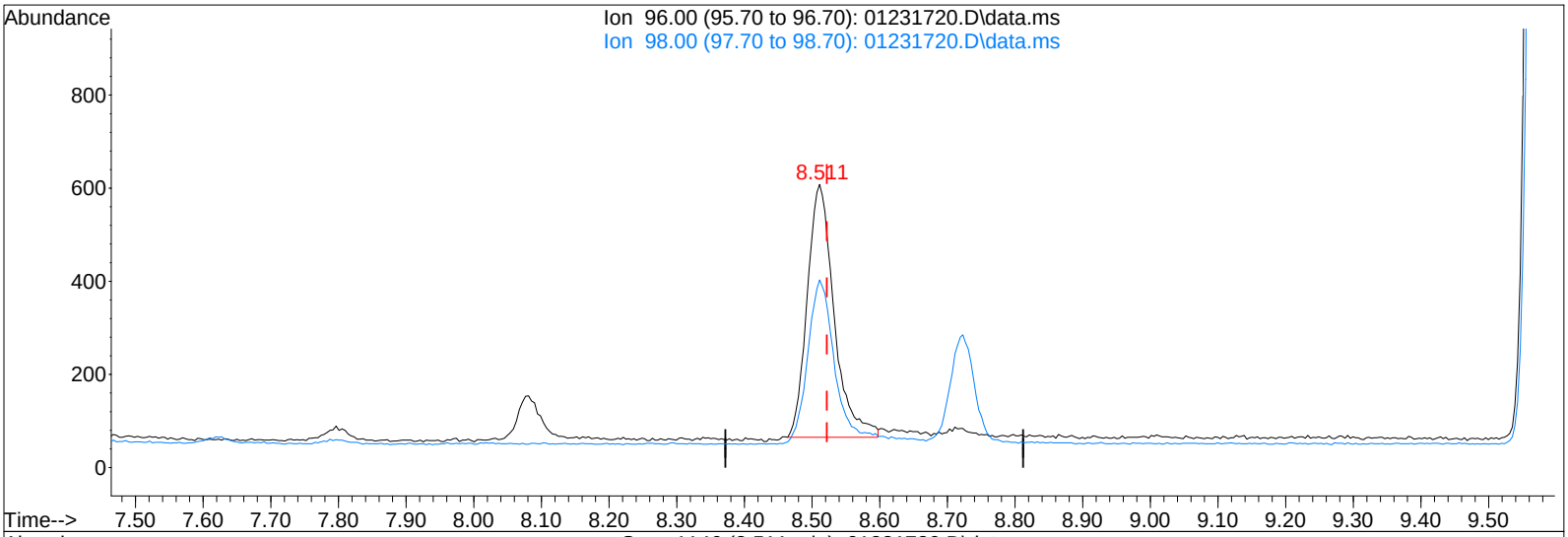
response 4343

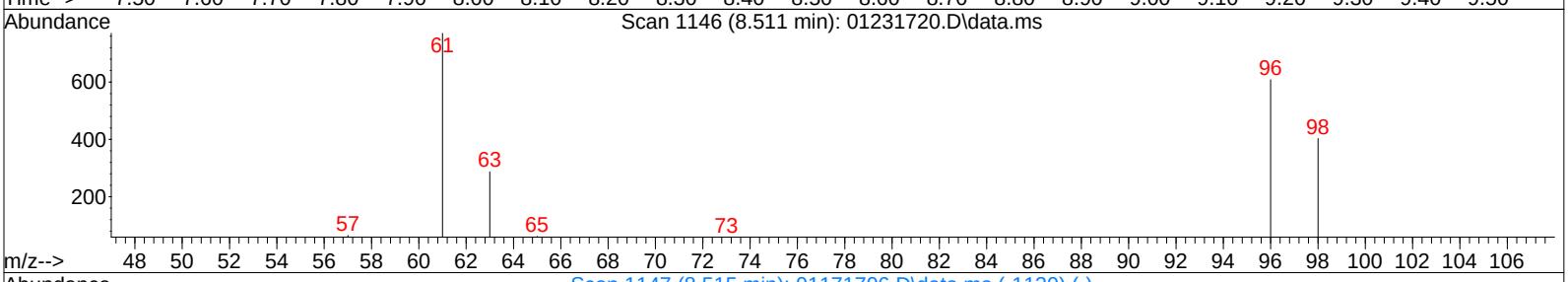
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	64.08
61.00	162.10	152.31
0.00	0.00	0.00

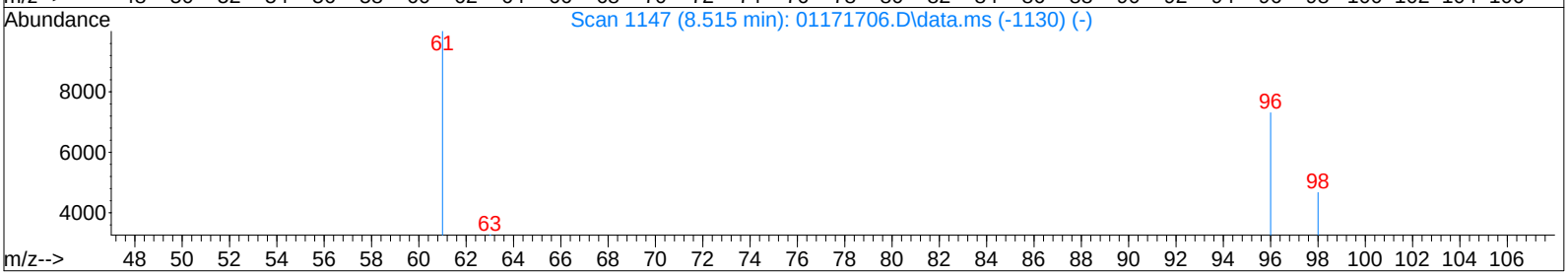
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231720.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 32.46pg

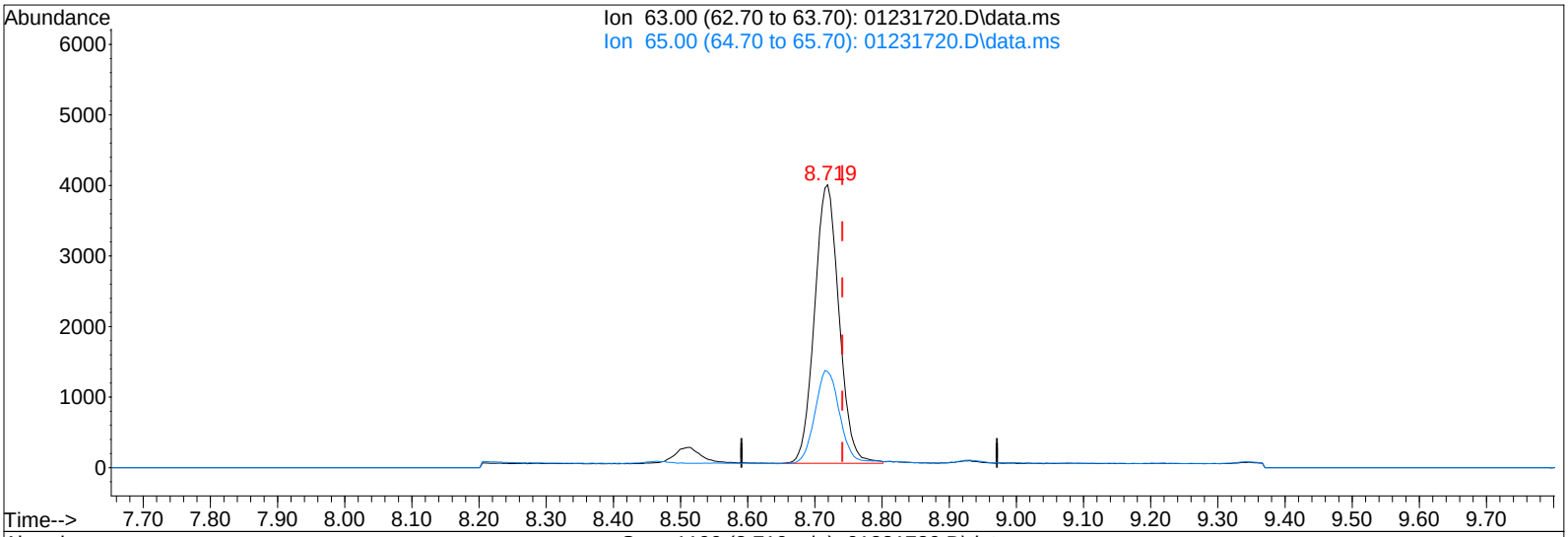
response 1497

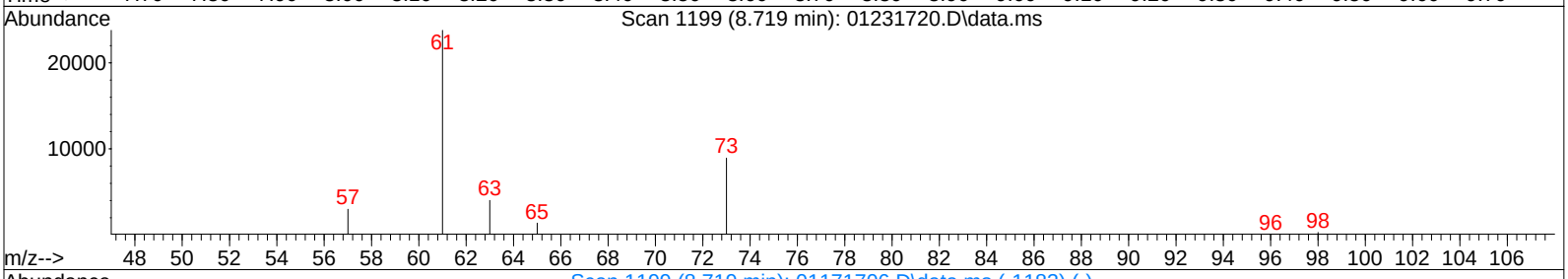
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	67.27
0.00	0.00	0.00
0.00	0.00	0.00

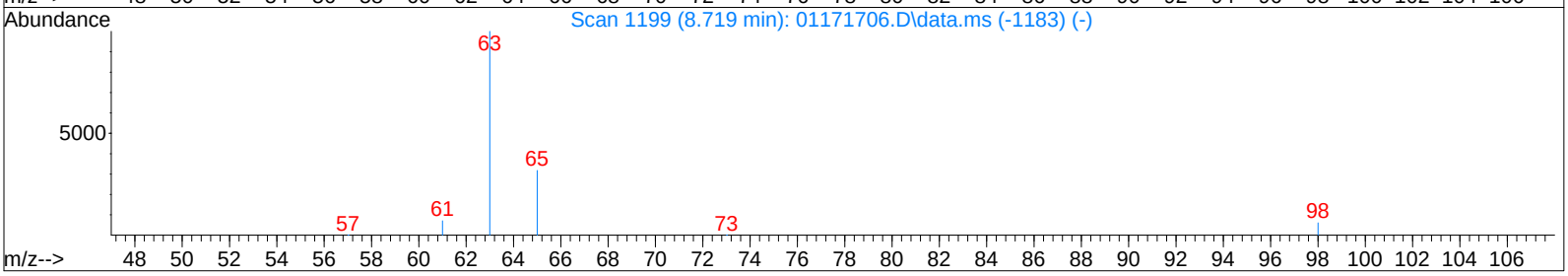
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231720.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 121.99pg

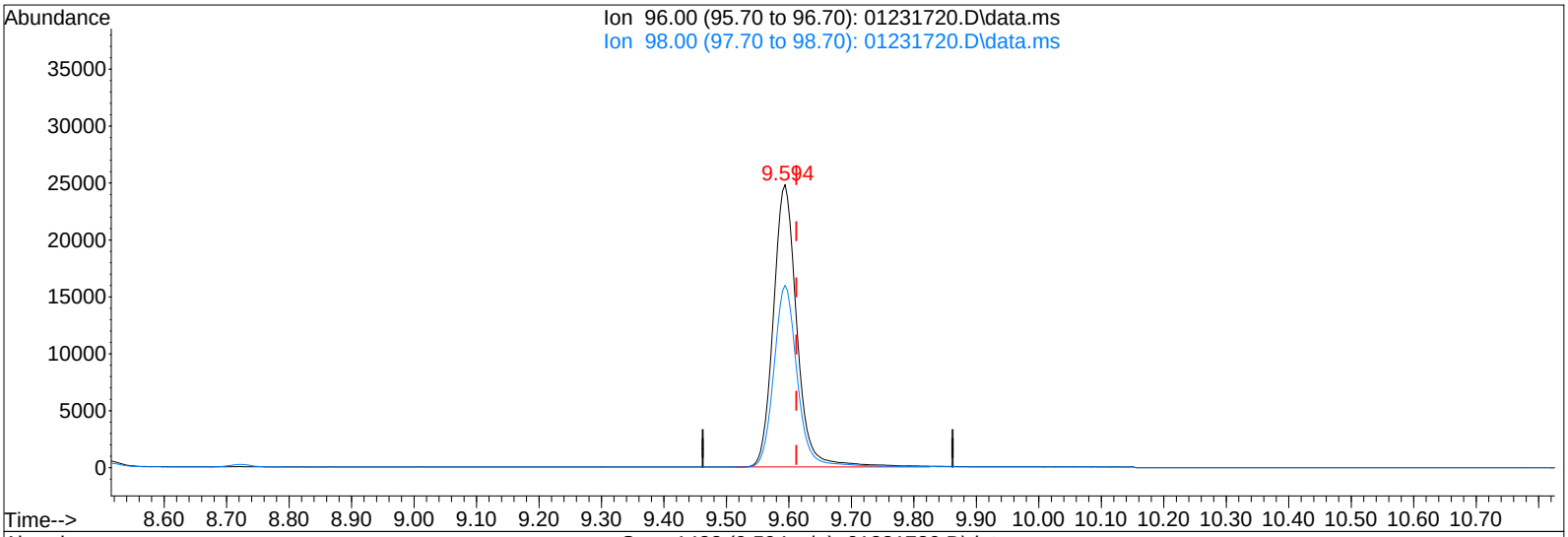
response 9981

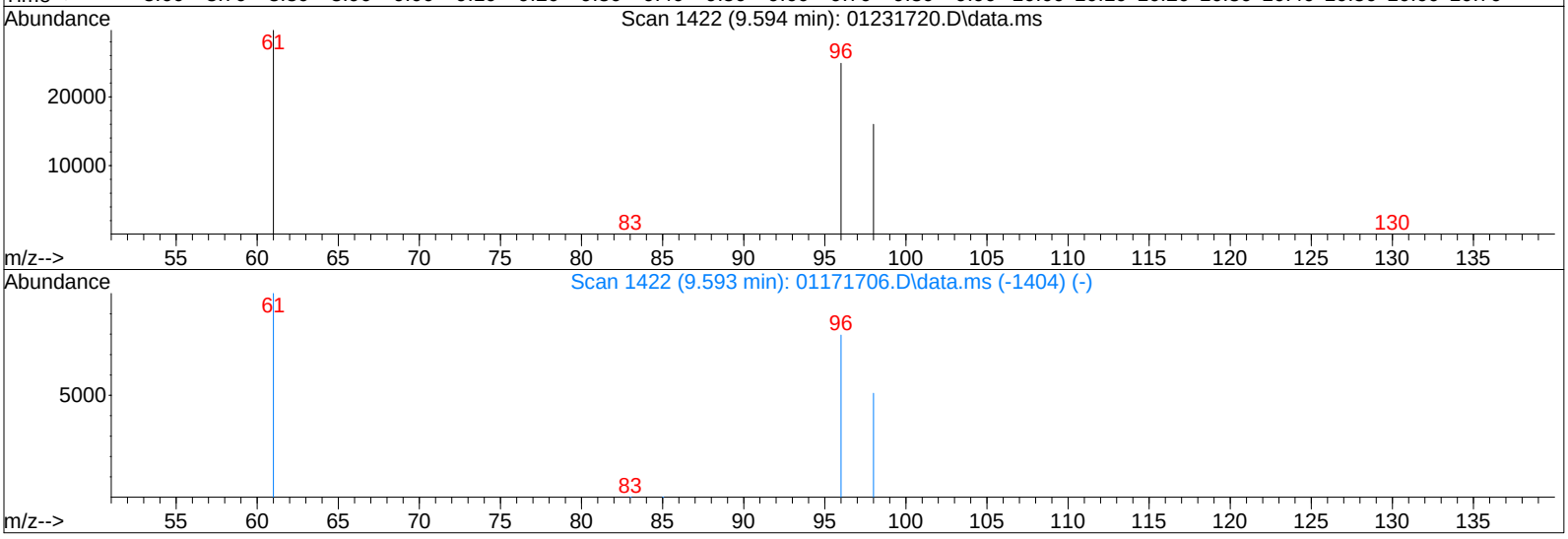
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	34.19
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01231720.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 1341.96pg

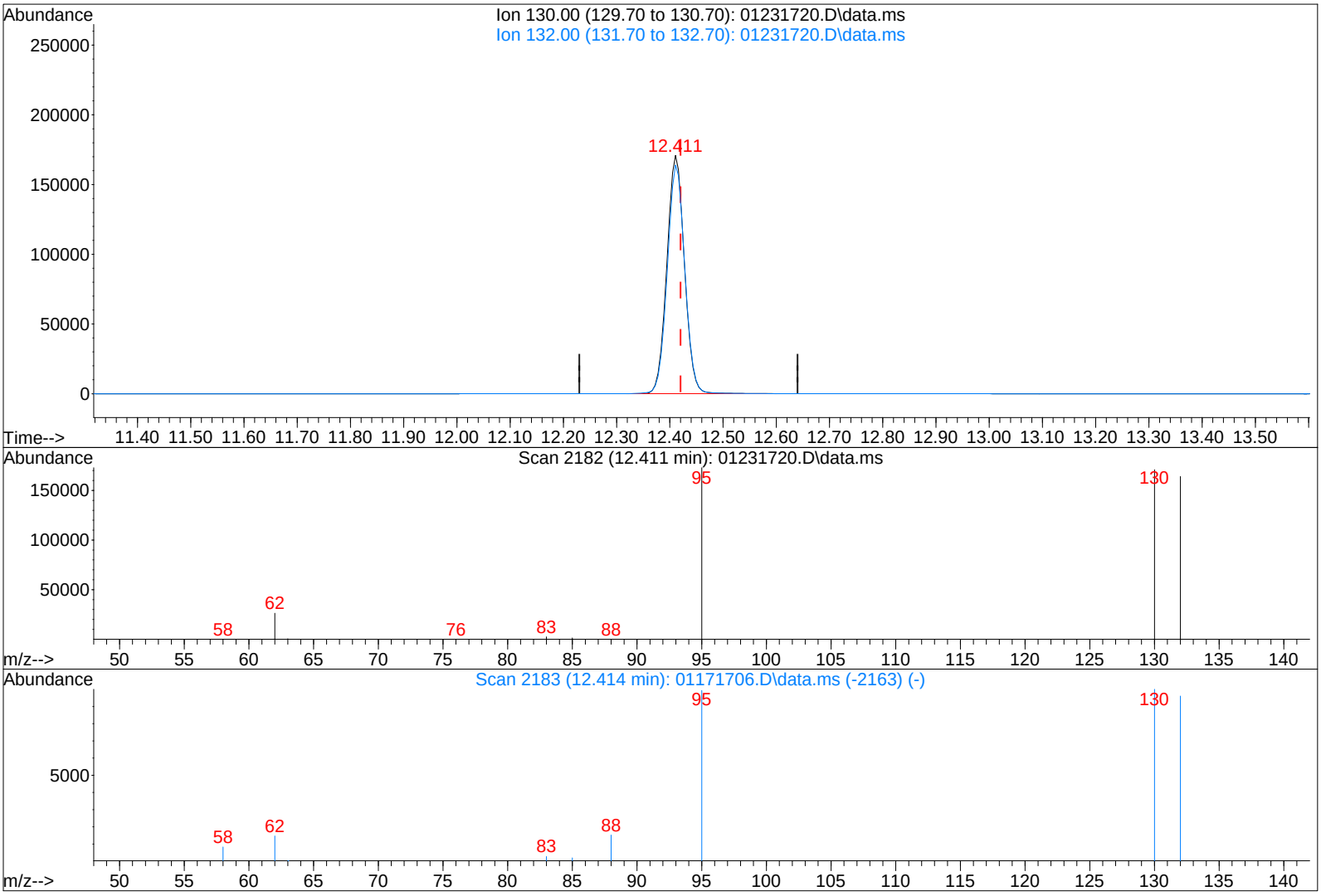
response 64945

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.02
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231720.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 7529.15pg

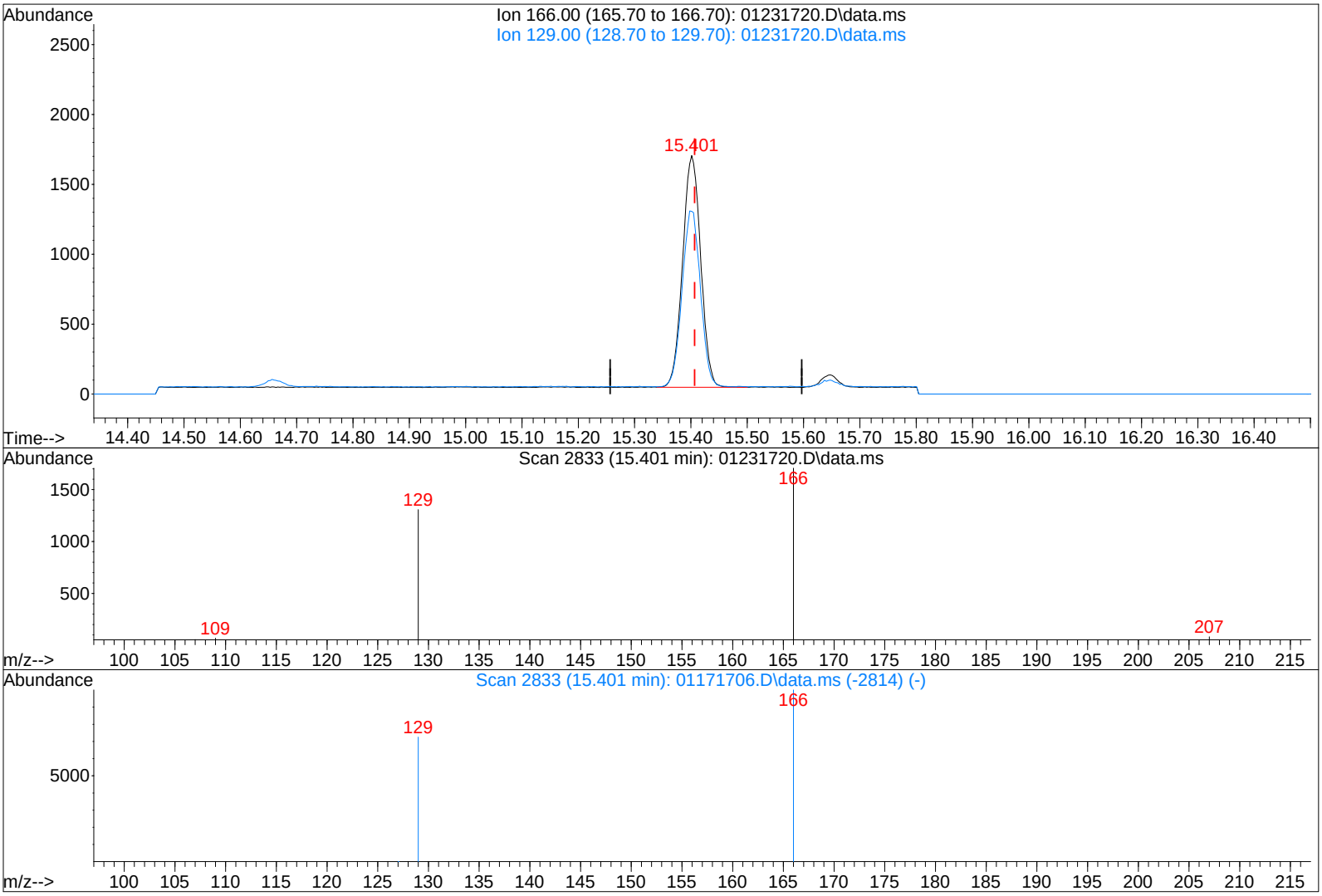
response 390834

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.12
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231720.D Vial: 13
Acq On : 23 Jan 2017 17:53 Operator: CL
Sample : P1700234-007 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:03:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231720.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 68.67pg

response 3696

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	77.38
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:12:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	37965	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	192373	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	30621	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	63623	967.648	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.77%				
33) Toluene-d8 (SS2)	14.14	98	196601	1028.832	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.88%				
45) Bromofluorobenzene (SS3)	17.55	174	59473	1061.670	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	212008	2210.474	pg		100
3) Chloromethane	4.61	52	9013	315.424	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8562	90.736	pg		100
5) Vinyl Chloride	4.92	62	260	N.D.			
6) 1,3-Butadiene	5.12	54	2478	45.456	pg	#	15
7) Bromomethane	5.47	94	892	24.184	pg		94
8) Chloroethane	5.69	64	409	14.499	pg		96
9) Acrolein	6.26	56	5616	280.243	pg		98
10) Acetone	6.39	58	236352	9122.017	pg		96
11) Trichlorofluoromethane	6.60	101	171297	2611.261	pg		100
12) 1,1-Dichloroethene	7.34	96	217	5.280	pg	#	76
13) Methylene Chloride	7.47	84	15212	341.088	pg		100
14) Trichlorotrifluoroethane	7.80	151	15404	375.690	pg		100
15) trans-1,2-Dichloroethene	8.51	96	2130	48.075	pg		98
16) 1,1-Dichloroethane	8.72	63	810	10.305	pg		100
17) Methyl tert-Butyl Ether	8.80	73	741	6.317	pg		87
18) cis-1,2-Dichloroethene	9.59	96	2262	48.652	pg		99
19) Chloroform	9.89	83	22920	277.281	pg		99
21) 1,2-Dichloroethane	10.64	62	3156	49.599	pg		100
22) 1,1,1-Trichloroethane	10.91	97	894	11.651	pg		100
23) Benzene	11.37	78	85699	470.566	pg		100
24) Carbon Tetrachloride	11.52	117	22898	371.643	pg		99
26) 1,2-Dichloropropane	12.18	63	909	18.551	pg		95
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	14573	291.373	pg		100
29) 1,4-Dioxane	12.38	88	1904	51.844	pg		83
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	13.72	75	103	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	156	N.D.			
34) Toluene	14.25	91	144003	806.823	pg		100
35) Dibromochloromethane	14.66	129	234	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	3407	65.698	pg		95
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.48	91	127531	732.636	pg		100
41) m,p-Xylene	16.65	91	81304	622.717	pg		99
42) Styrene	17.01	104	276770	3025.708	pg		100
43) o-Xylene	17.12	106	17638	262.966	pg		94
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	12092	87.490	pg		98
47) 1,2,4-Trimethylbenzene	18.77	105	38170	281.371	pg		89
48) 1,3-Dichlorobenzene	18.92	146	106	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	8793	101.293	pg		99
50) 1,2-Dichlorobenzene	19.31	146	606	7.132	pg		92
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.94	182	111	N.D.			
53) Naphthalene	21.06	128	19148	119.898	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:12:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

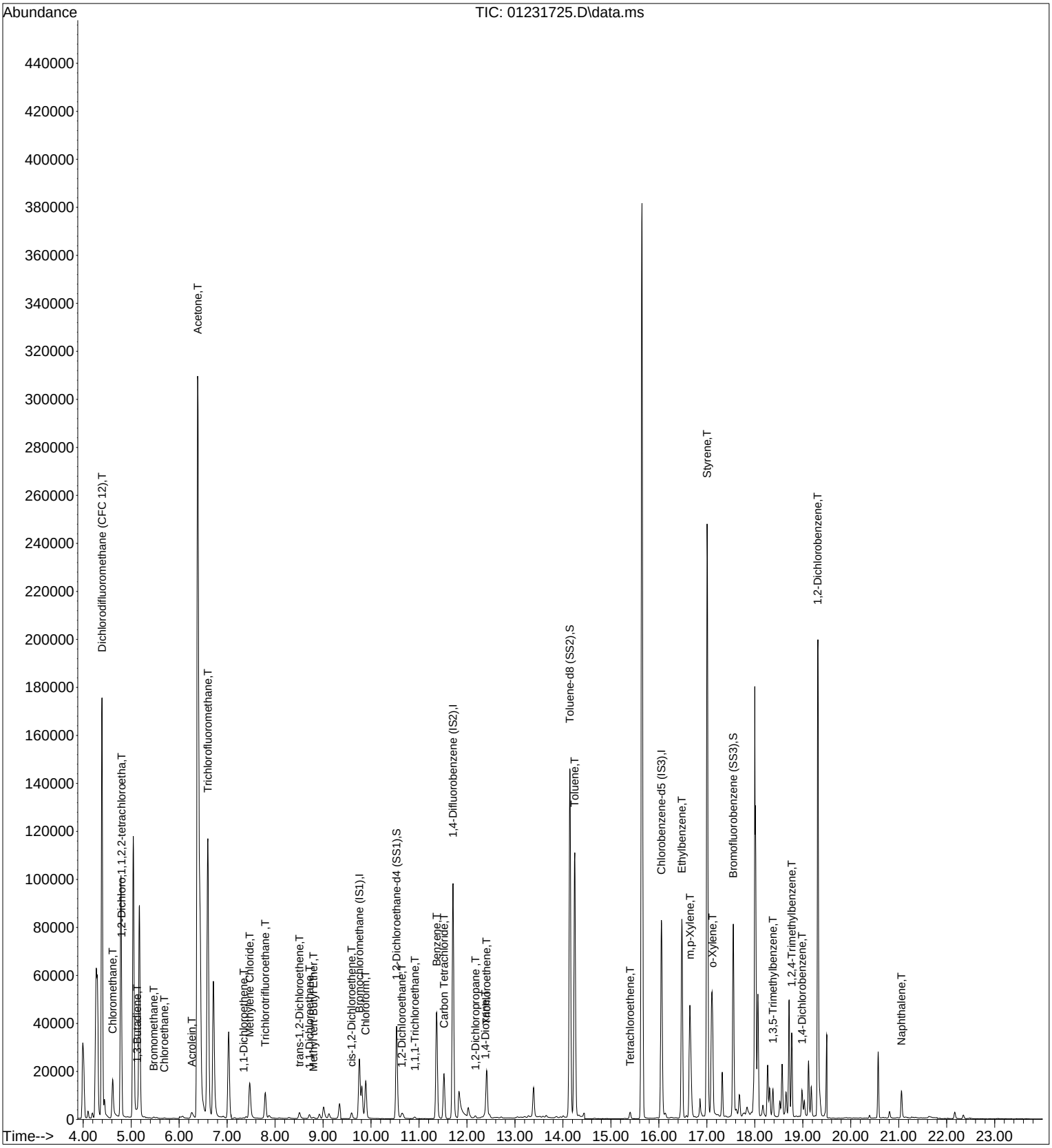
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

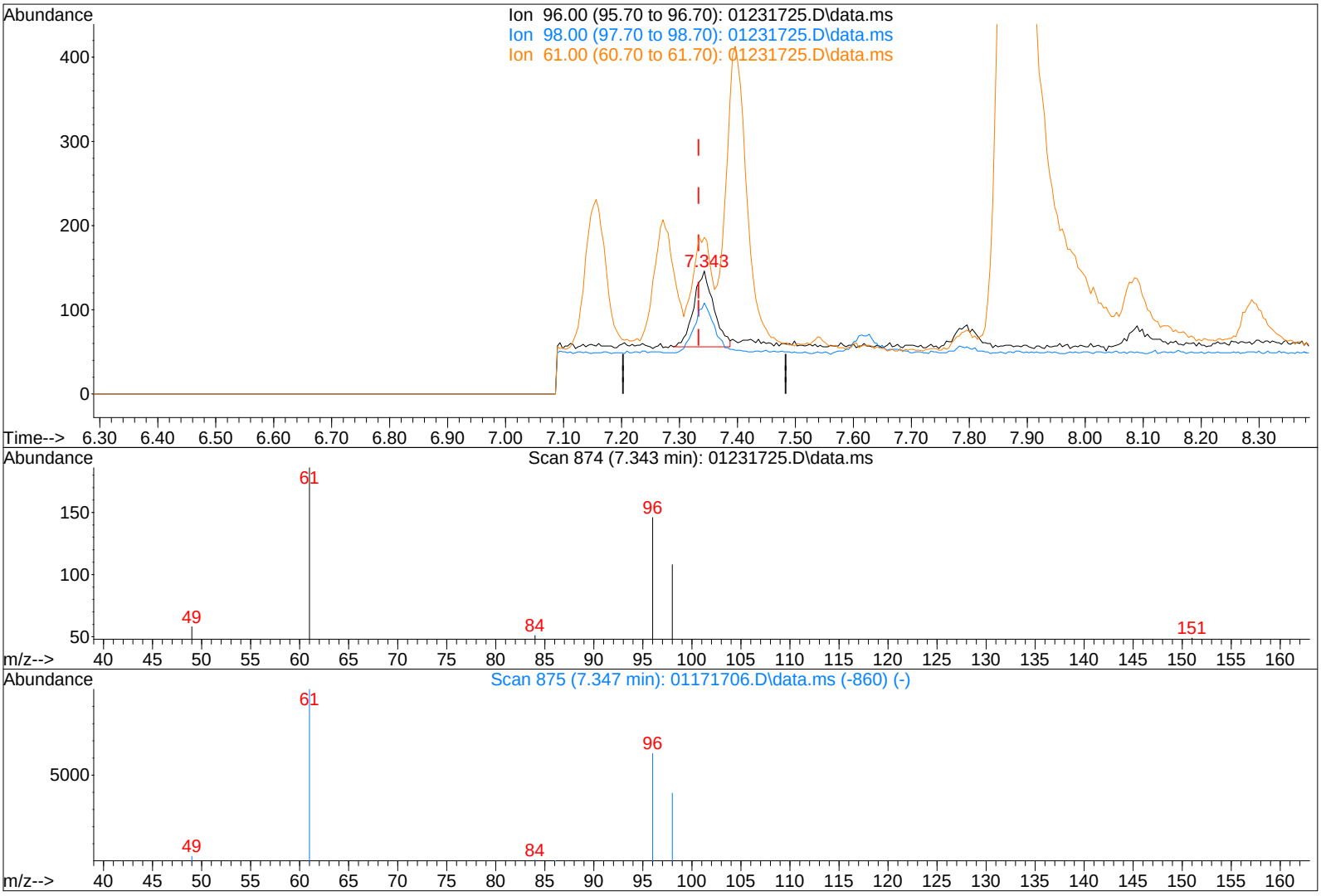
Quant Time: Jan 24 12:12:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231725.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 5.28pg

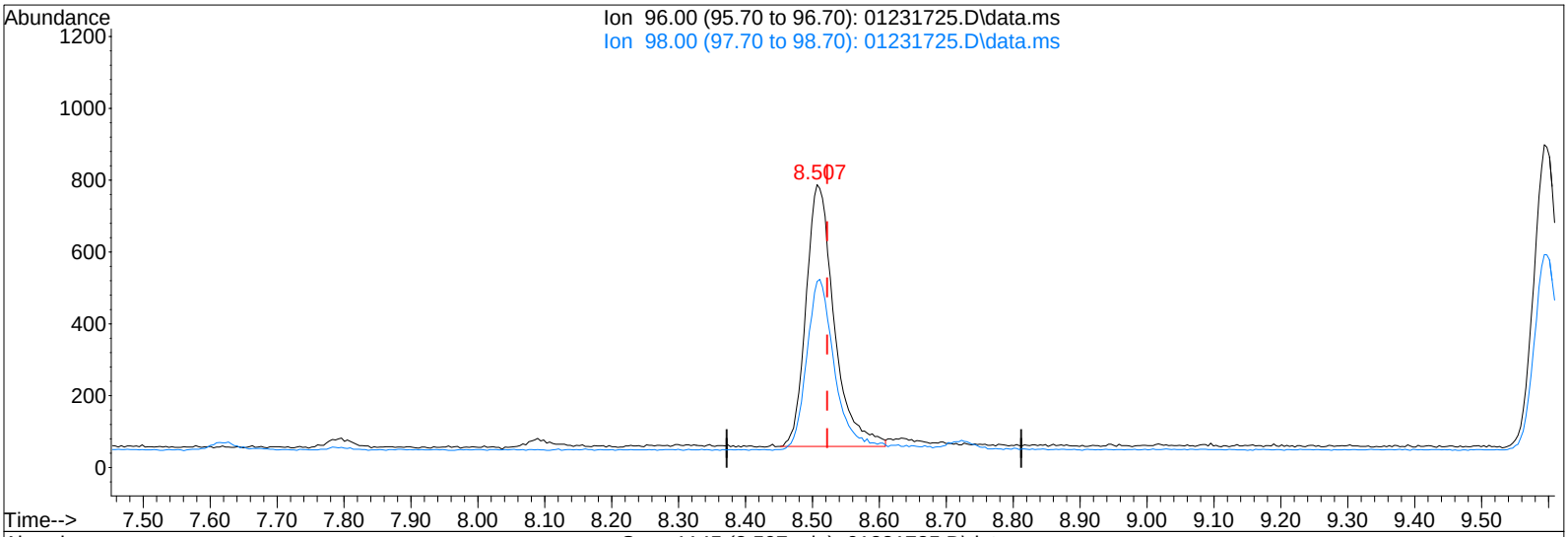
response 217

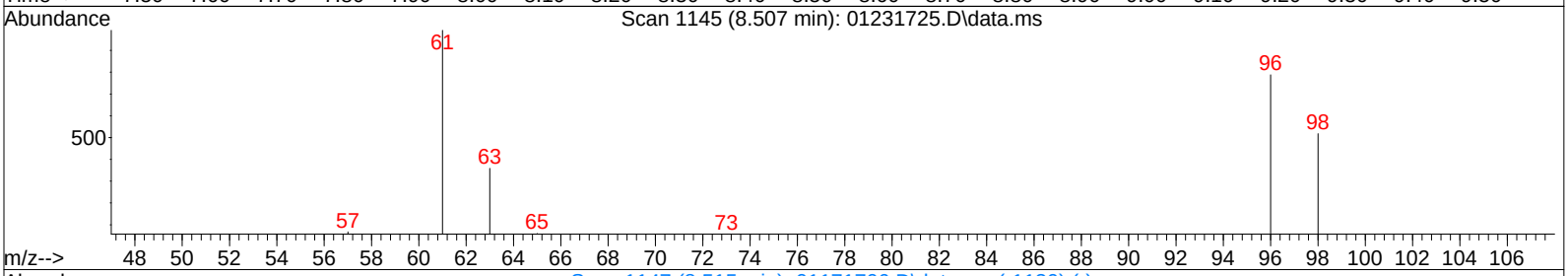
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	66.82
61.00	162.10	119.82#
0.00	0.00	0.00

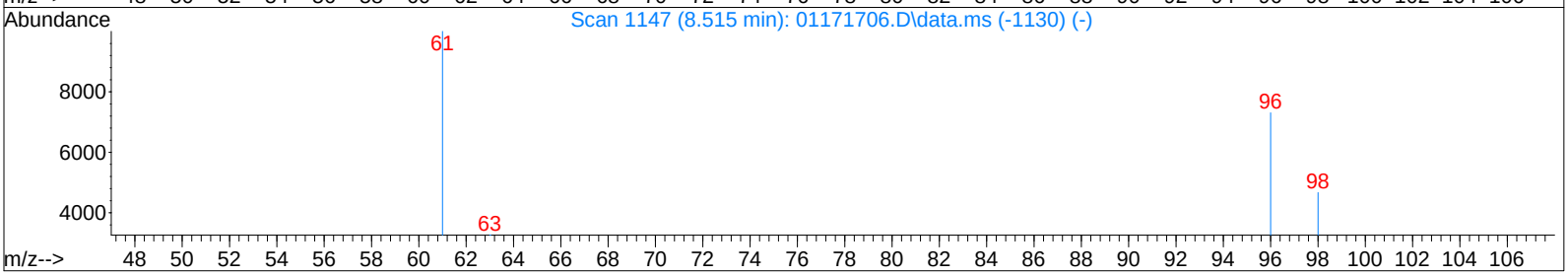
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231725.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 48.08pg

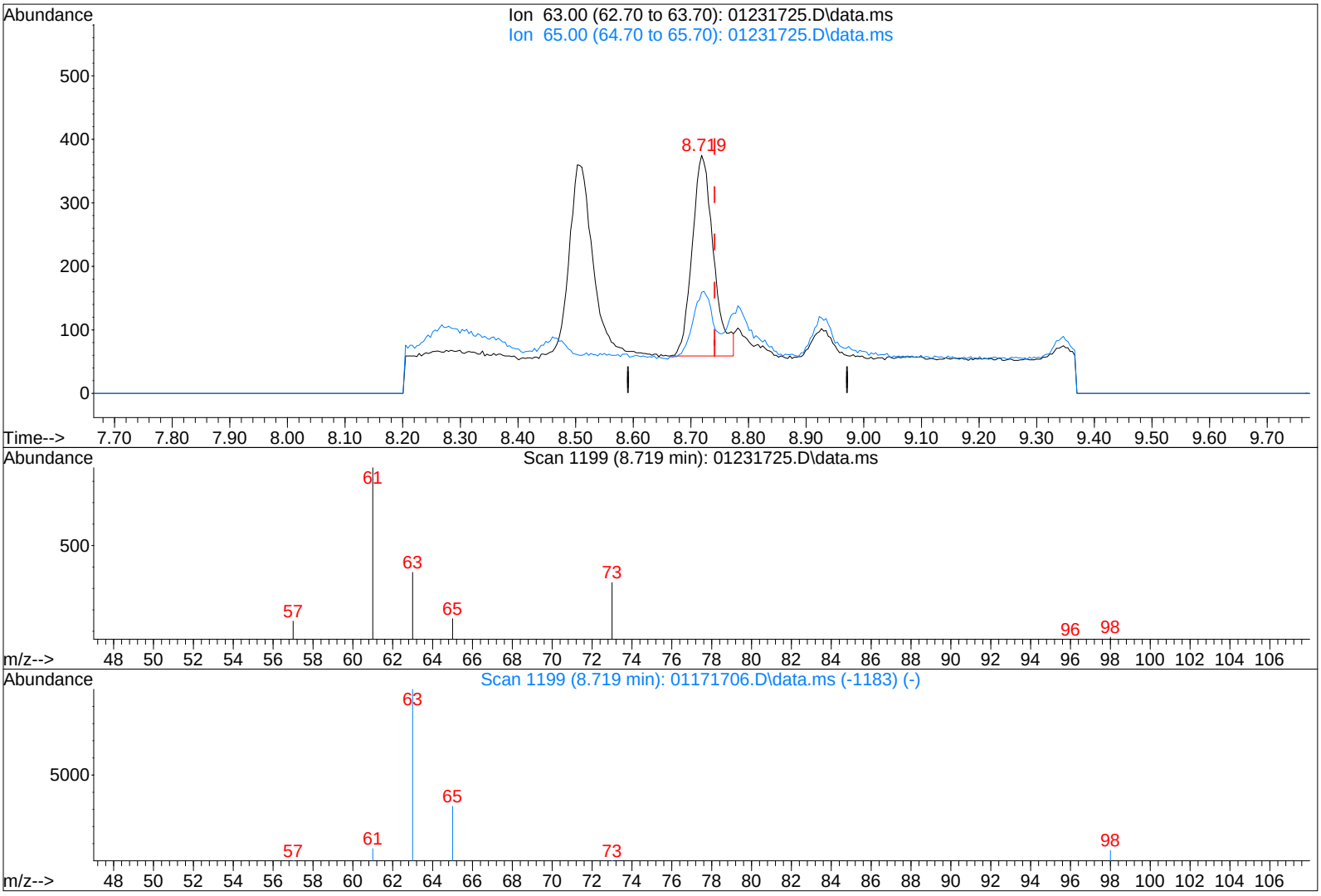
response 2130

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.19
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231725.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 10.30pg

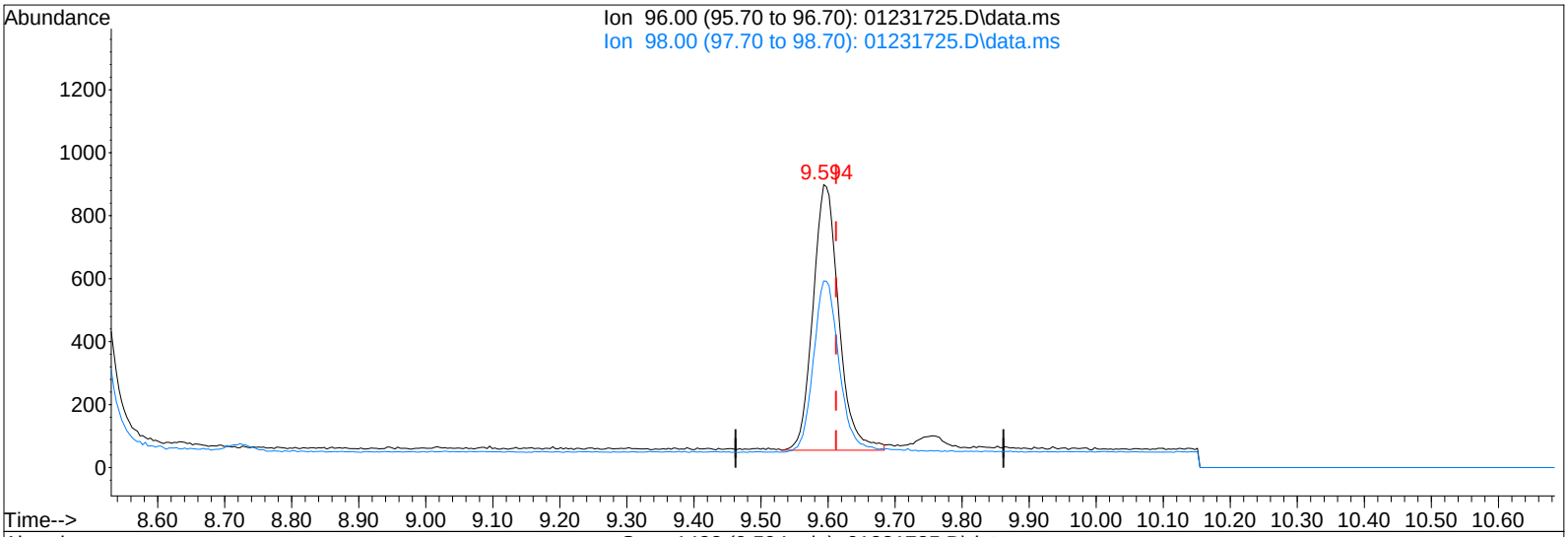
response 810

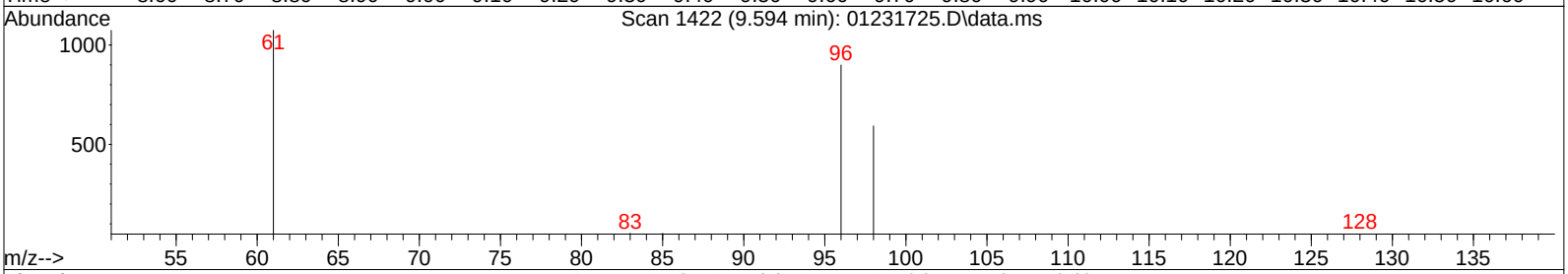
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.98
0.00	0.00	0.00
0.00	0.00	0.00

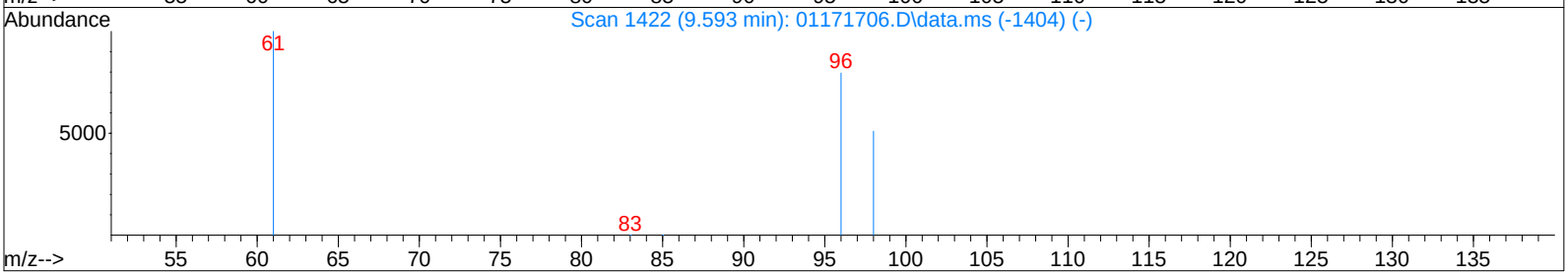
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231725.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 48.65pg

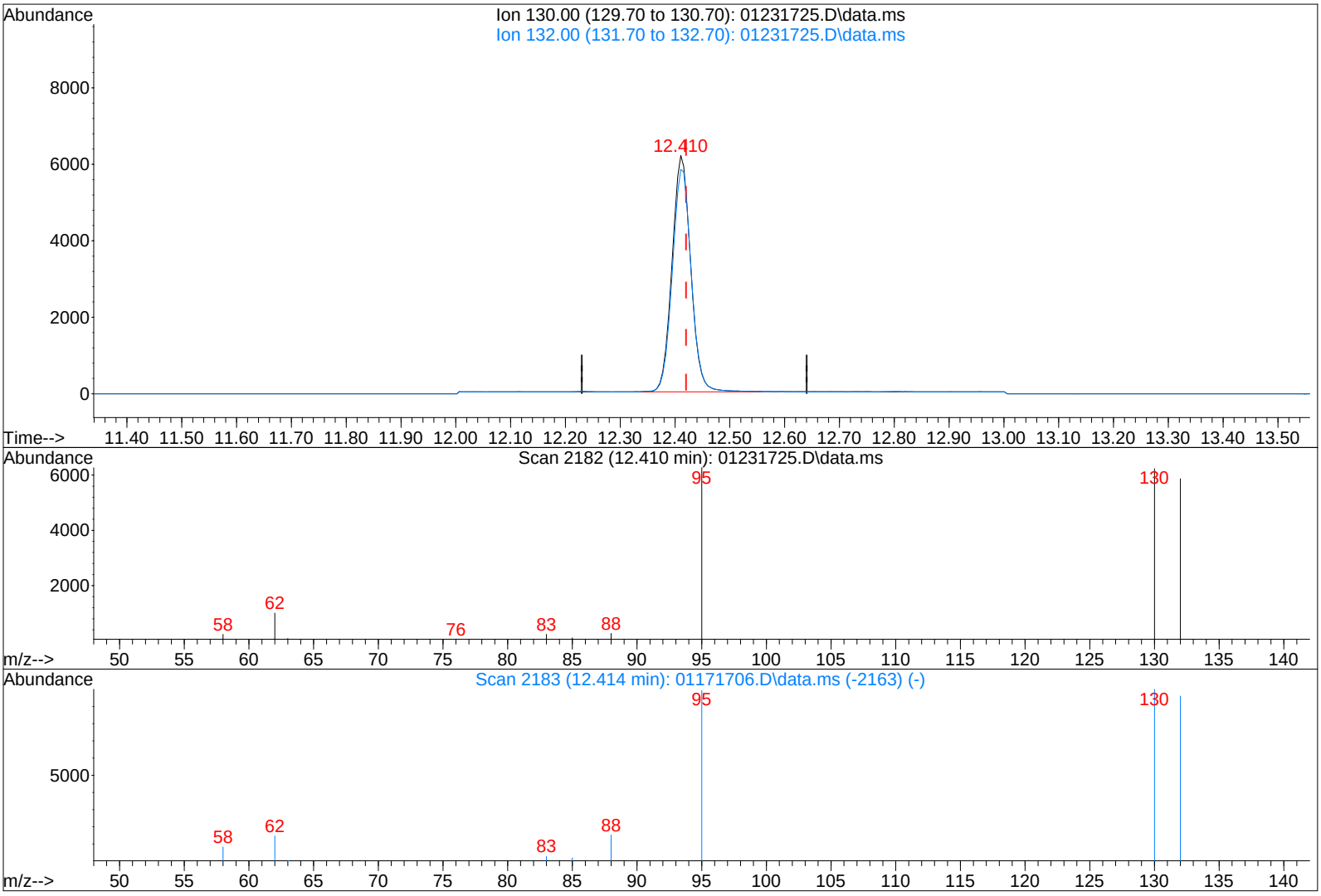
response 2262

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.81
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231725.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 291.37pg

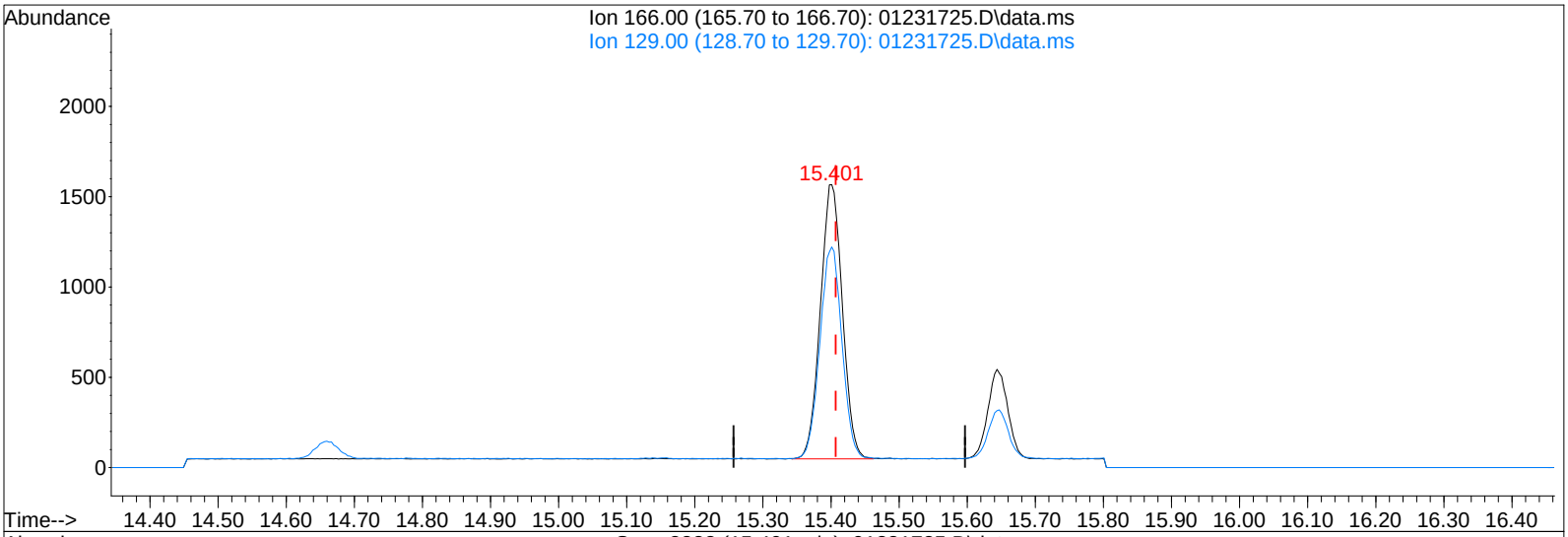
response 14573

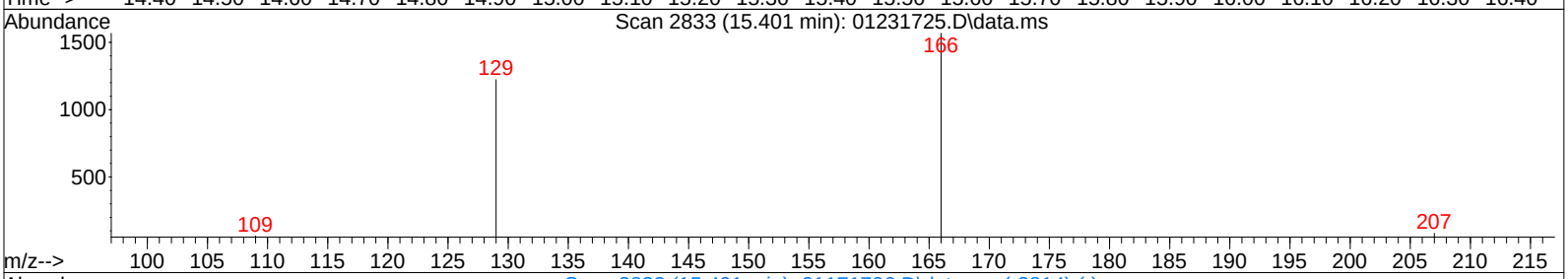
Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.84
0.00	0.00	0.00
0.00	0.00	0.00

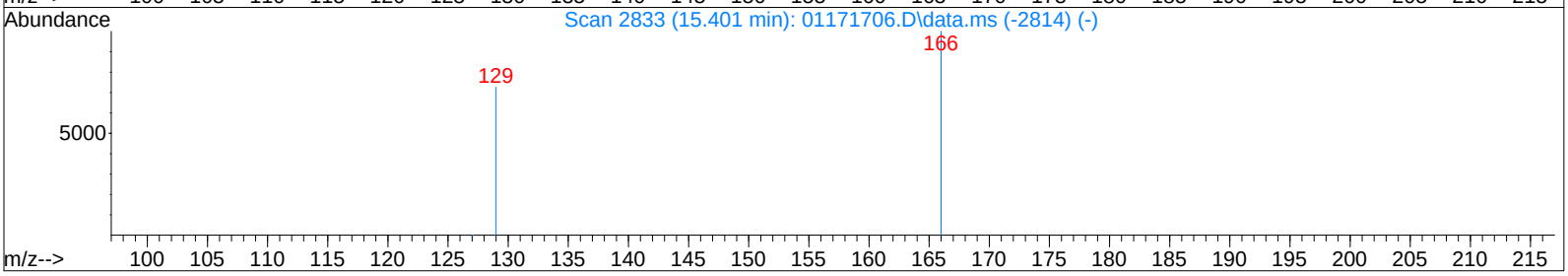
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231725.D Vial: 3
Acq On : 23 Jan 2017 20:29 Operator: CL
Sample : P1700234-011 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:17 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231725.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 65.70pg

response 3407

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	77.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:22:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	40289	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	192149	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	30015	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	66772	956.962	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.70%				
33) Toluene-d8 (SS2)	14.15	98	194569	1019.385	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.94%				
45) Bromofluorobenzene (SS3)	17.55	174	56215	1023.772	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.38%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.41	85	193492	1901.048	pg		100
3) Chloromethane	4.65	52	8672	285.984	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	8242	82.306	pg		99
5) Vinyl Chloride	4.96	62	388	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.48	94	1134	28.971	pg		100
8) Chloroethane	5.69	64	268	8.952	pg	#	43
9) Acrolein	6.29	56	3233	152.024	pg		98
10) Acetone	6.41	58	57622	2095.641	pg	#	90
11) Trichlorofluoromethane	6.61	101	68258	980.508	pg		100
12) 1,1-Dichloroethene	7.35	96	70	N.D.			
13) Methylene Chloride	7.49	84	12323	260.371	pg		99
14) Trichlorotrifluoroethane	7.80	151	15104	347.124	pg		99
15) trans-1,2-Dichloroethene	8.53	96	1650	35.093	pg		91
16) 1,1-Dichloroethane	8.73	63	493	5.910	pg		97
17) Methyl tert-Butyl Ether	8.81	73	615	N.D.			
18) cis-1,2-Dichloroethene	9.60	96	1840	37.292	pg		97
19) Chloroform	9.89	83	8704	99.225	pg		100
21) 1,2-Dichloroethane	10.65	62	2981	44.146	pg		97
22) 1,1,1-Trichloroethane	10.91	97	849	10.426	pg		99
23) Benzene	11.37	78	84396	436.681	pg		100
24) Carbon Tetrachloride	11.52	117	22714	347.392	pg		100
26) 1,2-Dichloropropane	12.18	63	828	16.918	pg		98
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.42	130	4958	99.246	pg		98
29) 1,4-Dioxane	12.40	88	88	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	120	N.D.			
34) Toluene	14.25	91	124279	697.125	pg		100
35) Dibromochloromethane	14.66	129	163	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	1975	38.129	pg		96
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.48	91	21986	128.855	pg		100
41) m,p-Xylene	16.65	91	56333	440.172	pg		100
42) Styrene	17.01	104	5561	62.021	pg		99
43) o-Xylene	17.12	106	11177	170.003	pg		100
44) 1,1,2,2-Tetrachloroethane	17.06	83	71	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	7800	57.575	pg		97
47) 1,2,4-Trimethylbenzene	18.77	105	31859	239.591	pg		88
48) 1,3-Dichlorobenzene	18.92	146	58	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	2102	24.703	pg		97
50) 1,2-Dichlorobenzene	19.31	146	223	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	71	N.D.			
53) Naphthalene	21.06	128	32883	210.058	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:22:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

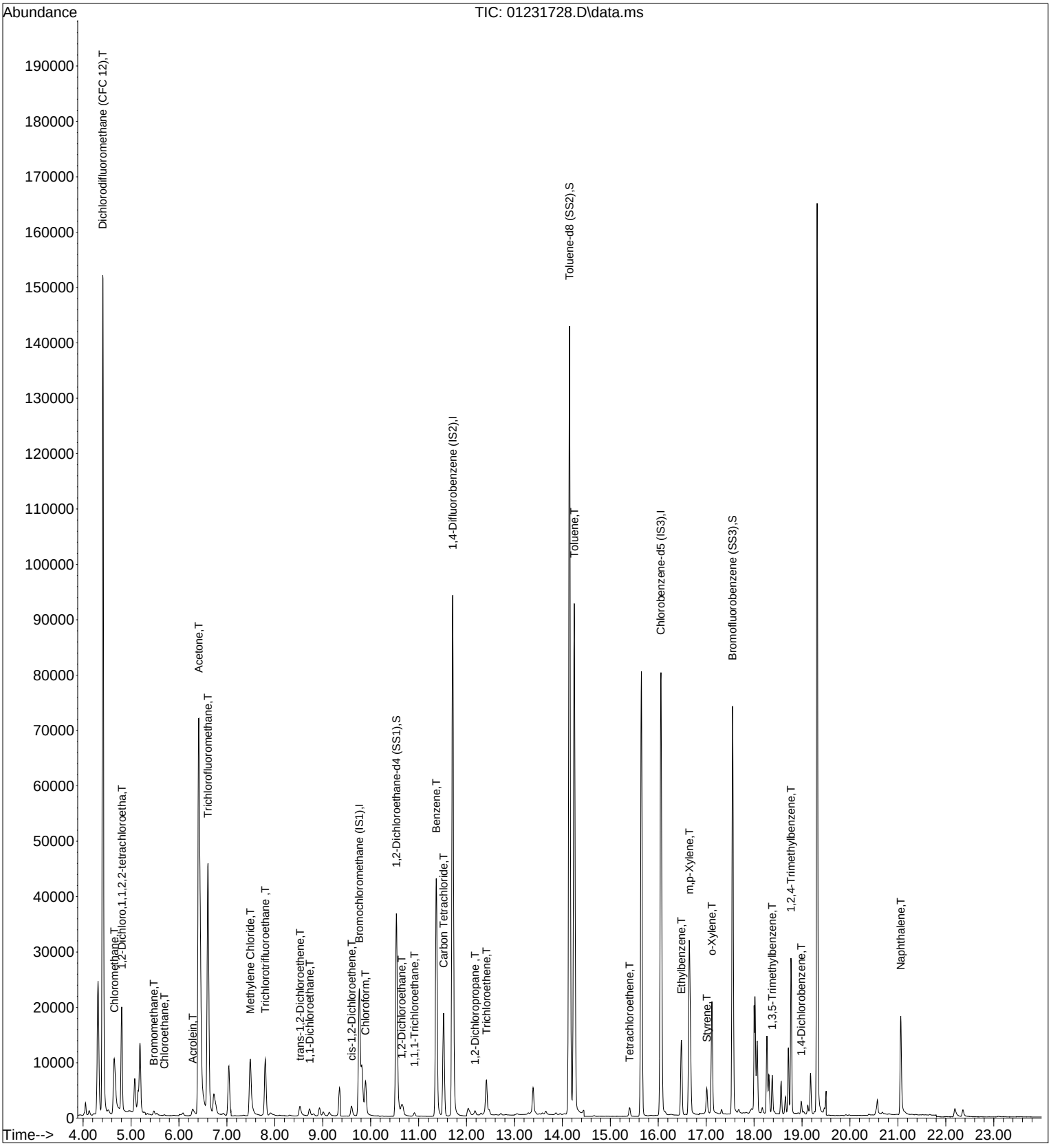
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

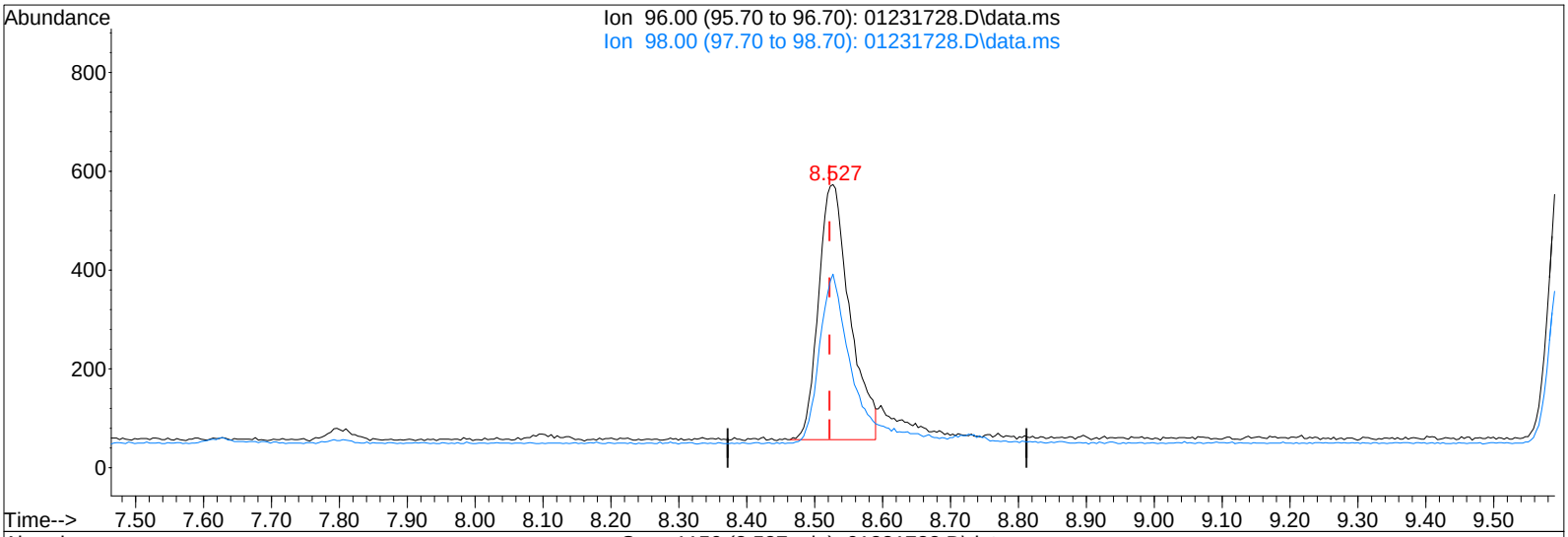
Quant Time: Jan 24 12:22:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

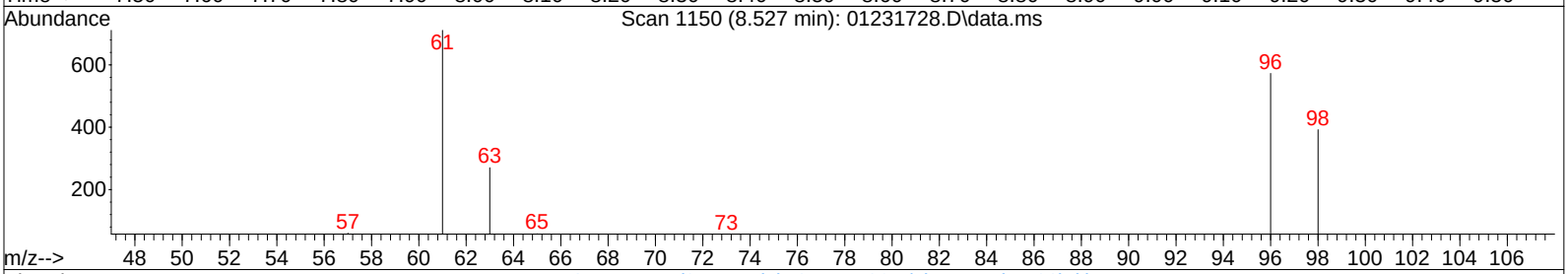


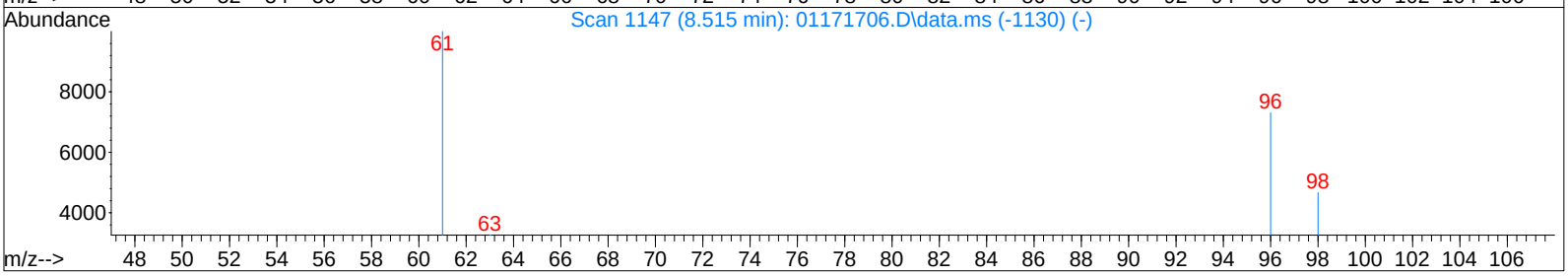
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01231728.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.527min (+0.005) 35.09pg

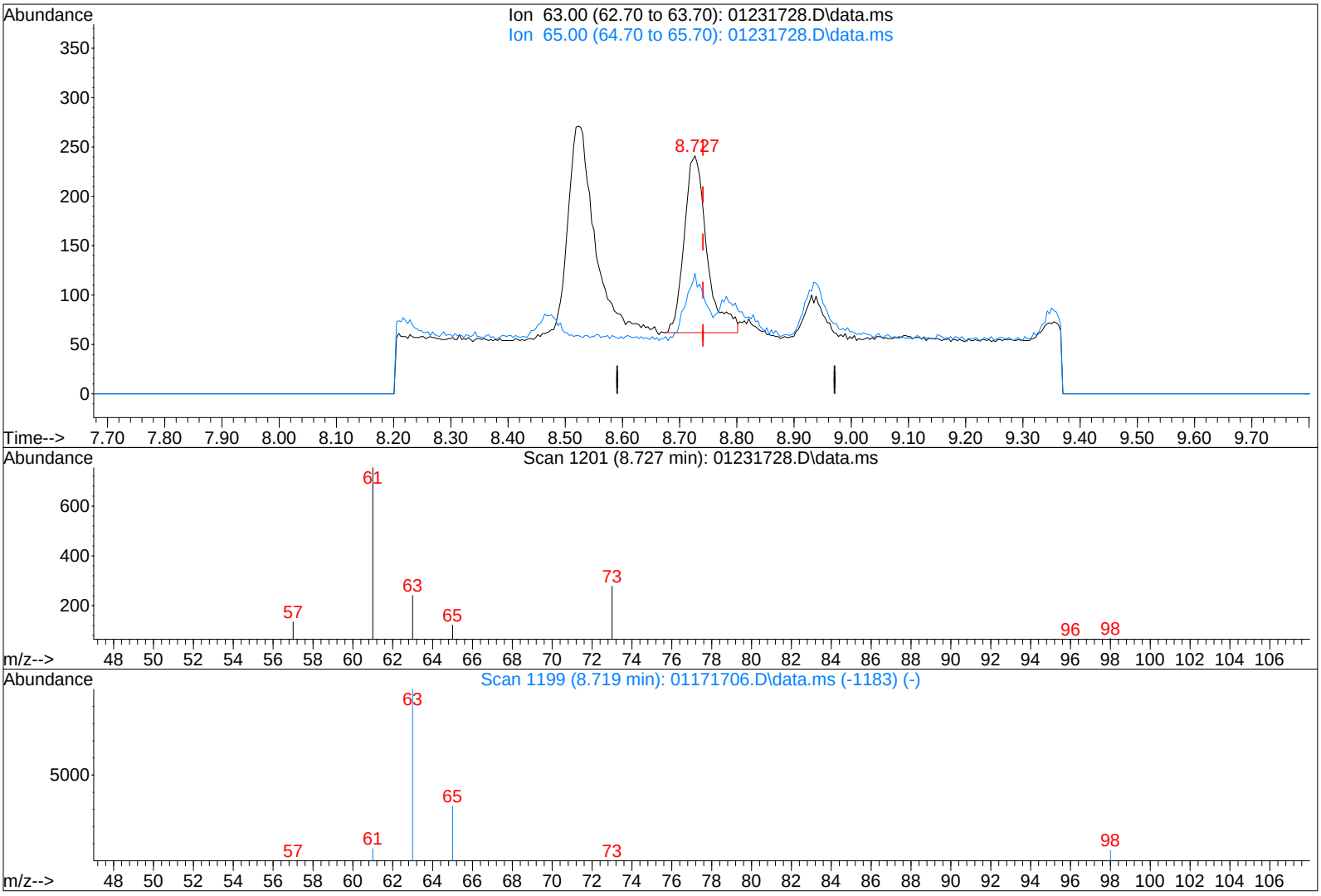
response 1650

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	68.79
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231728.D\data.ms

(16) 1,1-Dichloroethane (T)

8.727min (-0.014) 5.91pg

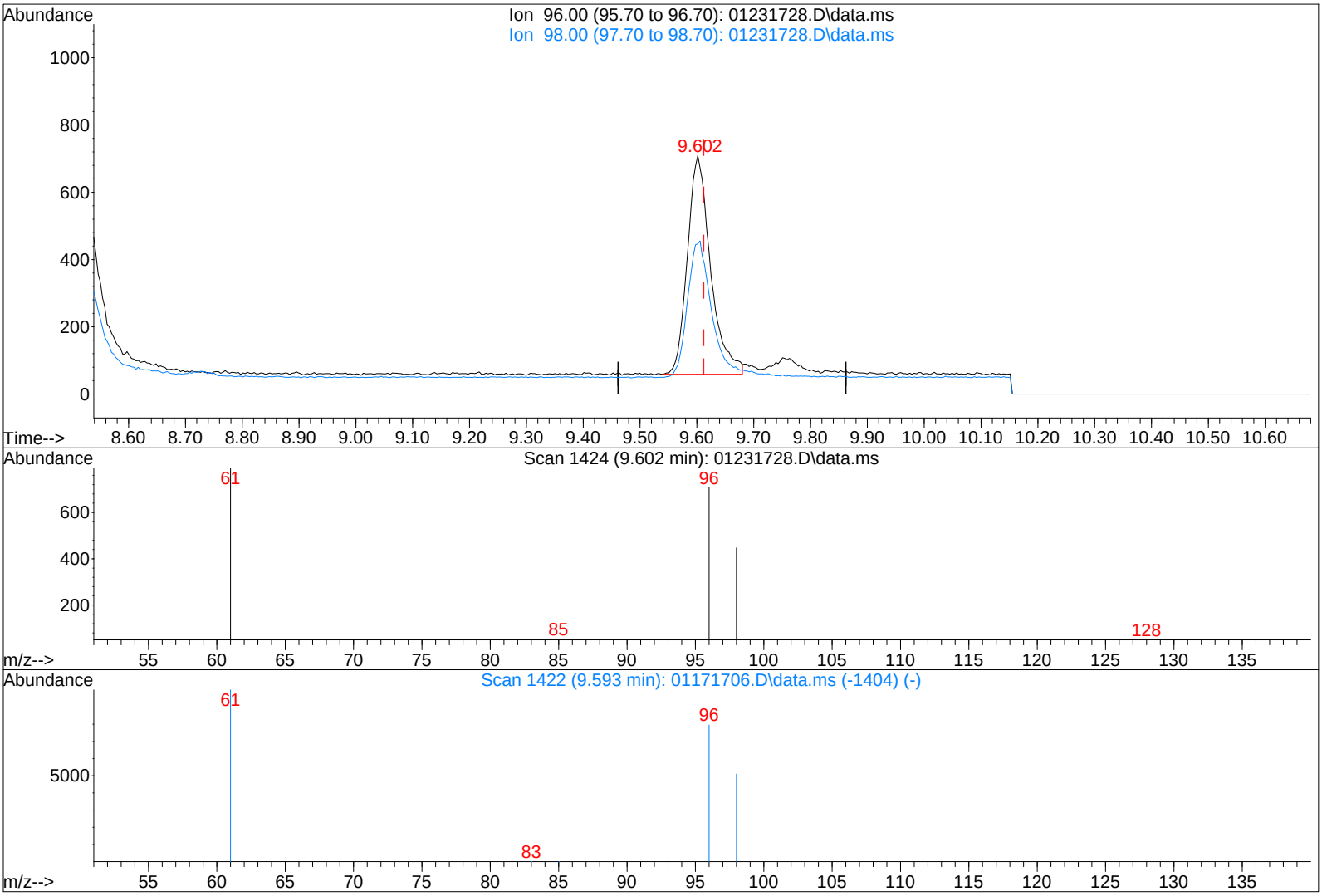
response 493

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.27
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231728.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.602min (-0.010) 37.29pg

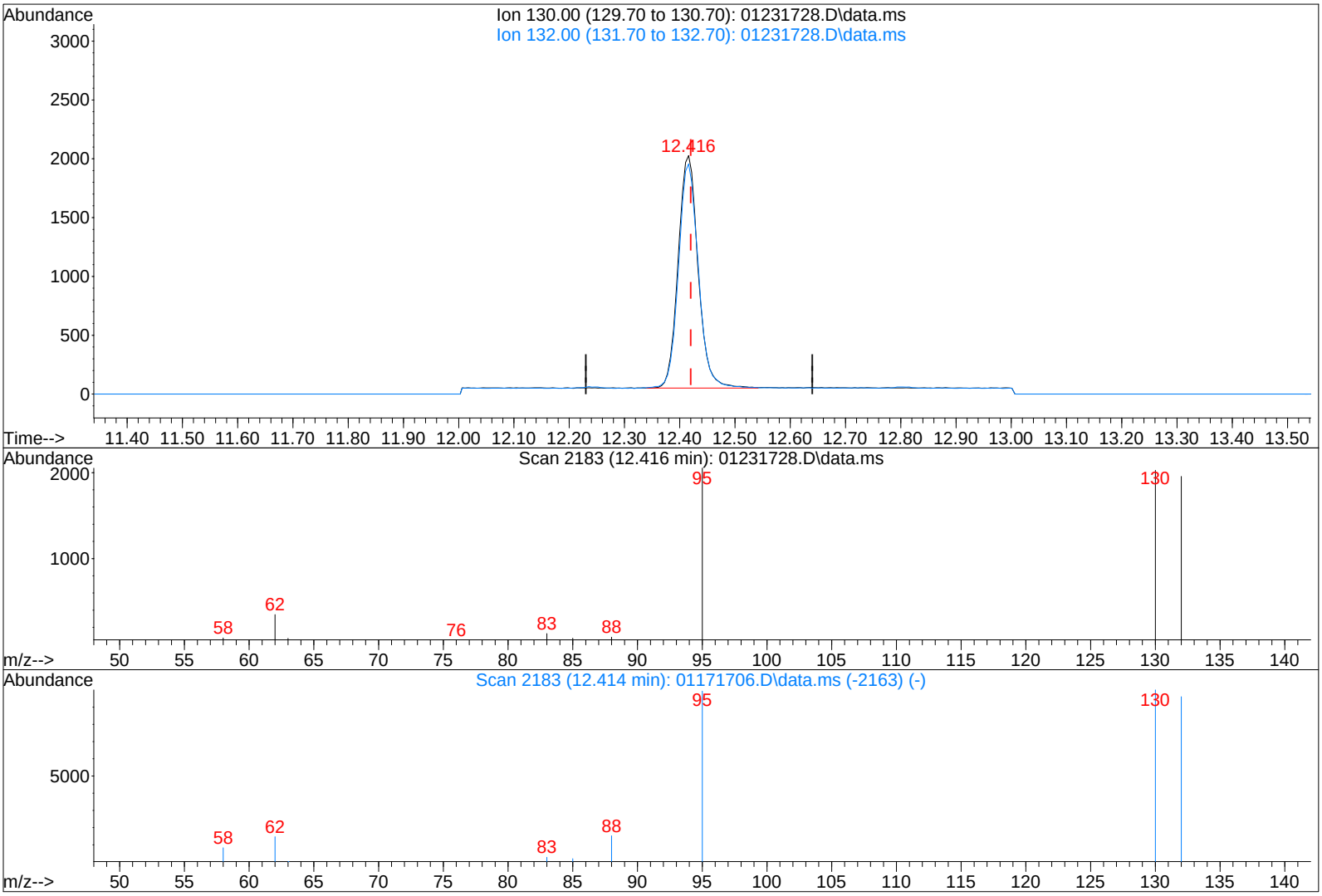
response 1840

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.30
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231728.D\data.ms

(28) Trichloroethene (T)

12.416min (-0.004) 99.25pg

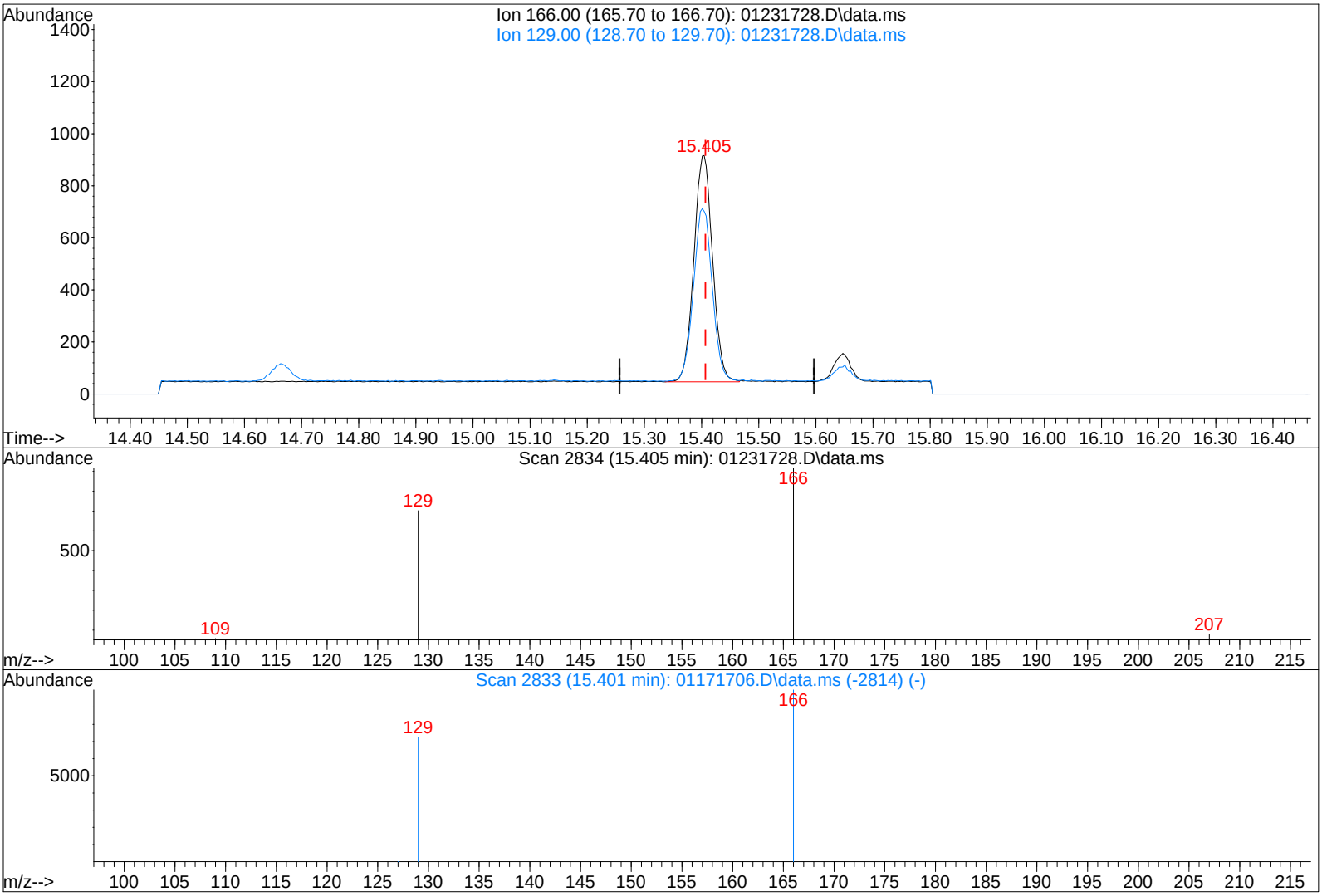
response 4958

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.28
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231728.D Vial: 6
Acq On : 23 Jan 2017 22:04 Operator: CL
Sample : P1700234-014 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231728.D\data.ms

(37) Tetrachloroethene (T)

15.405min (-0.002) 38.13pg

response 1975

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	76.30
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:34:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	38225	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	184346	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	29070	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	63843	964.389 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.44%			
33) Toluene-d8 (SS2)	14.14	98	189151	1032.946 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.30%			
45) Bromofluorobenzene (SS3)	17.55	174	55400	1041.727 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.17%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	116627	1207.725 pg		100
3) Chloromethane	4.64	52	5559	193.223 pg	#	89
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	5186	54.585 pg		100
5) Vinyl Chloride	4.94	62	336	N.D.		
6) 1,3-Butadiene	5.12	54	1897	34.562 pg		94
7) Bromomethane	5.45	94	1446	38.937 pg		100
8) Chloroethane	5.67	64	208	7.323 pg		100
9) Acrolein	6.26	56	10714	531.002 pg		99
10) Acetone	6.39	58	130540	5003.929 pg	#	60
11) Trichlorofluoromethane	6.59	101	42012	636.077 pg		100
12) 1,1-Dichloroethene	7.34	96	67	N.D.		
13) Methylene Chloride	7.48	84	7651	170.386 pg		99
14) Trichlorotrifluoroethane	7.80	151	9038	218.930 pg		99
15) trans-1,2-Dichloroethene	8.52	96	1078	24.165 pg		98
16) 1,1-Dichloroethane	8.71	63	575	7.265 pg		96
17) Methyl tert-Butyl Ether	8.80	73	461	N.D.		
18) cis-1,2-Dichloroethene	9.59	96	1458	31.146 pg		100
19) Chloroform	9.89	83	6538	78.557 pg		100
21) 1,2-Dichloroethane	10.64	62	1848	28.845 pg		99
22) 1,1,1-Trichloroethane	10.91	97	537	6.951 pg		100
23) Benzene	11.36	78	48380	263.844 pg		100
24) Carbon Tetrachloride	11.52	117	14131	227.791 pg		100
26) 1,2-Dichloropropane	12.18	63	518	11.032 pg		94
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	3618	75.488 pg		99
29) 1,4-Dioxane	12.39	88	106	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	13.74	75	153	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	88533	517.633 pg		100
35) Dibromochloromethane	14.66	129	124	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	1222	24.590 pg		94
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.48	91	13341	80.730 pg		99
41) m,p-Xylene	16.65	91	32859	265.099 pg		99
42) Styrene	17.01	104	2223	25.599 pg		94
43) o-Xylene	17.12	106	6423	100.870 pg		99
44) 1,1,2,2-Tetrachloroethane	17.12	83	278	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	3524	26.858 pg		98
47) 1,2,4-Trimethylbenzene	18.77	105	12043	93.512 pg		87
48) 1,3-Dichlorobenzene	18.93	146	83	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	1003	12.171 pg		100
50) 1,2-Dichlorobenzene	19.31	146	101	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.95	182	61	N.D.		
53) Naphthalene	21.07	128	2775	18.303 pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:34:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

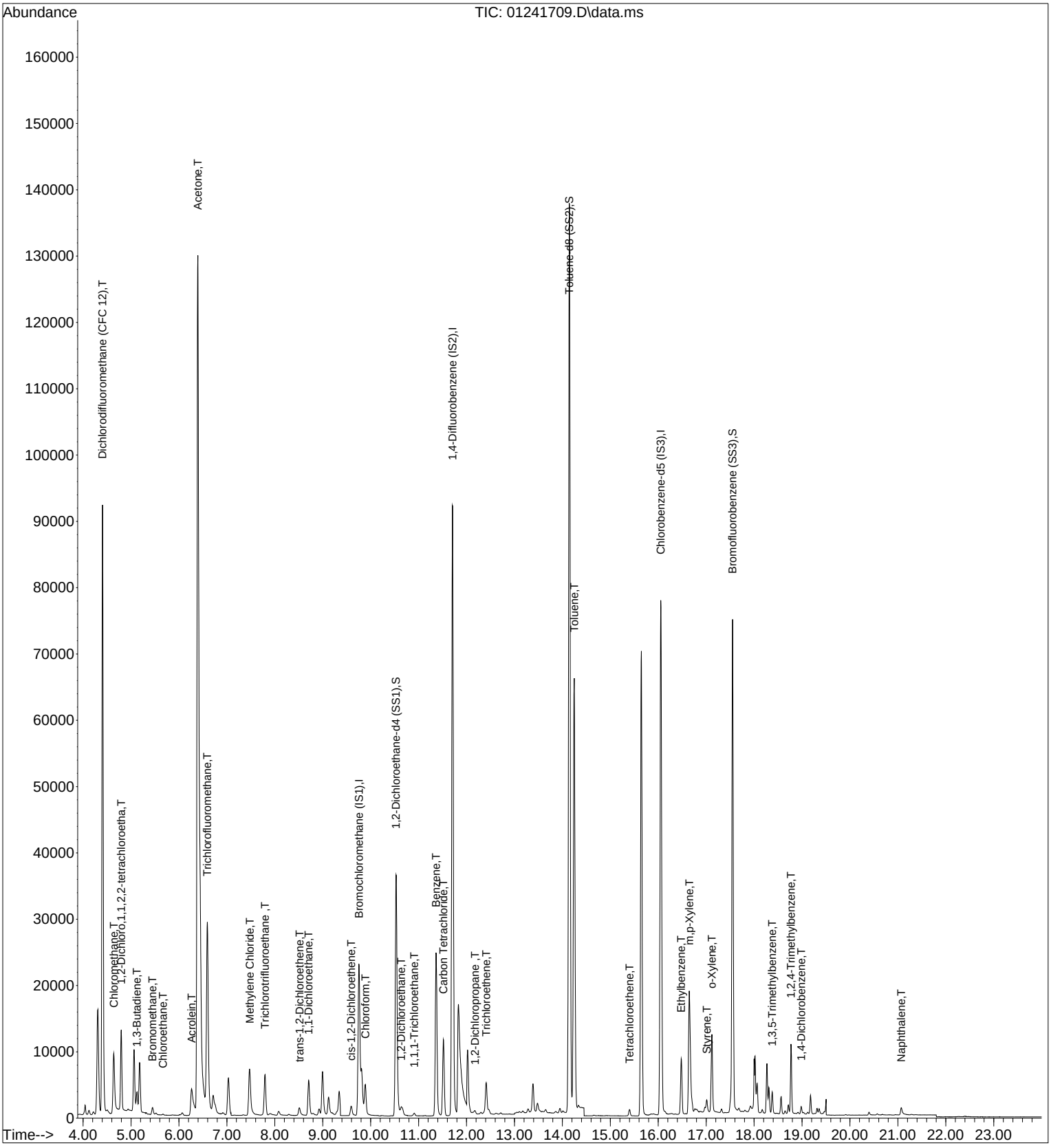
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

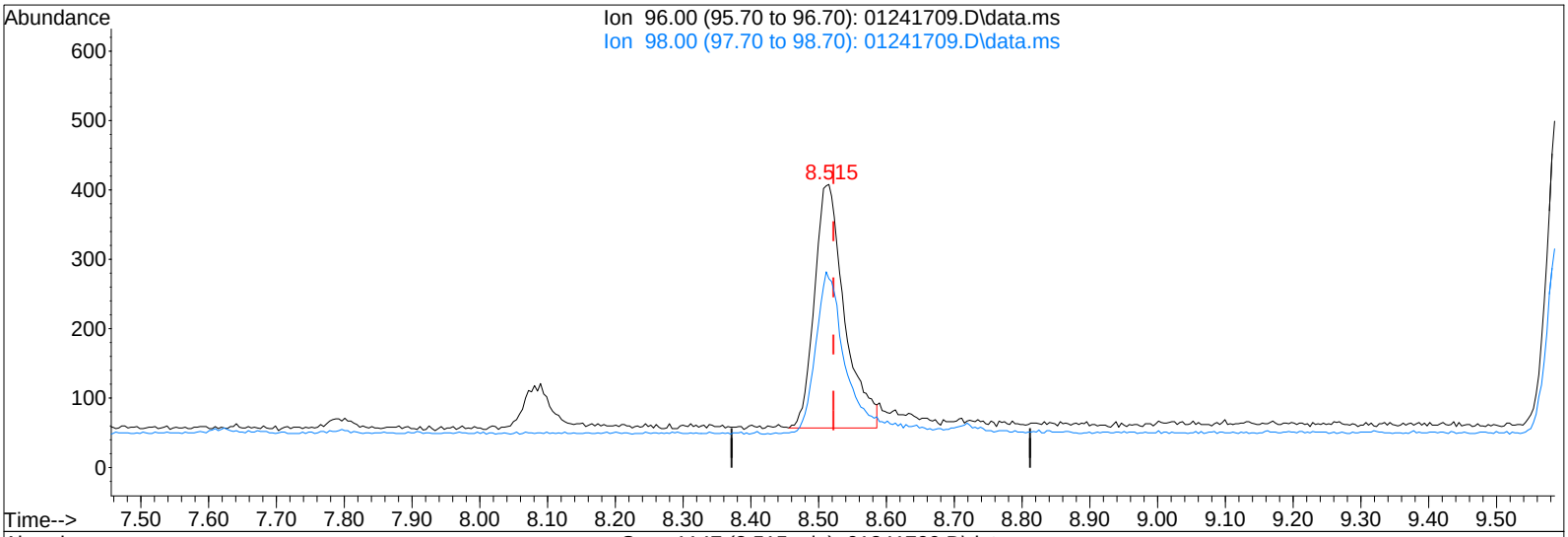
Quant Time: Jan 24 12:34:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

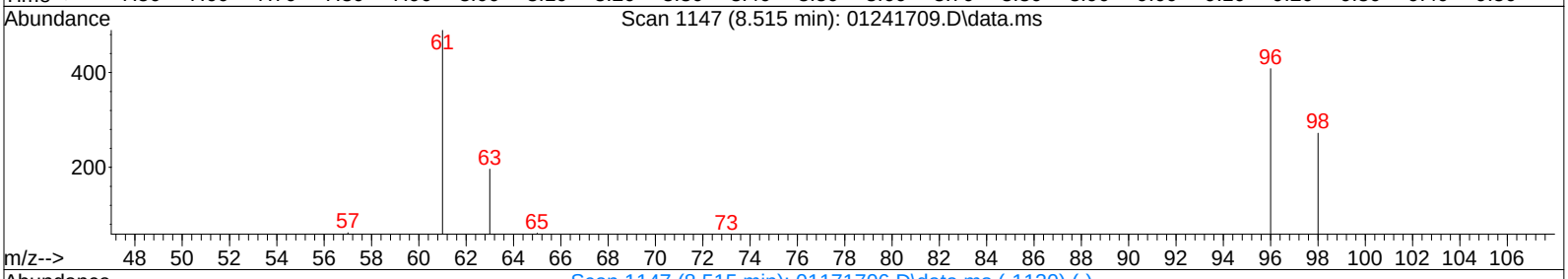


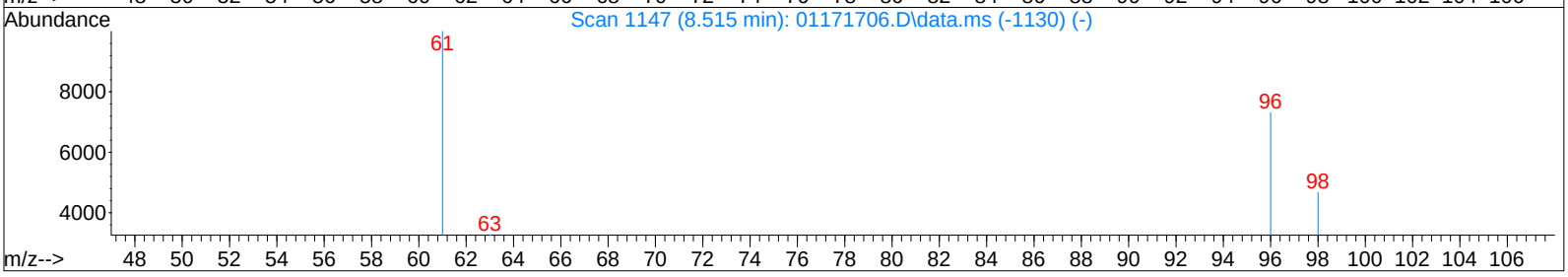
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241709.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.515min (-0.007) 24.17pg

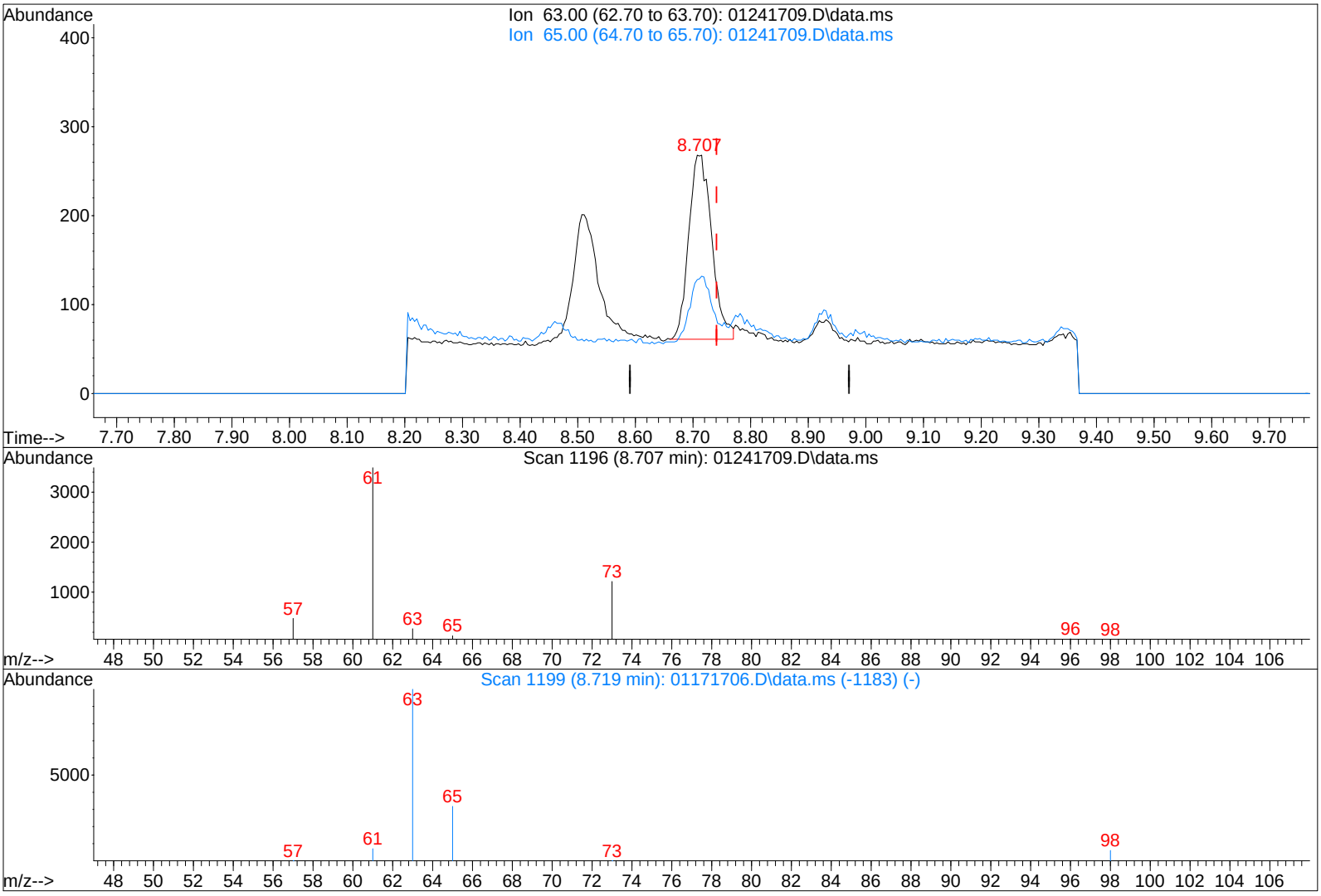
response 1078

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.54
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241709.D\data.ms

(16) 1,1-Dichloroethane (T)

8.707min (-0.034) 7.27pg

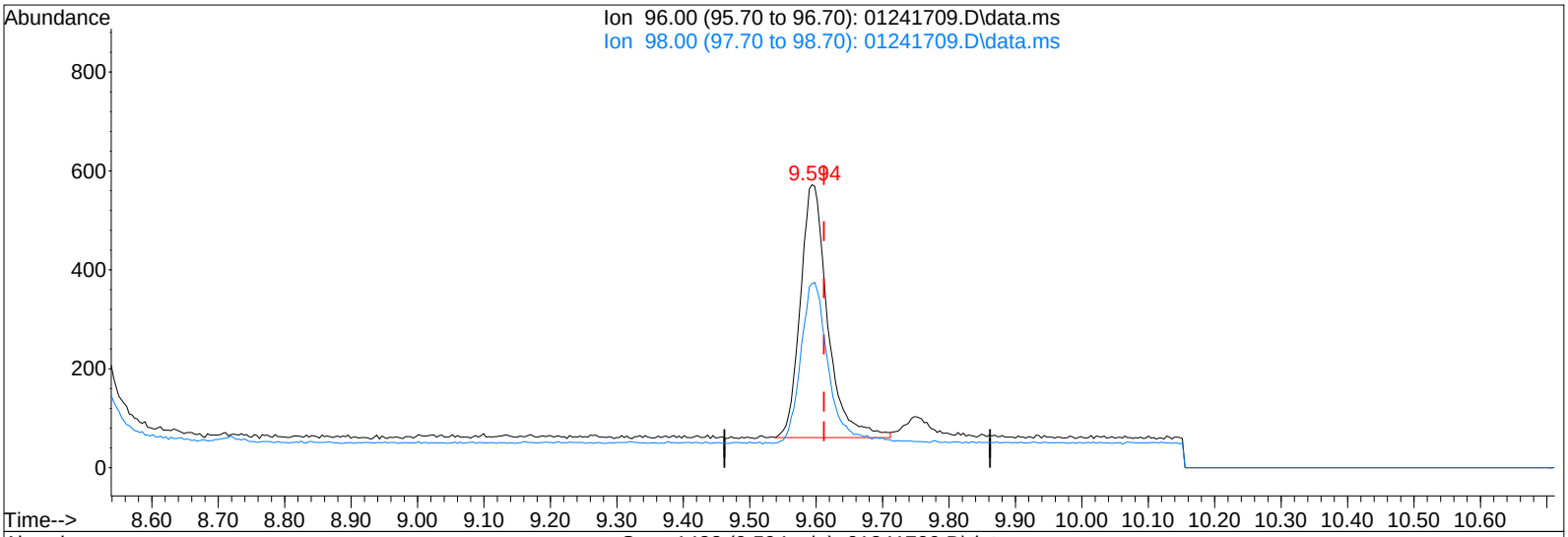
response 575

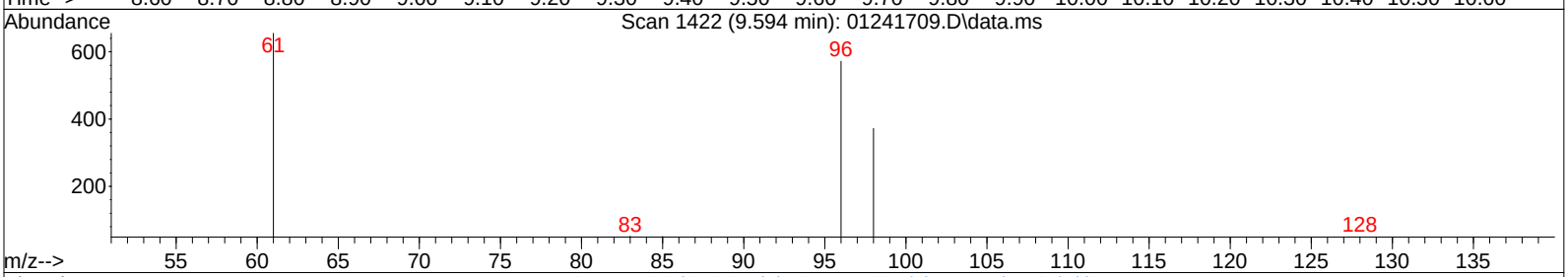
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.91
0.00	0.00	0.00
0.00	0.00	0.00

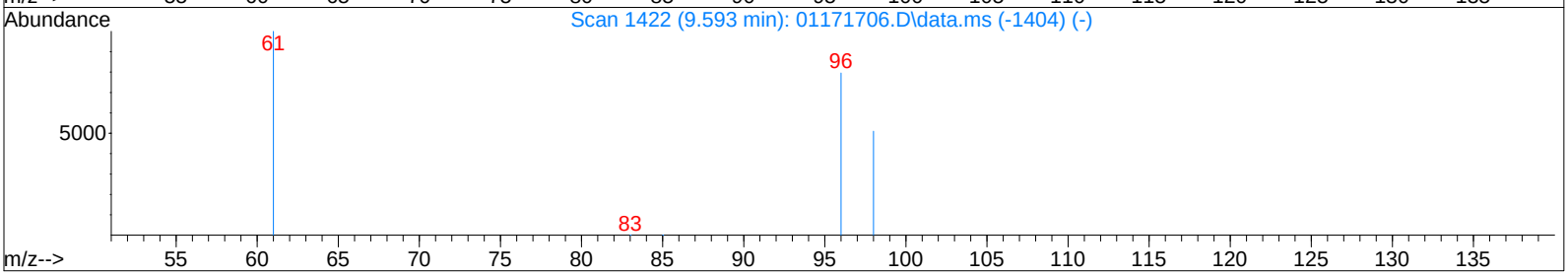
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241709.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 31.15pg

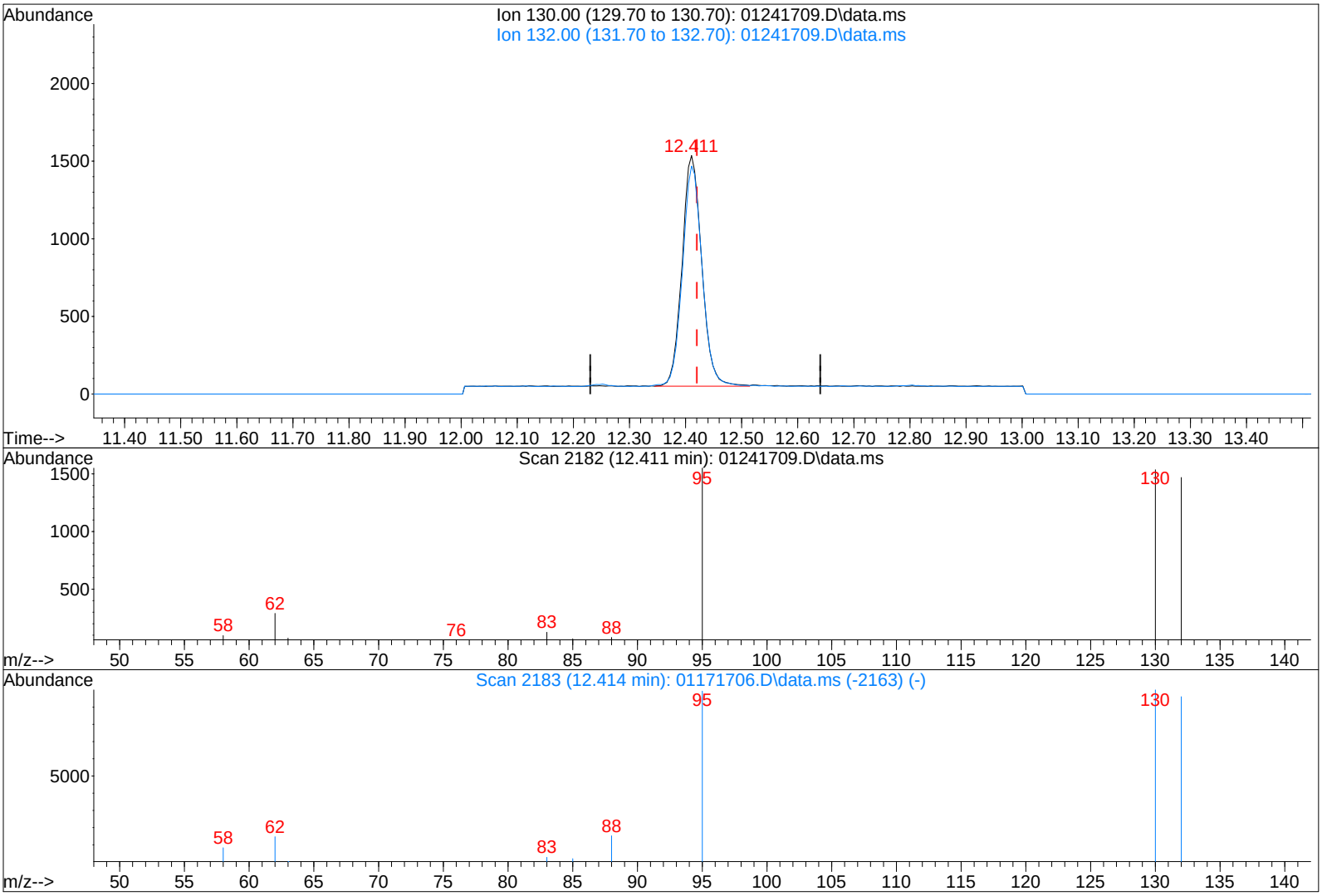
response 1458

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.99
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241709.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 75.49pg

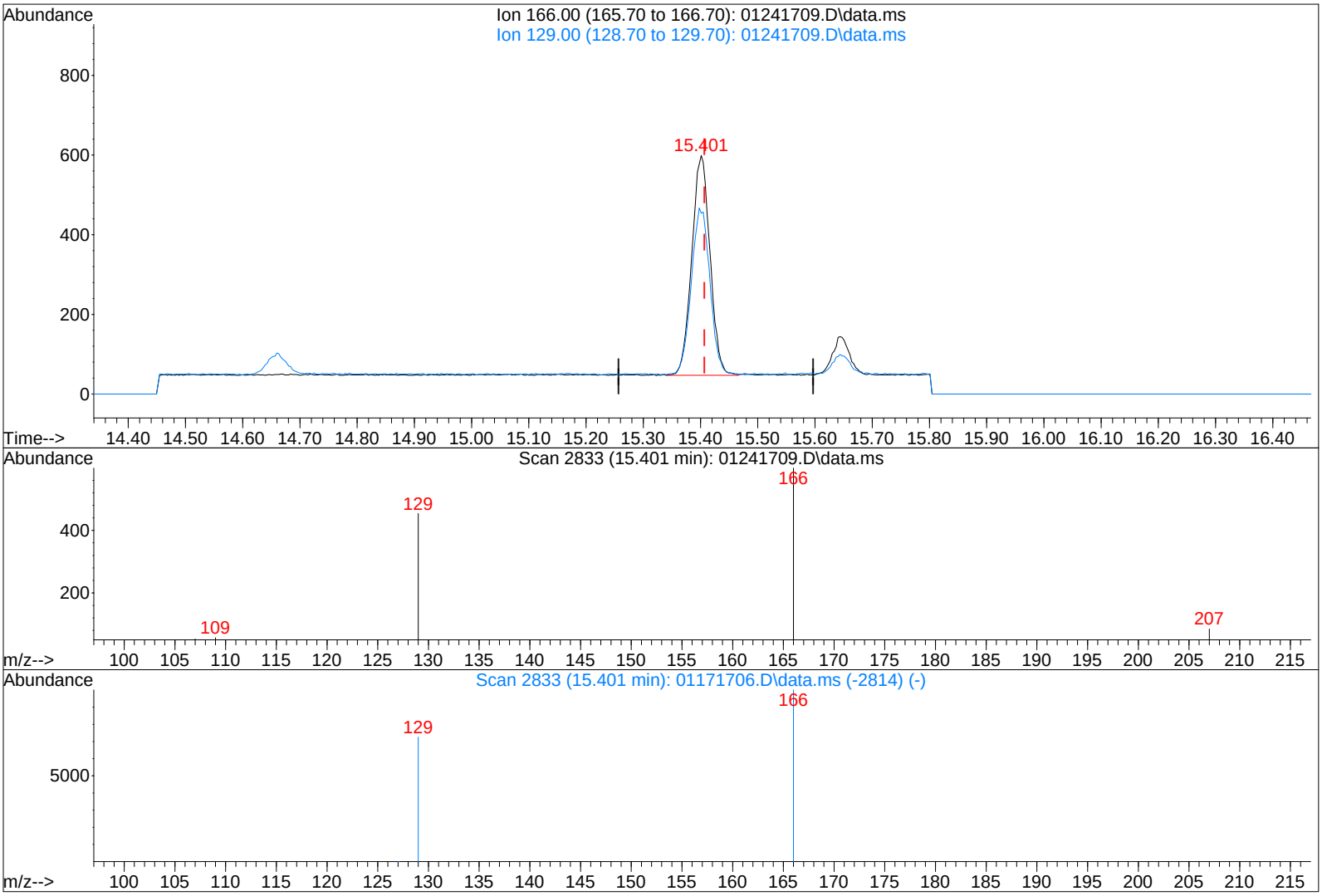
response 3618

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.96
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241709.D Vial: 10
Acq On : 24 Jan 2017 5:32 Operator: CL
Sample : P1700234-018 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 07:09:38 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241709.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 24.59pg

response 1222

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	77.50
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:45:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	42523	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	203307	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	31296	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	69099	938.284	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.83%			
33) Toluene-d8 (SS2)	14.15	98	206118	1020.625	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.06%			
45) Bromofluorobenzene (SS3)	17.55	174	63395	1107.275	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.73%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	185614	1727.839	pg	100
3) Chloromethane	4.64	52	9238	288.644	pg	92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8214	77.717	pg	100
5) Vinyl Chloride	4.97	62	413	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.49	94	781	18.905	pg	93
8) Chloroethane	5.70	64	235	7.438	pg	87
9) Acrolein	6.28	56	2420	107.816	pg	97
10) Acetone	6.41	58	57972	1997.604	pg	92
11) Trichlorofluoromethane	6.60	101	68424	931.255	pg	100
12) 1,1-Dichloroethene	7.34	96	84	N.D.		
13) Methylene Chloride	7.48	84	12581	251.857	pg	100
14) Trichlorotrifluoroethane	7.80	151	15597	339.623	pg	99
15) trans-1,2-Dichloroethene	8.52	96	1777	35.809	pg	99
16) 1,1-Dichloroethane	8.72	63	418	N.D.		
17) Methyl tert-Butyl Ether	8.81	73	588	N.D.		
18) cis-1,2-Dichloroethene	9.60	96	1295	24.868	pg	99
19) Chloroform	9.89	83	8967	96.853	pg	100
21) 1,2-Dichloroethane	10.64	62	2660	37.323	pg	99
22) 1,1,1-Trichloroethane	10.91	97	902	10.495	pg	97
23) Benzene	11.37	78	75751	371.358	pg	100
24) Carbon Tetrachloride	11.52	117	22596	327.431	pg	99
26) 1,2-Dichloropropane	12.18	63	833	16.086	pg	96
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.41	130	3488	65.989	pg	99
29) 1,4-Dioxane	12.39	88	156	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.95	83	131	N.D.		
34) Toluene	14.25	91	109407	580.021	pg	100
35) Dibromochloromethane	14.66	129	156	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	2030	37.040	pg	96
39) Chlorobenzene	0.00	112	0	N.D.	d	
40) Ethylbenzene	16.48	91	20506	115.261	pg	99
41) m,p-Xylene	16.65	91	50981	382.048	pg	99
42) Styrene	17.01	104	3864	41.331	pg	96
43) o-Xylene	17.12	106	10223	149.128	pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.38	105	5250	37.166	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	20249	146.046	pg	87
48) 1,3-Dichlorobenzene	18.92	146	196	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	2160	24.346	pg	97
50) 1,2-Dichlorobenzene	19.31	146	183	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	103	N.D.		
53) Naphthalene	21.06	128	12503	76.601	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 12:45:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

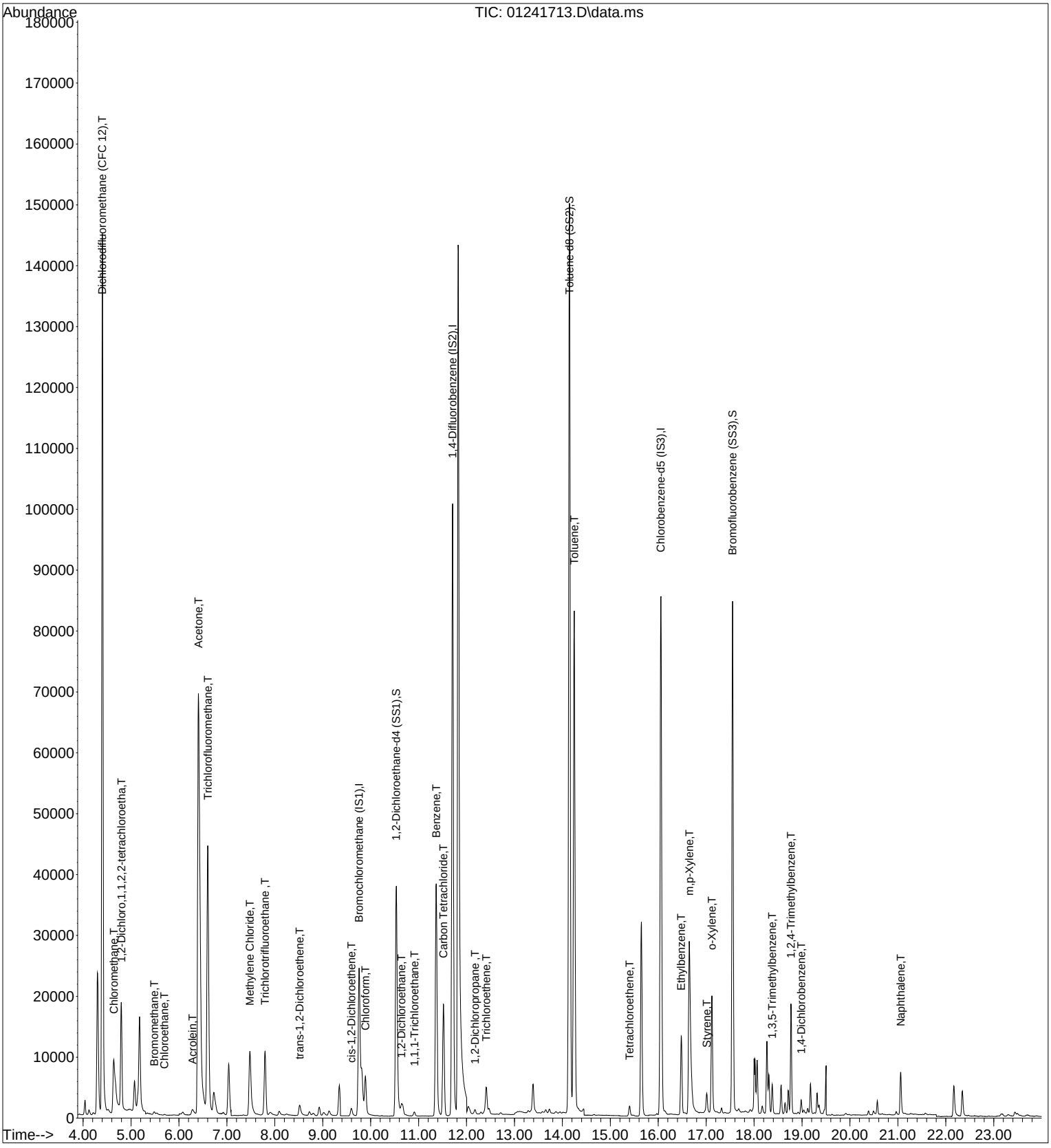
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

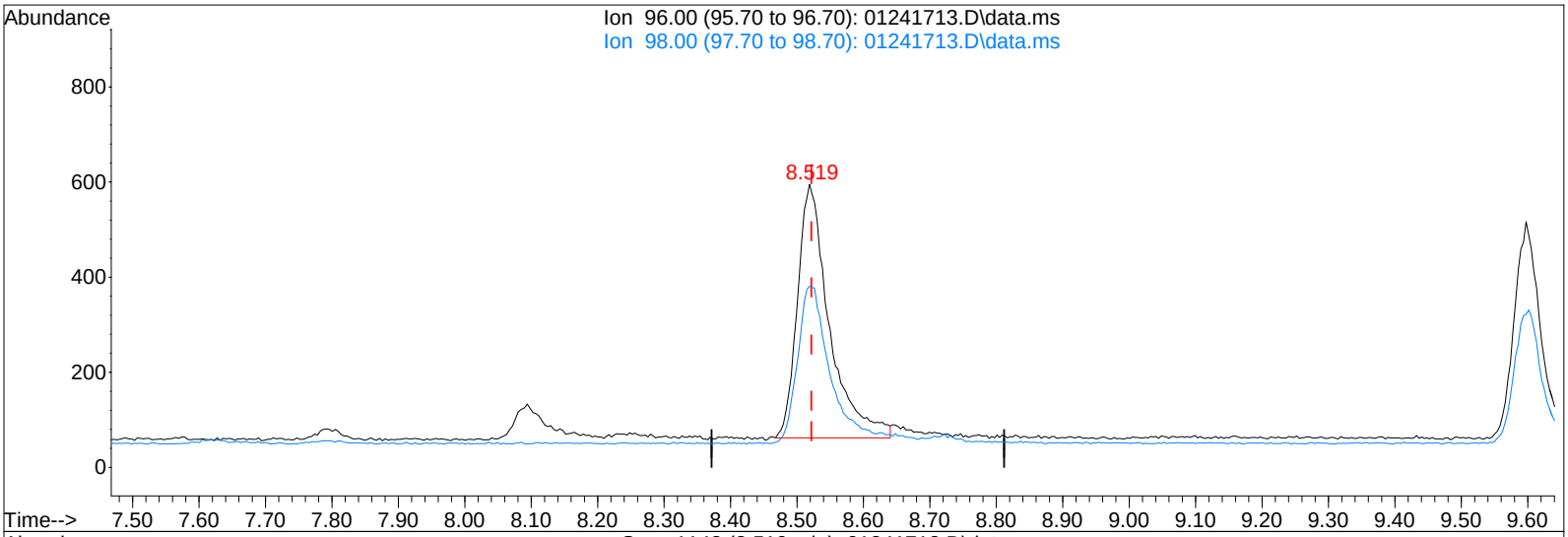
Quant Time: Jan 24 12:45:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

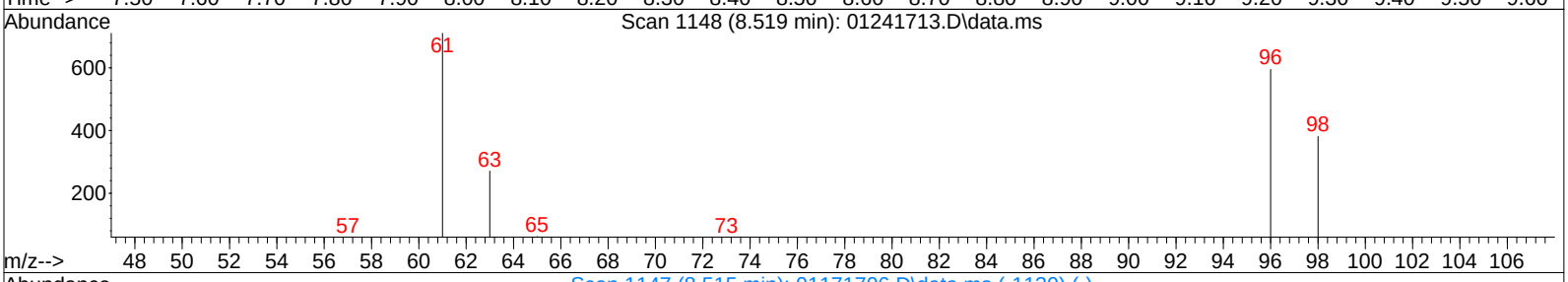


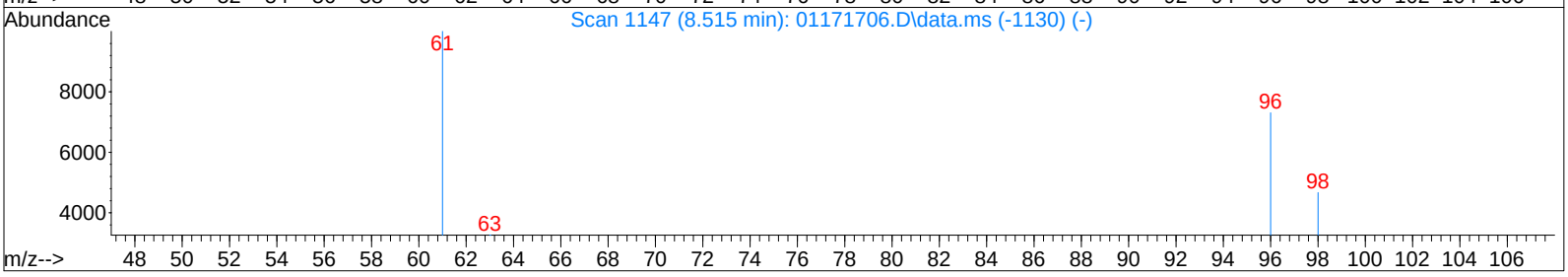
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 10:03:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241713.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.003) 35.81pg

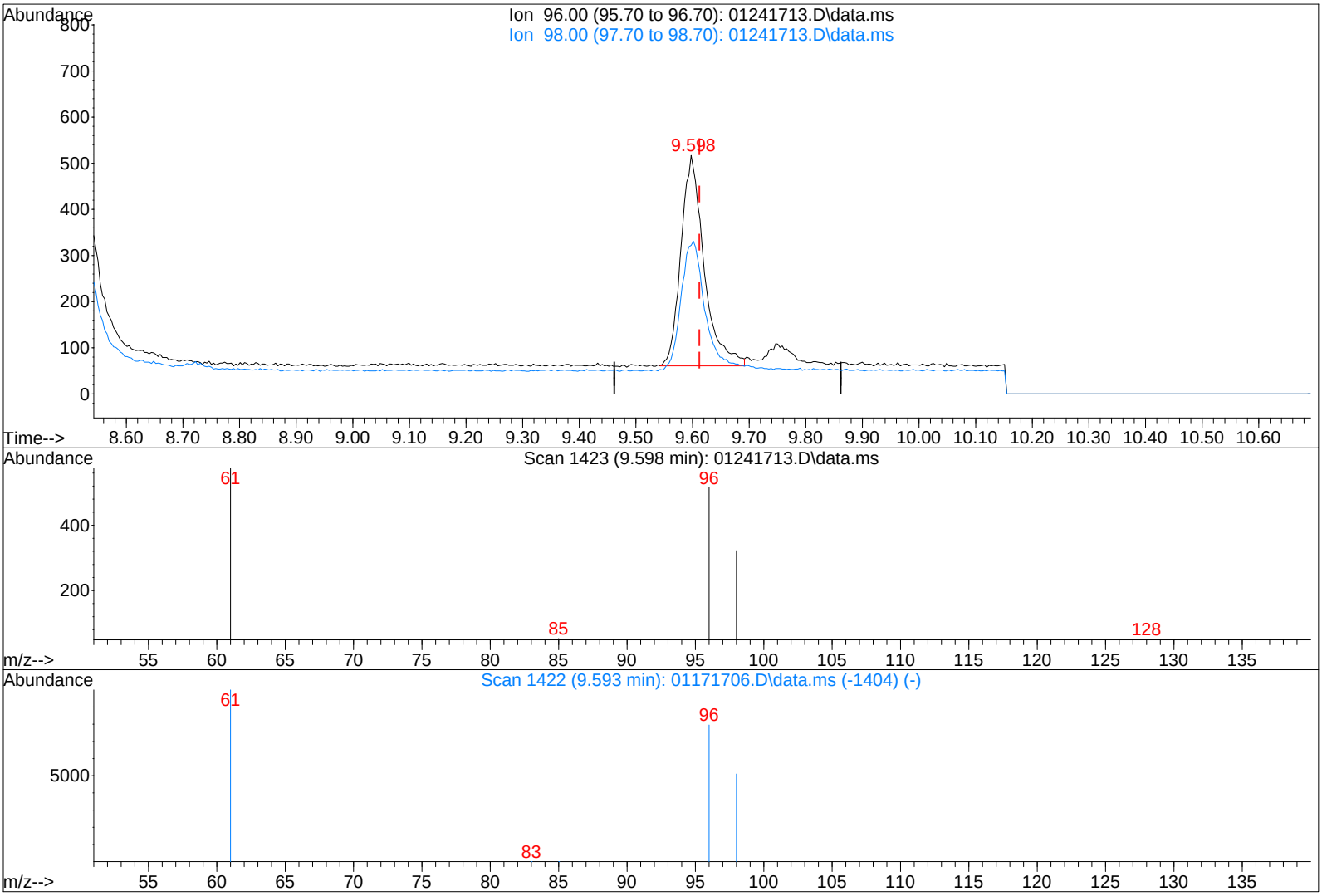
response 1777

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.03
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 10:03:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241713.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.598min (-0.014) 24.87pg

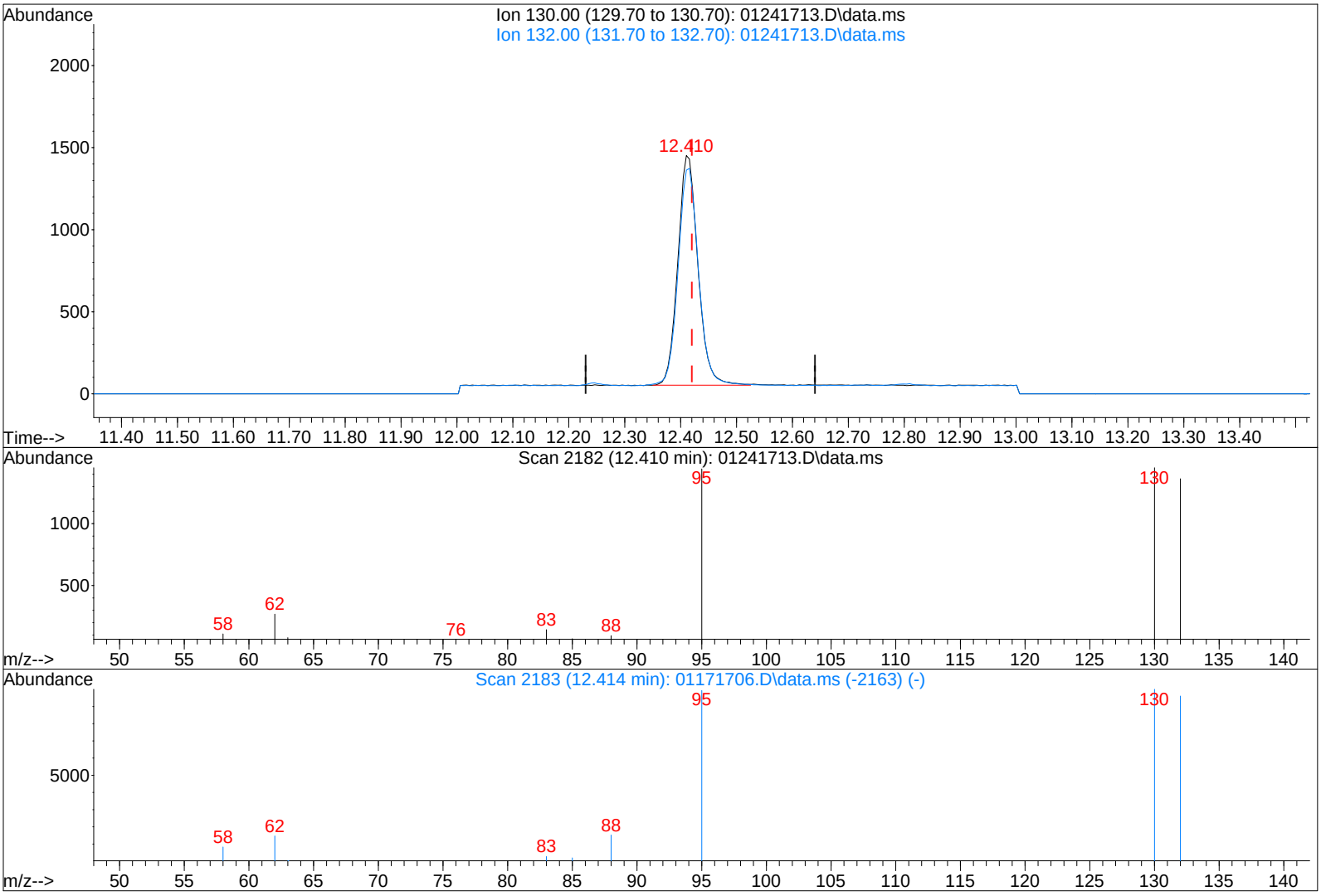
response 1295

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.63
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 10:03:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241713.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 65.99pg

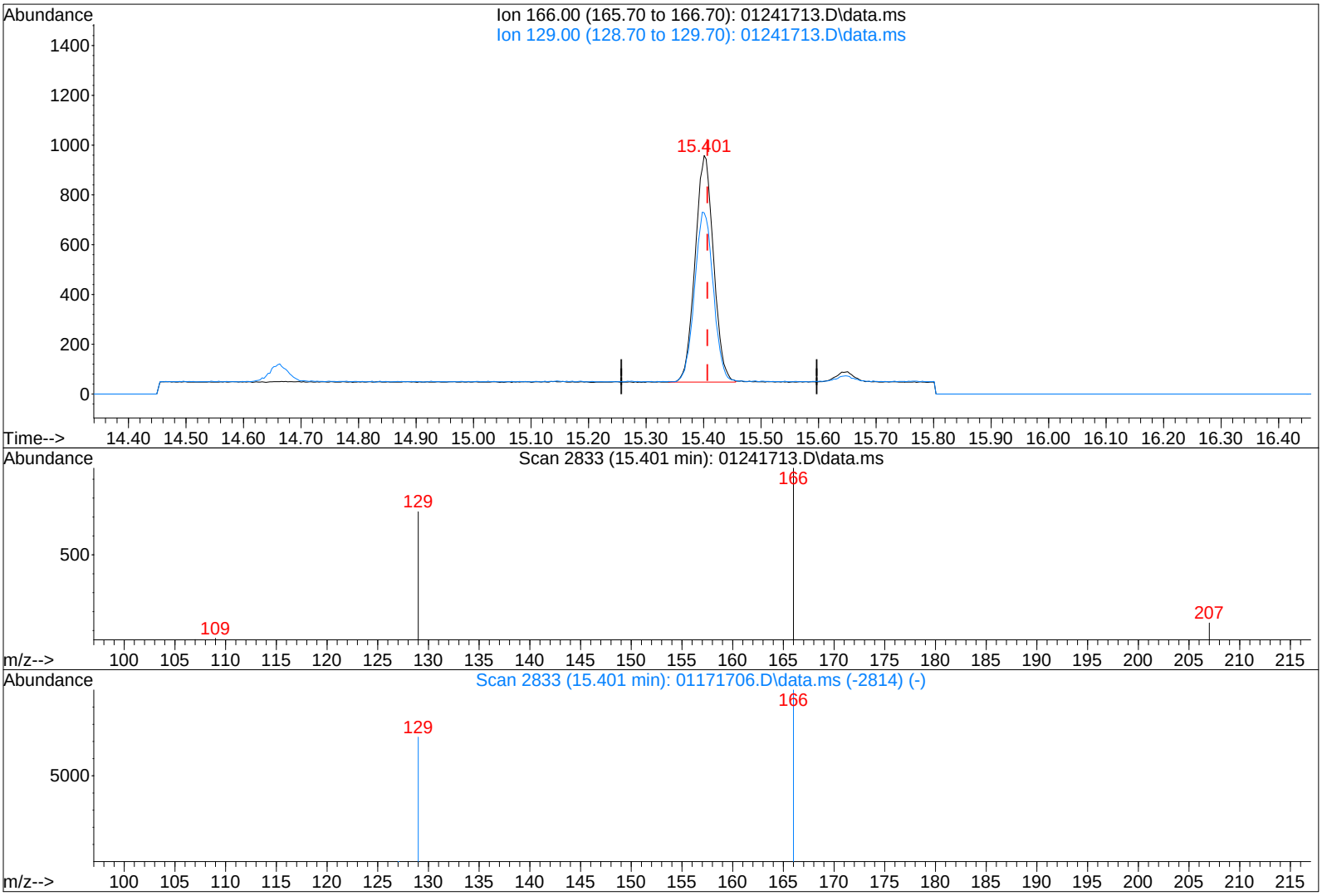
response 3488

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.59
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241713.D Vial: 1
Acq On : 24 Jan 2017 9:33 Operator: CL
Sample : P1700234-021 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 10:03:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241713.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 37.04pg

response 2030

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	75.81
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:46:50 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46509	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	218880	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	32859	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	68067	845.057 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 84.51%			
33) Toluene-d8 (SS2)	14.15	98	219477	1009.452 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.94%			
45) Bromofluorobenzene (SS3)	17.55	174	71445	1188.521 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.85%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	109055	928.165 pg		100
3) Chloromethane	4.64	52	6883	196.630 pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	4849	41.947 pg		100
5) Vinyl Chloride	4.97	62	513	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.49	94	450	9.959 pg		92
8) Chloroethane	5.70	64	157	N.D.		
9) Acrolein	6.28	56	2529	103.016 pg		99
10) Acetone	6.40	58	132294	4167.908 pg		95
11) Trichlorofluoromethane	6.61	101	42364	527.162 pg		100
12) 1,1-Dichloroethene	7.35	96	105	N.D.		
13) Methylene Chloride	7.48	84	28425	520.268 pg		94
14) Trichlorotrifluoroethane	7.80	151	10025	199.585 pg		99
15) trans-1,2-Dichloroethene	8.52	96	1012	18.645 pg		99
16) 1,1-Dichloroethane	8.72	63	429	N.D.		
17) Methyl tert-Butyl Ether	8.80	73	474	N.D.		
18) cis-1,2-Dichloroethene	9.59	96	1940	34.061 pg		100
19) Chloroform	9.90	83	5872	57.988 pg		99
21) 1,2-Dichloroethane	10.65	62	1825	23.412 pg		99
22) 1,1,1-Trichloroethane	10.91	97	13954	148.448 pg		100
23) Benzene	11.37	78	45609	204.429 pg		100
24) Carbon Tetrachloride	11.52	117	14133	187.245 pg		100
26) 1,2-Dichloropropane	12.18	63	6056	108.624 pg		98
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	8655	152.092 pg		100
29) 1,4-Dioxane	12.39	88	271	6.485 pg	#	69
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	13.87	83	134	N.D.		
34) Toluene	14.25	91	459739	2263.894 pg		99
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	4396	74.503 pg		99
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.48	91	20304	108.697 pg		98
41) m,p-Xylene	16.65	91	47427	338.508 pg		99
42) Styrene	17.01	104	3957	40.312 pg		98
43) o-Xylene	17.12	106	10347	143.757 pg		97
44) 1,1,2,2-Tetrachloroethane	17.12	83	321	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	9503	64.075 pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	35292	242.436 pg		89
48) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
49) 1,4-Dichlorobenzene	18.98	146	15187	163.035 pg		100
50) 1,2-Dichlorobenzene	19.31	146	164	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	190	N.D.		
53) Naphthalene	21.06	128	10662	62.214 pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:46:50 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

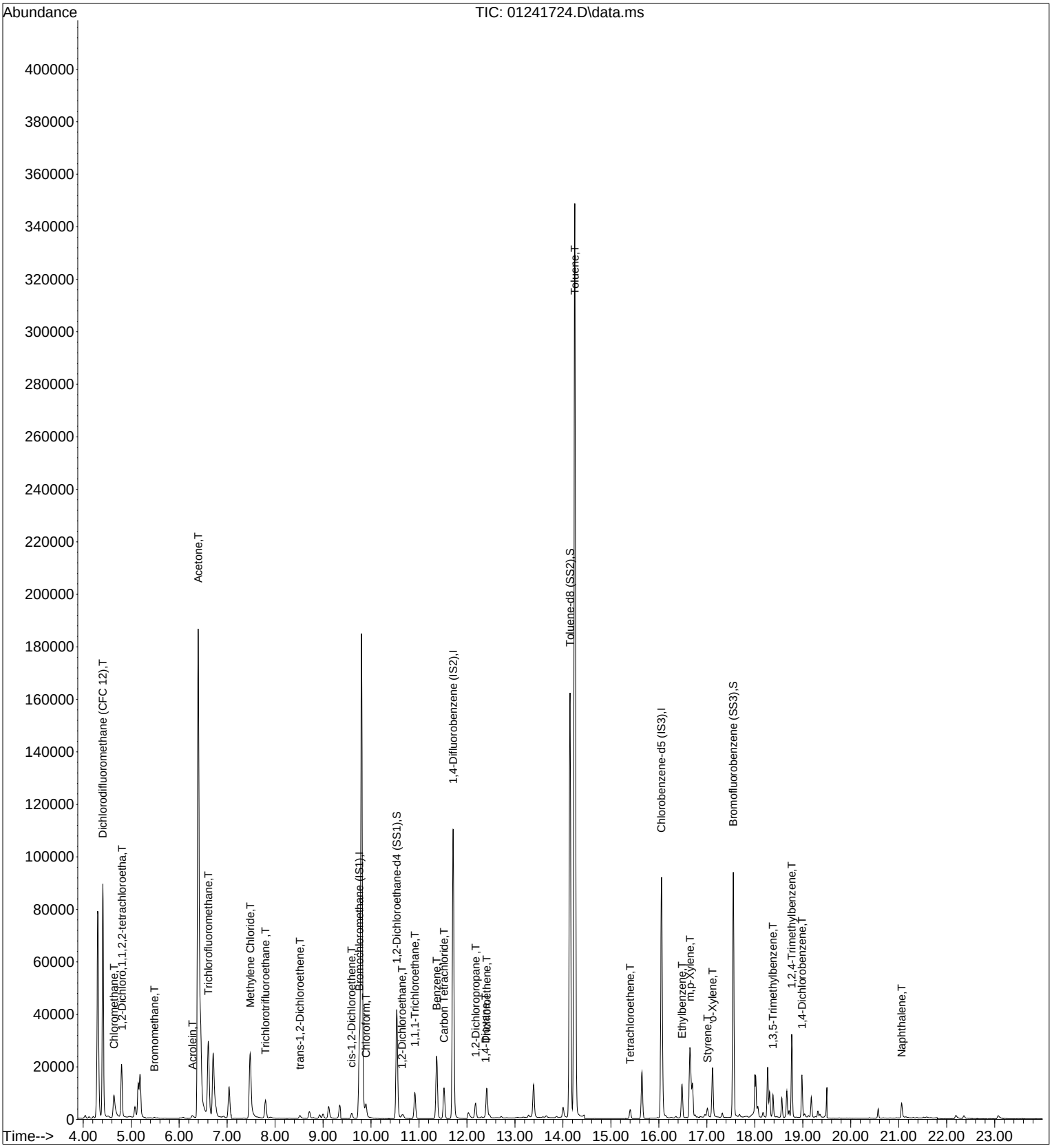
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

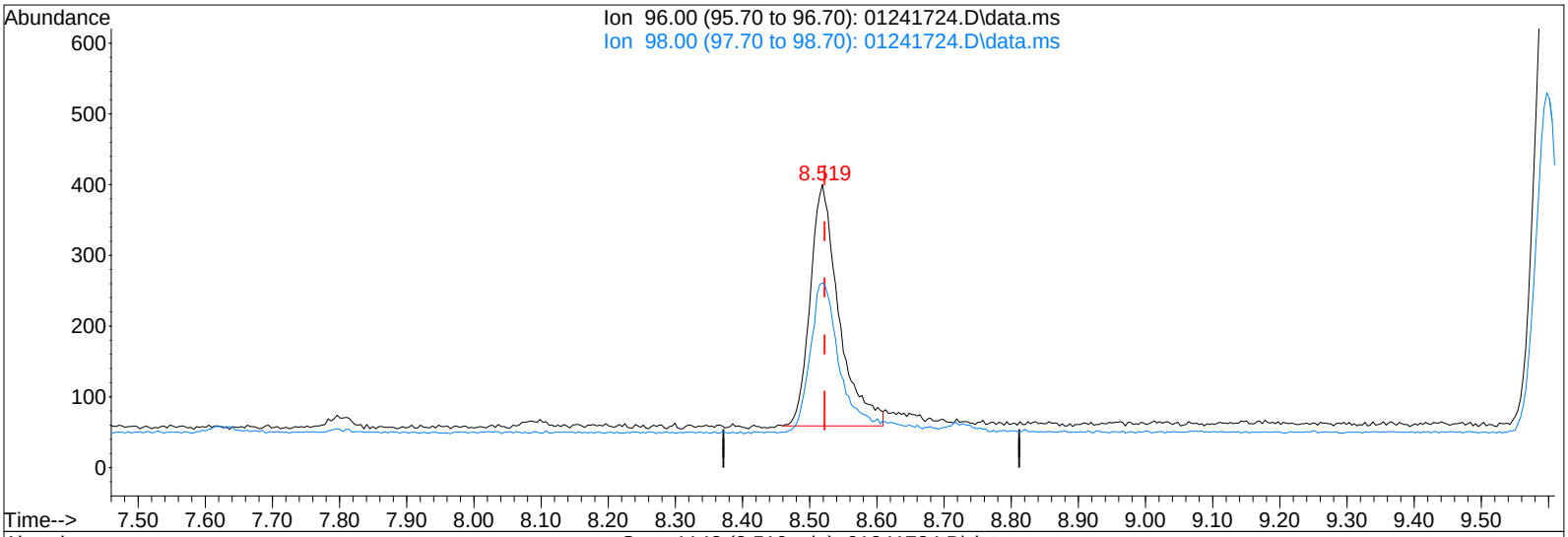
Quant Time: Jan 24 15:46:50 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

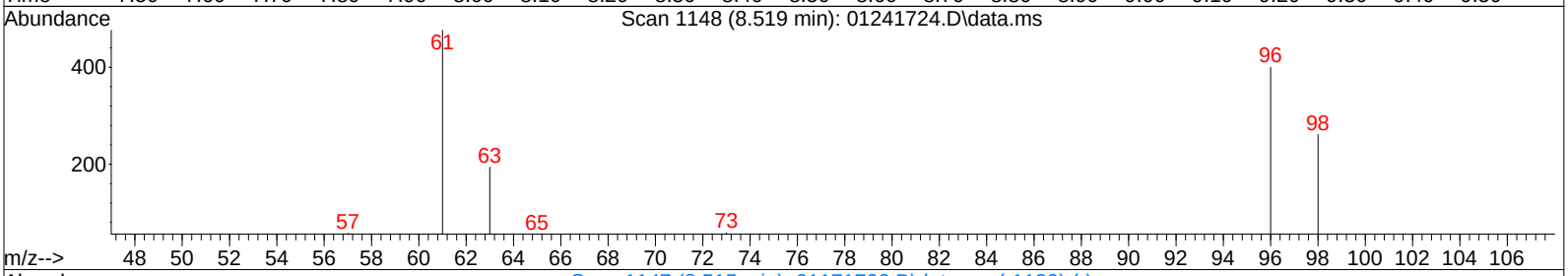


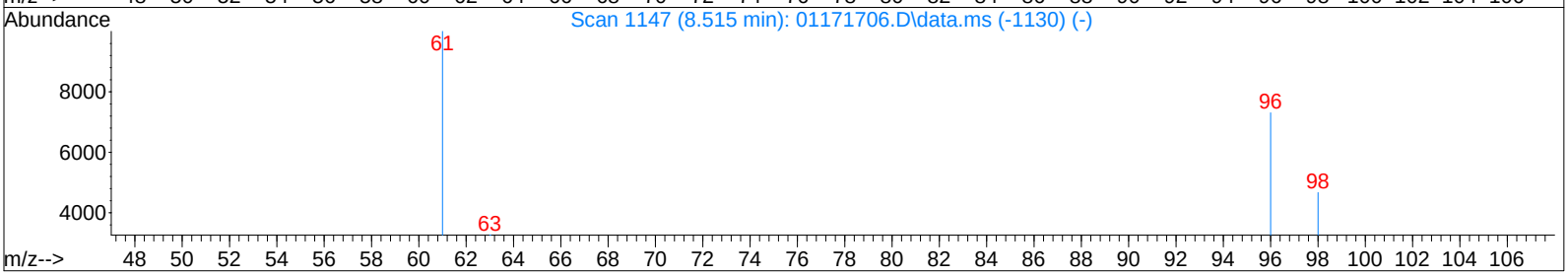
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:42:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241724.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.003) 18.65pg

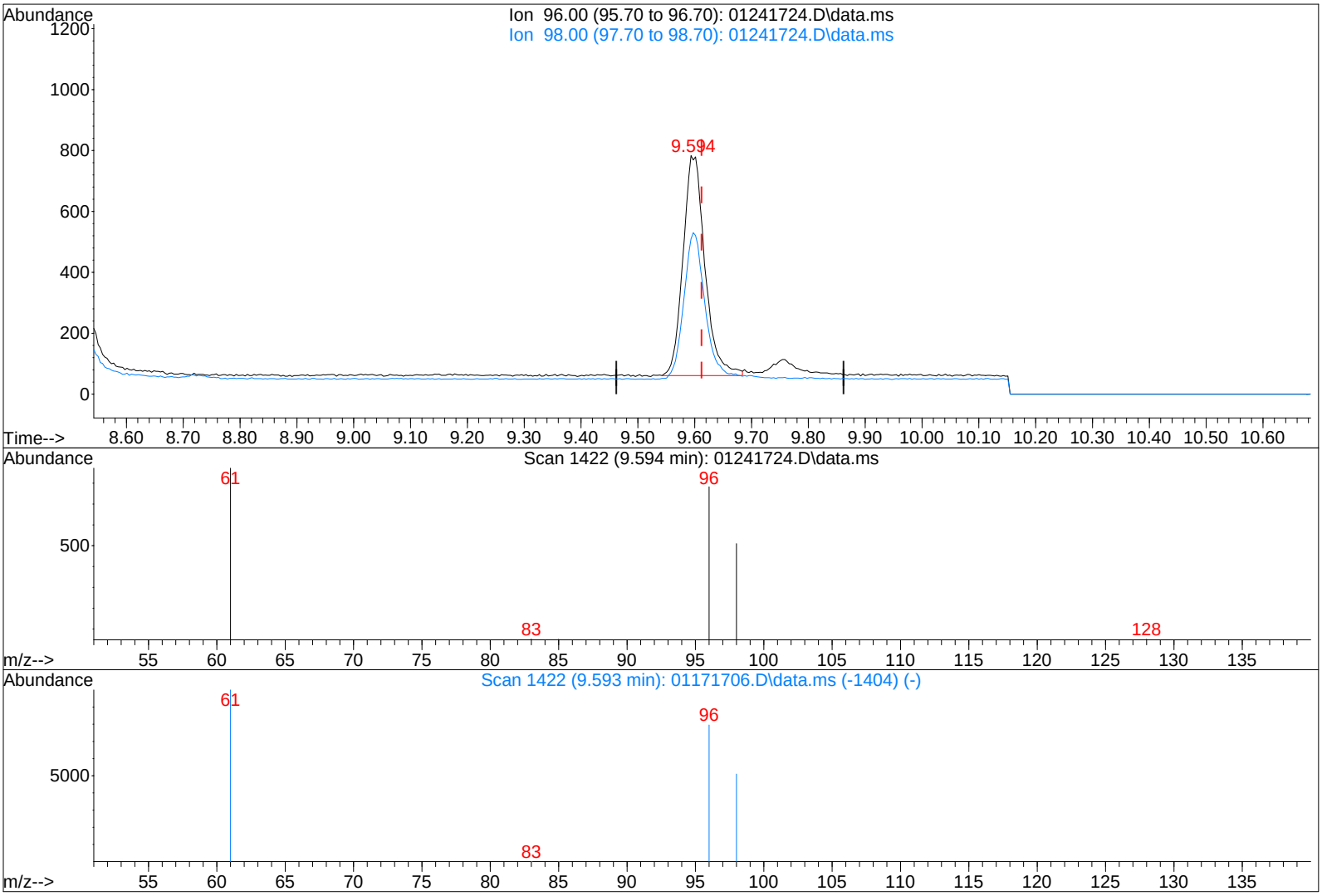
response 1012

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	62.45
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:42:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241724.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 34.06pg

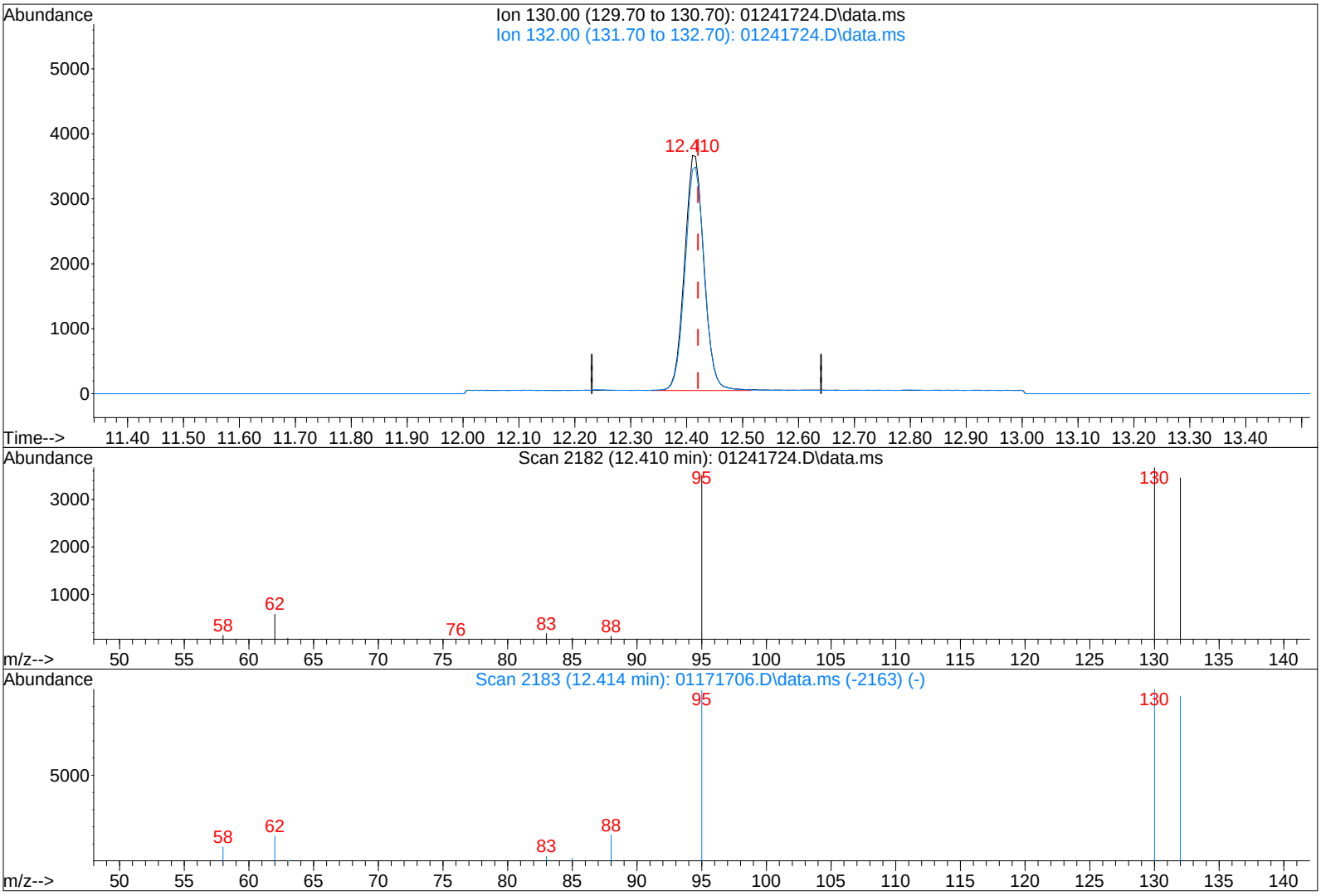
response 1940

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.92
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:42:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241724.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 152.09pg

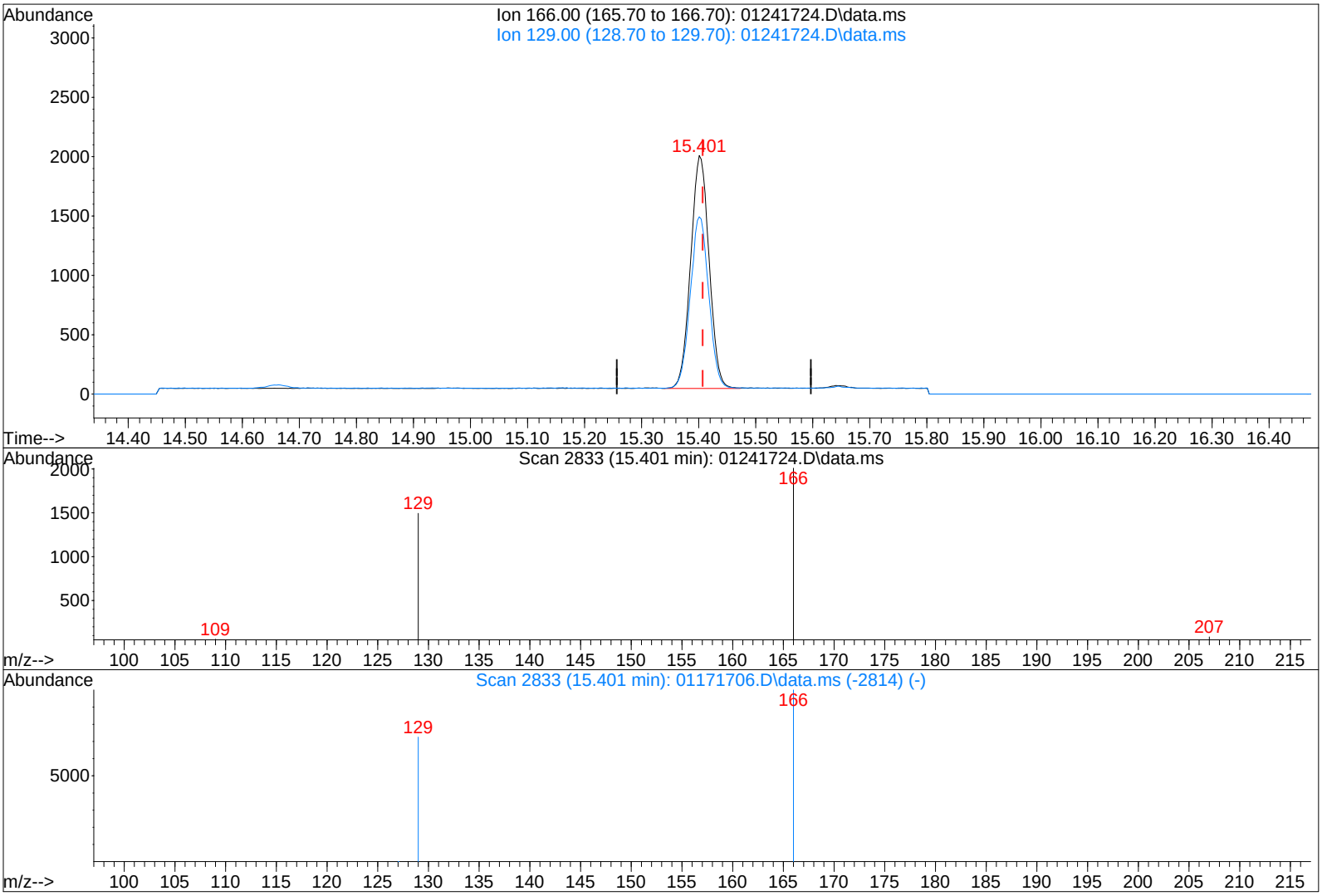
response 8655

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.53
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241724.D Vial: 8
Acq On : 24 Jan 2017 15:17 Operator: CL
Sample : P1700234-027 (500mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 24 15:42:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241724.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 74.50pg

response 4396

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.79
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 08:49:06 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44285	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	212645	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	32241	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	69103	901.004 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.10%			
33) Toluene-d8 (SS2)	14.14	98	216115	1023.134 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.31%			
45) Bromofluorobenzene (SS3)	17.55	174	72393	1227.375 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 122.74%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	181227	1619.880 pg		100
3) Chloromethane	4.64	52	8949	268.489 pg		96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	8115	73.726 pg		99
5) Vinyl Chloride	4.96	62	2638	24.665 pg		98
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.47	94	789	18.338 pg		95
8) Chloroethane	5.69	64	545	16.562 pg		98
9) Acrolein	6.26	56	5338	228.357 pg		94
10) Acetone	6.38	58	386865	12800.230 pg		92
11) Trichlorofluoromethane	6.60	101	67739	885.250 pg		100
12) 1,1-Dichloroethene	7.34	96	406	8.469 pg	#	81
13) Methylene Chloride	7.47	84	13050	250.852 pg		95
14) Trichlorotrifluoroethane	7.80	151	16690	348.963 pg		99
15) trans-1,2-Dichloroethene	8.51	96	2126	41.137 pg		97
16) 1,1-Dichloroethane	8.72	63	1515	16.523 pg		96
17) Methyl tert-Butyl Ether	8.80	73	649	N.D.		
18) cis-1,2-Dichloroethene	9.60	96	22788	420.183 pg		99
19) Chloroform	9.89	83	8925	92.564 pg		100
21) 1,2-Dichloroethane	10.65	62	2898	39.045 pg		100
22) 1,1,1-Trichloroethane	10.91	97	2297	25.663 pg		100
23) Benzene	11.37	78	72374	340.686 pg		99
24) Carbon Tetrachloride	11.52	117	23390	325.451 pg		100
26) 1,2-Dichloropropane	12.18	63	972	17.946 pg		98
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	3221	58.261 pg		100
29) 1,4-Dioxane	12.39	88	644	15.864 pg		98
30) cis-1,3-Dichloropropene	13.25	75	64	N.D.		
31) trans-1,3-Dichloropropene	13.77	75	56	N.D.		
32) 1,1,2-Trichloroethane	13.95	83	204	N.D.		
34) Toluene	14.25	91	351820	1783.266 pg		99
35) Dibromochloromethane	14.66	129	180	N.D.		
36) 1,2-Dibromoethane	14.92	107	67	N.D.		
37) Tetrachloroethene	15.40	166	4201	73.286 pg		98
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.48	91	47395	258.592 pg		99
41) m,p-Xylene	16.65	91	120637	877.546 pg		99
42) Styrene	17.01	104	60673	629.962 pg		100
43) o-Xylene	17.12	106	21576	305.515 pg		94
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.38	105	10546	72.470 pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	37775	264.467 pg		89
48) 1,3-Dichlorobenzene	18.92	146	226	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	6710	73.414 pg		99
50) 1,2-Dichlorobenzene	19.31	146	595	6.651 pg		97
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	229	N.D.		
53) Naphthalene	21.06	128	91259	542.718 pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 08:49:06 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

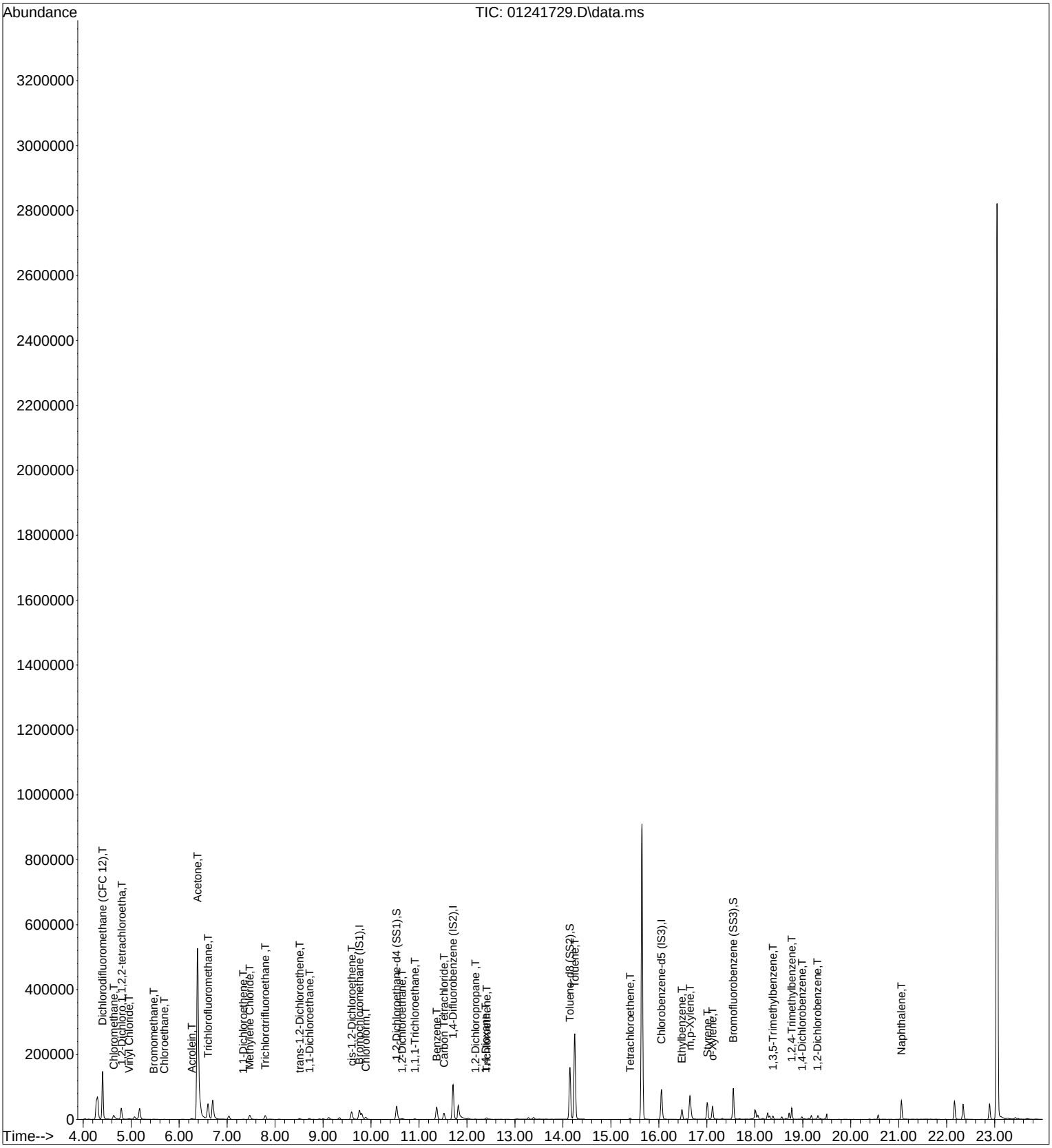
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

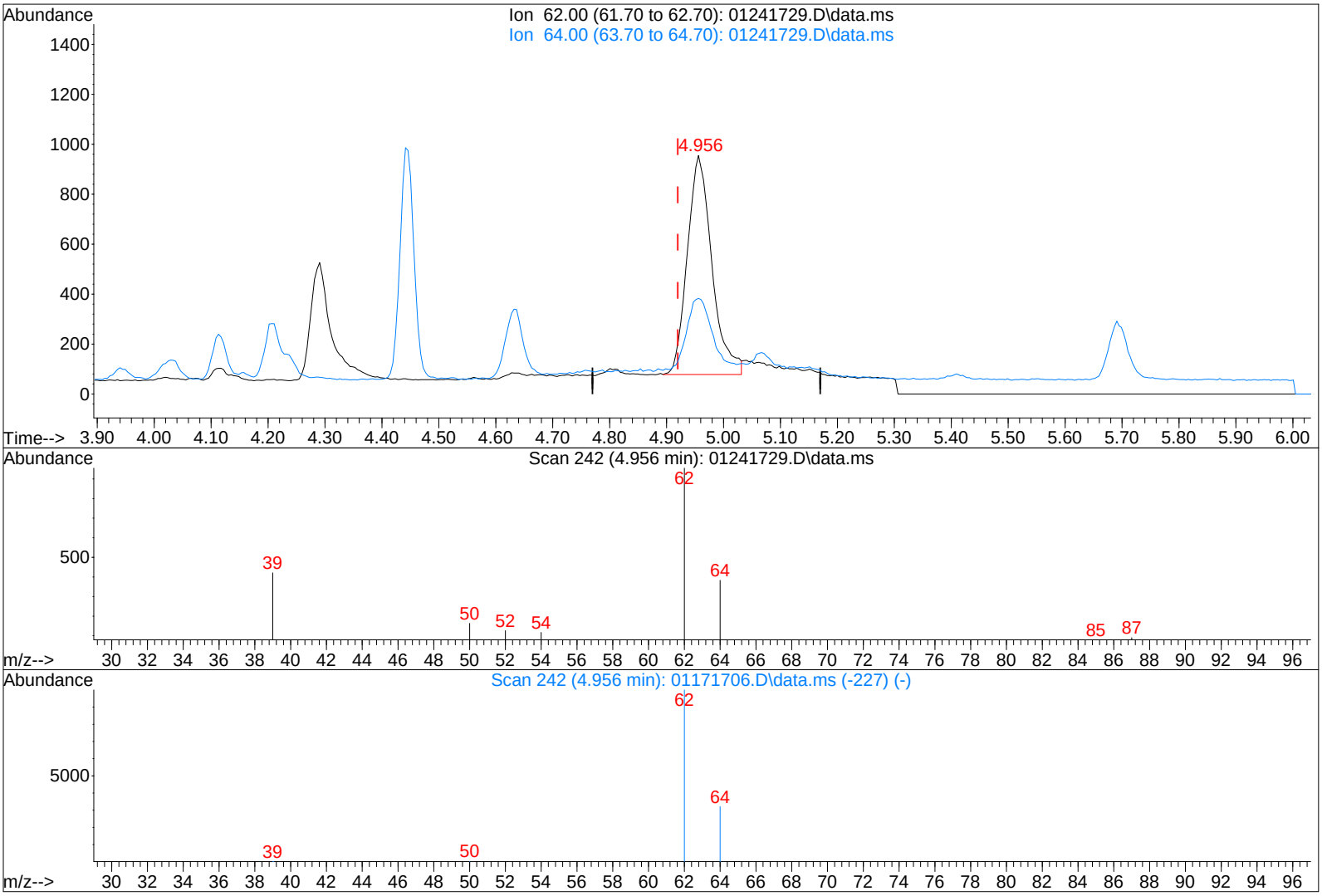
Quant Time: Jan 25 08:49:06 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241729.D\data.ms

(5) Vinyl Chloride (T)

4.956min (+0.036) 24.66pg

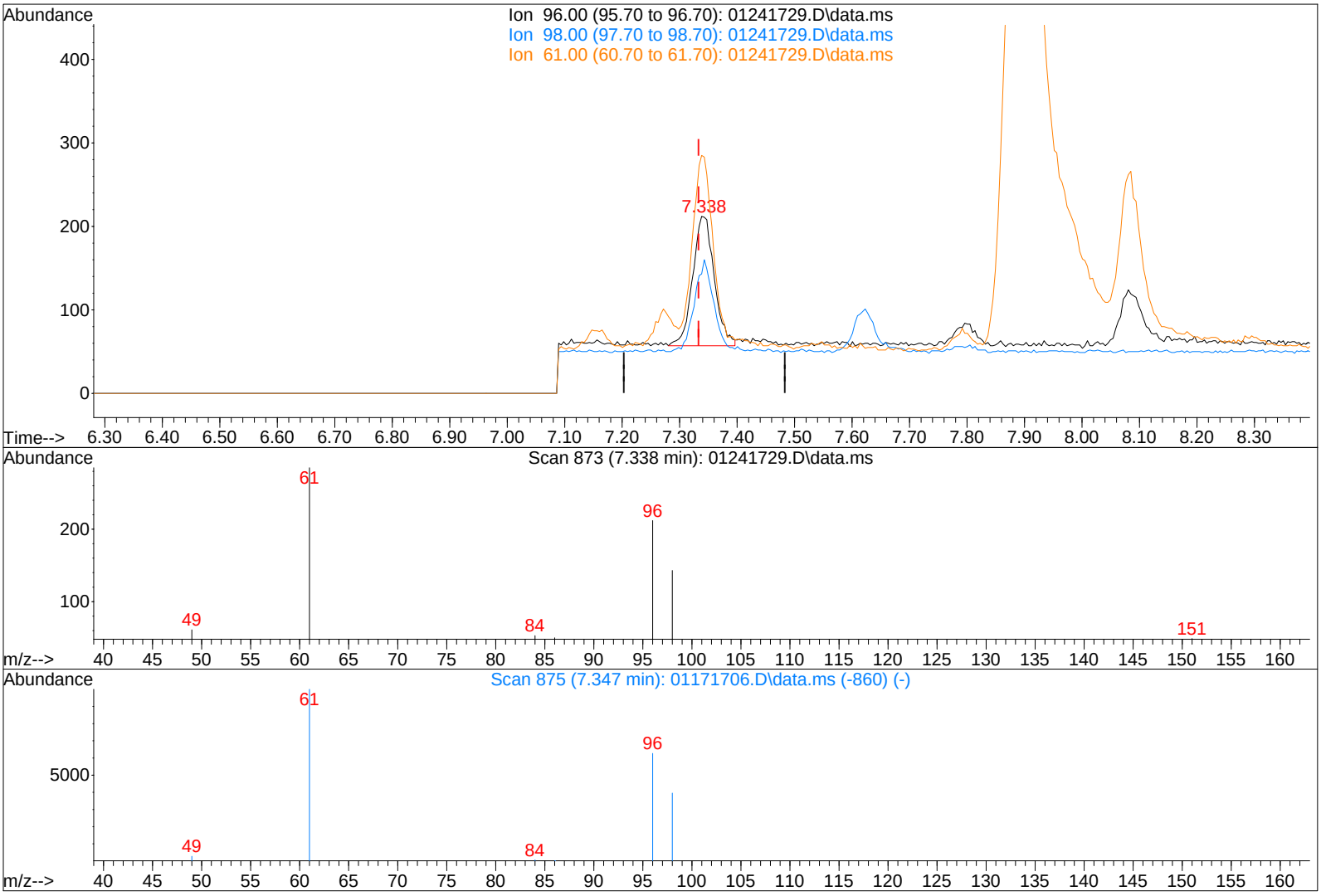
response 2638

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	33.09
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241729.D\data.ms

(12) 1,1-Dichloroethene (T)

7.338min (+0.005) 8.47pg

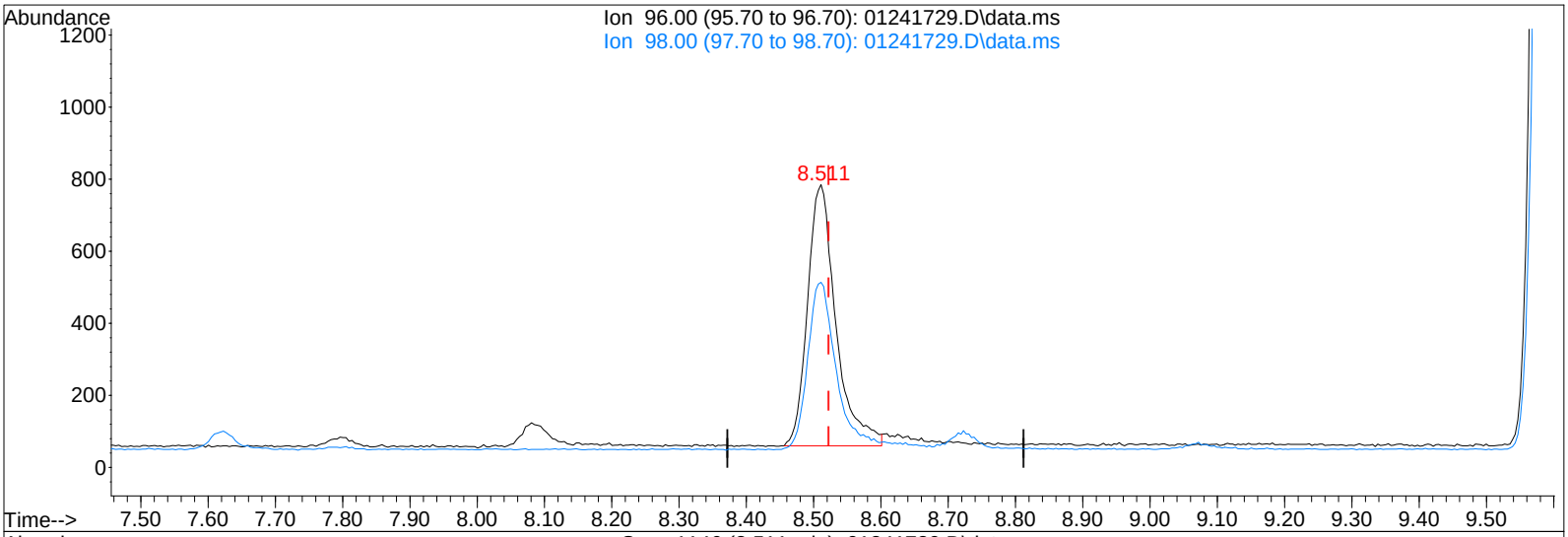
response 406

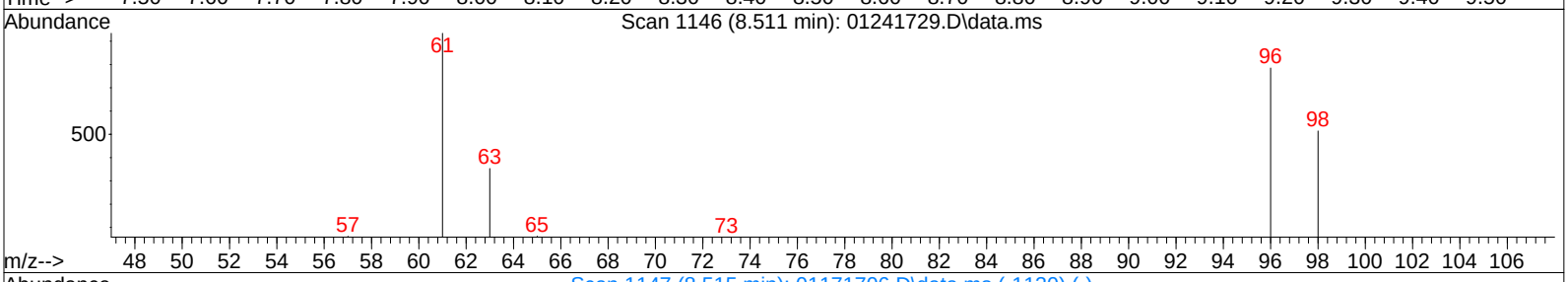
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	58.13
61.00	162.10	130.30#
0.00	0.00	0.00

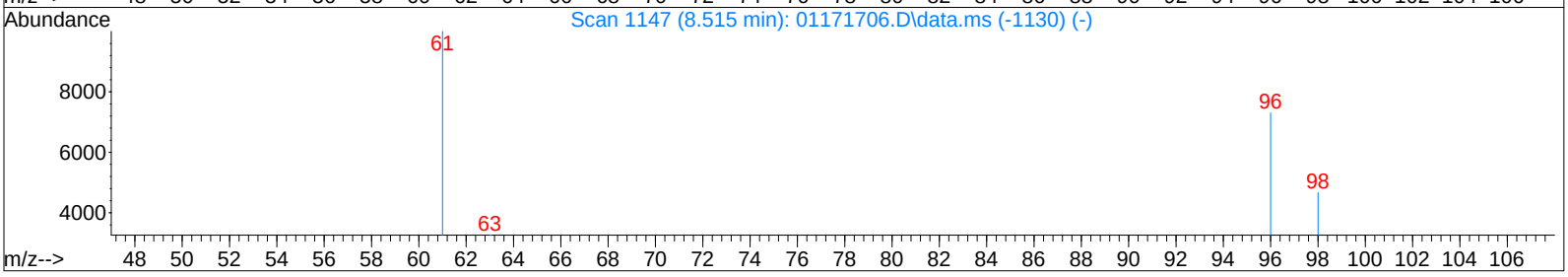
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241729.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 41.14pg

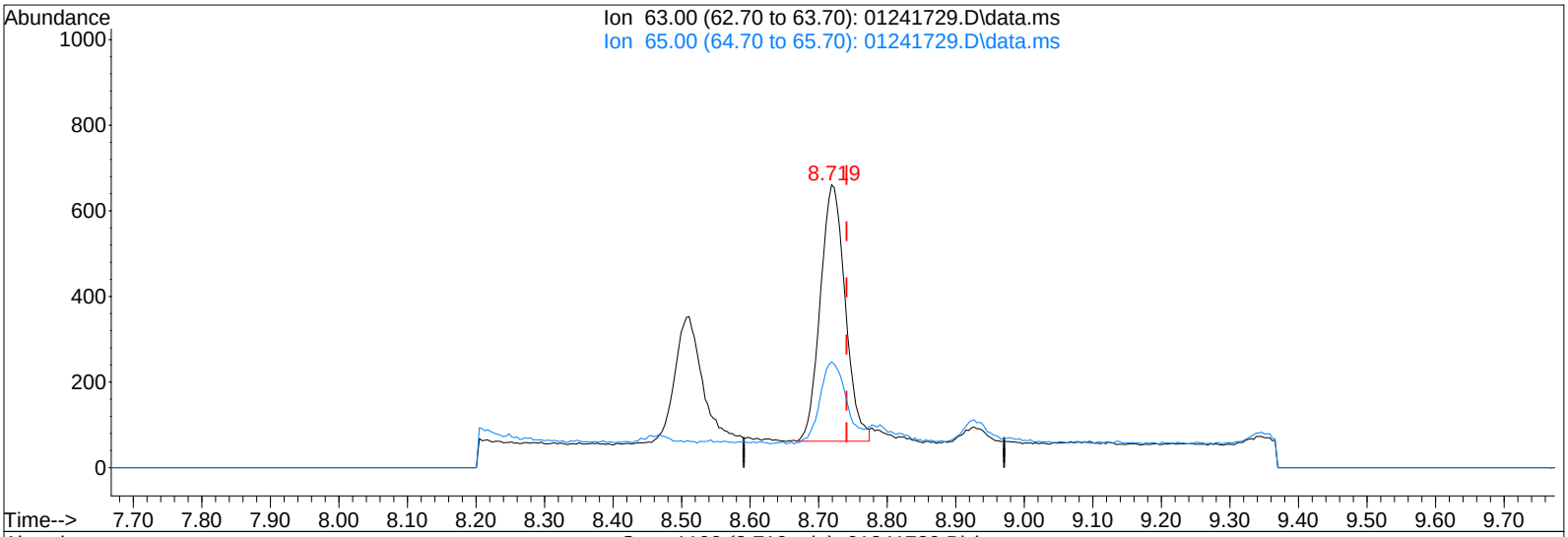
response 2126

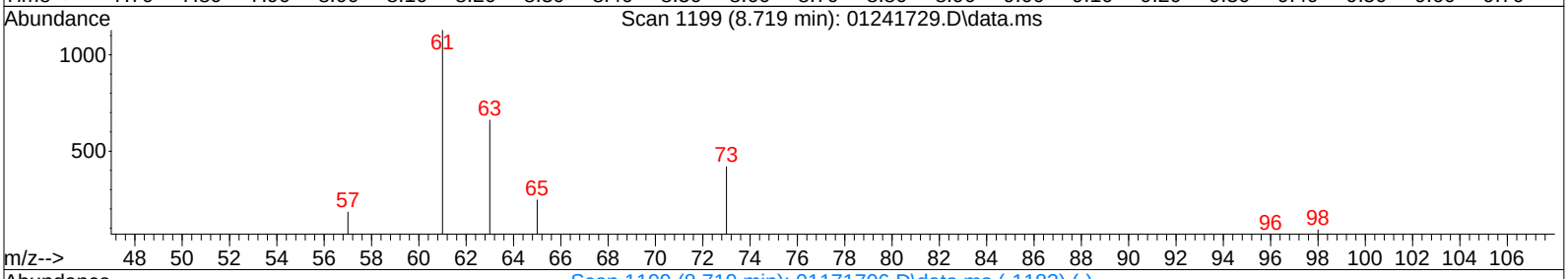
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	64.16
0.00	0.00	0.00
0.00	0.00	0.00

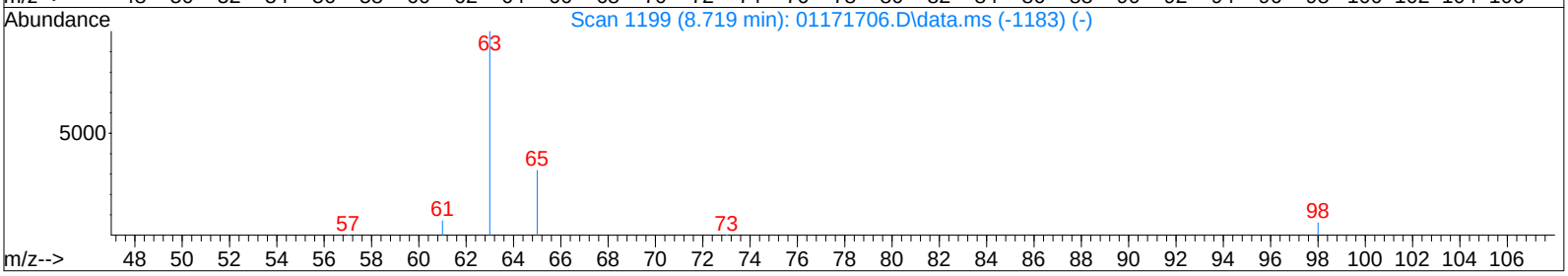
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241729.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 16.52pg

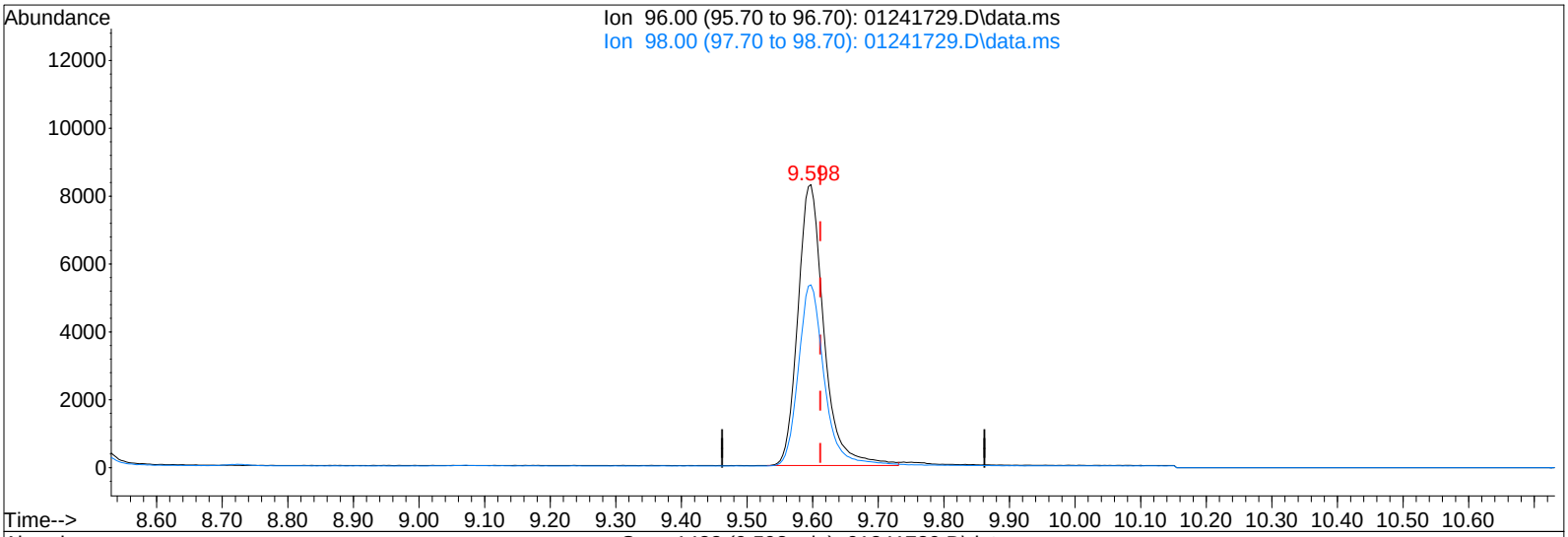
response 1515

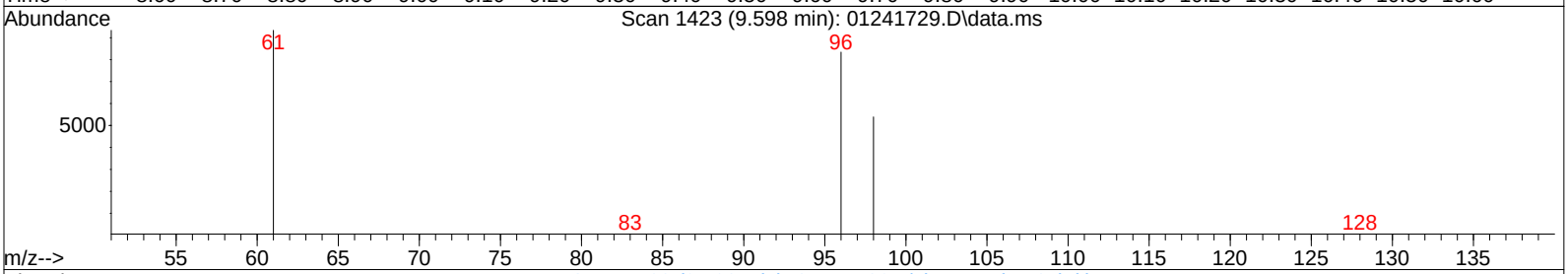
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	34.13
0.00	0.00	0.00
0.00	0.00	0.00

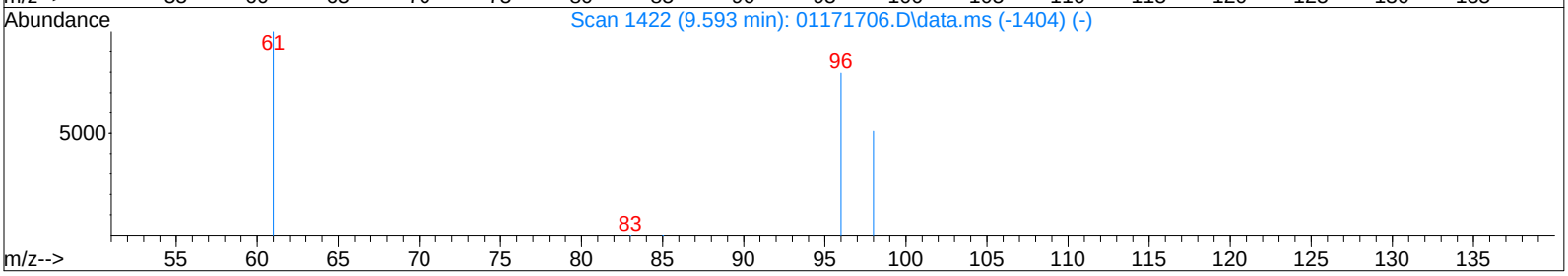
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241729.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.598min (-0.014) 420.18pg

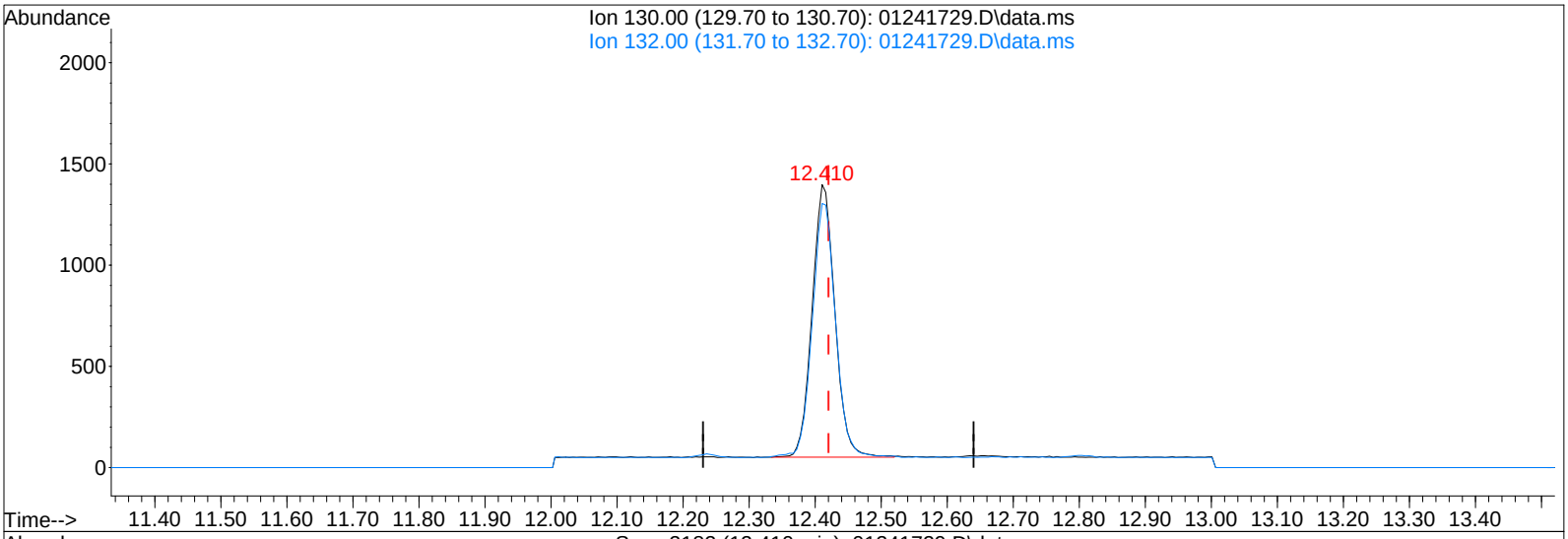
response 22788

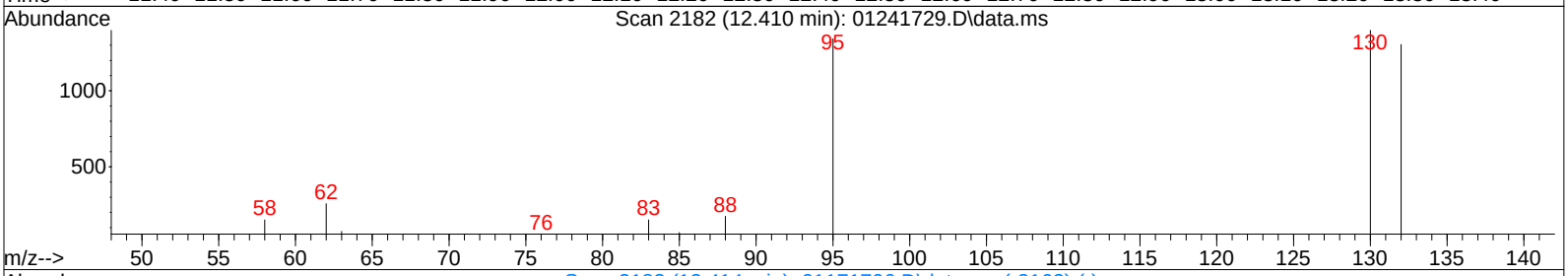
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.67
0.00	0.00	0.00
0.00	0.00	0.00

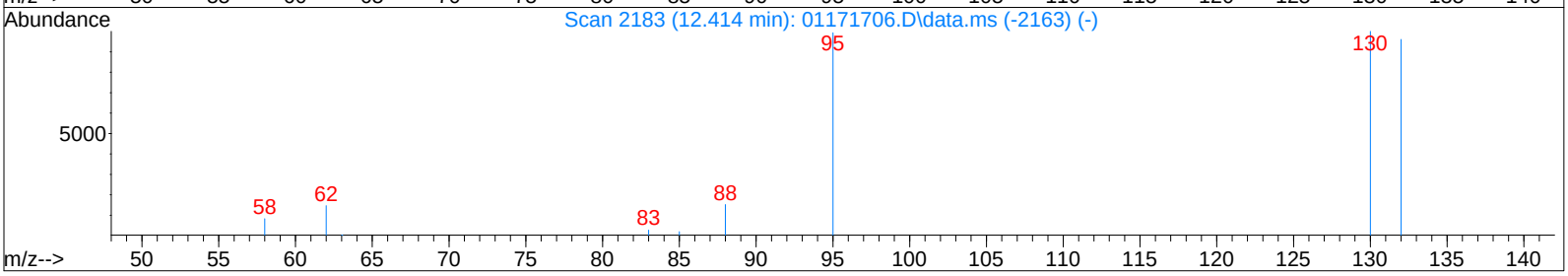
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241729.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 58.26pg

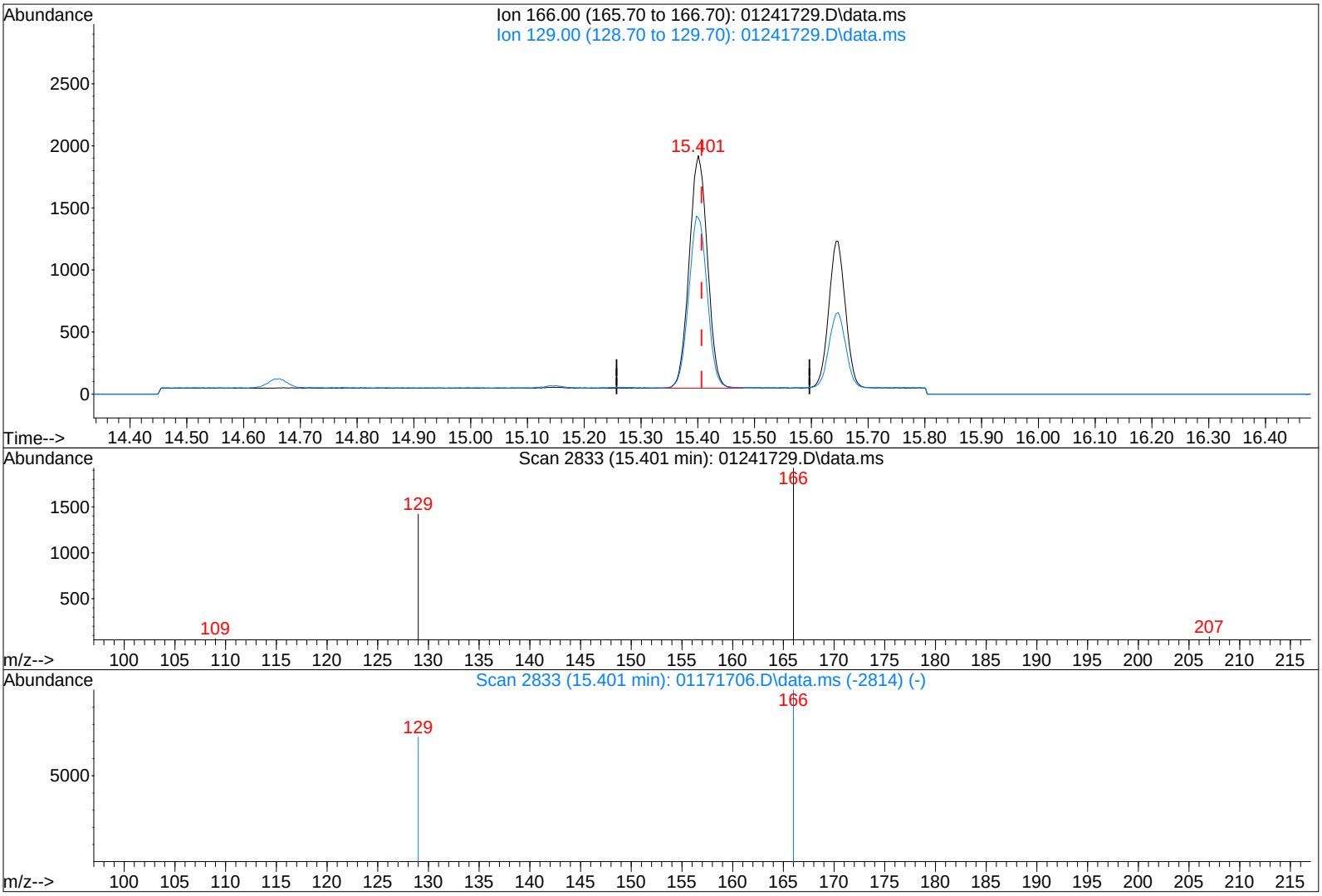
response 3221

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.81
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241729.D Vial: 14
Acq On : 24 Jan 2017 18:16 Operator: CL
Sample : P1700234-033 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:19 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241729.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 73.29pg

response 4201

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.24
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	59572	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	271363	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	44267	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	98214	951.958	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.20%			
33) Toluene-d8 (SS2)	14.15	98	274299	1017.598	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.76%			
45) Bromofluorobenzene (SS3)	17.56	174	83858	1035.508	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.55%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	114	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	11330	278.678	pg #	74
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.53	84	329	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	180	N.D.		
18) cis-1,2-Dichloroethene	9.63	96	124	N.D.		
19) Chloroform	9.91	83	2343	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	5159	N.D.		
24) Carbon Tetrachloride	11.53	117	118	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.42	130	208	N.D.		
29) 1,4-Dioxane	12.43	88	65	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	1062	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.41	166	75	N.D.		
39) Chlorobenzene	16.11	112	196	N.D.		
40) Ethylbenzene	16.49	91	184	N.D.		
41) m,p-Xylene	16.67	91	409	N.D.		
42) Styrene	17.04	104	158	N.D.		
43) o-Xylene	17.13	106	57	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	129	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	94	N.D.		
47) 1,2,4-Trimethylbenzene	18.79	105	103	N.D.		
48) 1,3-Dichlorobenzene	18.94	146	142	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	172	N.D.		
50) 1,2-Dichlorobenzene	19.33	146	117	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.99	182	280	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

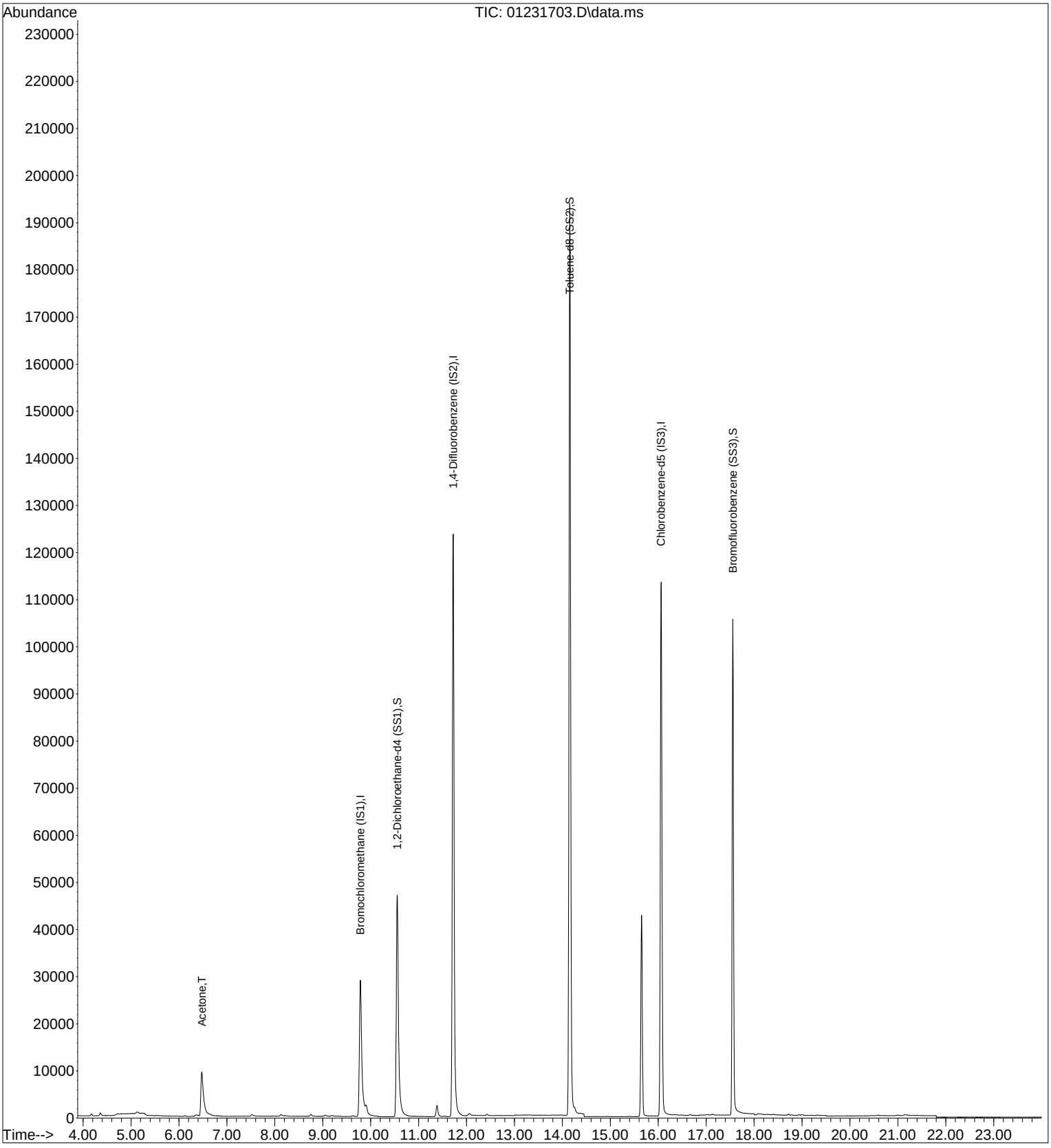
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	69	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

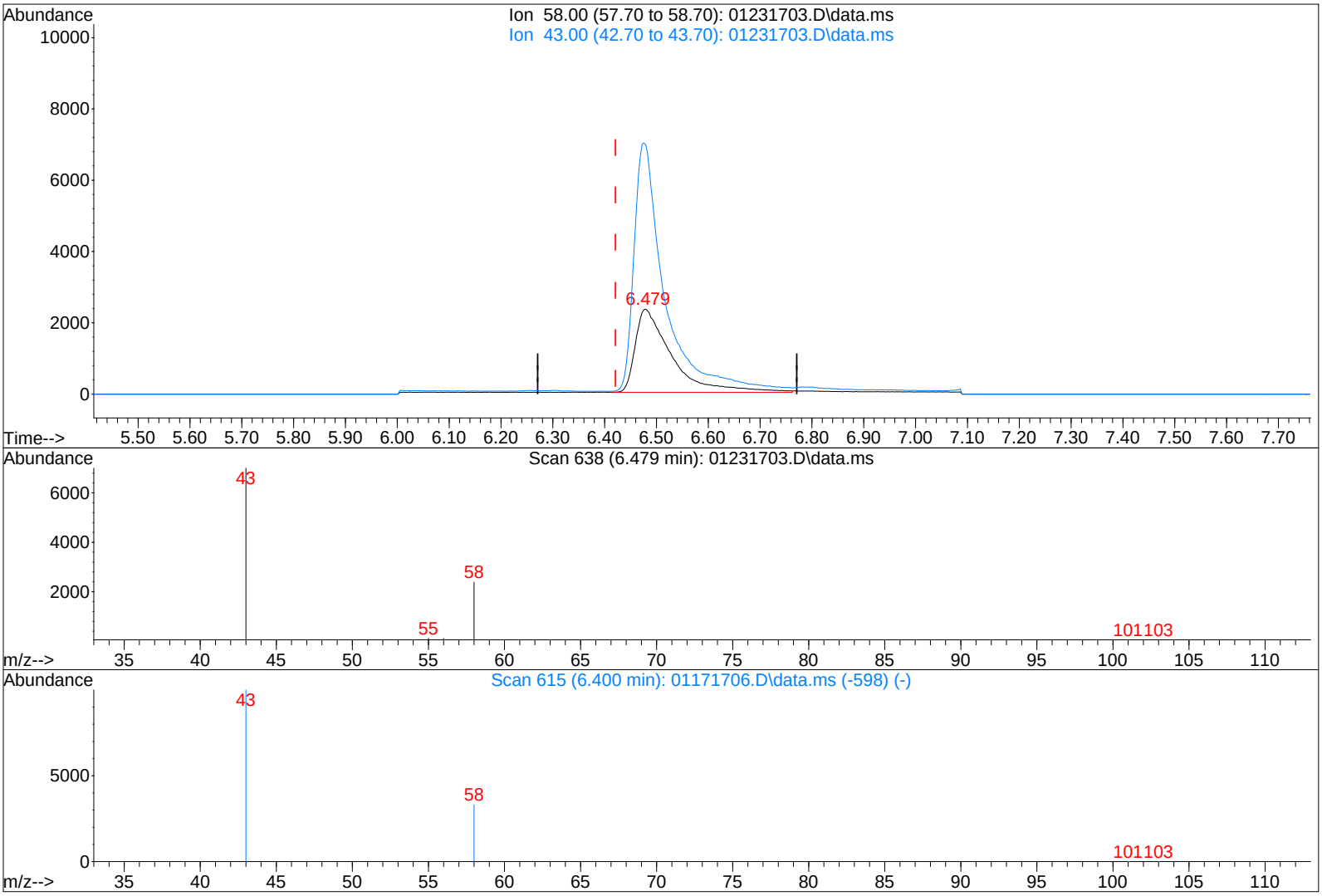
Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\23\01231703.D Vial: 2
Acq On : 23 Jan 2017 8:06 Operator: CL
Sample : MB S19012317 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 23 08:39:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01231703.D\data.ms

(10) Acetone (T)

6.479min (+0.058) 278.68pg

response 11330

Ion	Exp%	Act%
58.00	100	100
43.00	303.20	252.22#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241703.D Vial: 2
Acq On : 24 Jan 2017 2:24 Operator: CL
Sample : MB S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 24 07:09:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	35728	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	156499	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	25472	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	60424	976.534	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.65%				
33) Toluene-d8 (SS2)	14.15	98	160206	1030.552	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.05%				
45) Bromofluorobenzene (SS3)	17.56	174	40972	879.252	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.92%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	71	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.47	58	2599	106.589	pg	#	83
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.53	84	170	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	547	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3427	N.D.			
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	542	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.11	112	61	N.D.			
40) Ethylbenzene	16.49	91	51	N.D.			
41) m,p-Xylene	16.66	91	124	N.D.			
42) Styrene	17.04	104	93	N.D.			
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.			
48) 1,3-Dichlorobenzene	18.93	146	55	N.D.			
49) 1,4-Dichlorobenzene	19.00	146	69	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	58	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.98	182	126	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241703.D Vial: 2
Acq On : 24 Jan 2017 2:24 Operator: CL
Sample : MB S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 24 07:09:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

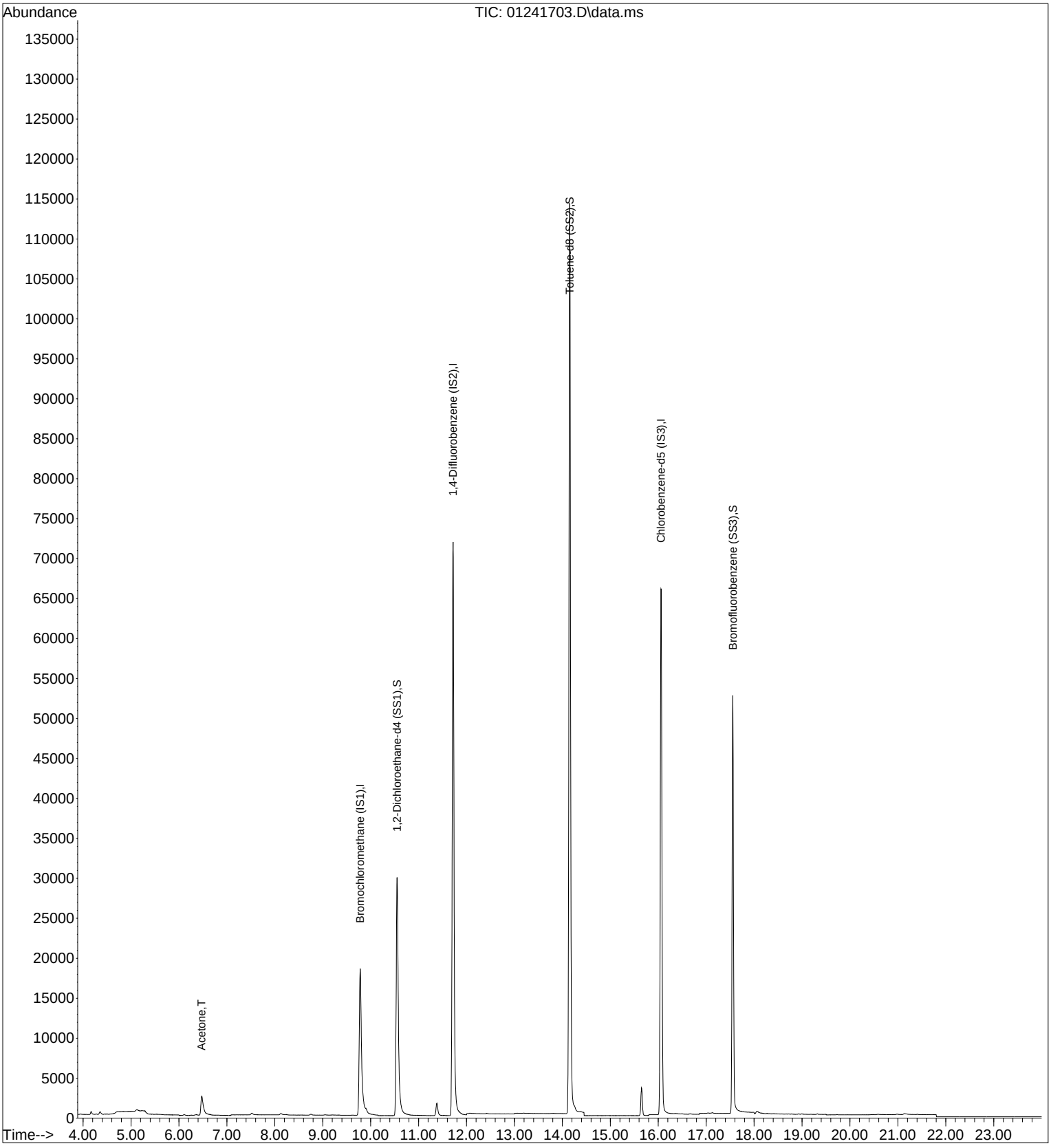
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241703.D Vial: 2
Acq On : 24 Jan 2017 2:24 Operator: CL
Sample : MB S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 24 07:09:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41192	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	180390	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	27584	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	64205	900.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.00%				
33) Toluene-d8 (SS2)	14.15	98	180000	1004.530	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.45%				
45) Bromofluorobenzene (SS3)	17.56	174	52345	1037.307	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.73%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	78	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	3361	119.556	pg	#	77
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.52	84	192	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.75	73	83	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	619	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3186	N.D.			
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.26	91	589	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.10	112	94	N.D.			
40) Ethylbenzene	16.49	91	78	N.D.			
41) m,p-Xylene	16.67	91	73	N.D.			
42) Styrene	17.04	104	93	N.D.			
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	101	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	59	N.D.			
48) 1,3-Dichlorobenzene	18.93	146	68	N.D.			
49) 1,4-Dichlorobenzene	19.00	146	76	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	74	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.98	182	130	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

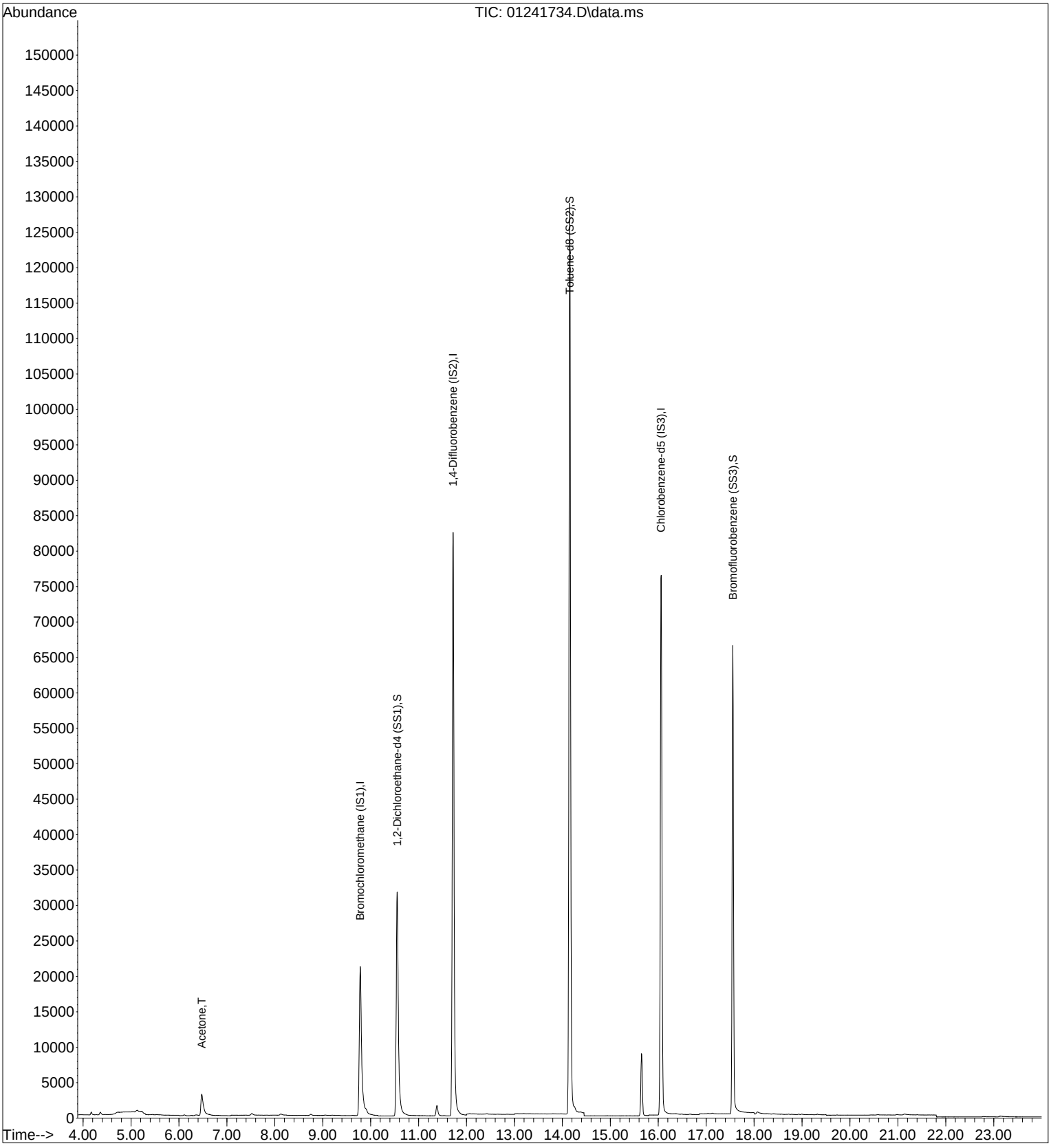
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	58946	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293467	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	45491	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	100353	983.021	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.30%			
33) Toluene-d8 (SS2)	14.15	98	284199	974.913	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.49%			
45) Bromofluorobenzene (SS3)	17.55	174	92037	1105.926	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	76109	511.091	pg	100
3) Chloromethane	4.65	52	19865	447.758	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	63021	430.148	pg	100
5) Vinyl Chloride	4.95	62	66780	469.087	pg	100
6) 1,3-Butadiene	5.14	54	34122	403.141	pg	98
7) Bromomethane	5.47	94	29220	510.230	pg	99
8) Chloroethane	5.70	64	21298	486.260	pg	100
9) Acrolein	6.27	56	13800	443.523	pg	100
10) Acetone	6.40	58	105760	2628.949	pg	99
11) Trichlorofluoromethane	6.61	101	54443	534.530	pg	100
12) 1,1-Dichloroethene	7.35	96	32393	507.649	pg	98
13) Methylene Chloride	7.48	84	37204	537.278	pg	96
14) Trichlorotrifluoroethane	7.80	151	32661	513.044	pg	100
15) trans-1,2-Dichloroethene	8.51	96	35474	515.679	pg	100
16) 1,1-Dichloroethane	8.72	63	61652	505.157	pg	100
17) Methyl tert-Butyl Ether	8.79	73	94043	516.388	pg	99
18) cis-1,2-Dichloroethene	9.59	96	37300	516.705	pg	100
19) Chloroform	9.89	83	66465	517.879	pg	100
21) 1,2-Dichloroethane	10.64	62	48529	491.210	pg	99
22) 1,1,1-Trichloroethane	10.91	97	57112	479.385	pg	100
23) Benzene	11.37	78	165173	584.135	pg	100
24) Carbon Tetrachloride	11.52	117	49017	512.395	pg	100
26) 1,2-Dichloropropane	12.18	63	34224	457.845	pg	100
27) Bromodichloromethane	12.36	83	48833	473.081	pg	100
28) Trichloroethene	12.41	130	37806	495.503	pg	100
29) 1,4-Dioxane	12.38	88	27475	490.404	pg	98
30) cis-1,3-Dichloropropene	13.26	75	50323	500.518	pg	100
31) trans-1,3-Dichloropropene	13.77	75	42268	516.592	pg	100
32) 1,1,2-Trichloroethane	13.95	83	30023	474.837	pg	98
34) Toluene	14.25	91	137734	505.863	pg	99
35) Dibromochloromethane	14.66	129	36824	488.401	pg	100
36) 1,2-Dibromoethane	14.92	107	36445	511.084	pg	100
37) Tetrachloroethene	15.40	166	38933	492.134	pg	100
39) Chlorobenzene	16.10	112	93913	535.527	pg	100
40) Ethylbenzene	16.48	91	143048	553.157	pg	100
41) m,p-Xylene	16.66	91	227626	1173.531	pg	100
42) Styrene	17.01	104	78509	577.725	pg	100
43) o-Xylene	17.12	106	57983	581.896	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	60731	530.432	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	124013	603.980	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	126851	629.425	pg	100
48) 1,3-Dichlorobenzene	18.92	146	74411	600.732	pg	100
49) 1,4-Dichlorobenzene	18.98	146	71780	556.597	pg	100
50) 1,2-Dichlorobenzene	19.31	146	72650	575.534	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	22868	599.290	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	40413	540.876	pg	99
53) Naphthalene	21.06	128	129704	546.682	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

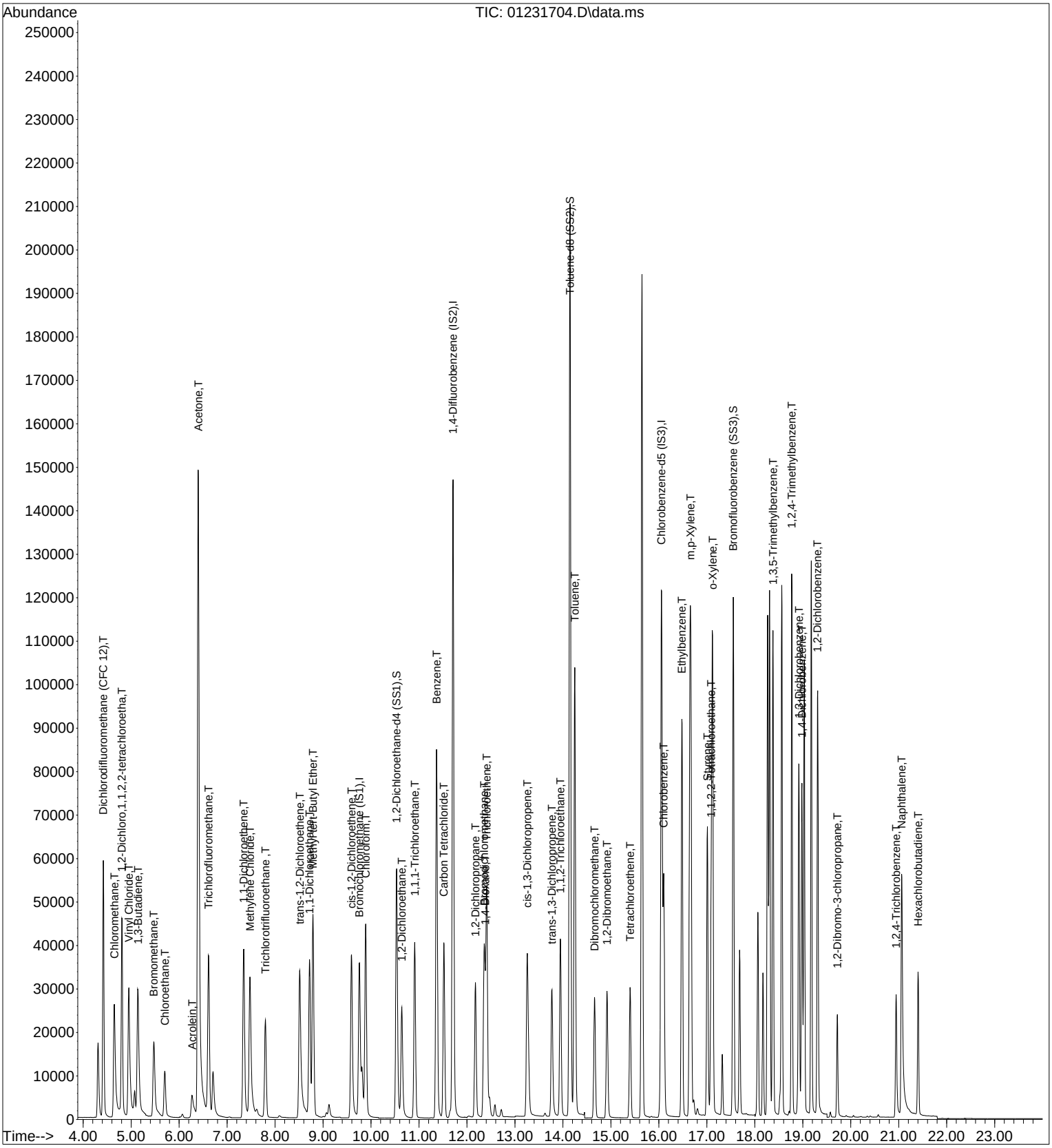
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	32397	548.061	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231704.D Vial: 2
Acq On : 23 Jan 2017 8:38 Operator: CL
Sample : LCS S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 23 09:04:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241704.D Vial: 2
Acq On : 24 Jan 2017 2:56 Operator: CL
Sample : LCS S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 24 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	36539	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	183287	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	27246	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	60870	961.907	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.19%			
33) Toluene-d8 (SS2)	14.15	98	173921	955.263	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.53%			
45) Bromofluorobenzene (SS3)	17.55	174	50171	1006.559	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.66%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	51171	554.350	pg	100
3) Chloromethane	4.65	52	12226	444.567	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	49994	550.489	pg	100
5) Vinyl Chloride	4.95	62	46205	523.593	pg	100
6) 1,3-Butadiene	5.14	54	18444	351.541	pg	97
7) Bromomethane	5.47	94	18269	514.634	pg	100
8) Chloroethane	5.70	64	12822	472.262	pg	100
9) Acrolein	6.27	56	7779	403.328	pg	99
10) Acetone	6.40	58	63663	2552.968	pg	93
11) Trichlorofluoromethane	6.62	101	36469	577.632	pg	100
12) 1,1-Dichloroethene	7.35	96	20280	512.717	pg	96
13) Methylene Chloride	7.47	84	24087	561.164	pg	92
14) Trichlorotrifluoroethane	7.80	151	19600	496.683	pg	99
15) trans-1,2-Dichloroethene	8.51	96	21702	508.940	pg	99
16) 1,1-Dichloroethane	8.72	63	37928	501.346	pg	99
17) Methyl tert-Butyl Ether	8.79	73	55277	489.657	pg	97
18) cis-1,2-Dichloroethene	9.59	96	23320	521.147	pg	100
19) Chloroform	9.89	83	42553	534.888	pg	100
21) 1,2-Dichloroethane	10.64	62	30681	500.995	pg	99
22) 1,1,1-Trichloroethane	10.91	97	37266	504.623	pg	100
23) Benzene	11.37	78	100360	572.575	pg	100
24) Carbon Tetrachloride	11.52	117	32505	548.158	pg	100
26) 1,2-Dichloropropane	12.17	63	20784	445.189	pg	98
27) Bromodichloromethane	12.35	83	31593	490.050	pg	100
28) Trichloroethene	12.41	130	23545	494.096	pg	100
29) 1,4-Dioxane	12.38	88	16519	472.093	pg	93
30) cis-1,3-Dichloropropene	13.26	75	29843	475.251	pg	100
31) trans-1,3-Dichloropropene	13.77	75	24959	488.417	pg	100
32) 1,1,2-Trichloroethane	13.95	83	19057	482.583	pg	98
34) Toluene	14.25	91	85876	504.999	pg	100
35) Dibromochloromethane	14.66	129	23267	494.099	pg	100
36) 1,2-Dibromoethane	14.92	107	22836	512.745	pg	99
37) Tetrachloroethene	15.40	166	22839	462.243	pg	95
39) Chlorobenzene	16.10	112	59222	563.847	pg	100
40) Ethylbenzene	16.48	91	84607	546.255	pg	100
41) m,p-Xylene	16.66	91	137928	1187.265	pg	100
42) Styrene	17.01	104	45281	556.340	pg	100
43) o-Xylene	17.12	106	35461	594.181	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	39176	571.297	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	76731	623.949	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	77157	639.217	pg	99
48) 1,3-Dichlorobenzene	18.92	146	45149	608.576	pg	100
49) 1,4-Dichlorobenzene	18.98	146	43276	560.282	pg	100
50) 1,2-Dichlorobenzene	19.31	146	43943	581.230	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	12985	568.164	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	20437	456.685	pg	97
53) Naphthalene	21.06	128	71947	506.310	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241704.D Vial: 2
Acq On : 24 Jan 2017 2:56 Operator: CL
Sample : LCS S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 24 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

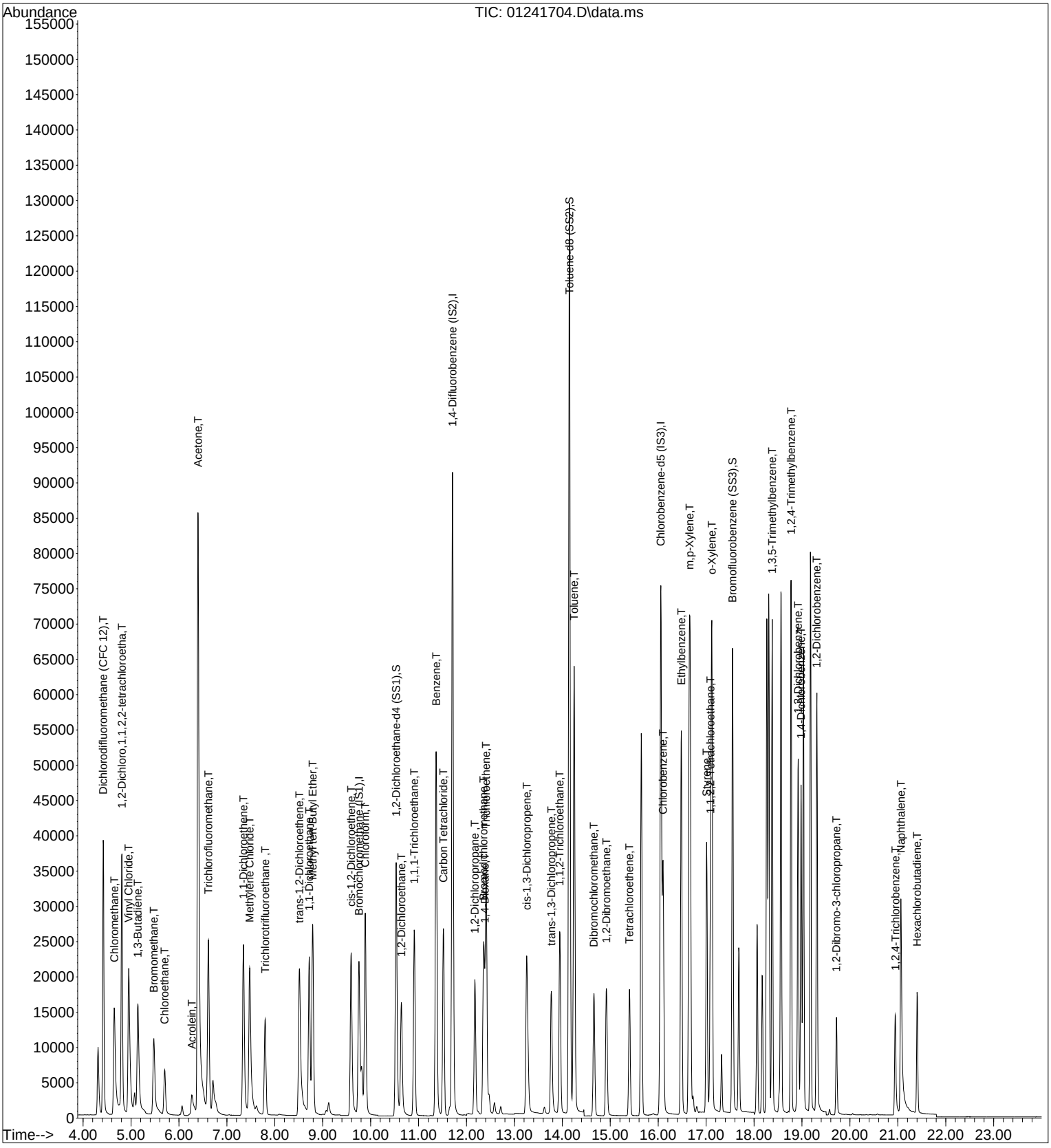
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	16581	468.336	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241704.D Vial: 2
Acq On : 24 Jan 2017 2:56 Operator: CL
Sample : LCS S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 24 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	42073	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	208156	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	29367	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	65298	896.155	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.61%			
33) Toluene-d8 (SS2)	14.15	98	195193	944.013	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.40%			
45) Bromofluorobenzene (SS3)	17.55	174	62222	1158.173	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.82%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54558	513.300	pg	100
3) Chloromethane	4.65	52	11390	359.691	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	52173	498.919	pg	100
5) Vinyl Chloride	4.95	62	45902	451.741	pg	100
6) 1,3-Butadiene	5.14	54	19519	323.096	pg	96
7) Bromomethane	5.47	94	19782	483.957	pg	100
8) Chloroethane	5.70	64	13505	431.991	pg	100
9) Acrolein	6.27	56	8290	373.287	pg	98
10) Acetone	6.40	58	66470	2314.926	pg	91
11) Trichlorofluoromethane	6.61	101	39502	543.375	pg	100
12) 1,1-Dichloroethene	7.34	96	22193	487.281	pg	92
13) Methylene Chloride	7.48	84	25722	520.433	pg	88
14) Trichlorotrifluoroethane	7.80	151	22947	505.012	pg	99
15) trans-1,2-Dichloroethene	8.51	96	23806	484.849	pg	99
16) 1,1-Dichloroethane	8.72	63	39569	454.240	pg	99
17) Methyl tert-Butyl Ether	8.79	73	59682	459.139	pg	96
18) cis-1,2-Dichloroethene	9.59	96	25472	494.365	pg	100
19) Chloroform	9.89	83	44983	491.060	pg	100
21) 1,2-Dichloroethane	10.64	62	31908	452.498	pg	100
22) 1,1,1-Trichloroethane	10.91	97	40047	470.953	pg	100
23) Benzene	11.36	78	107944	534.840	pg	100
24) Carbon Tetrachloride	11.52	117	35370	518.017	pg	100
26) 1,2-Dichloropropane	12.18	63	21796	411.088	pg	98
27) Bromodichloromethane	12.36	83	33336	455.308	pg	100
28) Trichloroethene	12.41	130	26472	489.150	pg	100
29) 1,4-Dioxane	12.38	88	17964	452.054	pg	92
30) cis-1,3-Dichloropropene	13.25	75	32102	450.148	pg	100
31) trans-1,3-Dichloropropene	13.77	75	26886	463.268	pg	100
32) 1,1,2-Trichloroethane	13.95	83	20353	453.826	pg	96
34) Toluene	14.25	91	93281	483.009	pg	100
35) Dibromochloromethane	14.66	129	25841	483.198	pg	100
36) 1,2-Dibromoethane	14.92	107	25213	498.481	pg	100
37) Tetrachloroethene	15.40	166	26550	473.152	pg	98
39) Chlorobenzene	16.10	112	65083	574.896	pg	100
40) Ethylbenzene	16.48	91	93187	558.197	pg	99
41) m,p-Xylene	16.66	91	150606	1202.765	pg	99
42) Styrene	17.01	104	50610	576.905	pg	100
43) o-Xylene	17.12	106	39465	613.511	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	41464	560.991	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	85021	641.428	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	85581	657.800	pg	99
48) 1,3-Dichlorobenzene	18.92	146	51339	642.032	pg	100
49) 1,4-Dichlorobenzene	18.98	146	49077	589.496	pg	100
50) 1,2-Dichlorobenzene	19.31	146	49921	612.611	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	14881	604.097	pg	95
52) 1,2,4-Trichlorobenzene	20.94	182	24032	498.233	pg	97
53) Naphthalene	21.06	128	82259	537.070	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	20228	530.082	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
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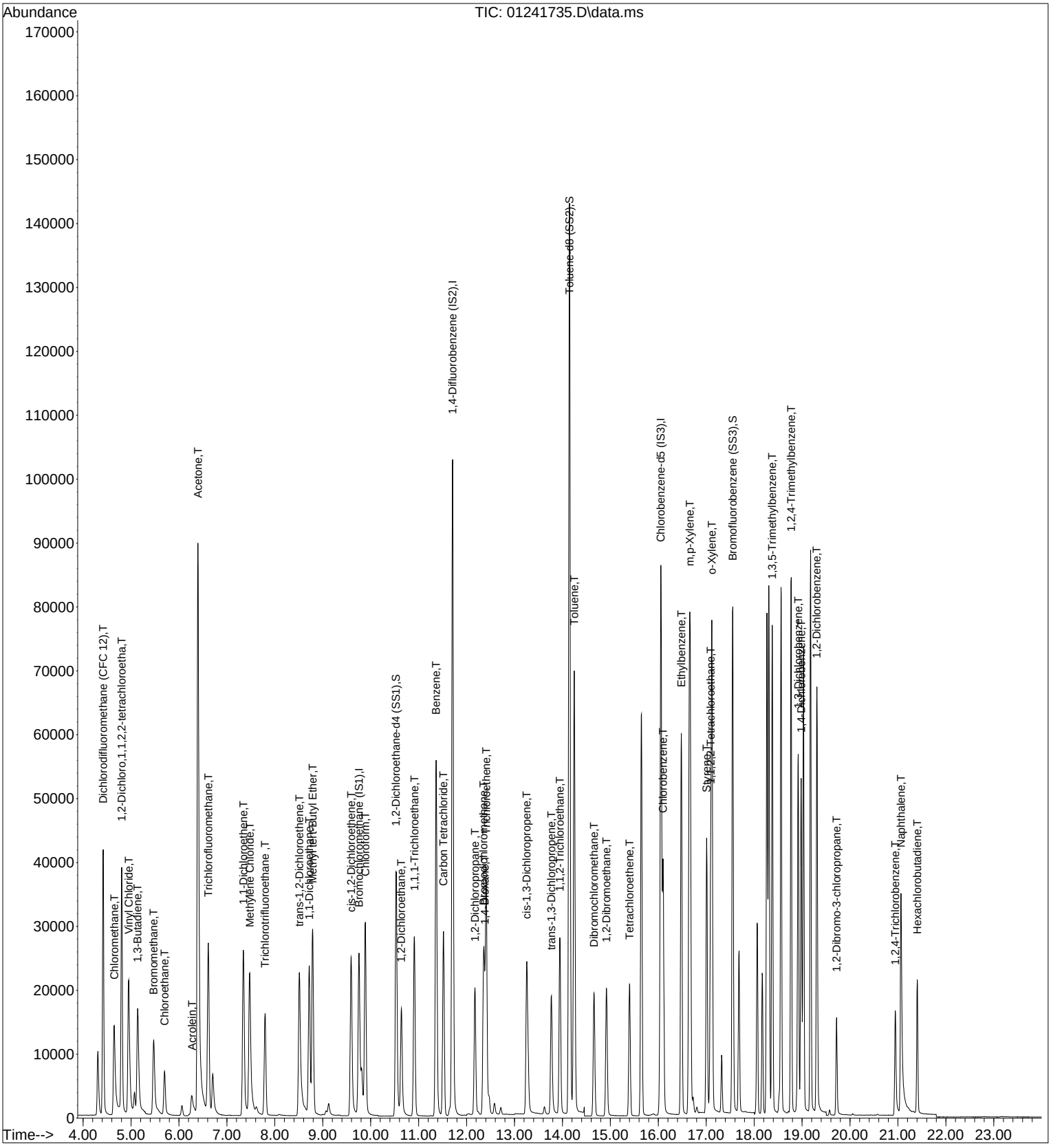
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane			1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771	25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride			2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488	11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors: 5 | 50 | 250 | 1000 | 5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704	
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703	
4ng/L Std. ID:	S29-01171706				

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

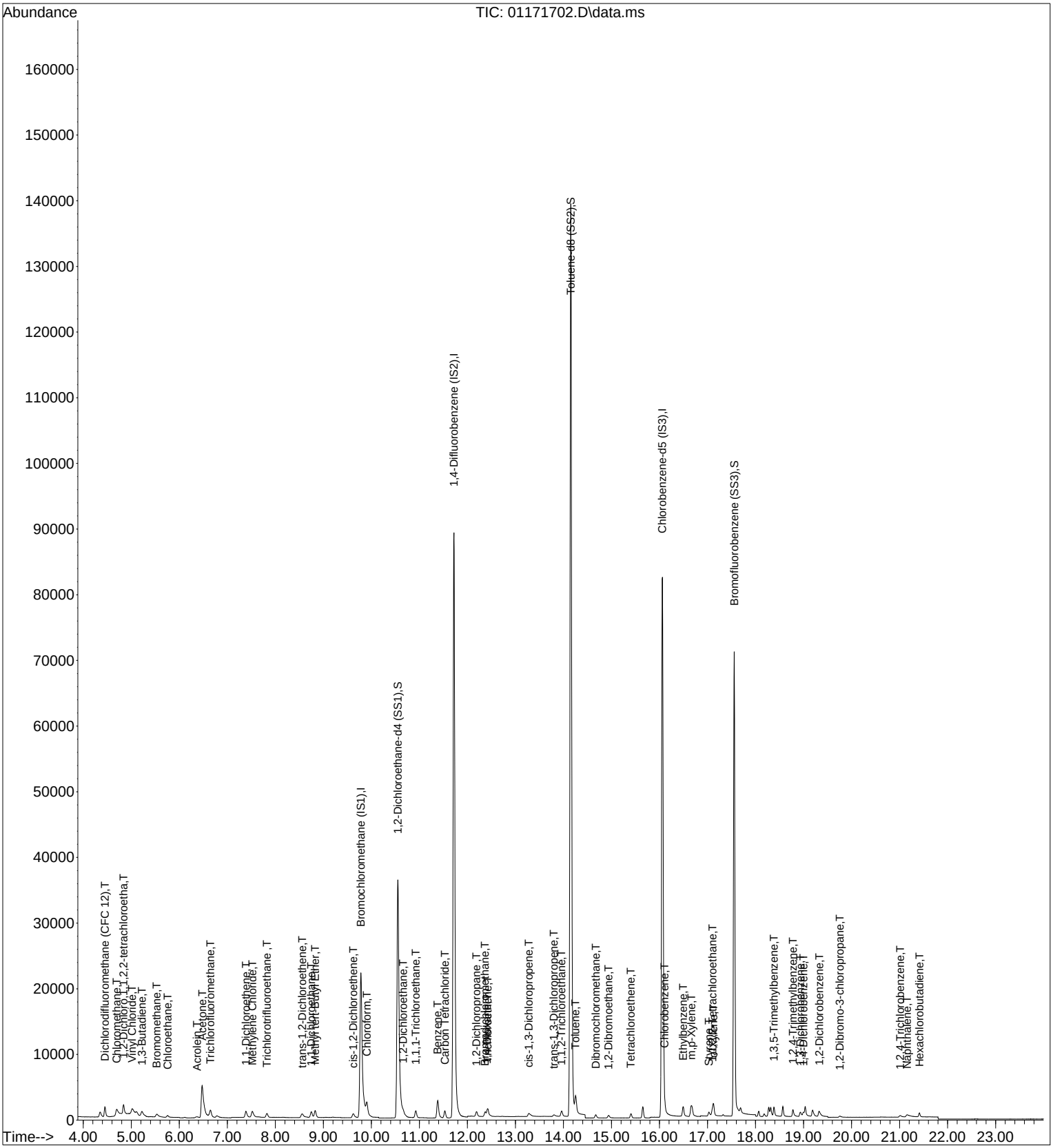
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

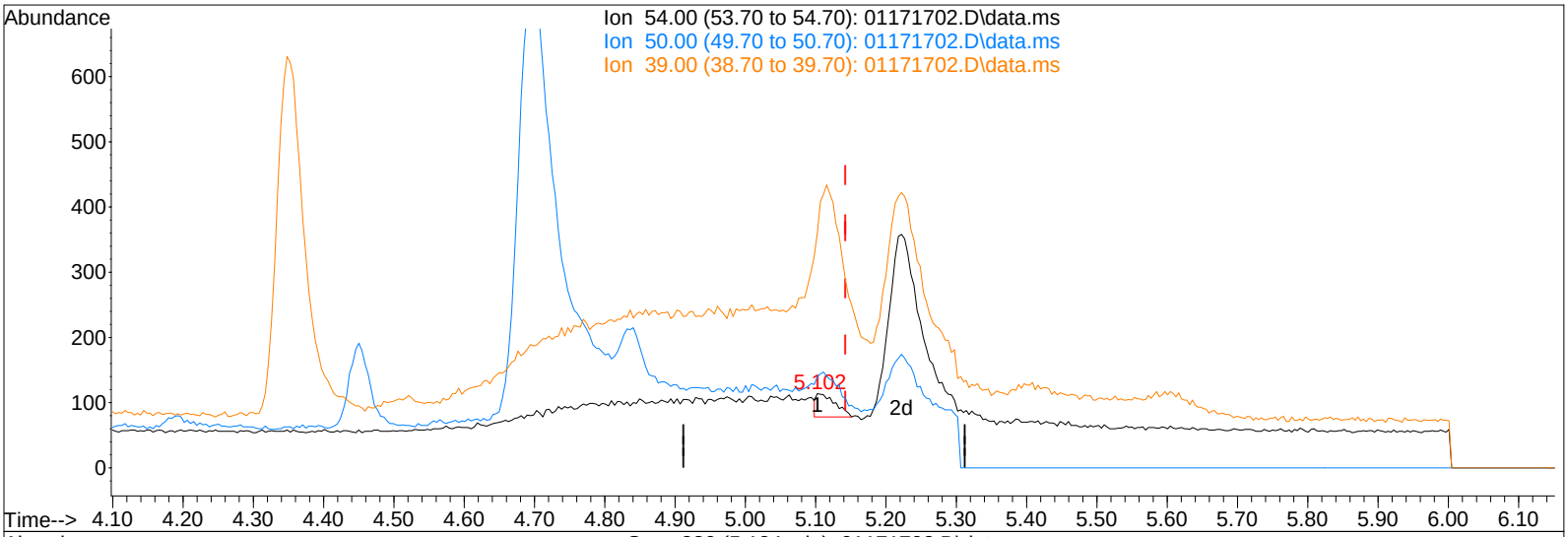
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

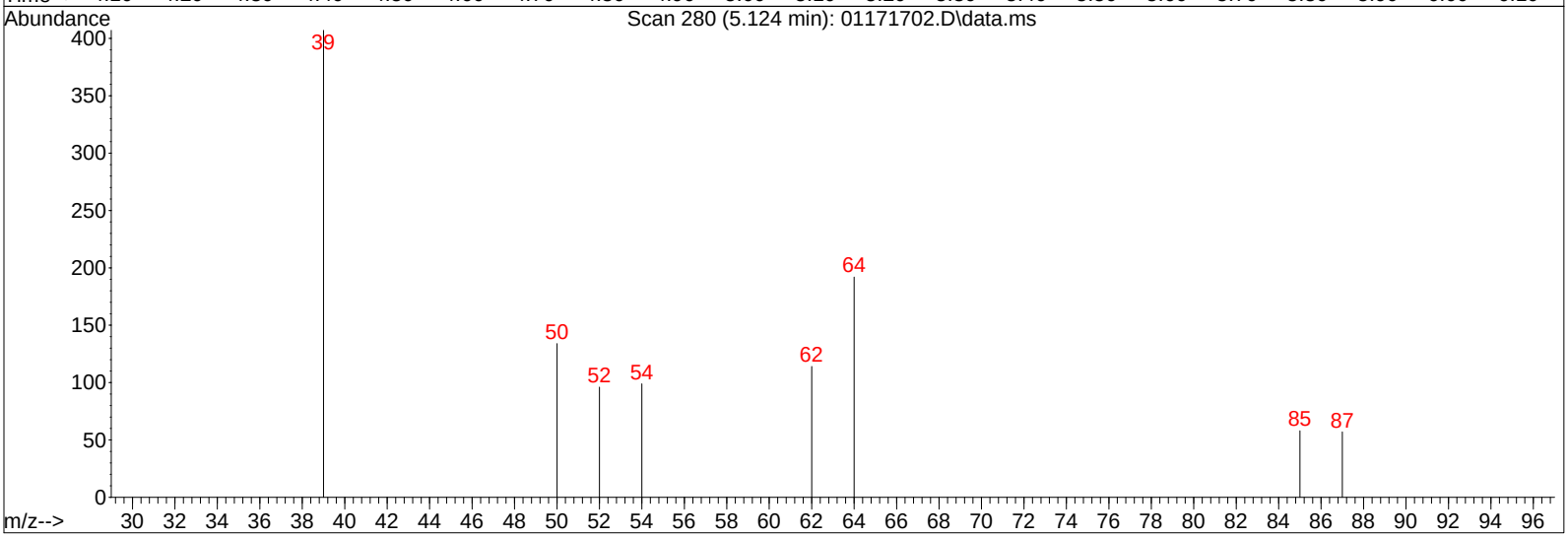


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

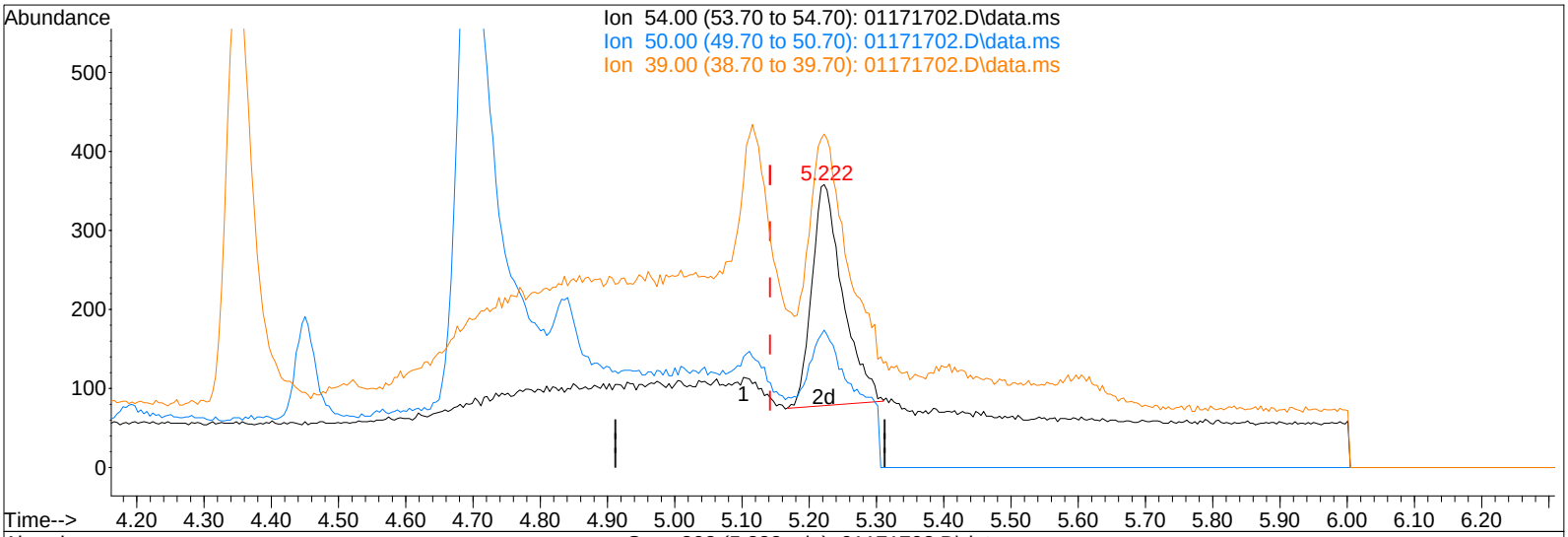
response 67

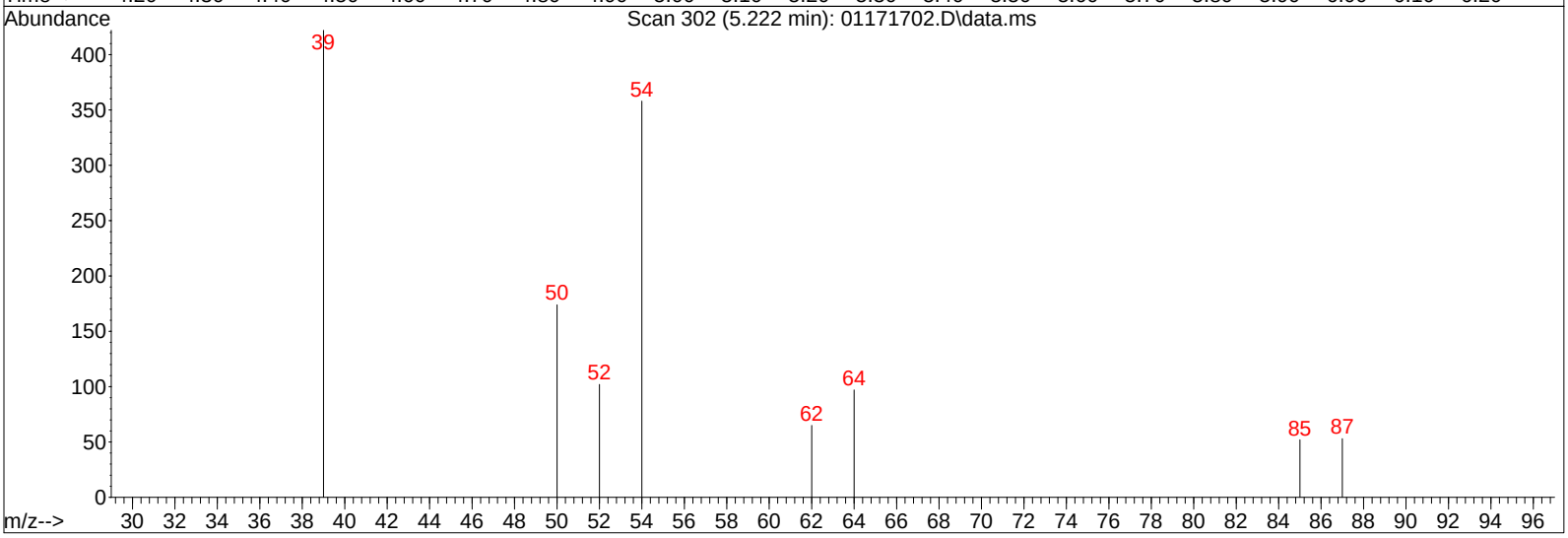
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

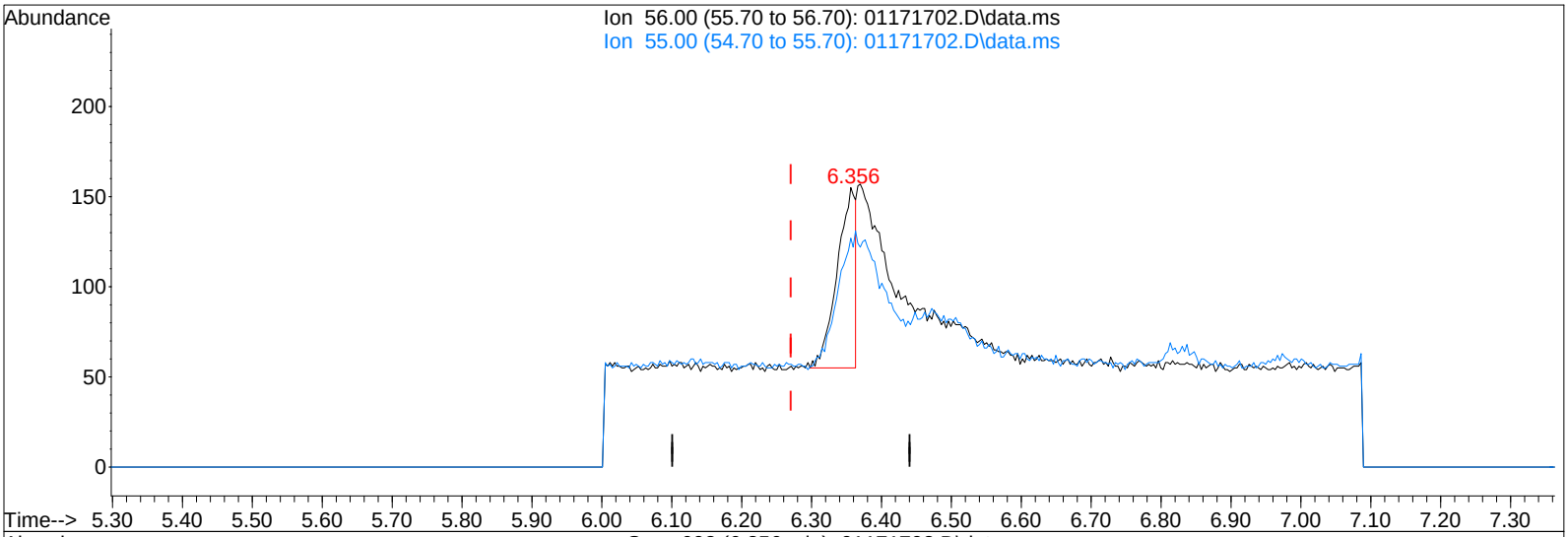
CL 1/18/17

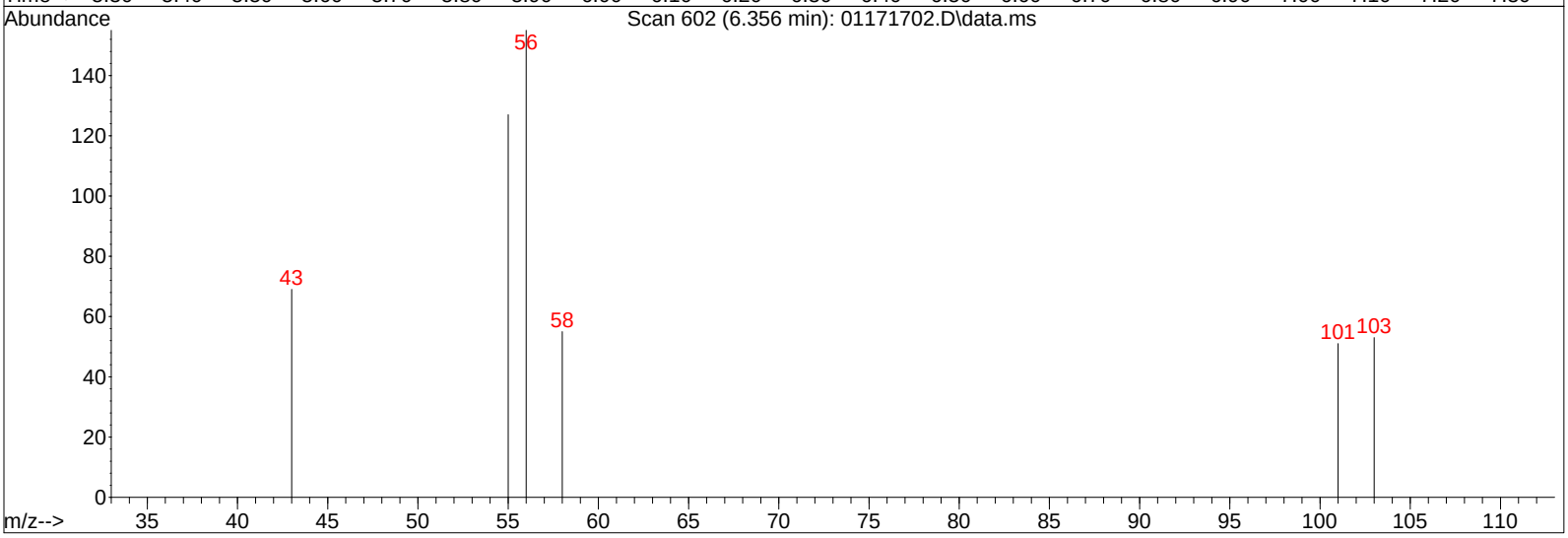
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

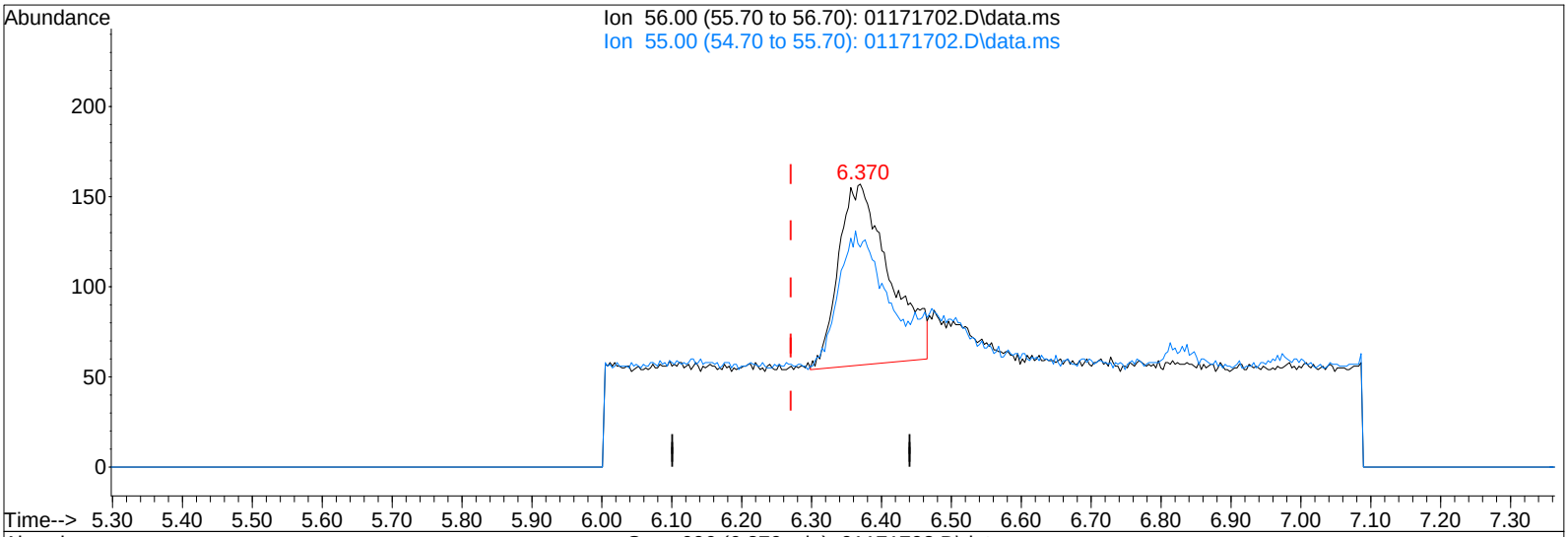
response 183

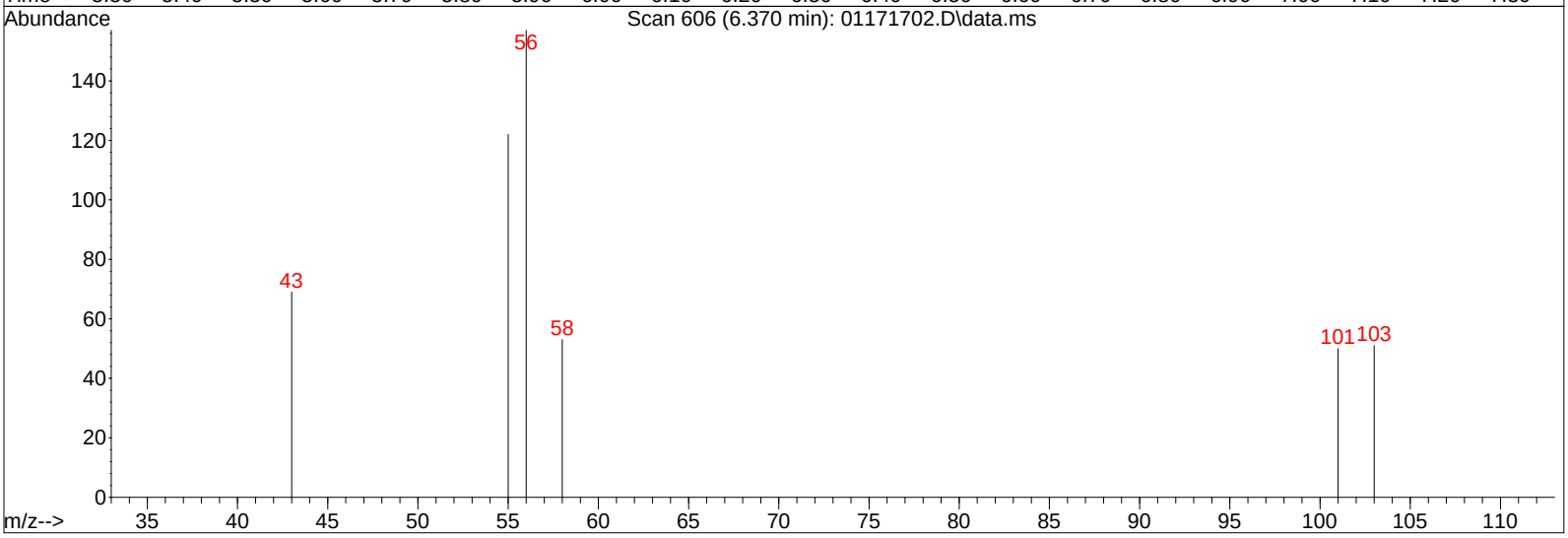
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

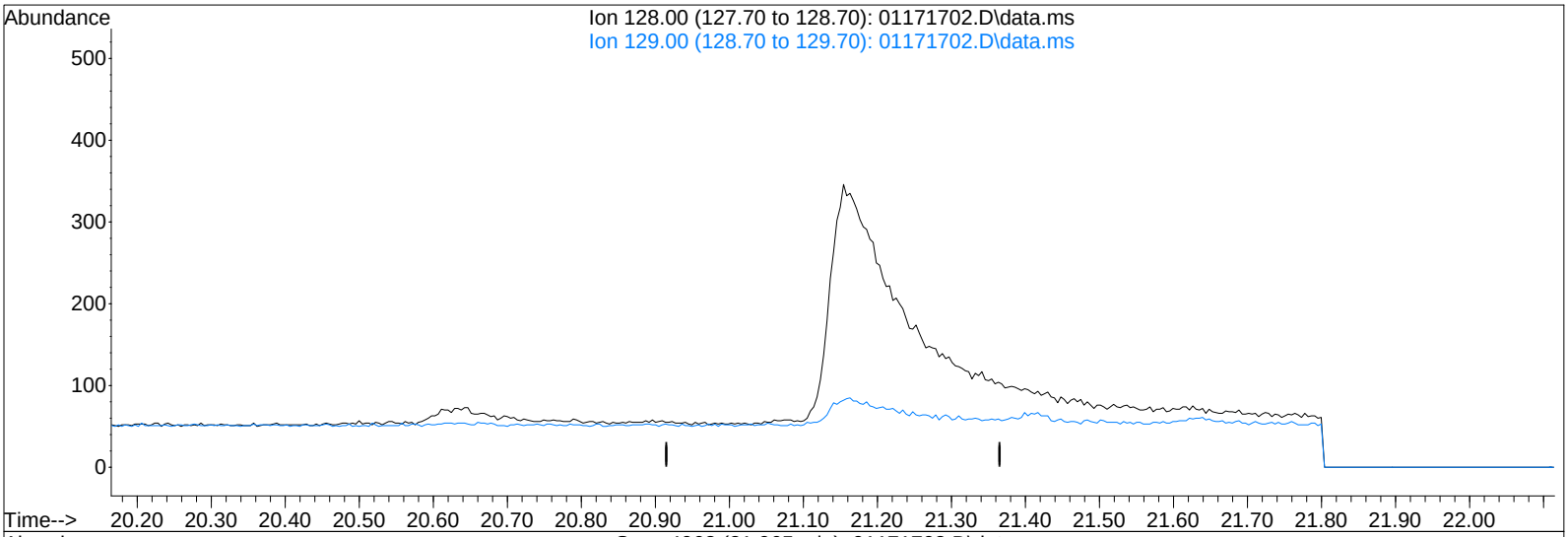
CL 1/18/17

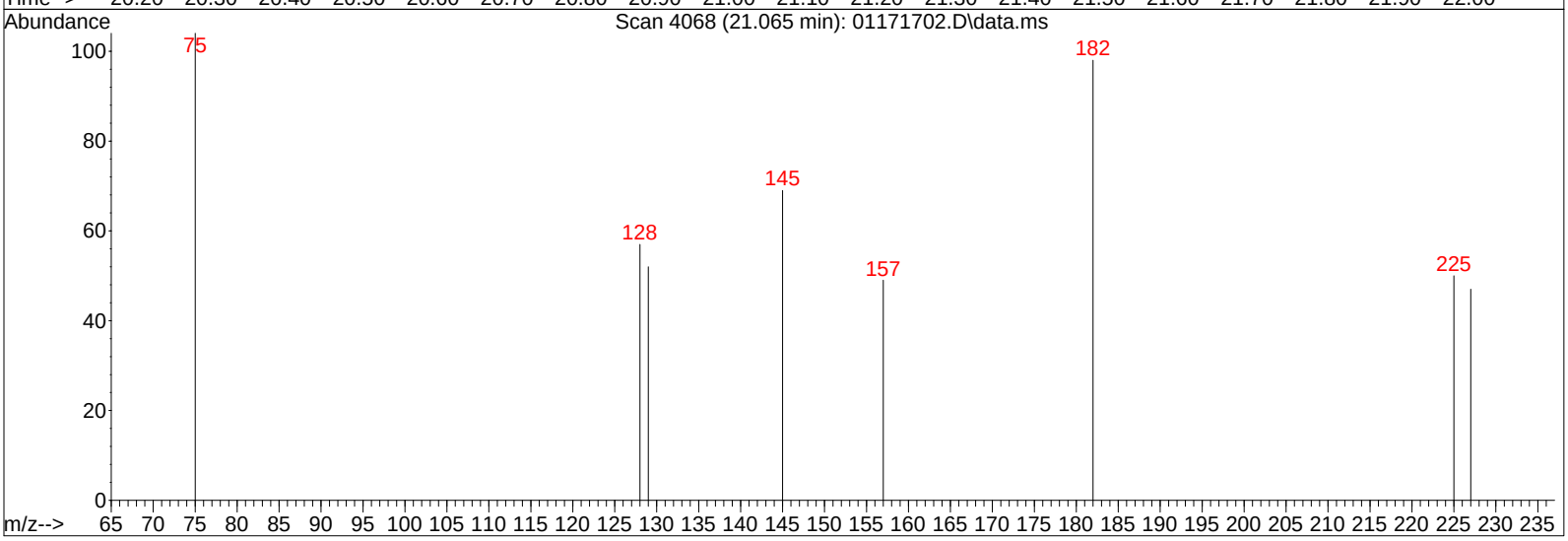
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

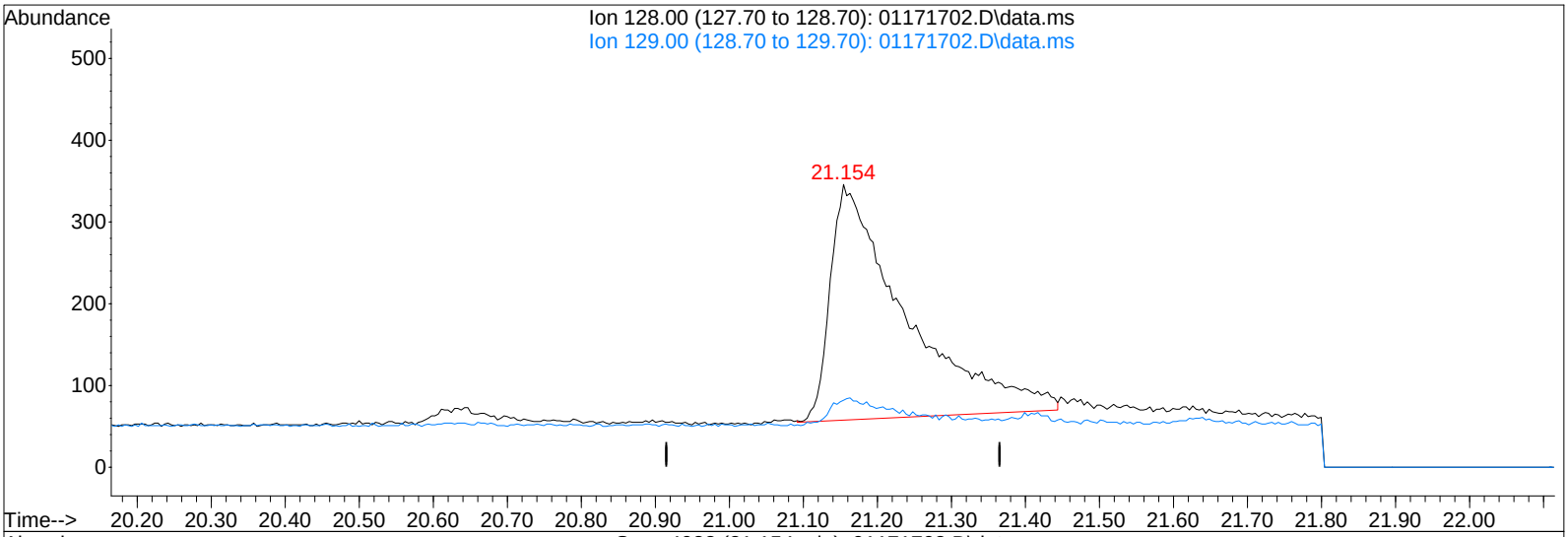
response 0

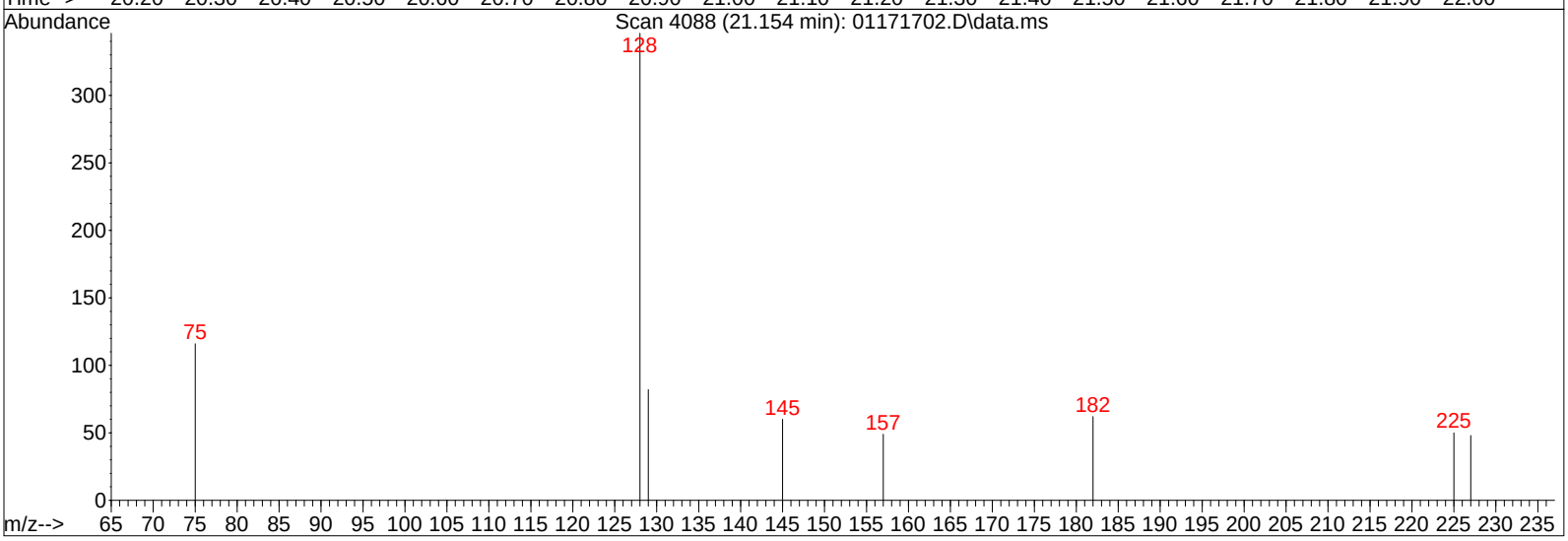
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

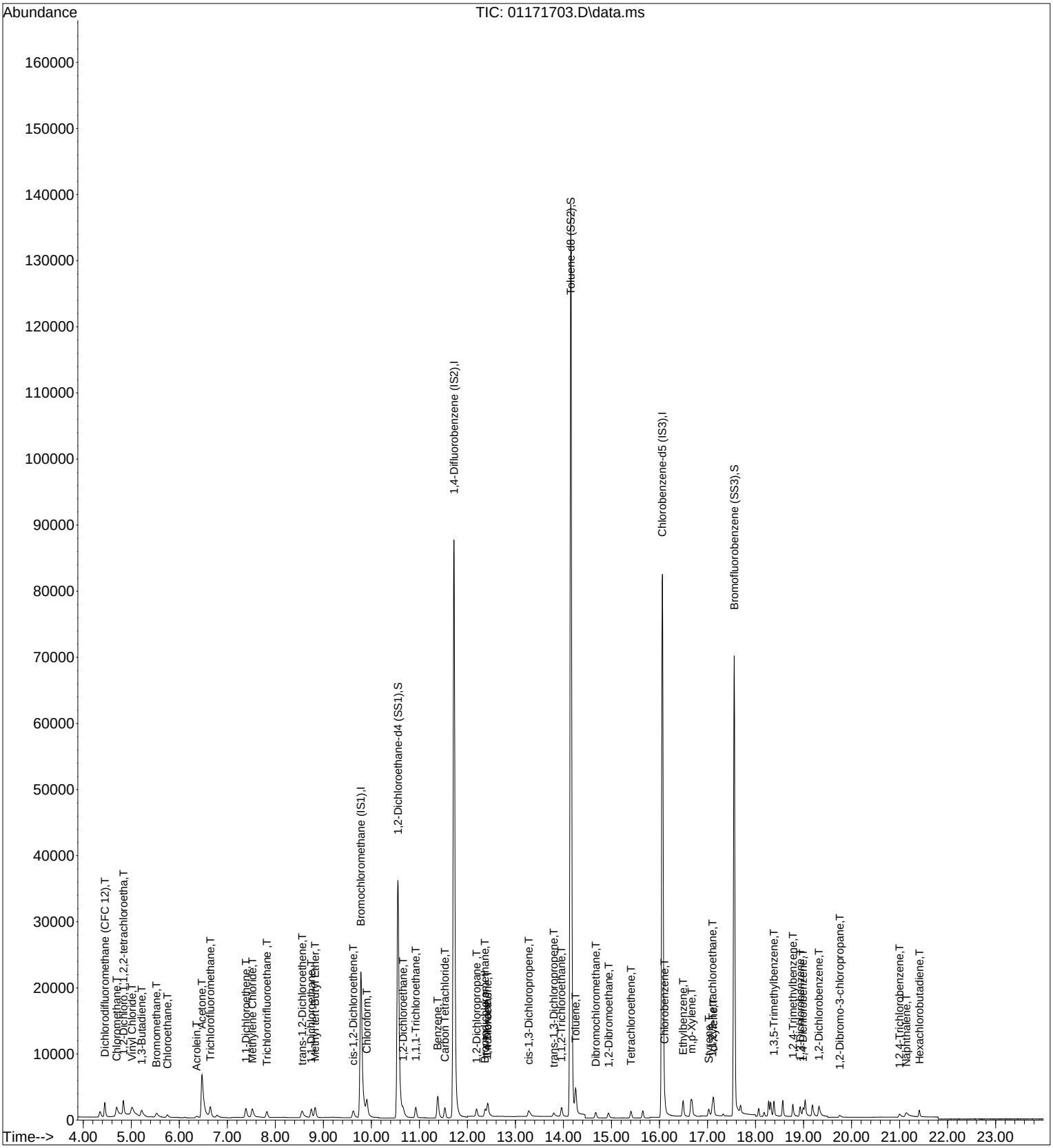
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

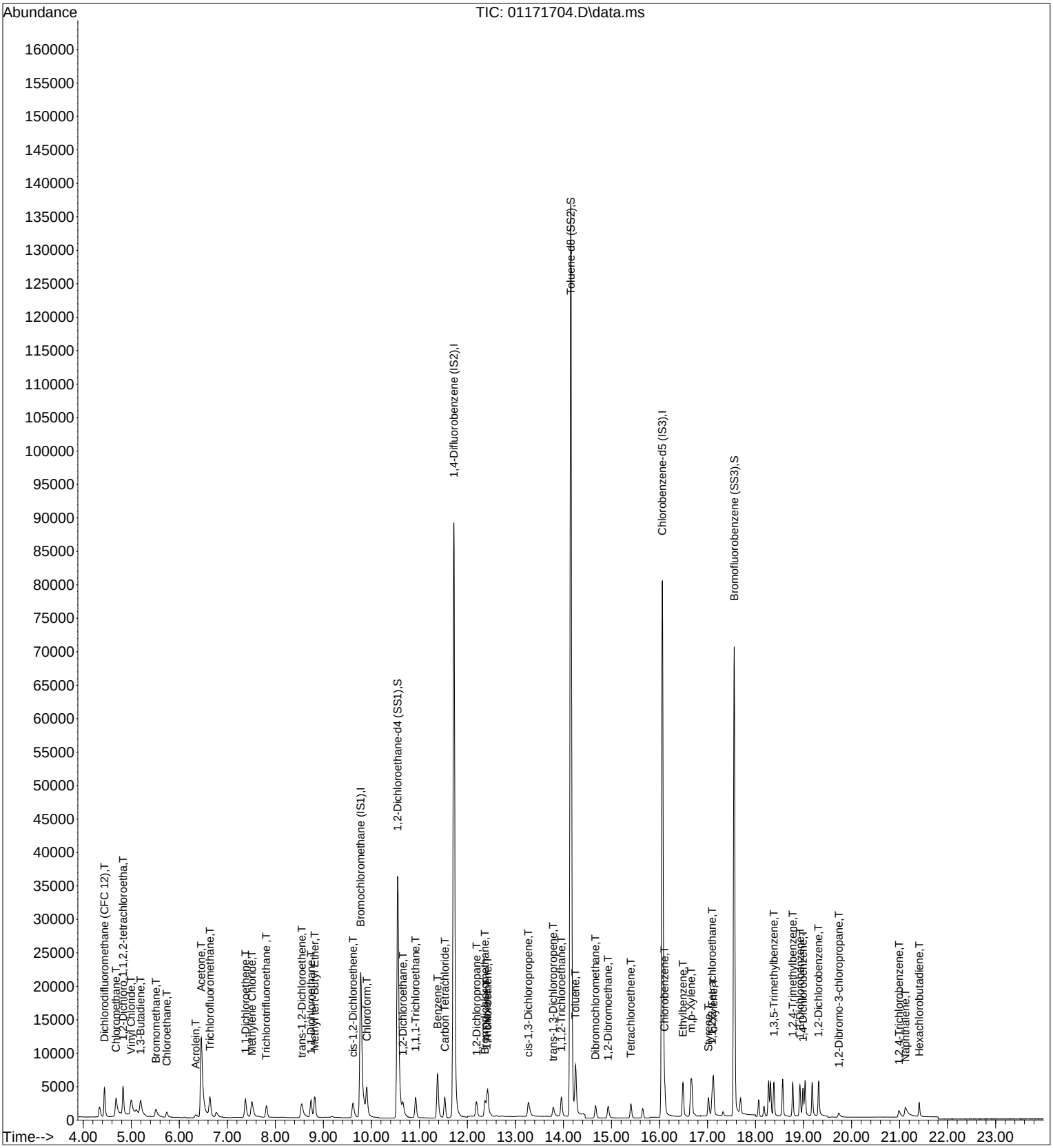
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

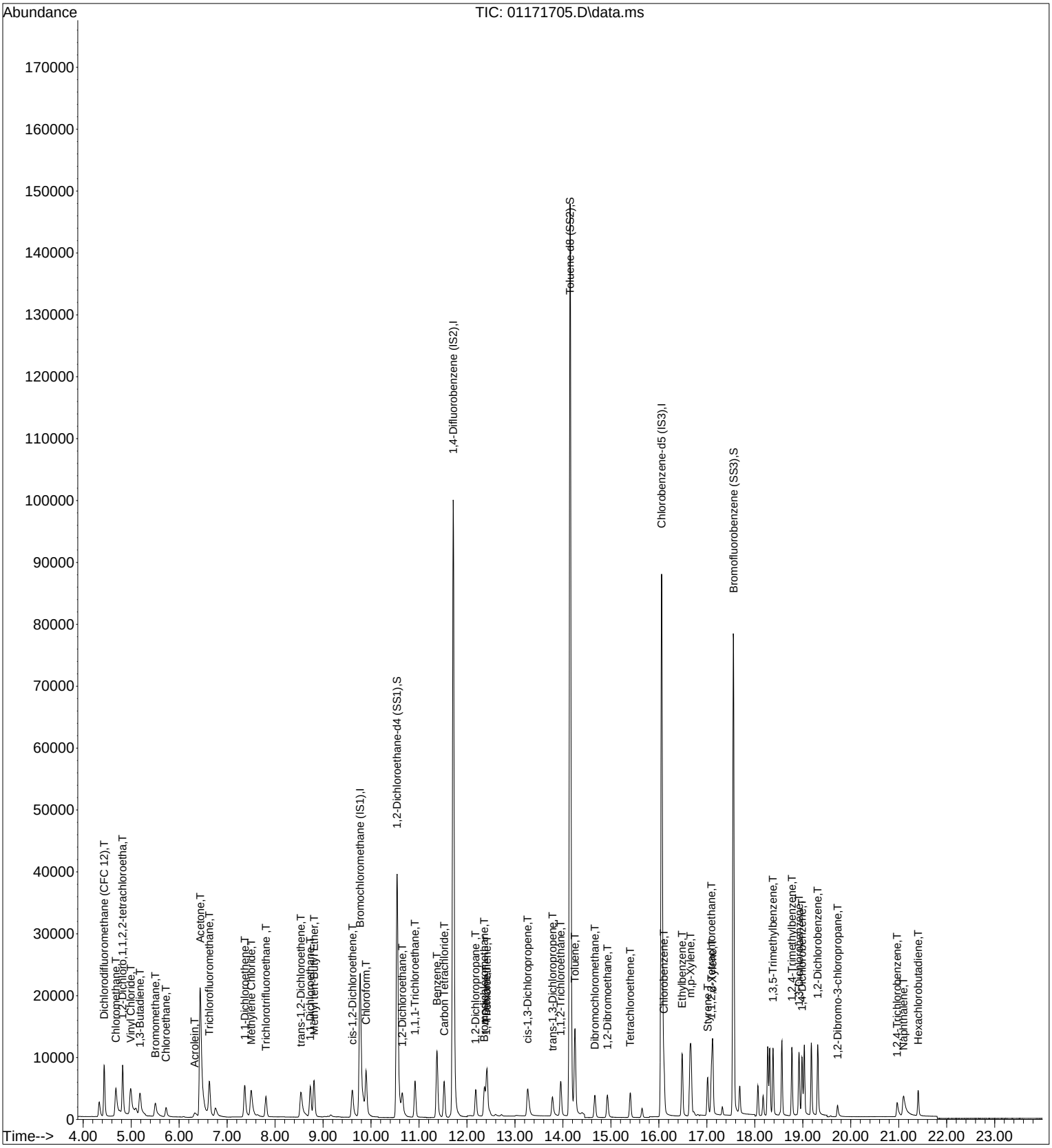
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

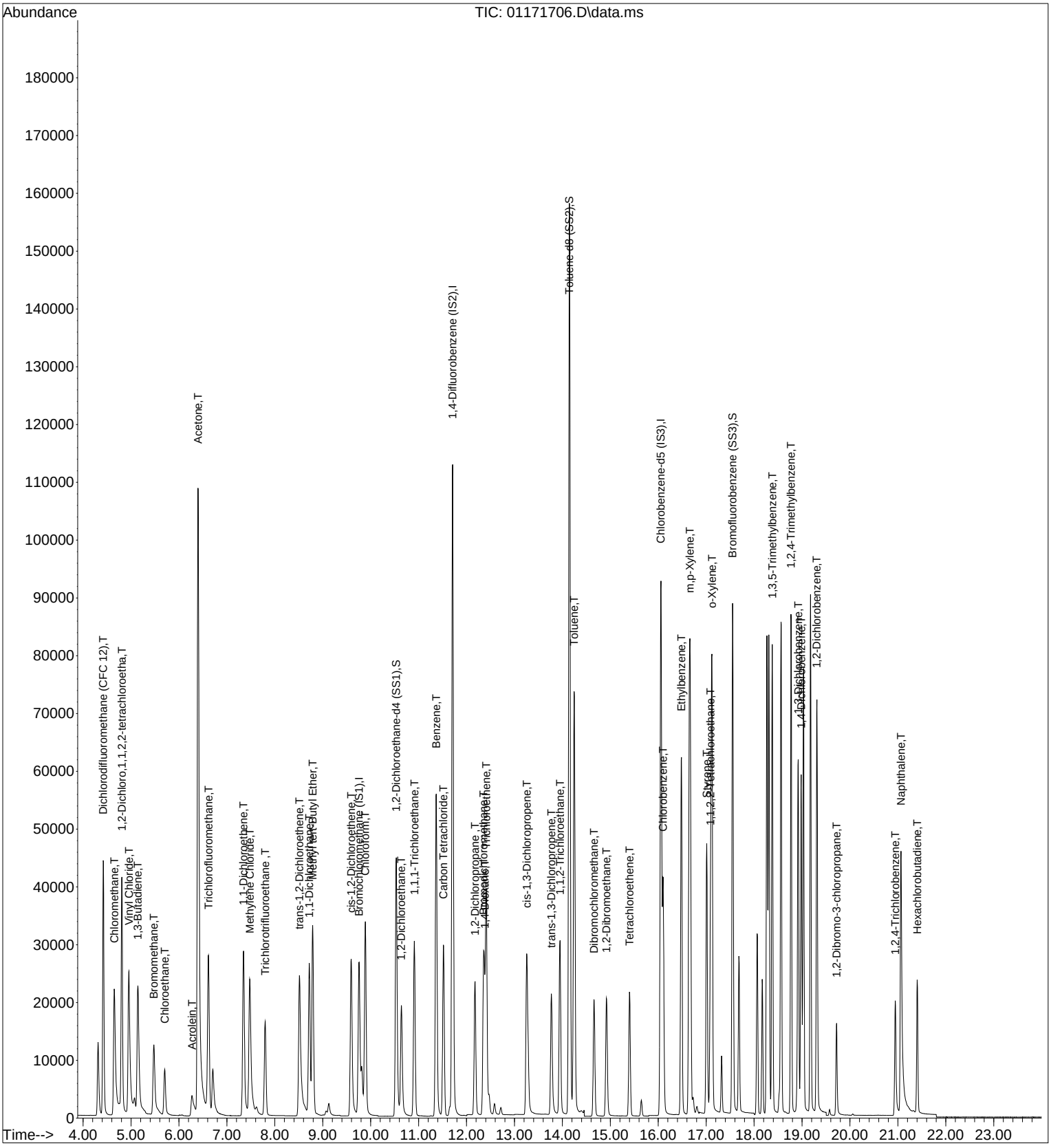
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

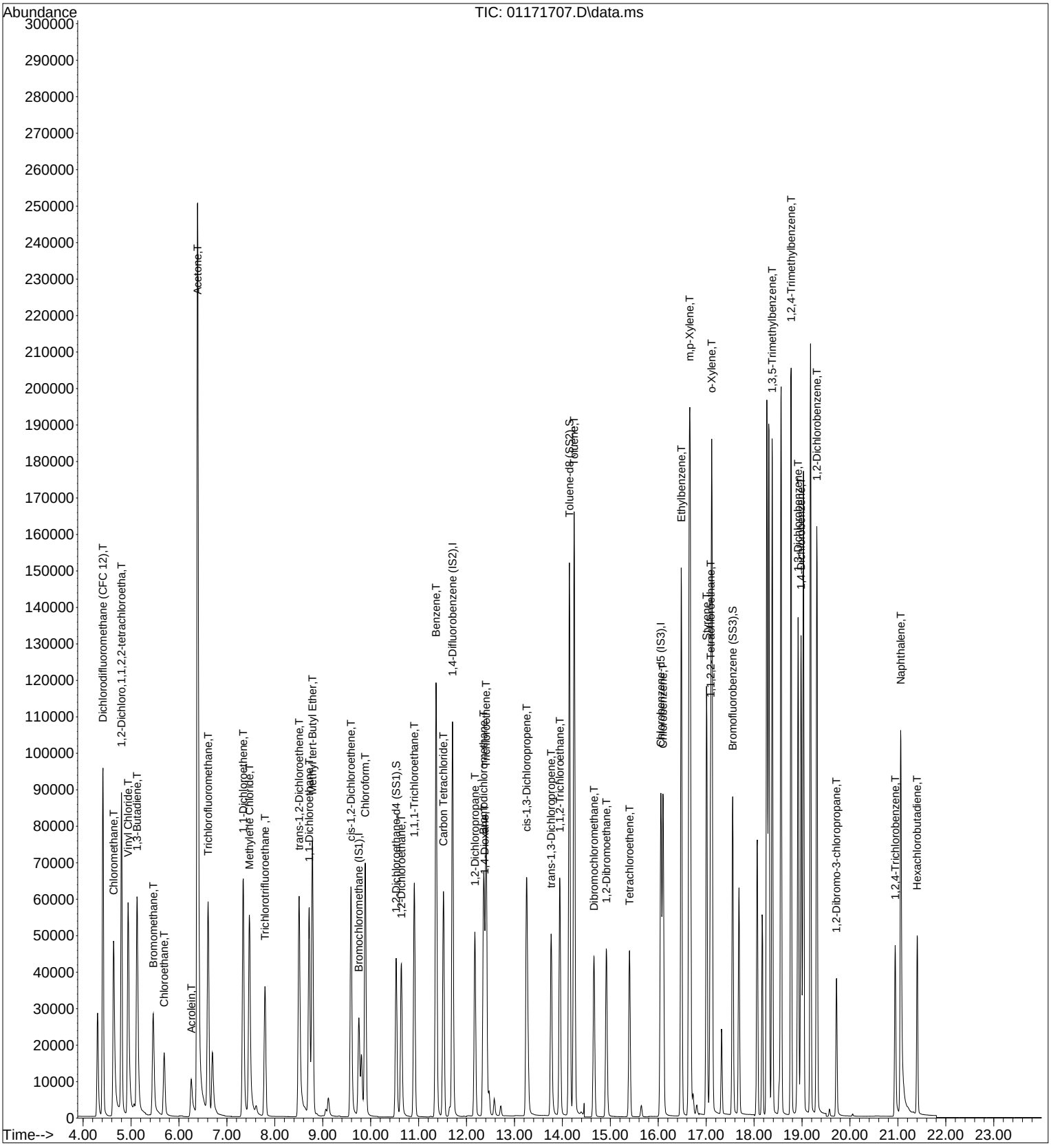
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

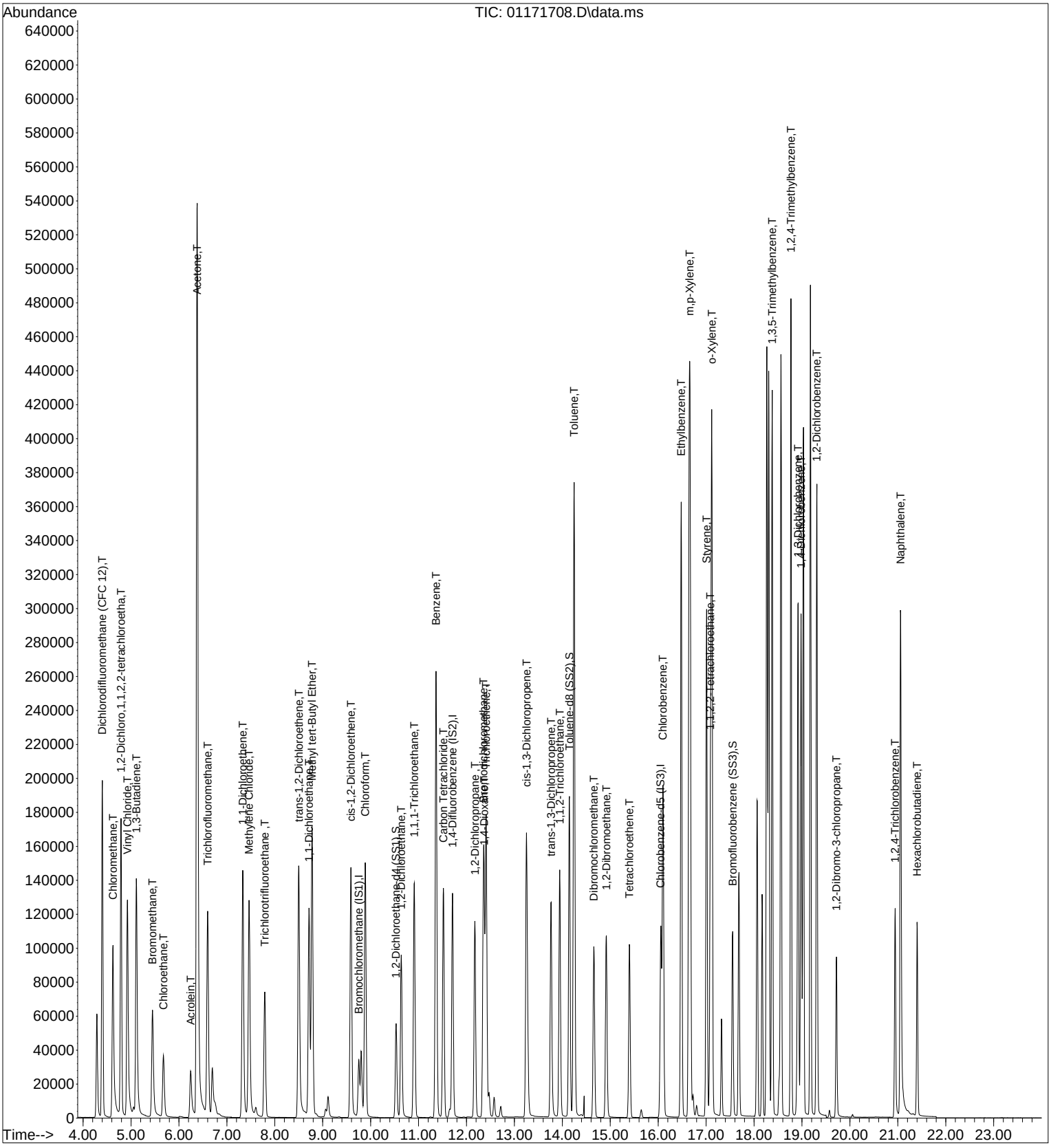
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%		
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%		
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944 pg	100
3) Chloromethane	4.61	52	162688	4785.564 pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926 pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389 pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564 pg	99
7) Bromomethane	5.44	94	222851	4643.991 pg	100
8) Chloroethane	5.66	64	179461	5258.665 pg	100
9) Acrolein	6.24	56	140240	5967.932 pg	99
10) Acetone	6.38	58	838814	25814.022 pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282 pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913 pg	99
13) Methylene Chloride	7.47	84	297672	4889.177 pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498 pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436 pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227 pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907 pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430 pg	100
19) Chloroform	9.89	83	522733	4780.247 pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905 pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873 pg	100
23) Benzene	11.36	78	1167900	4536.841 pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159 pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114 pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606 pg	100
28) Trichloroethene	12.41	130	299094	4425.611 pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520 pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385 pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769 pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991 pg	99
34) Toluene	14.25	91	1167322	4708.699 pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519 pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632 pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535 pg	100
39) Chlorobenzene	16.10	112	788966	3880.853 pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214 pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622 pg	100
42) Styrene	17.01	104	851189	4927.183 pg	99
43) o-Xylene	17.12	106	518661	4234.000 pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849 pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868 pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829 pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246 pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465 pg	100
53) Naphthalene	21.06	128	1434819	5185.458 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

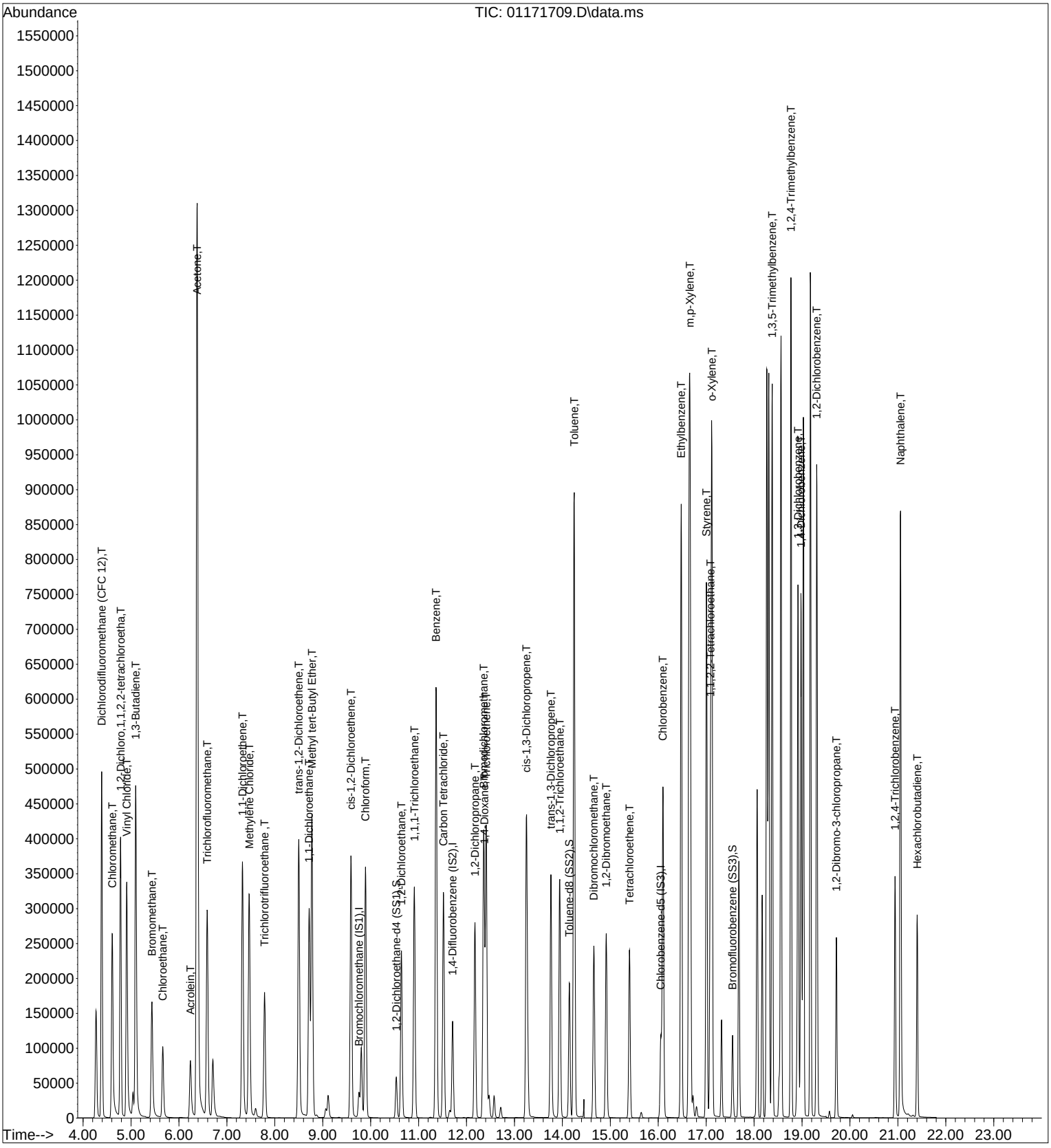
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

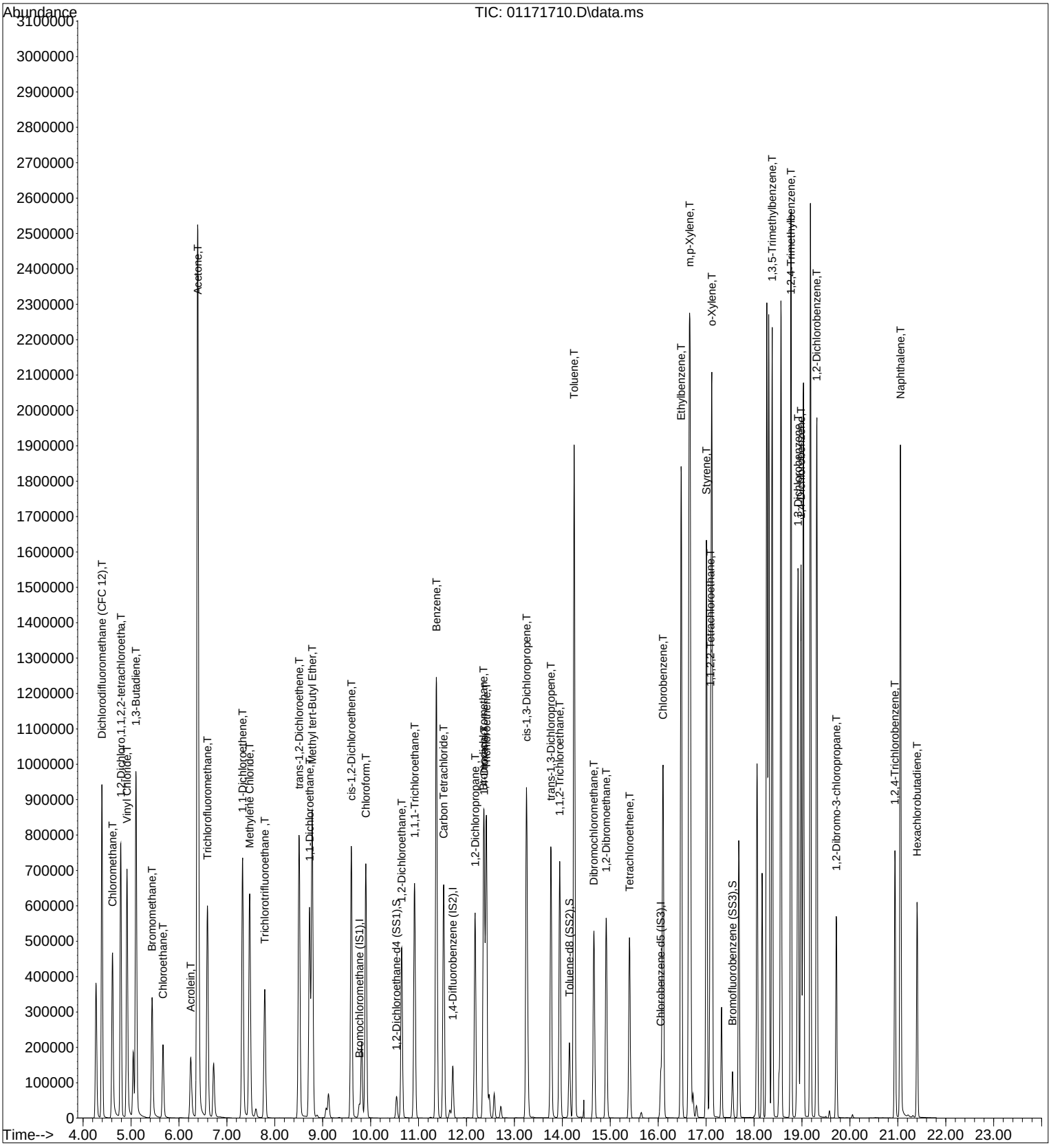
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

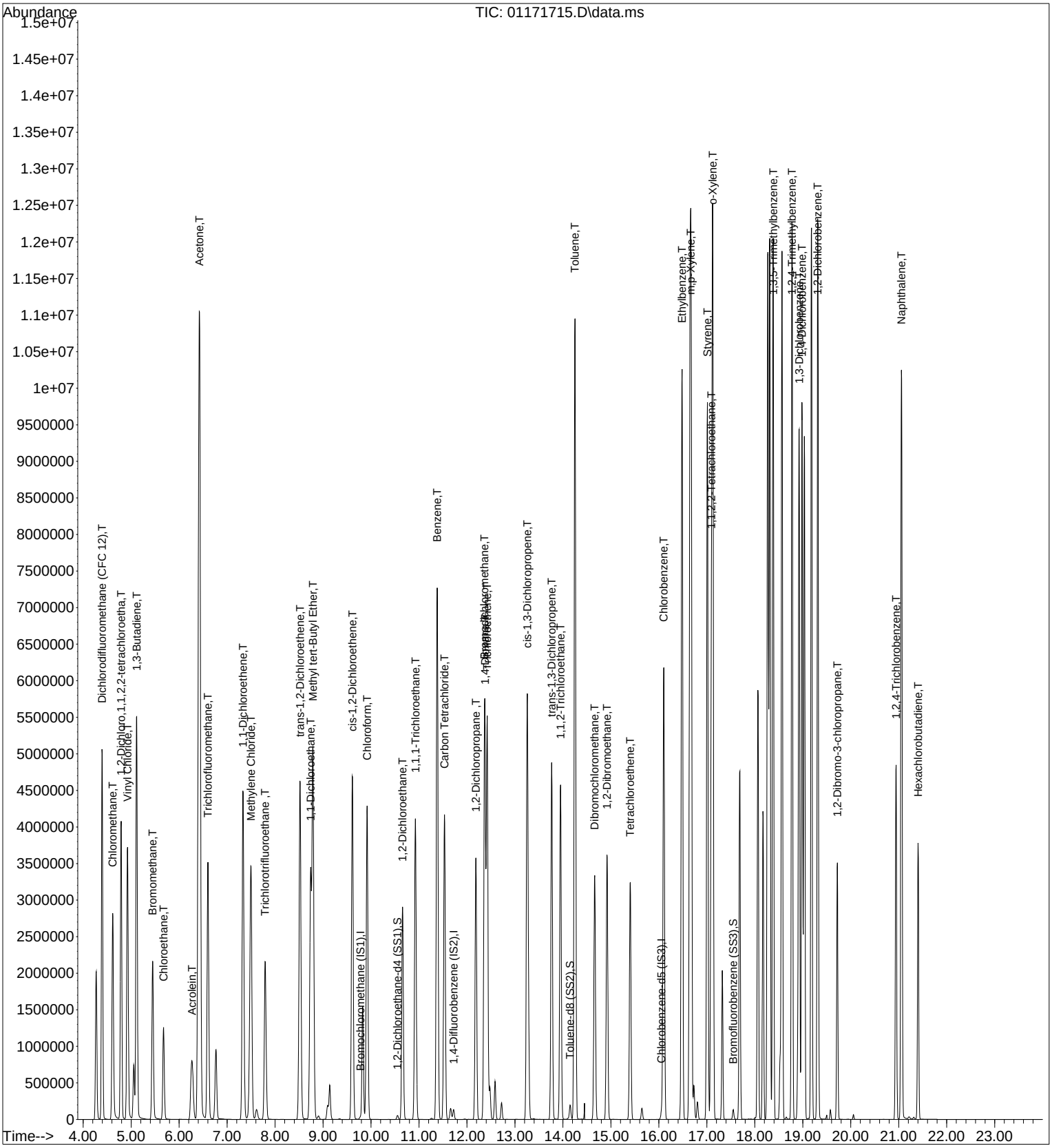
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

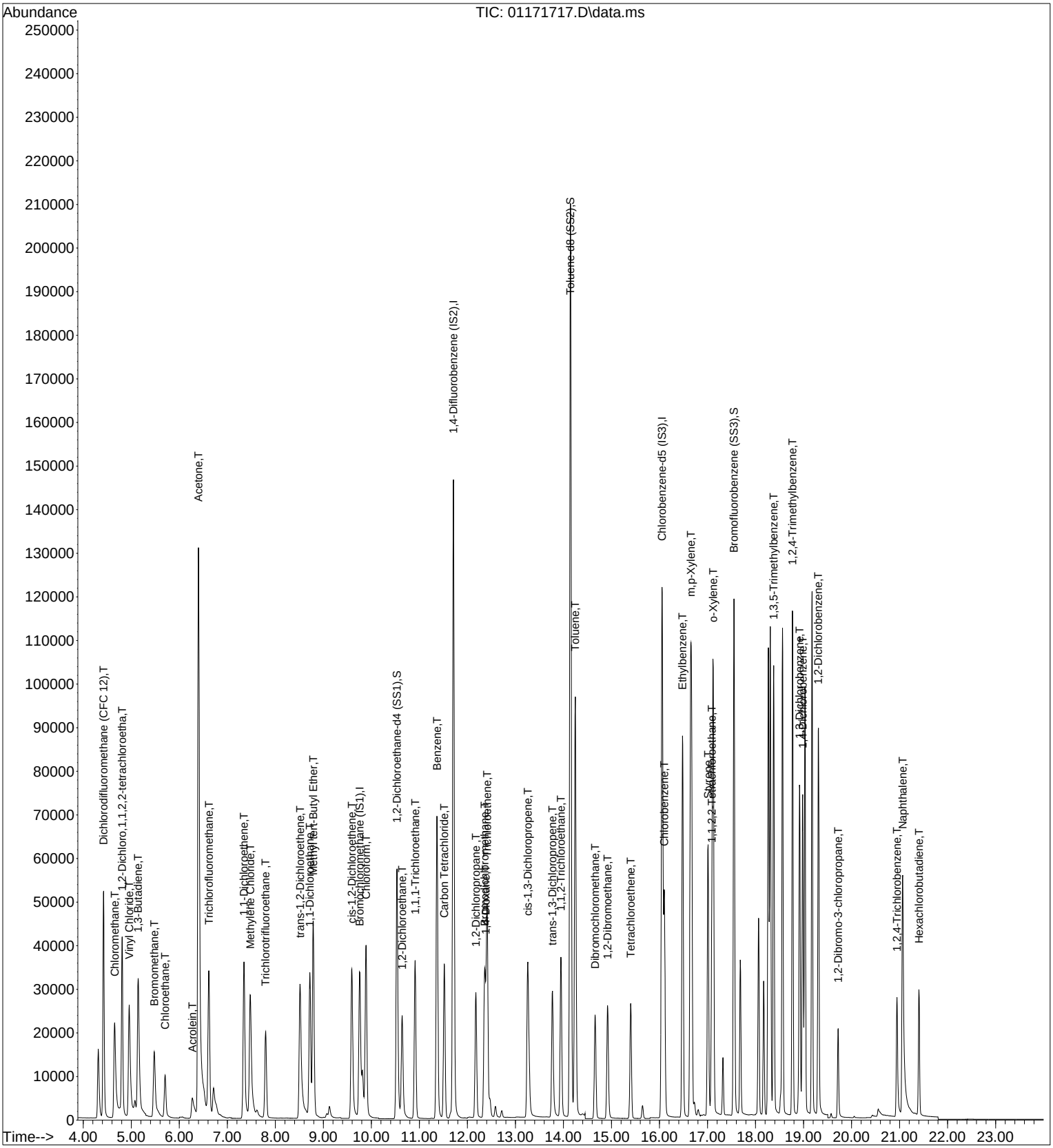
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23
Acq. Method File: TO15SIM.M

CL 1/18/17

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	136	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.237	11.4	123	0.04
3	T	Chloromethane	0.753	0.556	26.2	96	0.05
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.014	19.0	110	0.04
5	T	Vinyl Chloride	2.415	1.948	19.3	106	0.04
6	T	1,3-Butadiene	1.436	1.310	8.8	156	0.04
7	T	Bromomethane	0.972	0.868	10.7	127	0.04
8	T	Chloroethane	0.743	0.628	15.5	121	0.04
9	T	Acrolein	0.528	0.366	30.7#	111	0.02
10	T	Acetone	0.682	0.592	13.2	121	0.00
11	T	Trichlorofluoromethane	1.728	1.606	7.1	126	0.02
12	T	1,1-Dichloroethene	1.083	0.943	12.9	128	0.02
13	T	Methylene Chloride	1.175	1.064	9.4	123	0.00
14	T	Trichlorotrifluoroethane	1.080	0.971	10.1	131	0.01
15	T	trans-1,2-Dichloroethene	1.167	1.027	12.0	129	0.00
16	T	1,1-Dichloroethane	2.070	1.806	12.8	124	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.744	11.2	134	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.091	10.9	130	-0.02
19	T	Chloroform	2.177	1.962	9.9	126	-0.02
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.628	6.0	129	-0.02
21	T	1,2-Dichloroethane	1.676	1.410	15.9	122	-0.01
22	T	1,1,1-Trichloroethane	2.021	1.677	17.0	128	-0.01
23	T	Benzene	4.797	4.282	10.7	125	-0.01
24	T	Carbon Tetrachloride	1.623	1.458	10.2	129	-0.01
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	134	-0.01
26	T	1,2-Dichloropropane	0.255	0.200	21.6	124	0.00
27	T	Bromodichloromethane	0.352	0.285	19.0	125	0.00
28	T	Trichloroethene	0.260	0.224	13.8	130	0.00
29	T	1,4-Dioxane	0.191	0.160	16.2	132	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.300	12.5	134	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.256	8.2	137	0.00
32	T	1,1,2-Trichloroethane	0.215	0.176	18.1	126	0.00
33	S	Toluene-d8 (SS2)	0.993	0.972	2.1	136	0.00
34	T	Toluene	0.928	0.815	12.2	129	0.00
35	T	Dibromochloromethane	0.257	0.219	14.8	130	0.00
36	T	1,2-Dibromoethane	0.243	0.216	11.1	130	0.00
37	T	Tetrachloroethene	0.270	0.231	14.4	131	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	130	0.00
39	T	Chlorobenzene	3.855	3.578	7.2	129	0.00
40	T	Ethylbenzene	5.685	5.461	3.9	137	0.00
41	T	m,p-Xylene	4.264	4.287	-0.5	134	0.00
42	T	Styrene	2.987	3.004	-0.6	135	0.00
43	T	o-Xylene	2.190	2.191	-0.0	132	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.299	8.7	124	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.050	-12.1	140	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.726	-4.7	130	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.725	-6.7	131	0.00
48	T	1,3-Dichlorobenzene	2.723	2.801	-2.9	124	0.00
49	T	1,4-Dichlorobenzene	2.835	2.738	3.4	124	0.00
50	T	1,2-Dichlorobenzene	2.775	2.729	1.7	126	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.859	-2.4	136	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.592	3.0	131	0.00
53	T	Naphthalene	5.215	5.104	2.1	117	0.00
54	T	Hexachlorobutadiene	1.299	1.237	4.8	134	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/23/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	60738	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	300562	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	46758	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	98881	940.024	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.00%			
33) Toluene-d8 (SS2)	14.15	98	292237	978.822	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.88%			
45) Bromofluorobenzene (SS3)	17.56	174	95864	1120.699	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.07%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.43	85	71134	463.589	pg	100
3) Chloromethane	4.66	52	16968	371.176	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	61480	407.250	pg	100
5) Vinyl Chloride	4.96	62	60506	412.477	pg	99
6) 1,3-Butadiene	5.16	54	42055	482.208	pg	94
7) Bromomethane	5.49	94	26178	443.625	pg	100
8) Chloroethane	5.71	64	19235	426.202	pg	99
9) Acrolein	6.28	56	11573	360.975	pg	97
10) Acetone	6.41	58	95465	2303.025	pg	100
11) Trichlorofluoromethane	6.63	101	51171	487.582	pg	100
12) 1,1-Dichloroethene	7.35	96	30317	461.097	pg	97
13) Methylene Chloride	7.49	84	34160	478.763	pg	95
14) Trichlorotrifluoroethane	7.81	151	30927	471.473	pg	100
15) trans-1,2-Dichloroethene	8.52	96	33291	469.667	pg	99
16) 1,1-Dichloroethane	8.73	63	55928	444.736	pg	100
17) Methyl tert-Butyl Ether	8.80	73	88845	473.453	pg	99
18) cis-1,2-Dichloroethene	9.60	96	35248	473.873	pg	100
19) Chloroform	9.89	83	63026	476.594	pg	100
21) 1,2-Dichloroethane	10.64	62	45050	442.542	pg	99
22) 1,1,1-Trichloroethane	10.91	97	54707	445.650	pg	100
23) Benzene	11.37	78	136817	469.578	pg	100
24) Carbon Tetrachloride	11.52	117	46706	473.832	pg	100
26) 1,2-Dichloropropane	12.18	63	31933	417.111	pg	100
27) Bromodichloromethane	12.36	83	45606	431.389	pg	100
28) Trichloroethene	12.41	130	35728	457.214	pg	100
29) 1,4-Dioxane	12.39	88	25521	444.774	pg	98
30) cis-1,3-Dichloropropene	13.26	75	50353	488.994	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40976	488.979	pg	99
32) 1,1,2-Trichloroethane	13.95	83	28100	433.932	pg	98
34) Toluene	14.25	91	128975	462.511	pg	99
35) Dibromochloromethane	14.66	129	34984	453.044	pg	100
36) 1,2-Dibromoethane	14.92	107	34218	468.526	pg	100
37) Tetrachloroethene	15.40	166	36762	453.722	pg	100
39) Chlorobenzene	16.10	112	88751	492.378	pg	100
40) Ethylbenzene	16.48	91	134698	506.754	pg	99
41) m,p-Xylene	16.66	91	212804	1067.387	pg	100
42) Styrene	17.01	104	74524	533.541	pg	100
43) o-Xylene	17.12	106	53996	527.201	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	56752	482.247	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	115902	549.182	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	116203	560.967	pg	100
48) 1,3-Dichlorobenzene	18.92	146	69271	544.082	pg	100
49) 1,4-Dichlorobenzene	18.98	146	67731	510.969	pg	100
50) 1,2-Dichlorobenzene	19.31	146	67497	520.223	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	21156	539.401	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	38820	505.477	pg	100
53) Naphthalene	21.07	128	129243	529.978	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

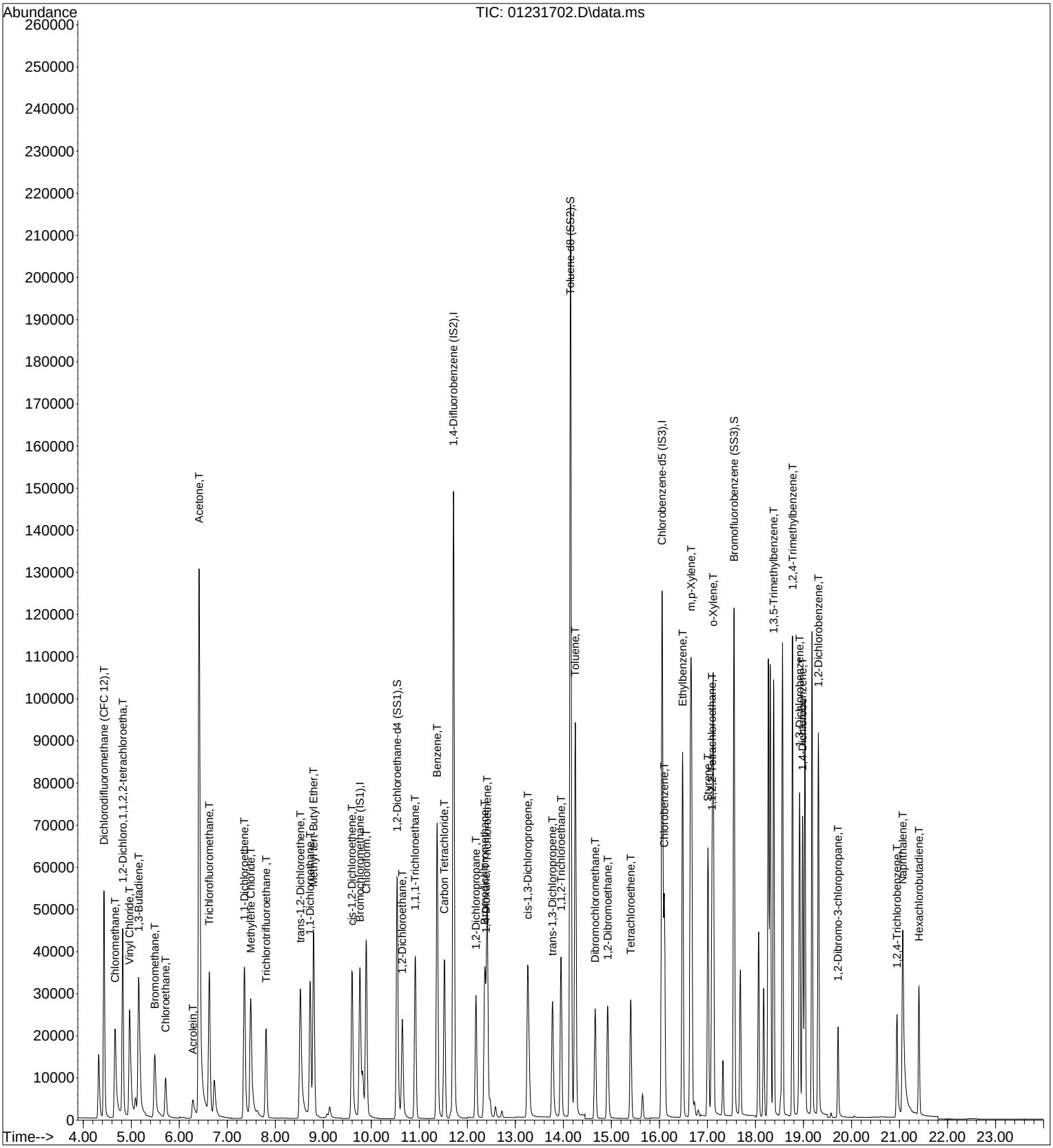
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	30615	503.881	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\23\01231702.D Vial: 16
Acq On : 23 Jan 2017 7:35 Operator: CL
Sample : CCV S19012317 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 23 08:12:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241702.D Vial: 16
Acq On : 24 Jan 2017 1:53 Operator: CL
Sample : CCV S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 24 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	81	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.429	3.8	80	0.03
3	T	Chloromethane	0.753	0.570	24.3	59	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.635	-6.0	86	0.02
5	T	Vinyl Chloride	2.415	2.205	8.7	72	0.04
6	T	1,3-Butadiene	1.436	0.906	36.9#	65	0.04
7	T	Bromomethane	0.972	0.886	8.8	78	0.03
8	T	Chloroethane	0.743	0.620	16.6	72	0.03
9	T	Acrolein	0.528	0.356	32.6#	65	0.01
10	T	Acetone	0.682	0.574	15.8	71	-0.02
11	T	Trichlorofluoromethane	1.728	1.746	-1.0	82	0.01
12	T	1,1-Dichloroethene	1.083	0.961	11.3	78	0.01
13	T	Methylene Chloride	1.175	1.121	4.6	78	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.958	11.3	77	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.038	11.1	78	0.00
16	T	1,1-Dichloroethane	2.070	1.801	13.0	74	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.563	17.1	75	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.104	9.9	79	-0.02
19	T	Chloroform	2.177	2.031	6.7	78	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.658	4.3	79	-0.02
21	T	1,2-Dichloroethane	1.676	1.449	13.5	75	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.766	12.6	81	-0.02
23	T	Benzene	4.797	4.385	8.6	77	-0.02
24	T	Carbon Tetrachloride	1.623	1.554	4.3	82	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	81	-0.02
26	T	1,2-Dichloropropane	0.255	0.194	23.9	73	0.00
27	T	Bromodichloromethane	0.352	0.293	16.8	78	-0.01
28	T	Trichloroethene	0.260	0.222	14.6	78	-0.01
29	T	1,4-Dioxane	0.191	0.151	20.9	76	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.280	18.4	76	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.233	16.5	75	0.00
32	T	1,1,2-Trichloroethane	0.215	0.179	16.7	77	0.00
33	S	Toluene-d8 (SS2)	0.993	0.945	4.8	80	0.00
34	T	Toluene	0.928	0.805	13.3	77	0.00
35	T	Dibromochloromethane	0.257	0.219	14.8	79	0.00
36	T	1,2-Dibromoethane	0.243	0.212	12.8	78	0.00
37	T	Tetrachloroethene	0.270	0.215	20.4	74	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	74	0.00
39	T	Chlorobenzene	3.855	3.784	1.8	77	0.00
40	T	Ethylbenzene	5.685	5.317	6.5	76	0.00
41	T	m,p-Xylene	4.264	4.318	-1.3	76	0.00
42	T	Styrene	2.987	2.886	3.4	74	0.00
43	T	o-Xylene	2.190	2.250	-2.7	77	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.499	0.7	76	0.00
45	S	Bromofluorobenzene (SS3)	1.829	1.857	-1.5	72	0.00
46	T	1,3,5-Trimethylbenzene	4.514	4.906	-8.7	77	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.793	-8.2	75	0.00
48	T	1,3-Dichlorobenzene	2.723	2.866	-5.3	72	0.00
49	T	1,4-Dichlorobenzene	2.835	2.778	2.0	71	0.00
50	T	1,2-Dichlorobenzene	2.775	2.797	-0.8	73	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.794	5.4	71	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.289	21.5	60	0.00
53	T	Naphthalene	5.215	4.609	11.6	60	0.00
54	T	Hexachlorobutadiene	1.299	1.076	17.2	66	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241702.D Vial: 16
Acq On : 24 Jan 2017 1:53 Operator: CL
Sample : CCV S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 24 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241702.D Vial: 16
Acq On : 24 Jan 2017 1:53 Operator: CL
Sample : CCV S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 24 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/24/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	36420	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	182259	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	26478	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	60401	957.615	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.76%			
33) Toluene-d8 (SS2)	14.15	98	172239	951.361	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.14%			
45) Bromofluorobenzene (SS3)	17.55	174	49176	1015.213	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	46303	503.252	pg	100
3) Chloromethane	4.66	52	10432	380.572	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	48229	532.790	pg	100
5) Vinyl Chloride	4.96	62	41084	467.083	pg	99
6) 1,3-Butadiene	5.15	54	17437	333.433	pg	97
7) Bromomethane	5.48	94	16021	452.783	pg	99
8) Chloroethane	5.71	64	11391	420.926	pg	99
9) Acrolein	6.28	56	6746	350.912	pg	99
10) Acetone	6.40	58	55547	2234.785	pg	94
11) Trichlorofluoromethane	6.62	101	33358	530.083	pg	100
12) 1,1-Dichloroethene	7.35	96	18530	470.005	pg	95
13) Methylene Chloride	7.48	84	21583	504.470	pg	91
14) Trichlorotrifluoroethane	7.80	151	18309	465.483	pg	100
15) trans-1,2-Dichloroethene	8.51	96	20166	474.464	pg	100
16) 1,1-Dichloroethane	8.72	63	33460	443.731	pg	100
17) Methyl tert-Butyl Ether	8.79	73	49748	442.120	pg	97
18) cis-1,2-Dichloroethene	9.59	96	21388	479.533	pg	100
19) Chloroform	9.89	83	39128	493.443	pg	100
21) 1,2-Dichloroethane	10.64	62	27766	454.877	pg	100
22) 1,1,1-Trichloroethane	10.91	97	34543	469.279	pg	100
23) Benzene	11.37	78	84010	480.861	pg	100
24) Carbon Tetrachloride	11.52	117	29864	505.266	pg	100
26) 1,2-Dichloropropane	12.18	63	18754	403.972	pg	98
27) Bromodichloromethane	12.36	83	28420	443.319	pg	100
28) Trichloroethene	12.41	130	21421	452.059	pg	100
29) 1,4-Dioxane	12.38	88	14660	421.329	pg	93
30) cis-1,3-Dichloropropene	13.26	75	28429	455.287	pg	100
31) trans-1,3-Dichloropropene	13.77	75	22633	445.398	pg	99
32) 1,1,2-Trichloroethane	13.95	83	17307	440.740	pg	99
34) Toluene	14.25	91	77238	456.765	pg	100
35) Dibromochloromethane	14.66	129	21187	452.466	pg	100
36) 1,2-Dibromoethane	14.92	107	20419	461.062	pg	99
37) Tetrachloroethene	15.40	166	20799	423.329	pg	95
39) Chlorobenzene	16.10	112	53148	520.694	pg	100
40) Ethylbenzene	16.48	91	74266	493.397	pg	100
41) m,p-Xylene	16.66	91	121363	1074.977	pg	100
42) Styrene	17.01	104	40537	512.500	pg	100
43) o-Xylene	17.12	106	31399	541.378	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	34935	524.228	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	68129	570.070	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	66748	569.022	pg	99
48) 1,3-Dichlorobenzene	18.92	146	40143	556.793	pg	99
49) 1,4-Dichlorobenzene	18.98	146	38914	518.422	pg	99
50) 1,2-Dichlorobenzene	19.31	146	39180	533.262	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	11062	498.061	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	17798	409.249	pg	97
53) Naphthalene	21.07	128	66088	478.569	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241702.D Vial: 16
Acq On : 24 Jan 2017 1:53 Operator: CL
Sample : CCV S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 24 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

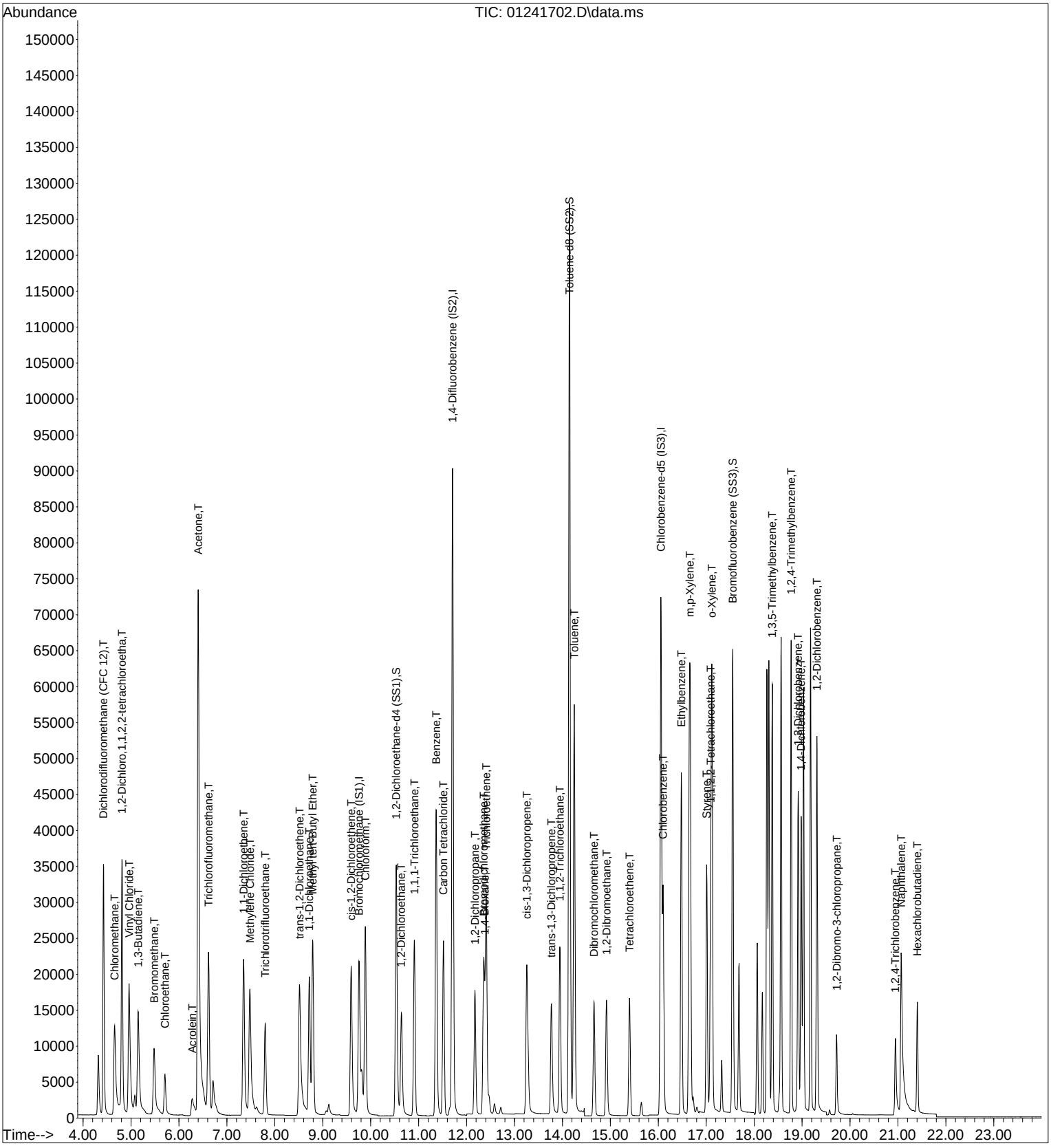
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	15080	438.294	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241702.D Vial: 16
Acq On : 24 Jan 2017 1:53 Operator: CL
Sample : CCV S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 24 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.297	9.1	86	0.03
3	T	Chloromethane	0.753	0.532	29.3	62	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.419	2.7	90	0.02
5	T	Vinyl Chloride	2.415	2.027	16.1	75	0.03
6	T	1,3-Butadiene	1.436	0.871	39.3#	71	0.03
7	T	Bromomethane	0.972	0.850	12.6	85	0.03
8	T	Chloroethane	0.743	0.579	22.1	76	0.03
9	T	Acrolein	0.528	0.338	36.0#	69	0.00
10	T	Acetone	0.682	0.534	21.7	74	-0.02
11	T	Trichlorofluoromethane	1.728	1.676	3.0	89	0.01
12	T	1,1-Dichloroethene	1.083	0.937	13.5	86	0.01
13	T	Methylene Chloride	1.175	1.059	9.9	84	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.982	9.1	90	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.013	13.2	87	0.00
16	T	1,1-Dichloroethane	2.070	1.658	19.9	77	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.487	19.5	82	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.073	12.4	87	-0.02
19	T	Chloroform	2.177	1.899	12.8	83	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.524	12.0	82	-0.02
21	T	1,2-Dichloroethane	1.676	1.338	20.2	79	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.687	16.5	87	-0.02
23	T	Benzene	4.797	4.100	14.5	81	-0.02
24	T	Carbon Tetrachloride	1.623	1.508	7.1	90	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	-0.02
26	T	1,2-Dichloropropane	0.255	0.184	27.8	76	0.00
27	T	Bromodichloromethane	0.352	0.281	20.2	83	0.00
28	T	Trichloroethene	0.260	0.226	13.1	88	0.00
29	T	1,4-Dioxane	0.191	0.150	21.5	83	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.274	20.1	82	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.231	17.2	83	0.00
32	T	1,1,2-Trichloroethane	0.215	0.172	20.0	83	0.00
33	S	Toluene-d8 (SS2)	0.993	0.937	5.6	88	0.00
34	T	Toluene	0.928	0.793	14.5	84	0.00
35	T	Dibromochloromethane	0.257	0.222	13.6	88	0.00
36	T	1,2-Dibromoethane	0.243	0.214	11.9	87	0.00
37	T	Tetrachloroethene	0.270	0.228	15.6	87	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	79	0.00
39	T	Chlorobenzene	3.855	3.964	-2.8	86	0.00
40	T	Ethylbenzene	5.685	5.569	2.0	85	0.00
41	T	m,p-Xylene	4.264	4.486	-5.2	84	0.00
42	T	Styrene	2.987	3.055	-2.3	83	0.00
43	T	o-Xylene	2.190	2.366	-8.0	86	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.499	0.7	82	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.149	-17.5	89	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.146	-14.0	86	0.00
47	T	1,2,4-Trimethylbenzene	4.430	5.061	-14.2	85	0.00
48	T	1,3-Dichlorobenzene	2.723	3.104	-14.0	83	0.00
49	T	1,4-Dichlorobenzene	2.835	2.988	-5.4	82	0.00
50	T	1,2-Dichlorobenzene	2.775	3.012	-8.5	84	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.890	-6.1	85	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.479	9.9	73	0.00
53	T	Naphthalene	5.215	5.143	1.4	71	0.00
54	T	Hexachlorobutadiene	1.299	1.203	7.4	79	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41272	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	202075	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	28240	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	62898	879.970	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.00%			
33) Toluene-d8 (SS2)	14.14	98	189413	943.626	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.36%			
45) Bromofluorobenzene (SS3)	17.55	174	60682	1174.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.46%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	49639	476.084	pg	100
3) Chloromethane	4.65	52	11023	354.857	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	50159	488.968	pg	99
5) Vinyl Chloride	4.95	62	42788	429.267	pg	100
6) 1,3-Butadiene	5.14	54	19005	320.693	pg	95
7) Bromomethane	5.48	94	17428	434.643	pg	100
8) Chloroethane	5.70	64	12056	393.126	pg	100
9) Acrolein	6.27	56	7254	332.977	pg	99
10) Acetone	6.40	58	58538	2078.248	pg	92
11) Trichlorofluoromethane	6.61	101	36272	508.628	pg	100
12) 1,1-Dichloroethene	7.35	96	20474	458.262	pg	92
13) Methylene Chloride	7.48	84	23105	476.556	pg	87
14) Trichlorotrifluoroethane	7.80	151	21263	477.033	pg	99
15) trans-1,2-Dichloroethene	8.51	96	22300	462.991	pg	100
16) 1,1-Dichloroethane	8.72	63	34892	408.323	pg	99
17) Methyl tert-Butyl Ether	8.79	73	54712	429.073	pg	96
18) cis-1,2-Dichloroethene	9.59	96	23556	466.052	pg	100
19) Chloroform	9.89	83	41462	461.407	pg	99
21) 1,2-Dichloroethane	10.64	62	29056	420.050	pg	100
22) 1,1,1-Trichloroethane	10.91	97	37400	448.360	pg	100
23) Benzene	11.36	78	89016	449.615	pg	100
24) Carbon Tetrachloride	11.52	117	32820	489.999	pg	100
26) 1,2-Dichloropropane	12.18	63	19703	382.795	pg	98
27) Bromodichloromethane	12.36	83	30308	426.409	pg	100
28) Trichloroethene	12.41	130	24235	461.291	pg	100
29) 1,4-Dioxane	12.38	88	16097	417.261	pg	91
30) cis-1,3-Dichloropropene	13.25	75	30913	446.520	pg	100
31) trans-1,3-Dichloropropene	13.77	75	24874	441.497	pg	100
32) 1,1,2-Trichloroethane	13.95	83	18435	423.428	pg	96
34) Toluene	14.25	91	84379	450.062	pg	100
35) Dibromochloromethane	14.66	129	23777	457.983	pg	100
36) 1,2-Dibromoethane	14.92	107	22795	464.238	pg	100
37) Tetrachloroethene	15.40	166	24390	447.738	pg	98
39) Chlorobenzene	16.10	112	59389	545.535	pg	100
40) Ethylbenzene	16.48	91	82956	516.743	pg	99
41) m,p-Xylene	16.66	91	134489	1116.915	pg	99
42) Styrene	17.01	104	45773	542.590	pg	100
43) o-Xylene	17.12	106	35215	569.290	pg	97
44) 1,1,2,2-Tetrachloroethane	17.09	83	37265	524.301	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	76222	597.994	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	75179	600.908	pg	99
48) 1,3-Dichlorobenzene	18.92	146	46368	603.008	pg	100
49) 1,4-Dichlorobenzene	18.98	146	44637	557.562	pg	100
50) 1,2-Dichlorobenzene	19.31	146	45002	574.286	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13231	558.550	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	21775	469.457	pg	98
53) Naphthalene	21.07	128	78645	533.966	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

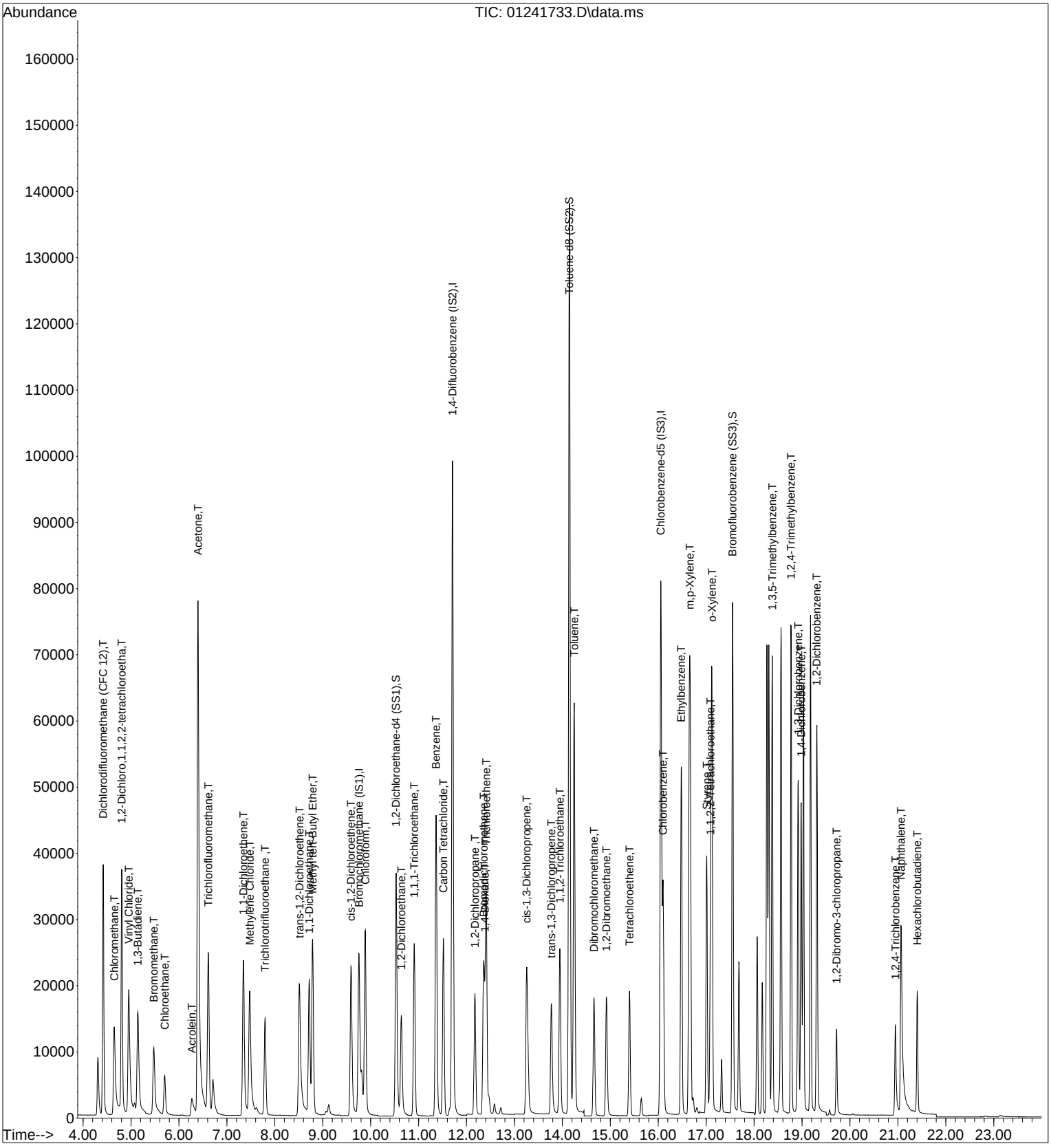
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	17994	490.358	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



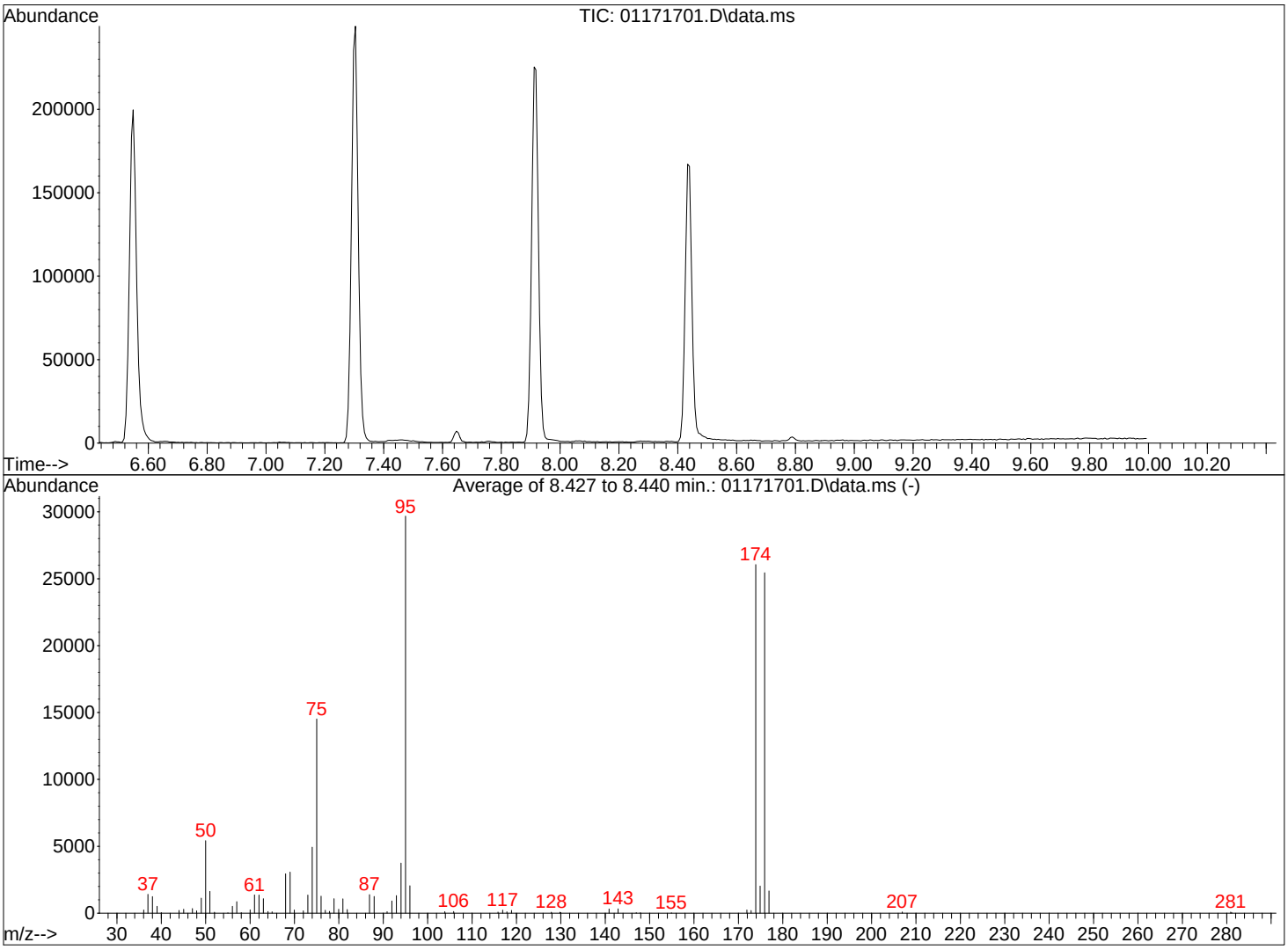
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

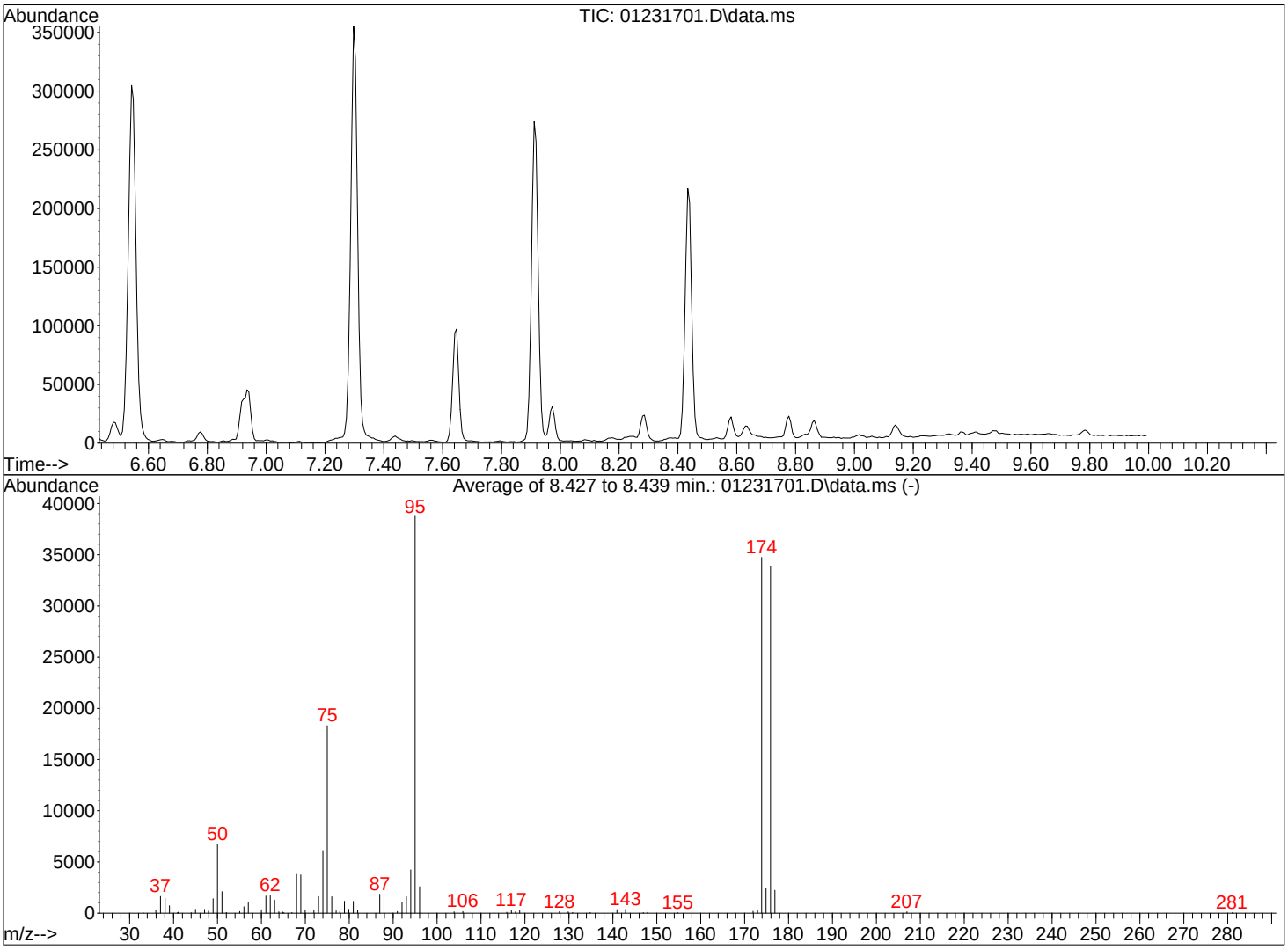
BFB

Data Path : I:\MS19\DATA\2017 01\23\
Data File : 01231701.D
Acq On : 23 Jan 2017 7:17
Operator : CL
Sample : BFB S19012317
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/23/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

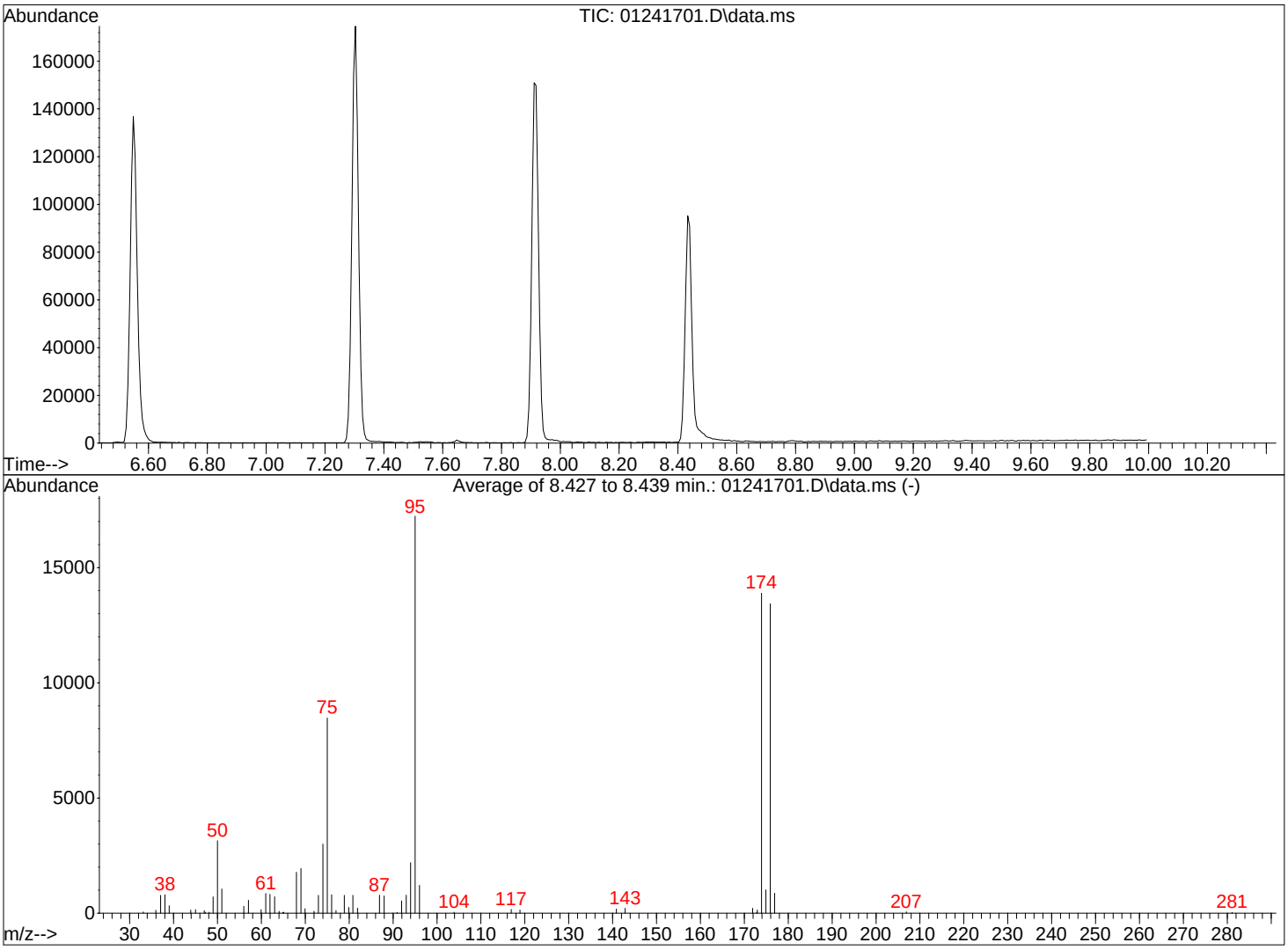
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.4	6746	PASS
75	95	30	66	47.2	18311	PASS
95	95	100	100	100.0	38765	PASS
96	95	5	9	6.7	2586	PASS
173	174	0.00	2	0.8	264	PASS
174	95	50	120	89.6	34739	PASS
175	174	4	9	7.1	2472	PASS
176	174	93	101	97.4	33829	PASS
177	176	5	9	6.6	2237	PASS

BFB

Data Path : I:\MS19\DATA\2017 01\24\
Data File : 01241701.D
Acq On : 24 Jan 2017 1:35
Operator : CL
Sample : BFB S19012417
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) CL 1/24/17
Last Update : Wed Jan 18 07:47:58 2017



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 702

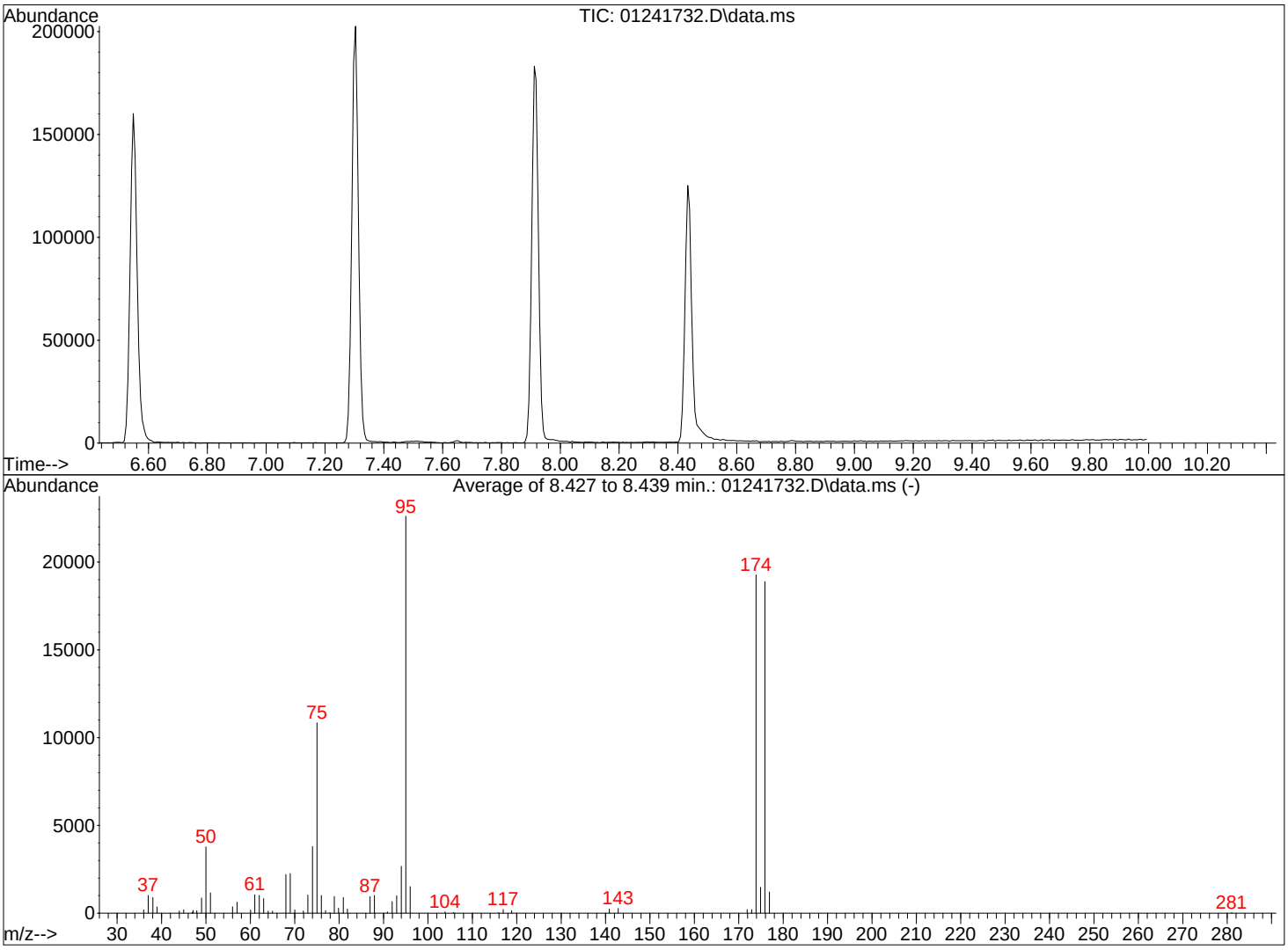
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.3	3147	PASS
75	95	30	66	49.2	8474	PASS
95	95	100	100	100.0	17232	PASS
96	95	5	9	7.0	1208	PASS
173	174	0.00	2	1.0	140	PASS
174	95	50	120	80.6	13893	PASS
175	174	4	9	7.3	1013	PASS
176	174	93	101	96.7	13430	PASS
177	176	5	9	6.5	868	PASS

Data Path : I:\MS19\DATA\2017 01\24\
Data File : 01241732.D
Acq On : 24 Jan 2017 19:50
Operator : CL
Sample : BFB2 S19012417
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/25/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.7	3776	PASS
75	95	30	66	48.0	10851	PASS
95	95	100	100	100.0	22616	PASS
96	95	5	9	6.7	1513	PASS
173	174	0.00	2	1.1	207	PASS
174	95	50	120	85.2	19277	PASS
175	174	4	9	7.7	1479	PASS
176	174	93	101	98.0	18889	PASS
177	176	5	9	6.4	1213	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\23\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/23/17 7:17	01231701.D	BFB S19012317	S29-12201602	CL	2	Pass
2	1/23/17 7:35	01231702.D	CCV S19012317_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
3	1/23/17 8:06	01231703.D	MB S19012317_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/23/17 8:38	01231704.D	LCS S19012317_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
5	1/23/17 9:09	01231705.D	LCSD S19012317_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/23/17 10:15	01231706.D	P1700173-001 (1000mL)	S29-12201602	CL	1	
7	1/23/17 10:47	01231707.D	P1700173-002 (1000mL)	S29-12201602	CL	3	
8	1/23/17 11:18	01231708.D	P1700173-003 (1000mL)	S29-12201602	CL	4	
9	1/23/17 11:49	01231709.D	P1700173-004 (1000mL)	S29-12201602	CL	5	
10	1/23/17 12:20	01231710.D	P1700173-005 (1000mL)	S29-12201602	CL	6	
11	1/23/17 12:51	01231711.D	blank	S29-12201602	CL	2	No IS
12	1/23/17 13:23	01231712.D	P1700234-001 (1000mL)	S29-12201602	CL	7	
13	1/23/17 13:55	01231713.D	P1700234-002 (1000mL)	S29-12201602	CL	8	
14	1/23/17 14:26	01231714.D	P1700234-003 (1000mL)	S29-12201602	CL	9	
15	1/23/17 14:57	01231715.D	P1700234-004 (1000mL)	S29-12201602	CL	10	
16	1/23/17 15:28	01231716.D	P1700234-005 (1000mL)	S29-12201602	CL	11	
17	1/23/17 16:11	01231717.D	P1700234-006 (1000mL)	S29-12201602	CL	12	
18	1/23/17 16:50	01231718.D	blank	S29-12201602	CL	2	No IS
19	1/23/17 17:21	01231719.D	P1700234-007 (1000mL)	S29-12201602	CL	13	IS1 Fail
20	1/23/17 17:53	01231720.D	P1700234-007dup (1000mL)	S29-12201602	CL	13	Use for run
21	1/23/17 18:24	01231721.D	P1700234-008 (1000mL)	S29-12201602	CL	14	
22	1/23/17 18:55	01231722.D	P1700234-009 (1000mL)	S29-12201602	CL	15	
23	1/23/17 19:27	01231723.D	P1700234-010 (1000mL)	S29-12201602	CL	1	
24	1/23/17 19:58	01231724.D	blank	S29-12201602	CL	2	No IS
25	1/23/17 20:29	01231725.D	P1700234-011 (1000mL)	S29-12201602	CL	3	
26	1/23/17 21:01	01231726.D	P1700234-012 (1000mL)	S29-12201602	CL	4	
27	1/23/17 21:32	01231727.D	P1700234-013 (1000mL)	S29-12201602	CL	5	
28	1/23/17 22:04	01231728.D	P1700234-014 (1000mL)	S29-12201602	CL	6	
29	1/23/17 22:35	01231729.D	CCV S19012417_500pg_End	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
30	1/23/17 23:06	01231730.D	blank	S29-12201602	CL	2	No IS
31	1/24/17 1:04	01231731.D	blank	S29-12201602	CL	2	No IS

CL 1/24/17

Injection Log

Directory: I:\MS19\DATA\2017_01\24\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/24/17 1:35	01241701.D	BFB S19012417	S29-12201602	CL	2	Pass
2	1/24/17 1:53	01241702.D	CCV S19012417_500pg	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
3	1/24/17 2:24	01241703.D	MB S19012417_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/24/17 2:56	01241704.D	LCS S19012417_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
5	1/24/17 3:27	01241705.D	LCSD S19012417_500pg	S29-12201602/S29-01171714 (1/17)	CL	2	Pass
6	1/24/17 3:58	01241706.D	P1700234-015 (1000mL)	S29-12201602	CL	7	
7	1/24/17 4:29	01241707.D	P1700234-016 (1000mL)	S29-12201602	CL	8	
8	1/24/17 5:01	01241708.D	P1700234-017 (1000mL)	S29-12201602	CL	9	
9	1/24/17 5:32	01241709.D	P1700234-018 (1000mL)	S29-12201602	CL	10	
10	1/24/17 6:03	01241710.D	P1700234-019 (1000mL)	S29-12201602	CL	11	
11	1/24/17 6:34	01241711.D	P1700234-020 (1000mL)	S29-12201602	CL	12	
12	1/24/17 9:01	01241712.D	xxP1700163-001 (1000mL)xx	S29-12201602	CL	15	
13	1/24/17 9:33	01241713.D	P1700234-021 (1000mL)	S29-12201602	CL	1	
14	1/24/17 10:04	01241714.D	P1700234-022 (1000mL)	S29-12201602	CL	3	
15	1/24/17 10:35	01241715.D	P1700234-023 (1000mL)	S29-12201602	CL	4	
16	1/24/17 11:07	01241716.D	blank	S29-12201602	CL	2	No IS
17	1/24/17 11:38	01241717.D	P1700234-024 (1000mL)	S29-12201602	CL	5	
18	1/24/17 12:10	01241718.D	P1700234-024dup (1000mL)	S29-12201602	CL	5	Pass for Dup
19	1/24/17 12:41	01241719.D	P1700234-025 (1000mL)	S29-12201602	CL	6	
20	1/24/17 13:12	01241720.D	P1700234-026 (1000mL)	S29-12201602	CL	7	
21	1/24/17 13:43	01241721.D	xxP1700234-027 (1000mL)xx	S29-12201602	CL	8	IS1 Fail
22	1/24/17 14:14	01241722.D	P1700234-028 (1000mL)	S29-12201602	CL	9	
23	1/24/17 14:46	01241723.D	blank	S29-12201602	CL	2	No IS
24	1/24/17 15:17	01241724.D	P1700234-027 (500mL)	S29-12201602	CL	8	
25	1/24/17 15:48	01241725.D	P1700234-029 (1000mL)	S29-12201602	CL	10	
26	1/24/17 16:20	01241726.D	P1700234-030 (1000mL)	S29-12201602	CL	11	
27	1/24/17 17:14	01241727.D	P1700234-031 (1000mL)	S29-12201602	CL	12	
28	1/24/17 17:45	01241728.D	P1700234-032 (1000mL)	S29-12201602	CL	13	
29	1/24/17 18:16	01241729.D	P1700234-033 (1000mL)	S29-12201602	CL	14	
30	1/24/17 18:47	01241730.D	CCV S19012417_500pg_End	S29-12201602/S29-01171706 (1/17)	CL	16	Pass
31	1/24/17 19:19	01241731.D	blank	S29-12201602	CL	2	No IS

CL 1/25/17

Injection Log

Directory: I:\MS19\DATA\2017_01\24\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/24/17 19:50	01241732.D	BFB S19012417	S29-12201602	CL	2	Pass
2	1/24/17 20:10	01241733.D	CCV2 S19012417_500pg	S29-12201602/S29-01171706 (2/15)	CL	16	Pass
3	1/24/17 20:41	01241734.D	MB2 S19012417_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/24/17 21:12	01241735.D	LCS2 S19012417_500pg	S29-12201602/S29-01171714 (2/15)	CL	2	Pass
5	1/24/17 21:44	01241736.D	LCSD2 S19012417_500pg	S29-12201602/S29-01171714 (2/15)	CL	2	Pass
6	1/24/17 22:15	01241737.D	P1700234-034 (1000mL)	S29-12201602	CL	15	
7	1/24/17 22:47	01241738.D	P1700234-035 (1000mL)	S29-12201602	CL	1	
8	1/24/17 23:18	01241739.D	P1700234-036 (1000mL)	S29-12201602	CL	3	
9	1/24/17 23:50	01241740.D	P1700234-037 (1000mL)	S29-12201602	CL	4	
10	1/25/17 0:21	01241741.D	P1700260-001 (1000mL)	S29-12201602	CL	5	
11	1/25/17 0:52	01241742.D	blank	S29-12201602	CL	2	No IS
12	1/25/17 1:24	01241743.D	P1700260-002 (1000mL)	S29-12201602	CL	6	
13	1/25/17 1:55	01241744.D	P1700260-003 (1000mL)	S29-12201602	CL	7	
14	1/25/17 2:26	01241745.D	P1700260-004 (1000mL)	S29-12201602	CL	8	
15	1/25/17 2:57	01241746.D	P1700260-005 (1000mL)	S29-12201602	CL	9	
16	1/25/17 3:29	01241747.D	P1700260-006 (1000mL)	S29-12201602	CL	10	
17	1/25/17 4:00	01241748.D	P1700260-007 (1000mL)	S29-12201602	CL	11	
18	1/25/17 8:10	01241749.D	CCV Test	S29-12201602/S29-01051707 (2/3)	CL	15	
19	1/25/17 8:42	01241750.D	P1700260-012 (1000mL)	S29-12201602	CL	6	
20	1/25/17 9:13	01241751.D	CCV Test	S29-12201602/S29-01051708 (2/3)	CL	15	
21	1/25/17 9:44	01241752.D	P1700260-008 (1000mL)	S29-12201602	CL	1	
22	1/25/17 10:15	01241753.D	P1700260-009 (1000mL)	S29-12201602	CL	3	
23	1/25/17 10:47	01241754.D	P1700260-010 (1000mL)	S29-12201602	CL	4	
24	1/25/17 11:18	01241755.D	P1700260-011 (1000mL)	S29-12201602	CL	5	
25	1/25/17 11:49	01241756.D	blank	S29-12201602	CL	2	No IS
26	1/25/17 12:21	01241757.D	P1700260-013 (1000mL)	S29-12201602	CL	7	
27	1/25/17 12:52	01241758.D	P1700260-014 (1000mL)	S29-12201602	CL	8	
28	1/25/17 13:24	01241759.D	P1700260-015 (1000mL)	S29-12201602	CL	9	
29	1/25/17 13:55	01241760.D	P1700260-015dup (1000mL)	S29-12201602	CL	9	Pass for Dup
30	1/25/17 14:27	01241761.D	CCV S19012417_500pg_End	S29-12201602/S29-01051708 (2/3)	CL	16	Pass

CL 1/25/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281617.D
Acq On : 28 Dec 2016 10:40 pm
Operator : JM
Sample : AS01032 FCA00597
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

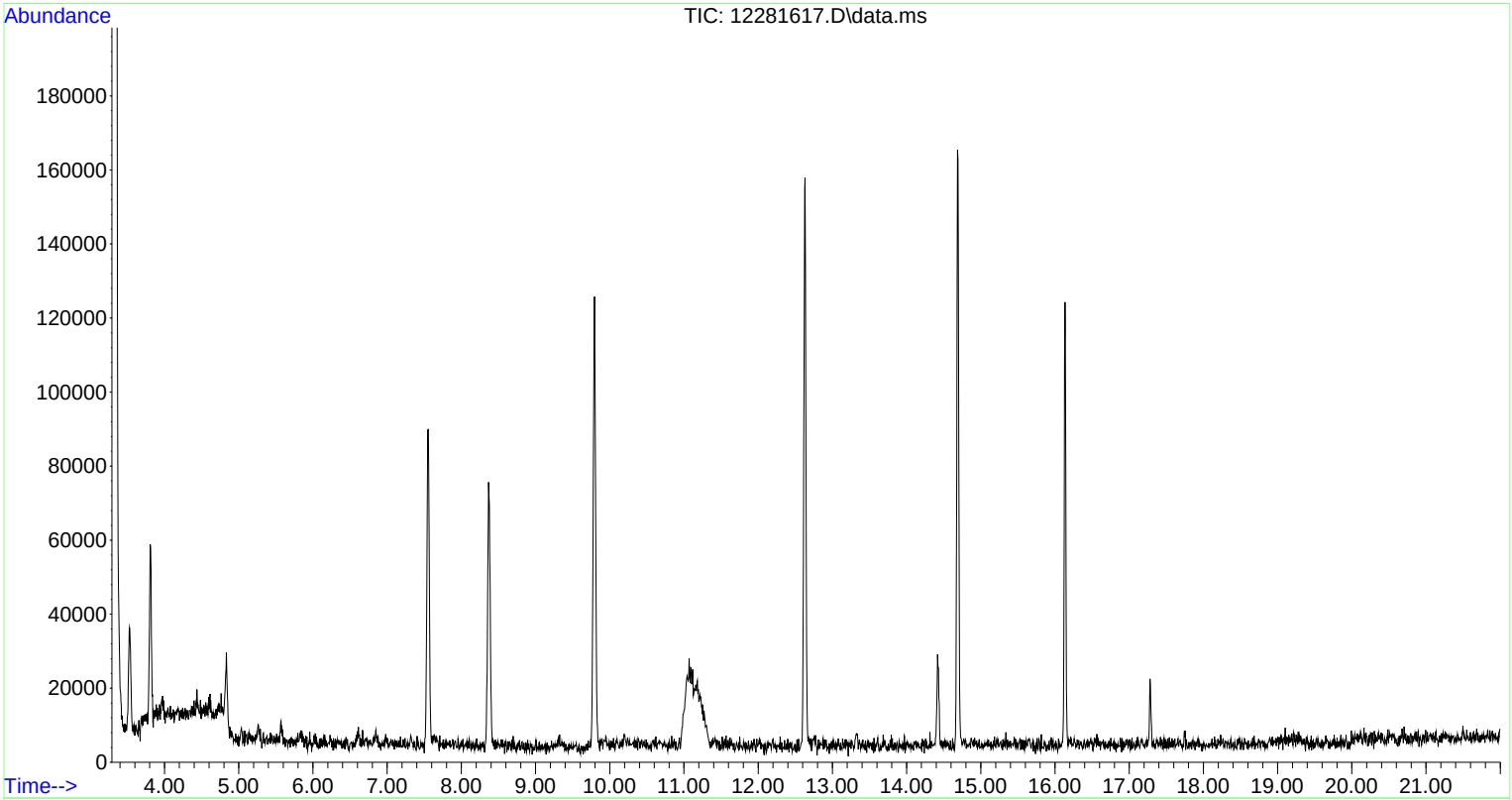
Quant Time: Dec 29 10:01:18 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

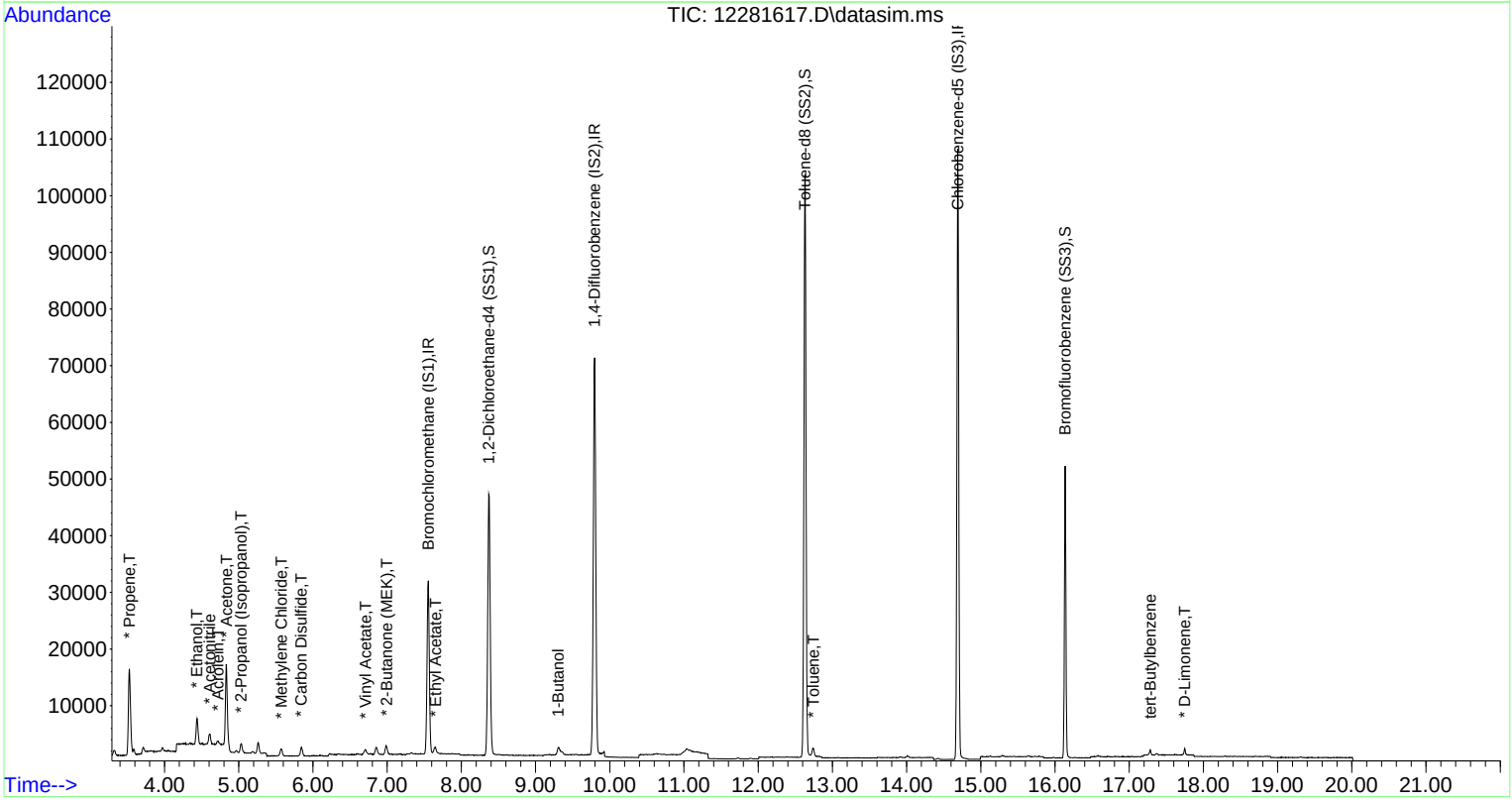
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	37207	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	128937	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	100674	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	69815	952.757	pg		0.00
Spiked Amount 1000.000			Recovery = 95.28%				
57) Toluene-d8 (SS2)	12.63	98	116249	944.962	pg		0.00
Spiked Amount 1000.000			Recovery = 94.50%				
74) Bromofluorobenzene (SS3)	16.14	174	35977	887.964	pg		0.00
Spiked Amount 1000.000			Recovery = 88.80%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7502	100.457	pg		80
10) * Ethanol	4.44	45	5271	103.488	pg		96
11) * Acetonitrile	4.61	41	2371	18.566	pg		91
12) * Acrolein	4.72	56	668	15.655	pg		93
13) * Acetone	4.84	58	7247	150.639	pg	#	62
15) * 2-Propanol (Isopropa...	5.03	45	2356	18.075	pg		93
19) * Methylene Chloride	5.58	84	1193	22.262	pg		94
22) * Carbon Disulfide	5.84	76	2842	14.466	pg		97
26) * Vinyl Acetate	6.71	86	272	26.959	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	509	17.627	pg		95
30) * Ethyl Acetate	7.65	61	219	14.835	pg	#	53
41) 1-Butanol	9.31	56	1172	42.047	pg	#	45
58) * Toluene	12.74	91	1781	12.517	pg		99
83) tert-Butylbenzene	17.28	134	363	19.692	pg	#	1
93) * D-Limonene	17.75	68	610	18.680	pg		85

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281617.D
Acq On : 28 Dec 2016 10:40 pm
Operator : JM
Sample : AS01032 FCA00597
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 29 10:01:18 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041711.D
Acq On : 4 Jan 2017 5:56 pm
Operator : JM
Sample : AS01060 FCA01070
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

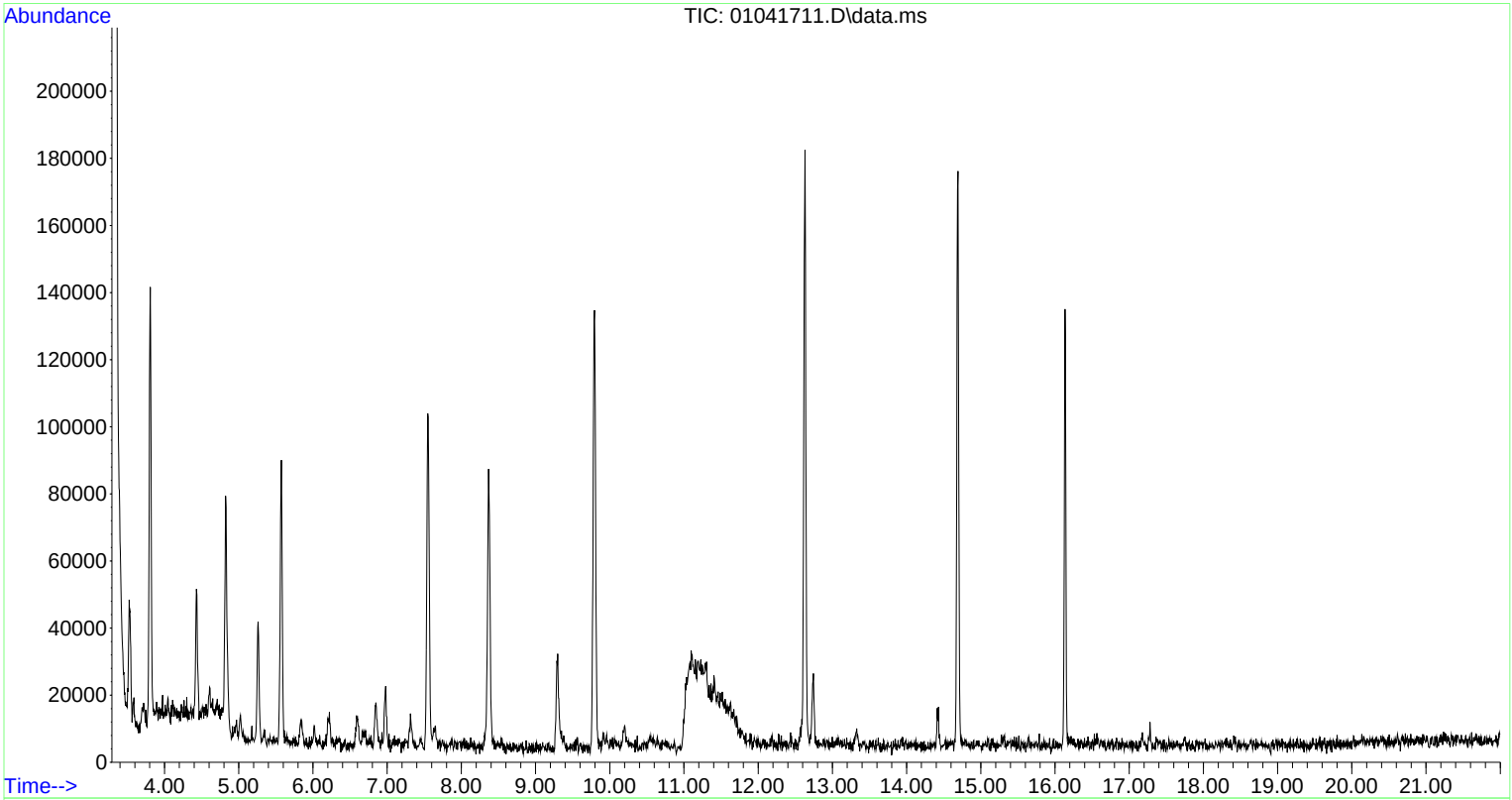
Quant Time: Jan 05 08:03:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

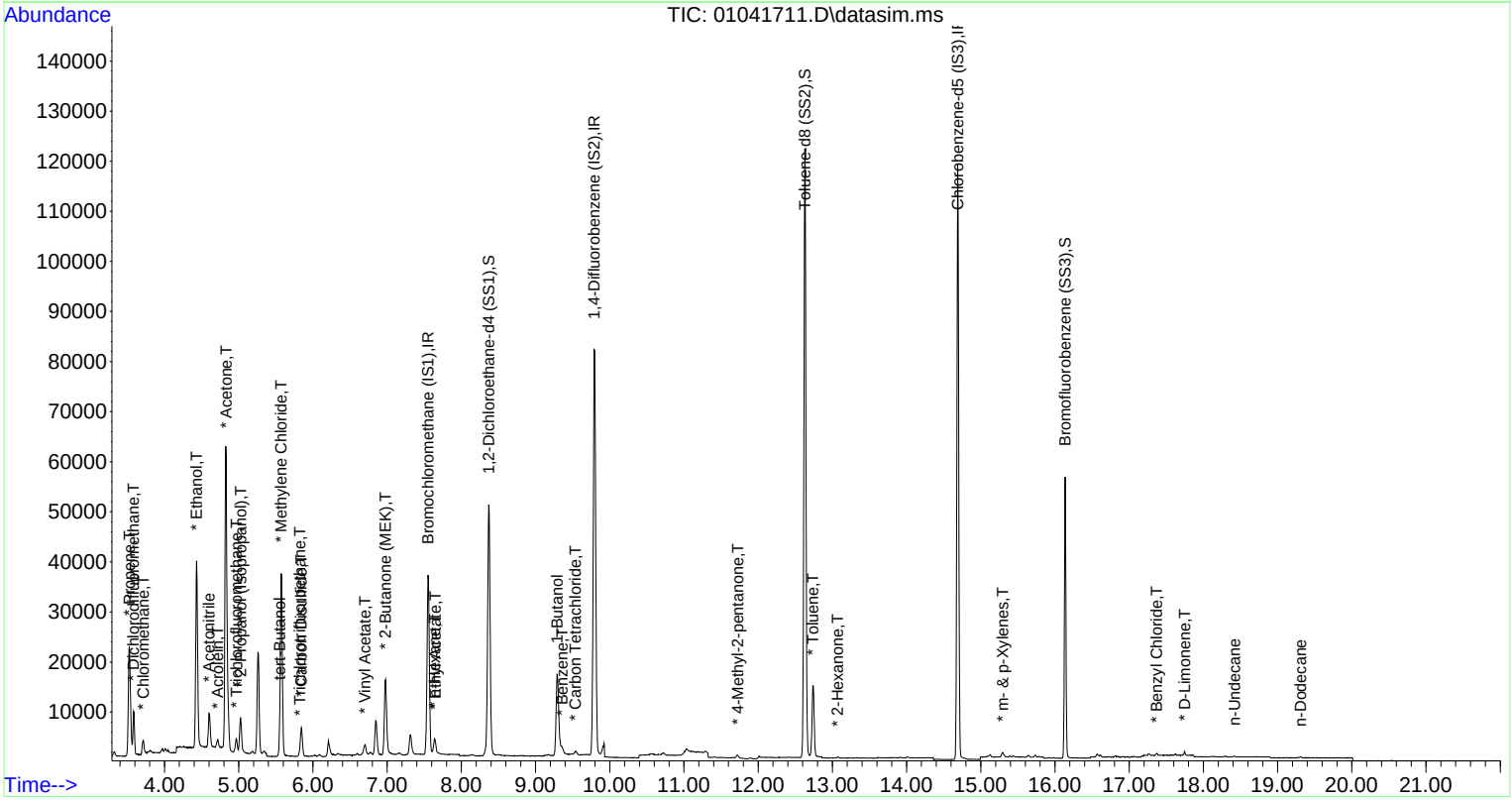
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44624	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	151621	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	113433	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75107	854.614	pg		0.00
Spiked Amount 1000.000			Recovery = 85.46%				
57) Toluene-d8 (SS2)	12.63	98	134678	971.628	pg		0.00
Spiked Amount 1000.000			Recovery = 97.16%				
74) Bromofluorobenzene (SS3)	16.14	174	39316	861.227	pg		0.00
Spiked Amount 1000.000			Recovery = 86.12%				
Target Compounds							Qvalue
2) * Propene	3.53	42	11077	123.675	pg		82
3) * Dichlorodifluoromethane	3.58	85	8938	46.847	pg		99
4) * Chloromethane	3.71	50	3245	22.752	pg		95
10) * Ethanol	4.43	45	41259	675.414	pg		99
11) * Acetonitrile	4.60	41	8336	54.425	pg		93
12) * Acrolein	4.71	56	1649	32.221	pg		99
13) * Acetone	4.83	58	32864	569.582	pg	#	46
14) * Trichlorofluoromethane	4.97	101	3200	25.106	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	9575	61.248	pg		99
18) tert-Butanol	5.55	59	1292	13.712	pg	#	1
19) * Methylene Chloride	5.57	84	42035	654.031	pg		99
21) * Trichlorotrifluoroet...	5.82	151	678	13.572	pg		94
22) * Carbon Disulfide	5.84	76	10076	42.764	pg		99
26) * Vinyl Acetate	6.70	86	462	38.180	pg	#	8
27) * 2-Butanone (MEK)	6.98	72	5484	158.353	pg		86
30) * Ethyl Acetate	7.65	61	485	27.393	pg	#	82
31) * n-Hexane	7.64	57	1526	16.761	pg		99
39) * Benzene	9.36	78	1951	11.158	pg		98
41) 1-Butanol	9.29	56	16067	490.180	pg	#	45
42) * Carbon Tetrachloride	9.54	117	807	11.863	pg		99
53) * 4-Methyl-2-pentanone	11.73	58	318	10.066	pg	#	74
58) * Toluene	12.74	91	17303	107.926	pg		99
59) * 2-Hexanone	13.07	58	434	15.825	pg	#	68
67) * m- & p-Xylenes	15.29	91	1210	11.519	pg		98
85) * Benzyl Chloride	17.37	126	85	10.090	pg	#	19
93) * D-Limonene	17.75	68	402	10.926	pg		94
96) n-Undecane	18.42	85	118	12.916	pg	#	1
99) n-Dodecane	19.31	85	62	10.805	pg		86

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041711.D
Acq On : 4 Jan 2017 5:56 pm
Operator : JM
Sample : AS01060 FCA01070
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 05 08:03:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031721.D
Acq On : 4 Jan 2017 2:08 am
Operator : SM
Sample : AS00260 FCA00646
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

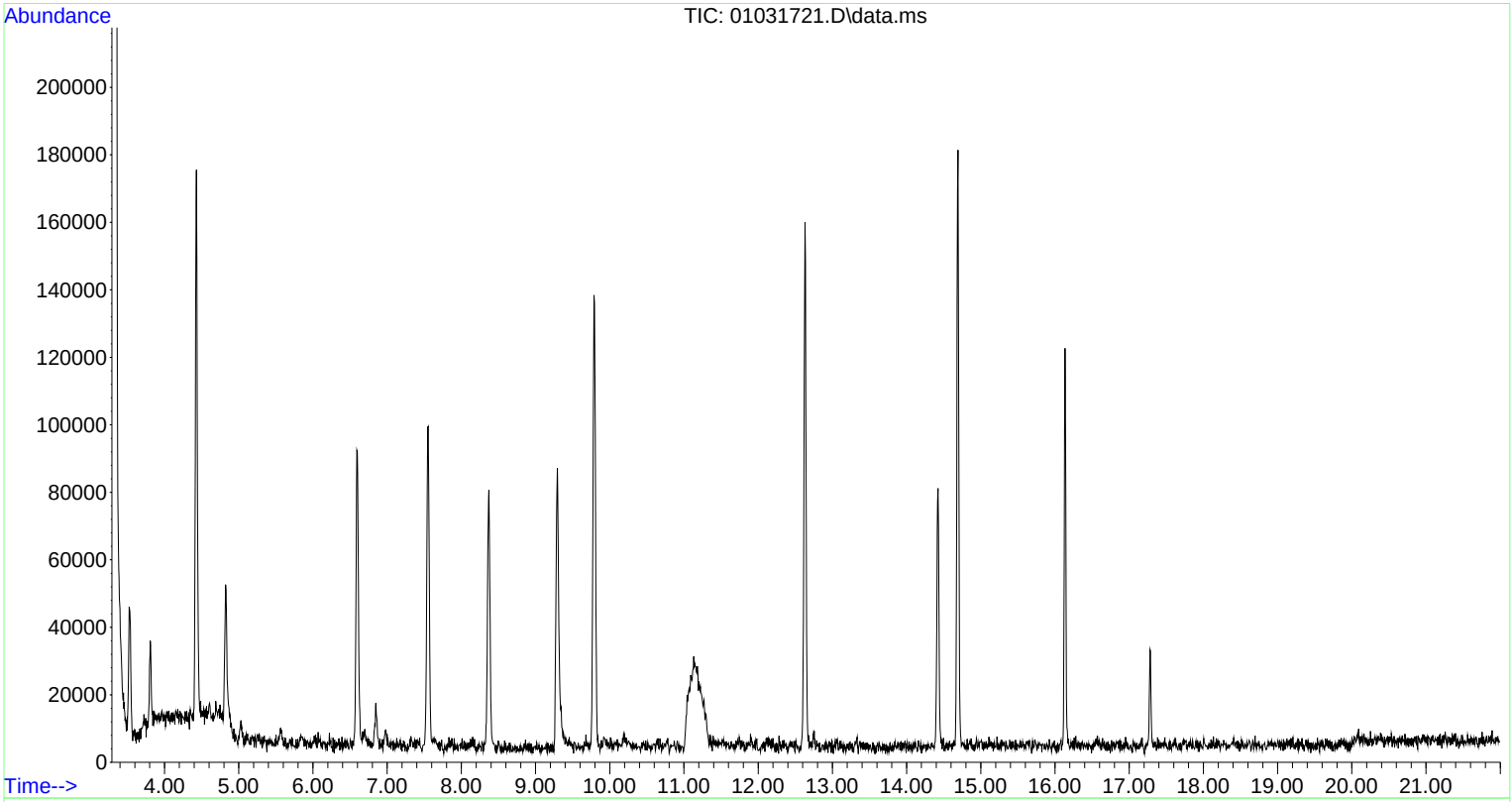
Quant Time: Jan 04 09:31:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

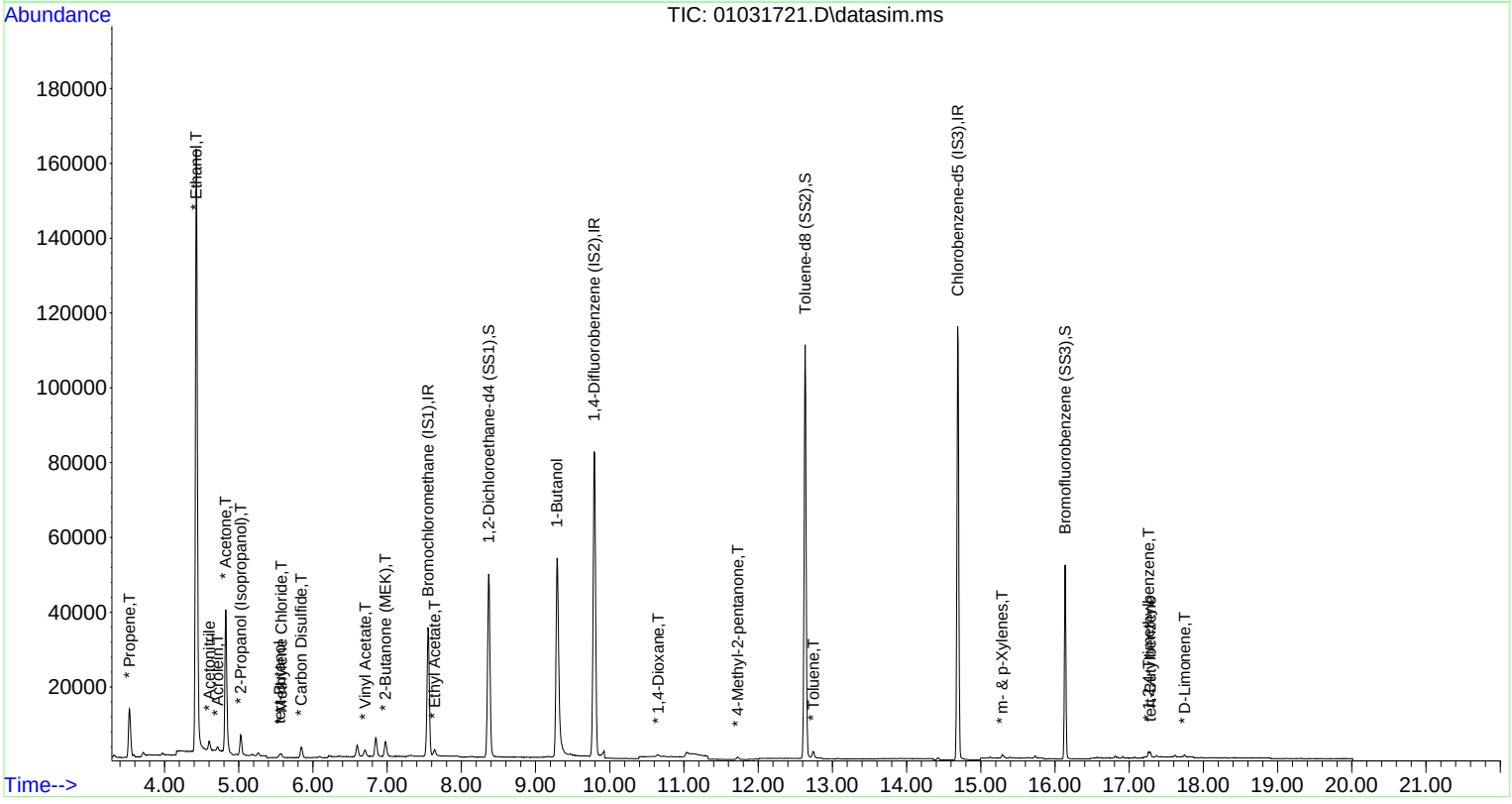
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42358	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	151356	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110730	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73221	877.724	pg		0.00
Spiked Amount 1000.000			Recovery = 87.77%				
57) Toluene-d8 (SS2)	12.63	98	121092	894.938	pg		0.00
Spiked Amount 1000.000			Recovery = 89.49%				
74) Bromofluorobenzene (SS3)	16.14	174	36405	816.927	pg		0.00
Spiked Amount 1000.000			Recovery = 81.69%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6104	71.797	pg	#	72
10) * Ethanol	4.43	45	186361	3213.954	pg		100
11) * Acetonitrile	4.60	41	2953	20.311	pg		88
12) * Acrolein	4.71	56	1093	22.500	pg		100
13) * Acetone	4.82	58	18364	335.302	pg	#	60
15) * 2-Propanol (Isopropa...	5.03	45	7255	48.890	pg		97
18) tert-Butanol	5.55	59	1035	11.572	pg		88
19) * Methylene Chloride	5.58	84	953	15.621	pg		95
22) * Carbon Disulfide	5.84	76	5324	23.805	pg		100
26) * Vinyl Acetate	6.71	86	413	35.956	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1498	45.569	pg		83
30) * Ethyl Acetate	7.64	61	325	19.338	pg		86
41) 1-Butanol	9.29	56	53835	1645.301	pg	#	45
48) * 1,4-Dioxane	10.65	88	658	18.075	pg		100
53) * 4-Methyl-2-pentanone	11.73	58	341	10.813	pg	#	86
58) * Toluene	12.74	91	2041	13.041	pg		97
67) * m- & p-Xylenes	15.29	91	1184	11.546	pg		93
83) tert-Butylbenzene	17.28	134	534	26.338	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	1207	14.797	pg		85
93) * D-Limonene	17.75	68	369	10.273	pg		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031721.D
Acq On : 4 Jan 2017 2:08 am
Operator : SM
Sample : AS00260 FCA00646
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 04 09:31:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041706.D
Acq On : 4 Jan 2017 11:54 am
Operator : SM
Sample : AS01083 FCA00492
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 05 08:02:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	43262	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	146213	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109610	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	73615	864.008 pg		0.00
Spiked Amount 1000.000			Recovery = 86.40%			
57) Toluene-d8 (SS2)	12.63	98	136235	1017.141 pg		0.00
Spiked Amount 1000.000			Recovery = 101.71%			
74) Bromofluorobenzene (SS3)	16.14	174	39253	889.837 pg		0.00
Spiked Amount 1000.000			Recovery = 88.98%			
Target Compounds						Qvalue
2) * Propene	3.52	42	18198	209.577 pg	#	58
3) * Dichlorodifluoromethane	3.58	85	57673	311.800 pg		100
4) * Chloromethane	3.71	50	15846	114.602 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	2027	14.763 pg		99
8) * Bromomethane	4.22	94	1051	12.510 pg		94
10) * Ethanol	4.43	45	42064	710.271 pg		100
11) * Acetonitrile	4.60	41	15226	102.539 pg		99
12) * Acrolein	4.71	56	2241	45.167 pg		99
13) * Acetone	4.82	58	65944	1178.889 pg		81
14) * Trichlorofluoromethane	4.97	101	20909	169.210 pg		100
15) * 2-Propanol (Isopropa...	5.02	45	72779	480.197 pg		91
18) tert-Butanol	5.55	59	1628	17.822 pg	#	1
19) * Methylene Chloride	5.57	84	48993	786.291 pg		99
21) * Trichlorotrifluoroet...	5.82	151	3618	74.706 pg		95
22) * Carbon Disulfide	5.84	76	15368	67.278 pg		98
27) * 2-Butanone (MEK)	6.98	72	2170	64.632 pg		87
29) DIPE	7.63	45	10647	54.411 pg	#	58
30) * Ethyl Acetate	7.63	61	10133	590.343 pg		99
31) * n-Hexane	7.64	57	4205	47.639 pg		100
32) * Chloroform	7.69	83	1405	12.878 pg		96
36) * 1,2-Dichloroethane	8.49	62	953	10.321 pg		95
39) * Benzene	9.35	78	11273	66.854 pg		98
41) 1-Butanol	9.29	56	5007	158.406 pg	#	54
42) * Carbon Tetrachloride	9.54	117	4875	74.314 pg		99
43) * Cyclohexane	9.71	84	837	15.603 pg		96
49) Isooctane	10.72	56	3689	45.769 pg	#	68
51) * n-Heptane	11.04	71	2161	24.959 pg		91
53) * 4-Methyl-2-pentanone	11.72	58	814	26.720 pg	#	69
58) * Toluene	12.74	91	48054	310.187 pg		100
62) * n-Butyl Acetate	13.80	56	272	14.352 pg		94
63) * n-Octane	13.91	85	350	14.483 pg		96
64) * Tetrachloroethene	14.01	166	984	19.100 pg		95
66) * Ethylbenzene	15.12	91	3495	26.751 pg		99
67) * m- & p-Xylenes	15.29	91	7351	72.418 pg		95
69) Cyclohexanone	15.44	98	297	26.197 pg		92
71) * o-Xylene	15.73	91	2453	24.705 pg		98
72) * n-Nonane	15.98	57	499	11.151 pg	#	87
76) * alpha-Pinene	16.61	93	1718	26.694 pg		99
78) 3-Ethyltoluene	16.81	105	981	10.797 pg		90
84) * 1,2,4-Trimethylbenzene	17.26	105	1374	17.016 pg	#	82
88) n-Decane	17.38	85	362	23.448 pg	#	51
93) * D-Limonene	17.75	68	1102	30.995 pg	#	69
96) n-Undecane	18.42	85	148	16.765 pg	#	28
99) n-Dodecane	19.31	85	64	11.543 pg		78

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041706.D
Acq On : 4 Jan 2017 11:54 am
Operator : SM
Sample : AS01083 FCA00492
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

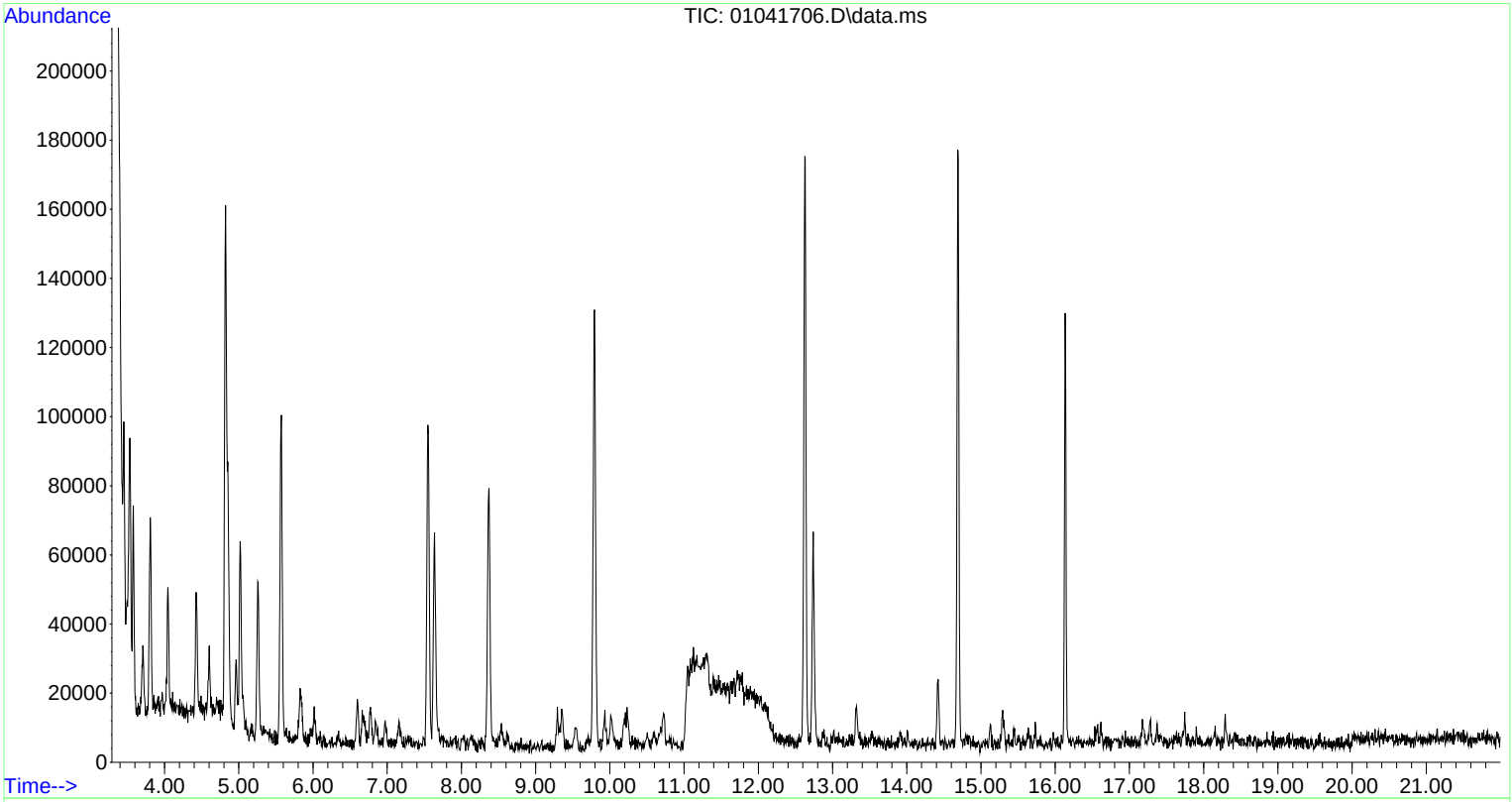
Quant Time: Jan 05 08:02:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

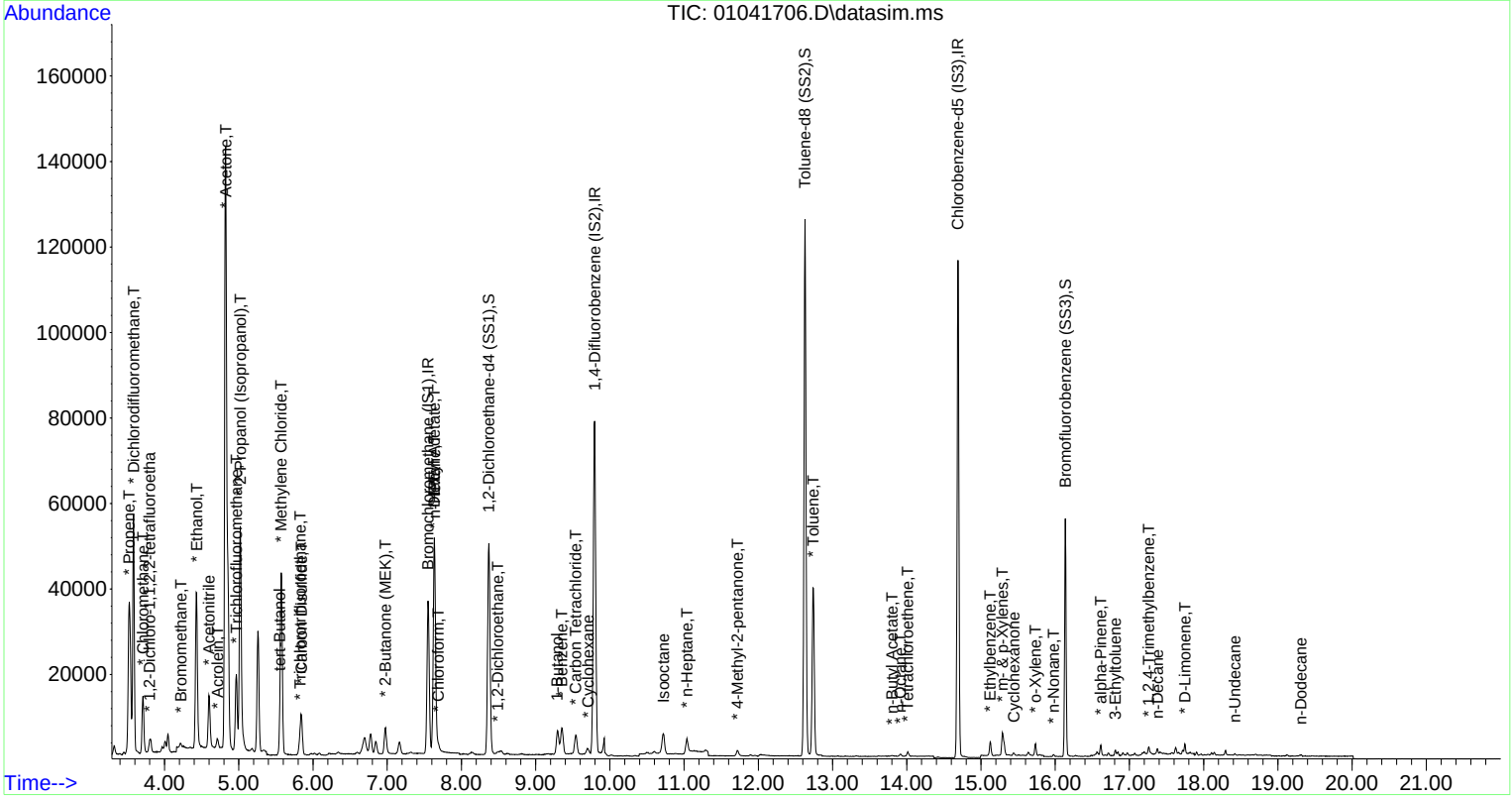
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041706.D
Acq On : 4 Jan 2017 11:54 am
Operator : SM
Sample : AS01083 FCA00492
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 05 08:02:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231613.D
Acq On : 23 Dec 2016 1:32 pm
Operator : SM
Sample : AS00813 FCA00174
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

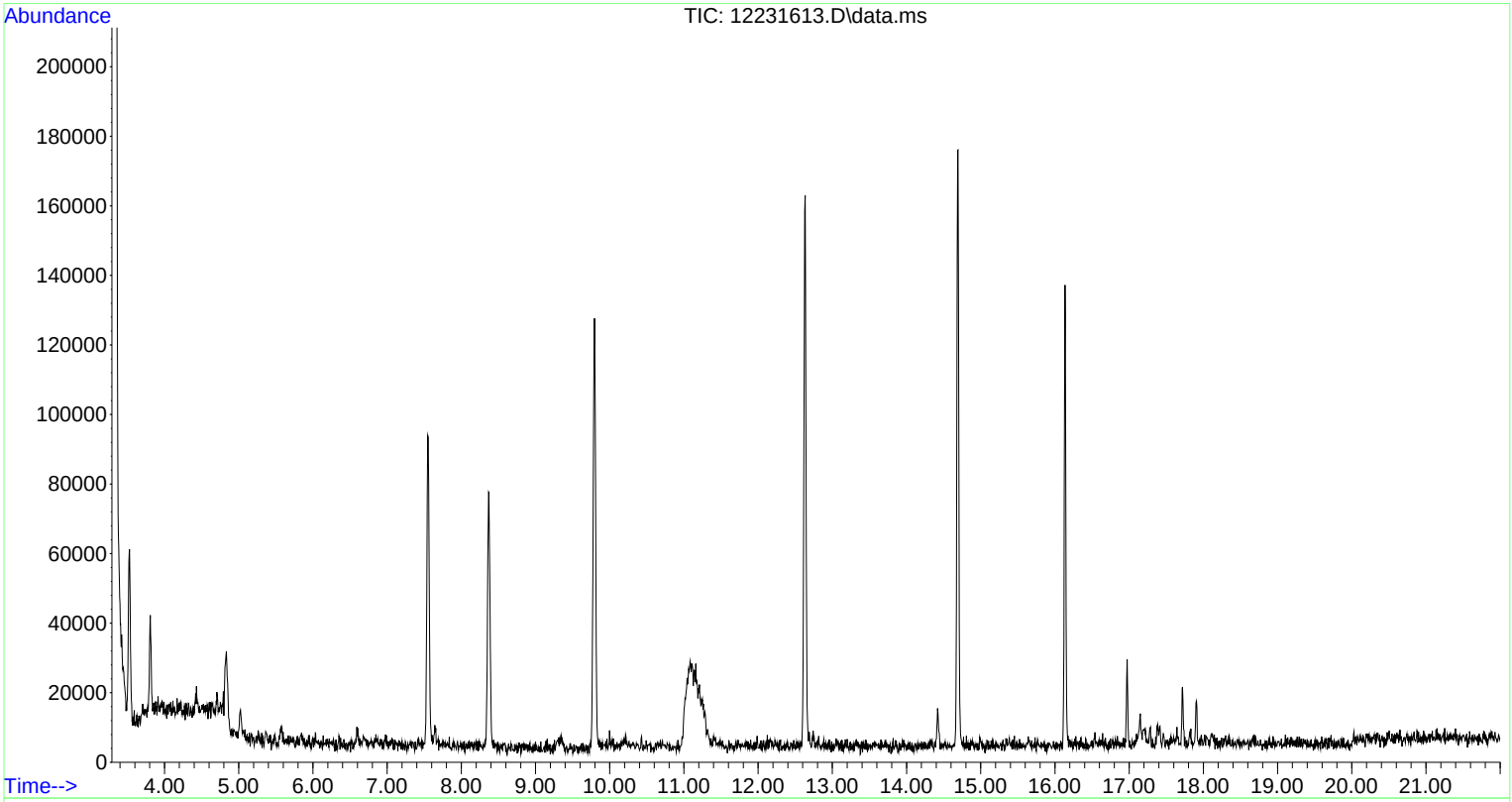
Quant Time: Dec 27 08:41:29 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

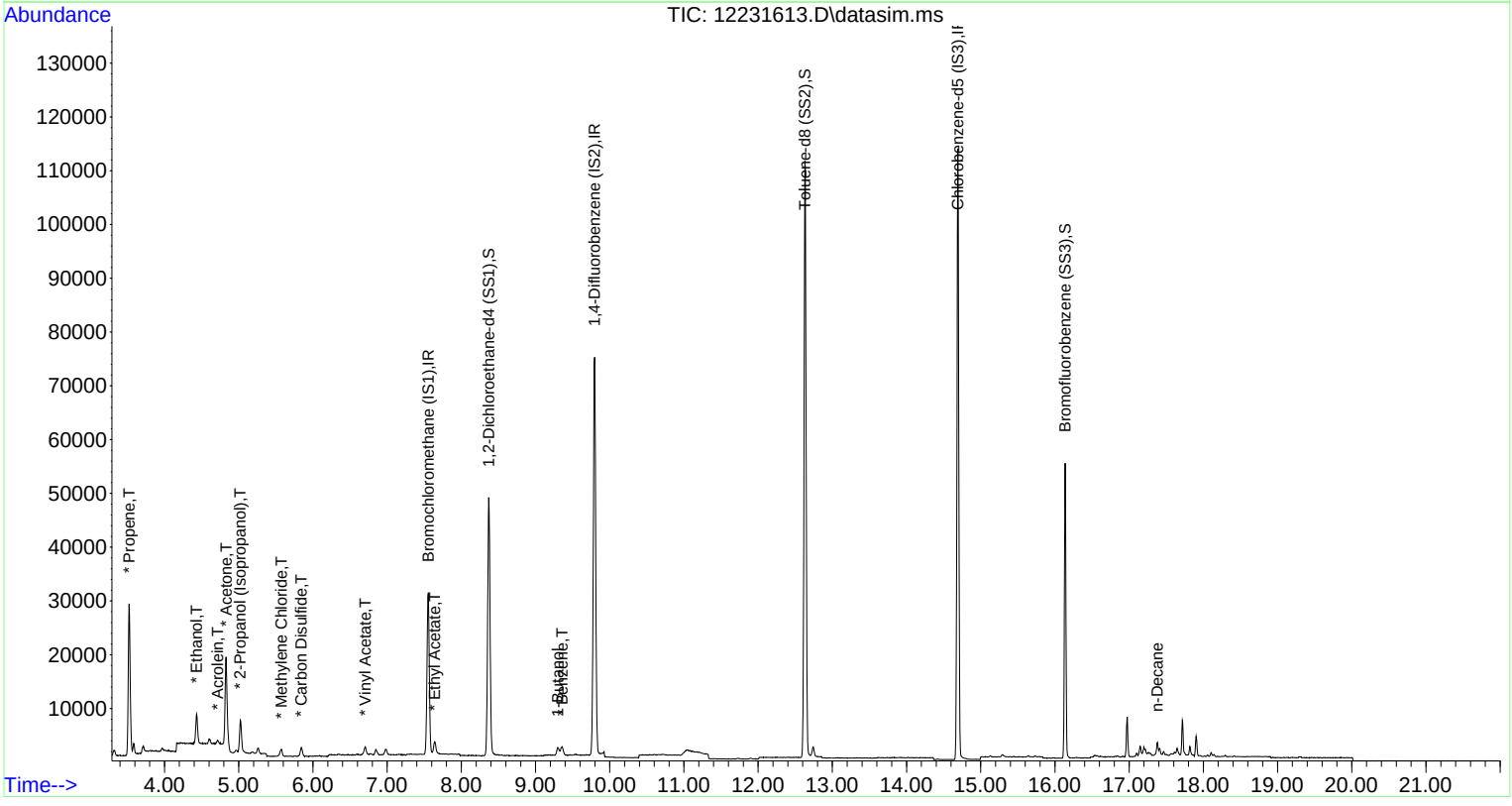
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37063	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	135629	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104868	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72581	994.352	pg		0.00
Spiked Amount 1000.000			Recovery = 99.44%				
57) Toluene-d8 (SS2)	12.63	98	124531	971.800	pg		0.00
Spiked Amount 1000.000			Recovery = 97.18%				
74) Bromofluorobenzene (SS3)	16.14	174	37517	888.941	pg		0.00
Spiked Amount 1000.000			Recovery = 88.89%				
Target Compounds							Qvalue
2) * Propene	3.52	42	12939	173.935	pg		89
10) * Ethanol	4.43	45	5944	117.154	pg		93
12) * Acrolein	4.71	56	666	15.668	pg		88
13) * Acetone	4.83	58	7936	165.602	pg		73
15) * 2-Propanol (Isopropa...	5.02	45	8519	65.610	pg		97
19) * Methylene Chloride	5.58	84	1446	27.088	pg		99
22) * Carbon Disulfide	5.84	76	2949	15.069	pg		95
26) * Vinyl Acetate	6.71	86	322	32.039	pg	#	14
30) * Ethyl Acetate	7.64	61	403	27.405	pg	#	83
39) * Benzene	9.36	78	2892	18.489	pg		97
41) 1-Butanol	9.30	56	1272	43.383	pg	#	52
88) n-Decane	17.38	85	615	41.637	pg	#	44

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231613.D
Acq On : 23 Dec 2016 1:32 pm
Operator : SM
Sample : AS00813 FCA00174
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Dec 27 08:41:29 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031713.D
Acq On : 3 Jan 2017 8:41 pm
Operator : SM
Sample : AS00773 FCA00417
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

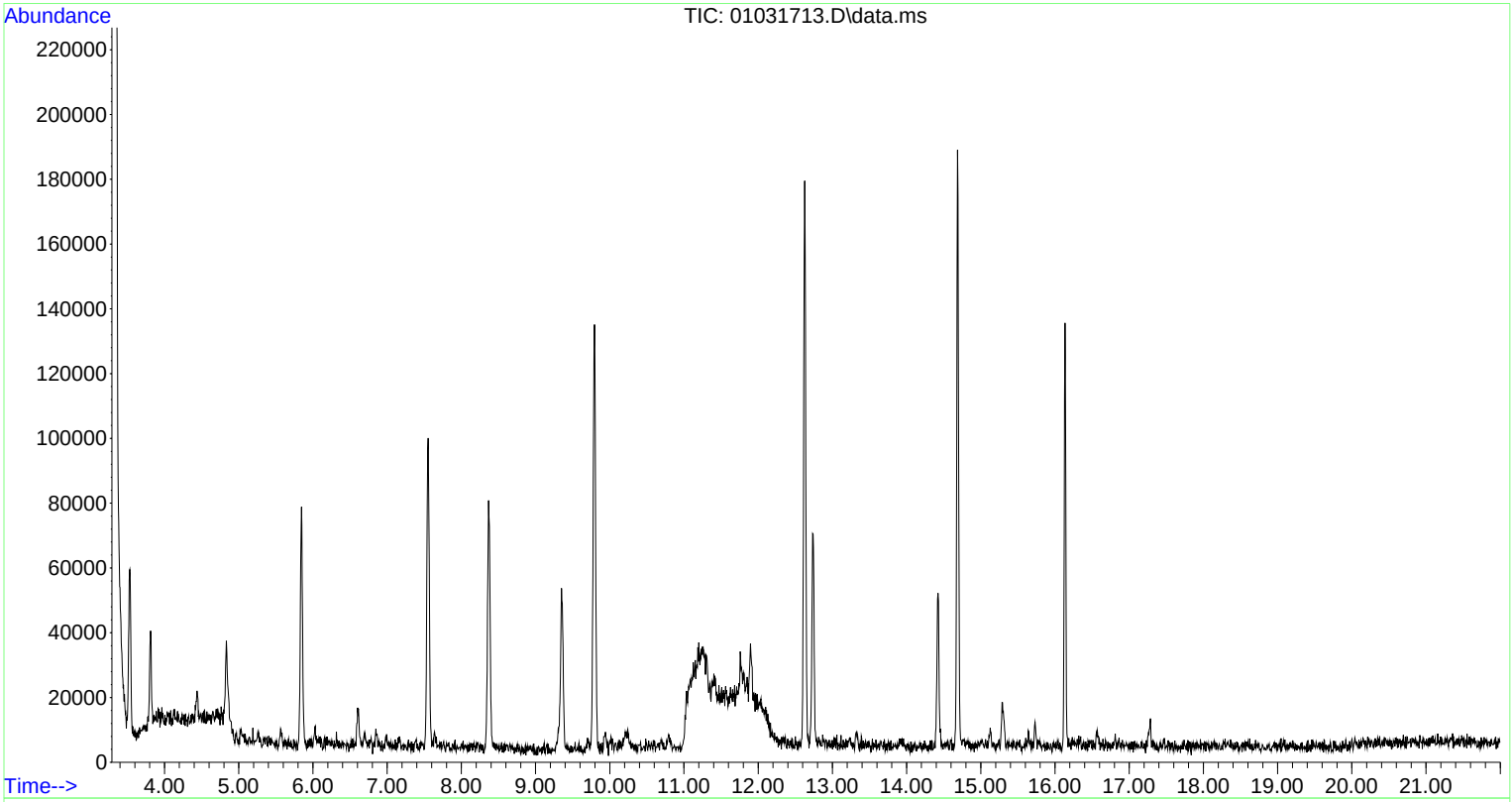
Quant Time: Jan 04 09:31:07 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

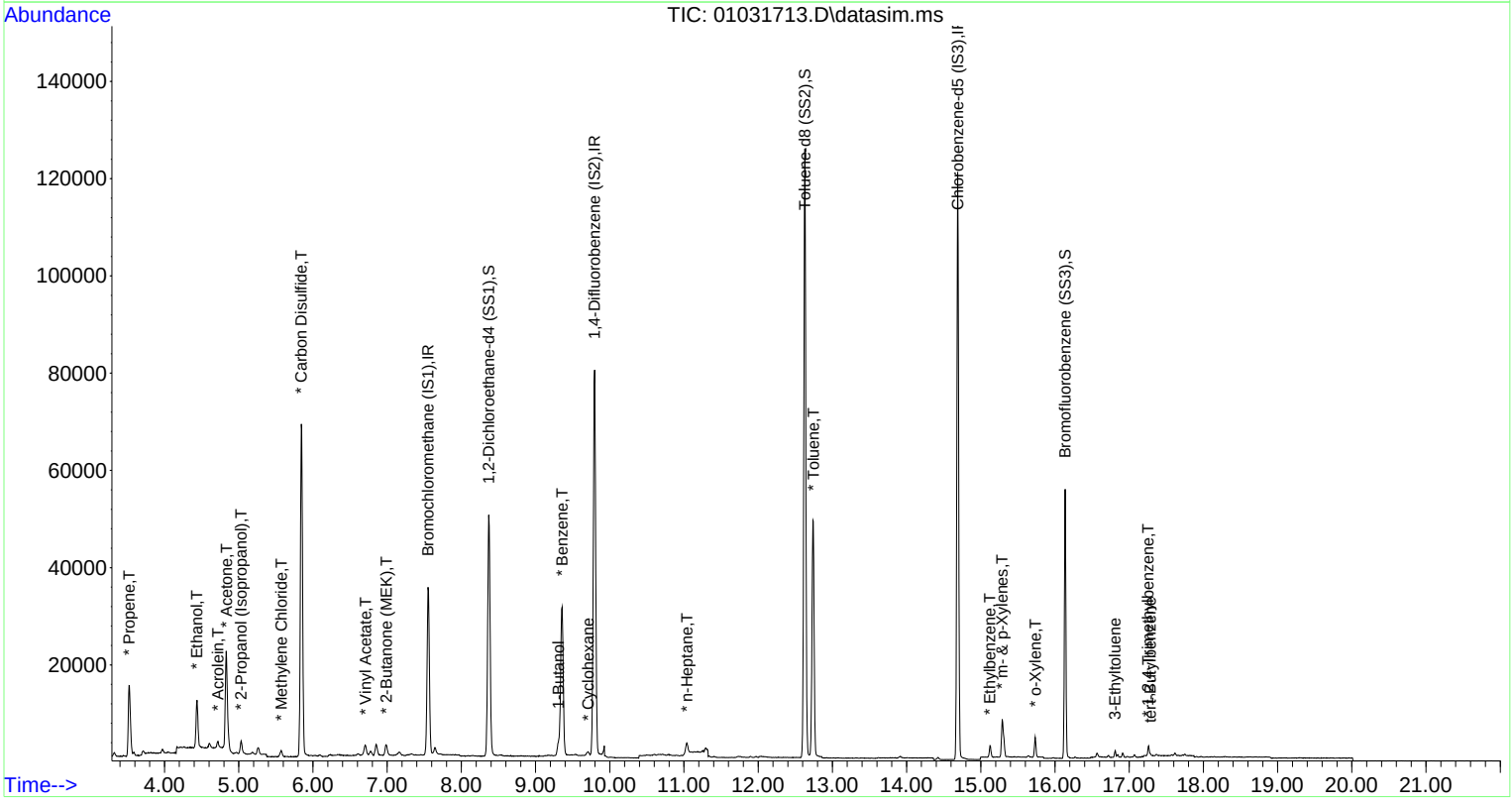
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42282	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144702	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112497	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74024	888.945	pg		0.00
Spiked Amount 1000.000			Recovery = 88.89%				
57) Toluene-d8 (SS2)	12.63	98	137175	997.876	pg		0.00
Spiked Amount 1000.000			Recovery = 99.79%				
74) Bromofluorobenzene (SS3)	16.14	174	38823	857.503	pg		0.00
Spiked Amount 1000.000			Recovery = 85.75%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7281	85.795	pg		81
10) * Ethanol	4.44	45	11025	190.477	pg		98
12) * Acrolein	4.72	56	1534	31.634	pg		92
13) * Acetone	4.84	58	11602	212.218	pg	#	47
15) * 2-Propanol (Isopropa...	5.03	45	3561	24.040	pg		96
19) * Methylene Chloride	5.58	84	1103	18.112	pg		97
22) * Carbon Disulfide	5.84	76	128429	575.268	pg		97
26) * Vinyl Acetate	6.71	86	566	49.365	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	750	22.856	pg		96
39) * Benzene	9.36	78	58651	351.460	pg		99
41) 1-Butanol	9.31	56	2442	78.064	pg	#	44
43) * Cyclohexane	9.71	84	557	10.492	pg		90
51) * n-Heptane	11.04	71	1506	17.575	pg		97
58) * Toluene	12.74	91	59700	375.472	pg		99
66) * Ethylbenzene	15.12	91	2649	19.755	pg		99
67) * m- & p-Xylenes	15.29	91	10237	98.262	pg		94
71) * o-Xylene	15.73	91	3730	36.602	pg		95
78) 3-Ethyltoluene	16.81	105	1140	12.225	pg		98
83) tert-Butylbenzene	17.28	134	240	11.651	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	1495	18.039	pg		90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031713.D
Acq On : 3 Jan 2017 8:41 pm
Operator : SM
Sample : AS00773 FCA00417
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 04 09:31:07 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051727.D
Acq On : 6 Jan 2017 2:57 am
Operator : JM
Sample : AC02085 FCA00865
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

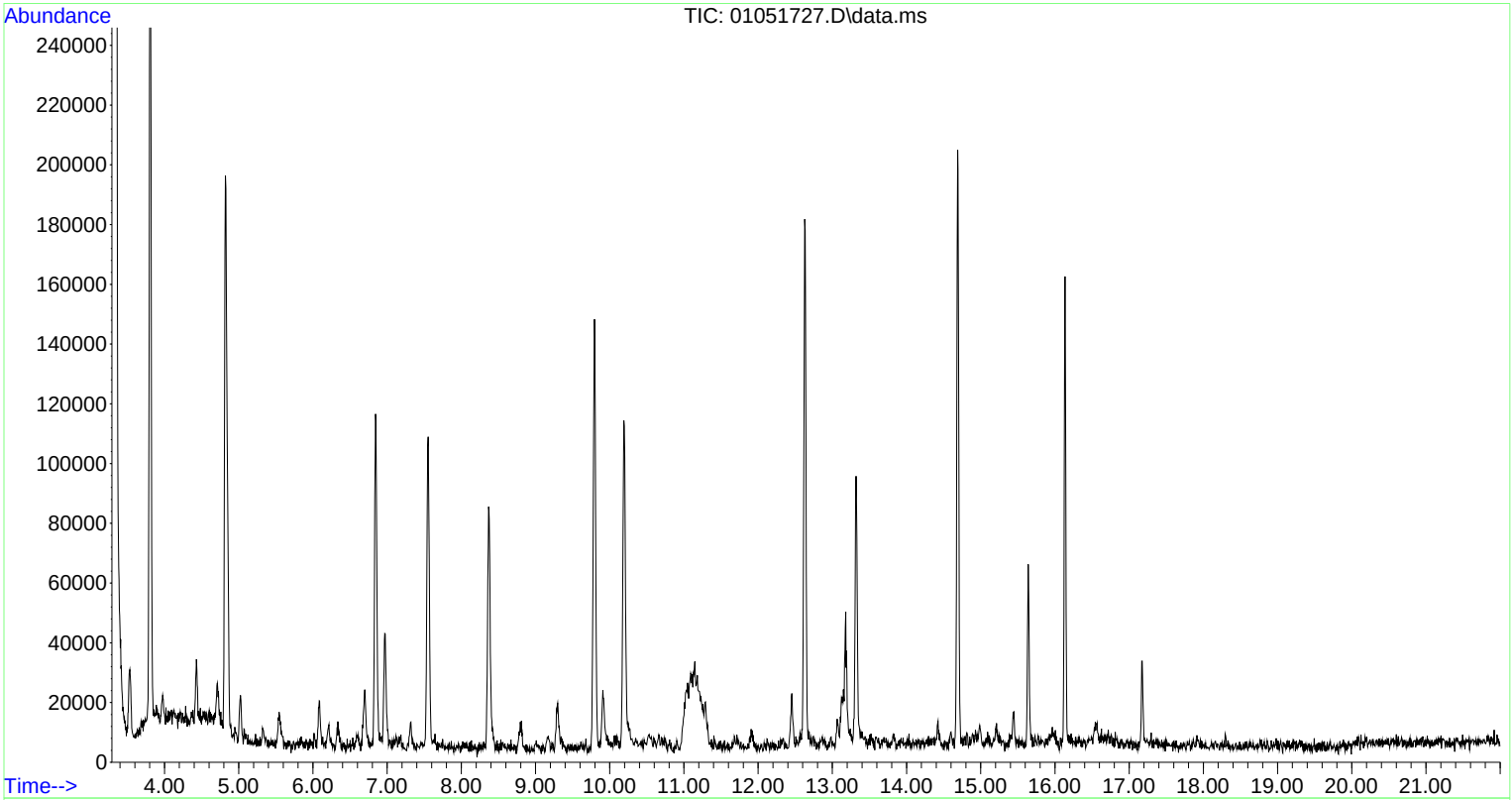
Quant Time: Jan 06 08:16:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

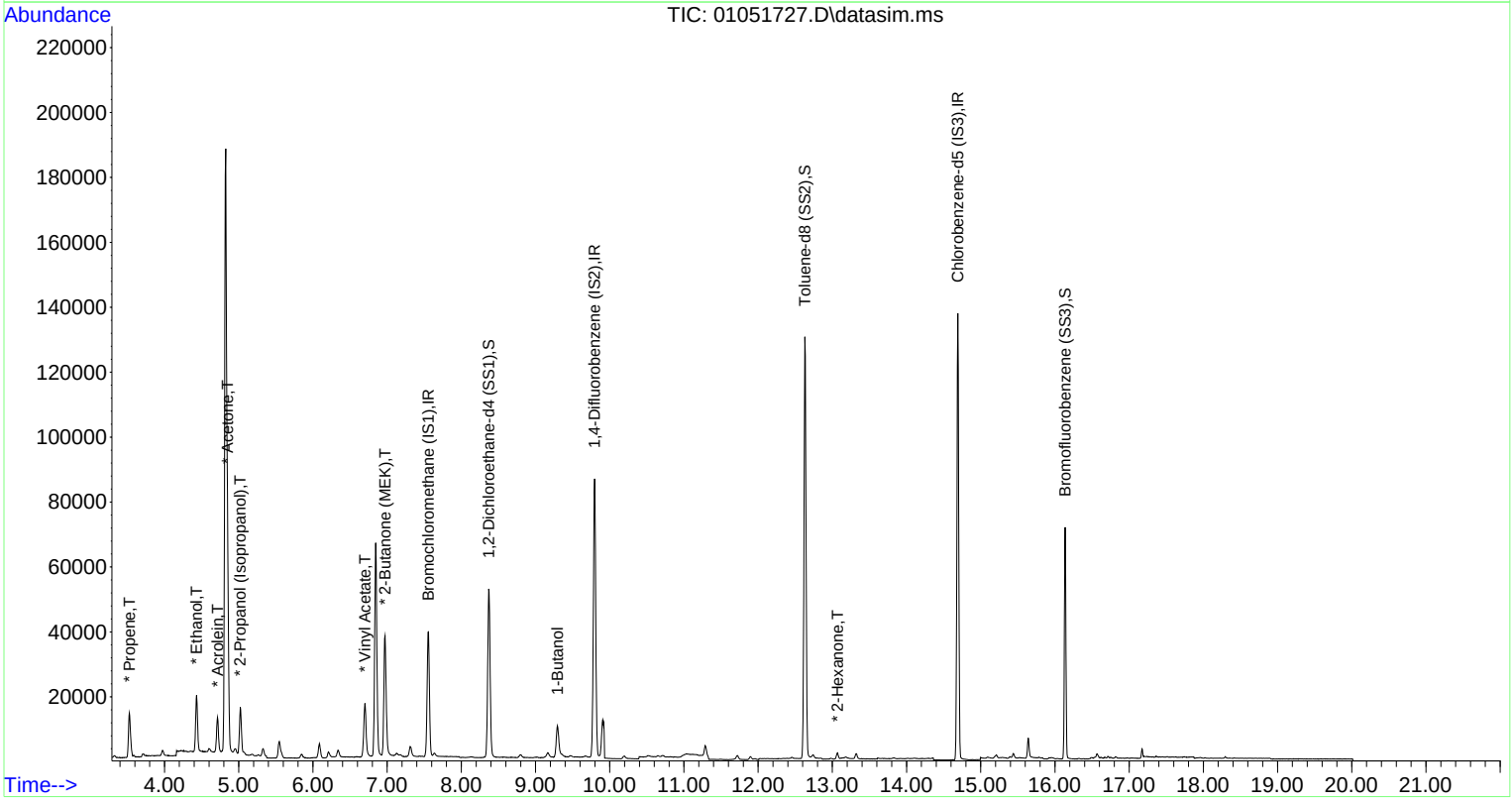
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47591	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	156299	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	131474	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77765	829.693	pg		0.00
Spiked Amount 1000.000			Recovery = 82.97%				
57) Toluene-d8 (SS2)	12.63	98	143494	893.175	pg		0.00
Spiked Amount 1000.000			Recovery = 89.32%				
74) Bromofluorobenzene (SS3)	16.14	174	50086	946.595	pg		0.00
Spiked Amount 1000.000			Recovery = 94.66%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6786	71.042	pg		84
10) * Ethanol	4.43	45	19461	298.717	pg		97
12) * Acrolein	4.71	56	11293	206.907	pg		98
13) * Acetone	4.85	58	160973	2615.968	pg	#	6
15) * 2-Propanol (Isopropa...	5.02	45	19091	114.505	pg		97
26) * Vinyl Acetate	6.70	86	4534	351.333	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	13313	360.452	pg		82
41) 1-Butanol	9.30	56	6752	199.828	pg	#	49
59) * 2-Hexanone	13.07	58	3115	97.997	pg	#	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051727.D
Acq On : 6 Jan 2017 2:57 am
Operator : JM
Sample : AC02085 FCA00865
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 06 08:16:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041730.D
Acq On : 5 Jan 2017 8:07 am
Operator : JM
Sample : AC02015 FCA00560
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

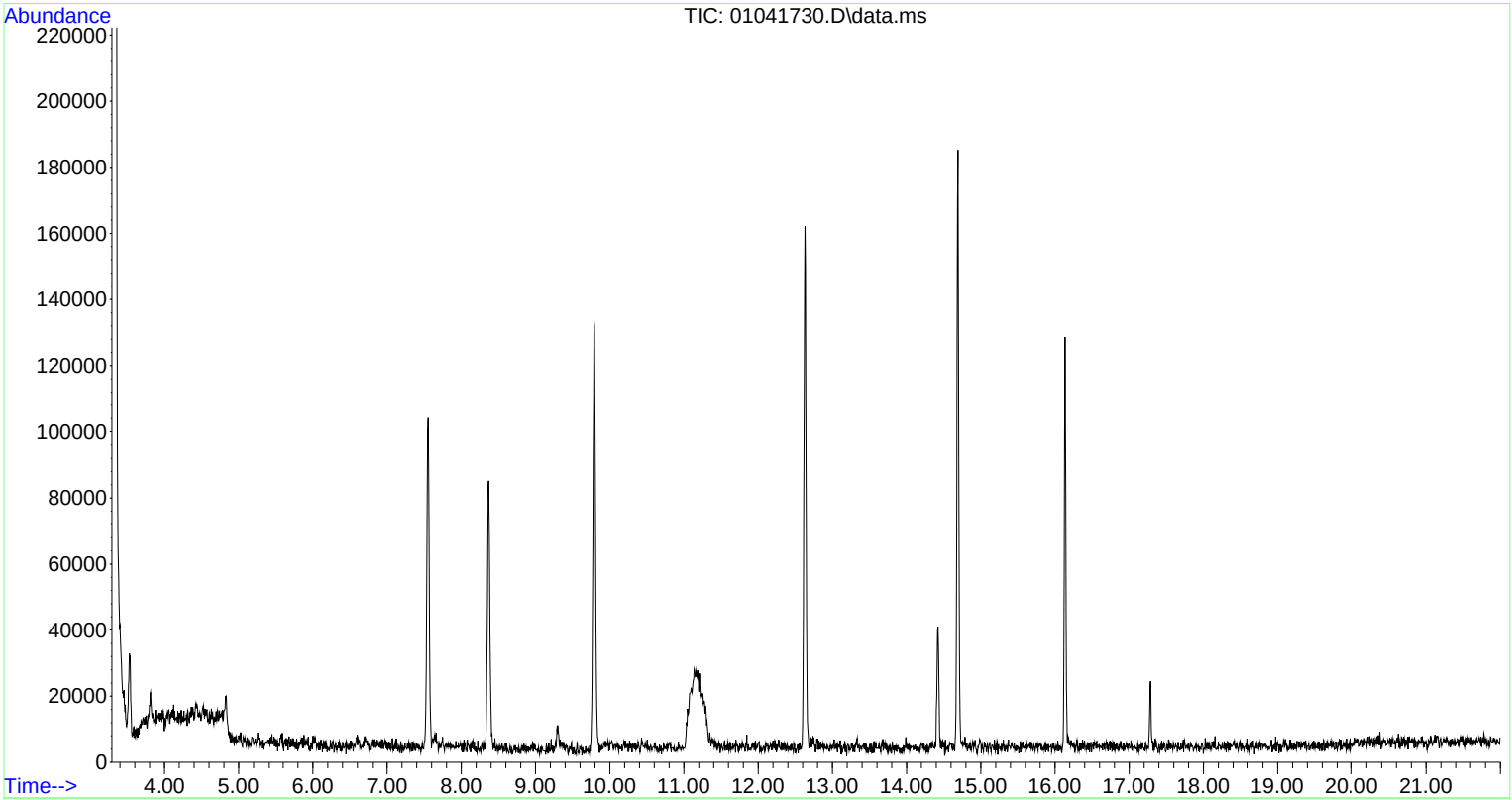
Quant Time: Jan 05 08:58:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

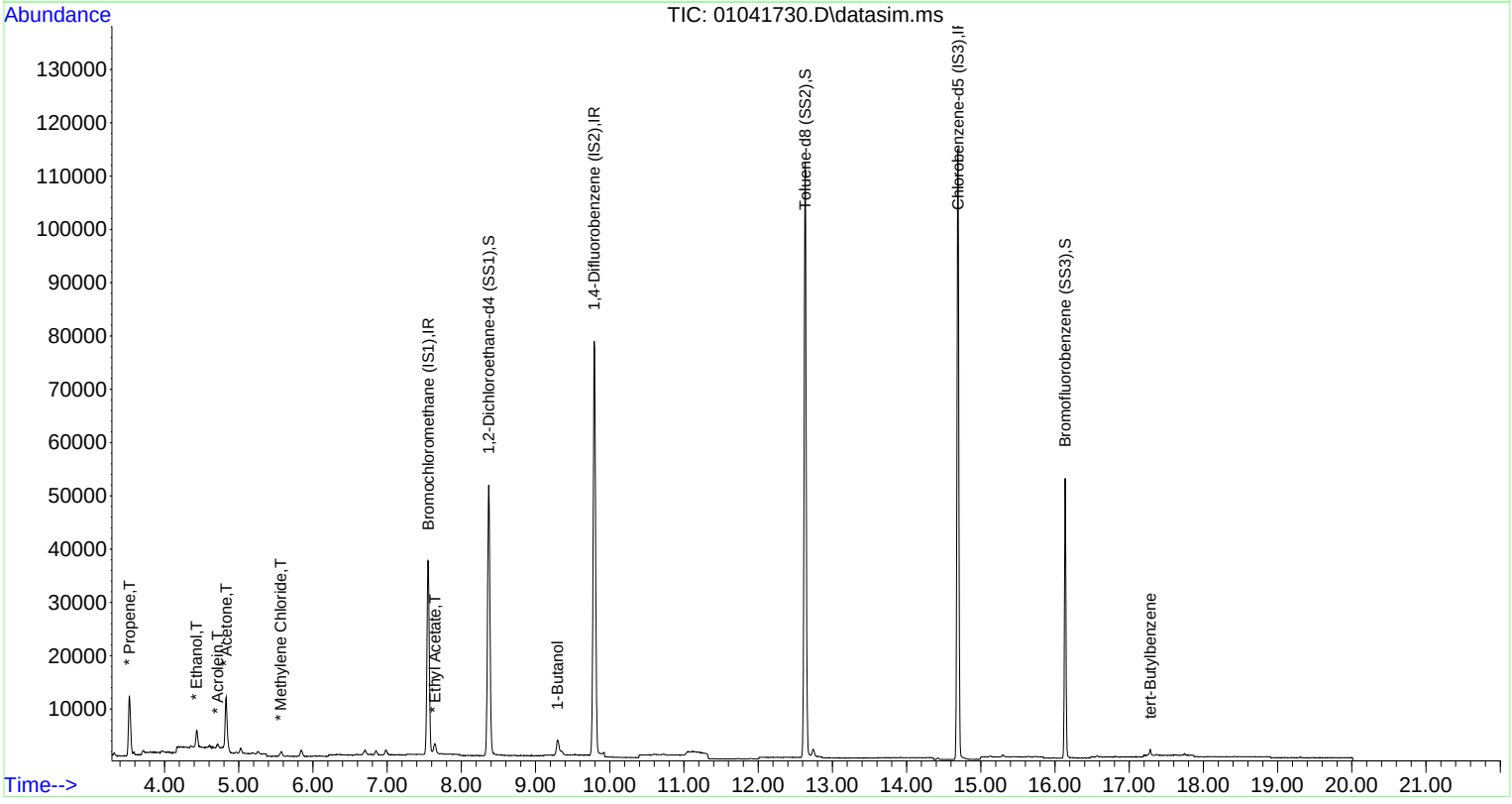
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45662	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	143428	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	111425	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75933	844.371	pg		0.00
Spiked Amount 1000.000			Recovery = 84.44%				
57) Toluene-d8 (SS2)	12.63	98	125260	919.967	pg		0.00
Spiked Amount 1000.000			Recovery = 92.00%				
74) Bromofluorobenzene (SS3)	16.14	174	36919	823.294	pg		0.00
Spiked Amount 1000.000			Recovery = 82.33%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5340	58.266	pg	#	72
10) * Ethanol	4.43	45	3767	60.264	pg		92
12) * Acrolein	4.71	56	676	12.909	pg		99
13) * Acetone	4.83	58	5281	89.447	pg	#	57
19) * Methylene Chloride	5.57	84	1067	16.224	pg		94
30) * Ethyl Acetate	7.65	61	358	19.761	pg		93
41) 1-Butanol	9.30	56	2649	85.434	pg	#	54
83) tert-Butylbenzene	17.28	134	401	19.655	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041730.D
Acq On : 5 Jan 2017 8:07 am
Operator : JM
Sample : AC02015 FCA00560
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 05 08:58:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031723.D
Acq On : 4 Jan 2017 3:30 am
Operator : SM
Sample : AS01024 FCA00281
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

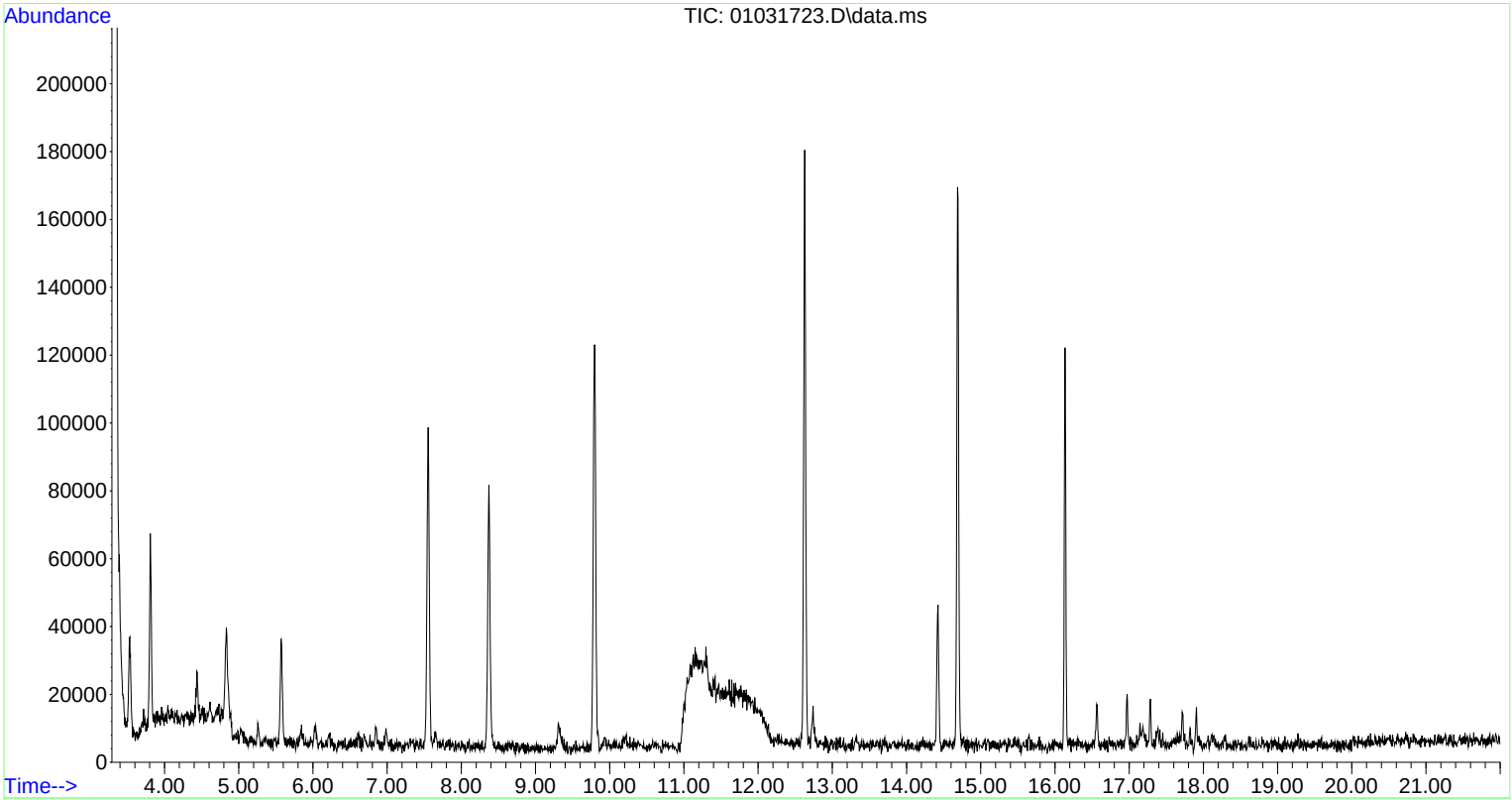
Quant Time: Jan 04 09:32:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

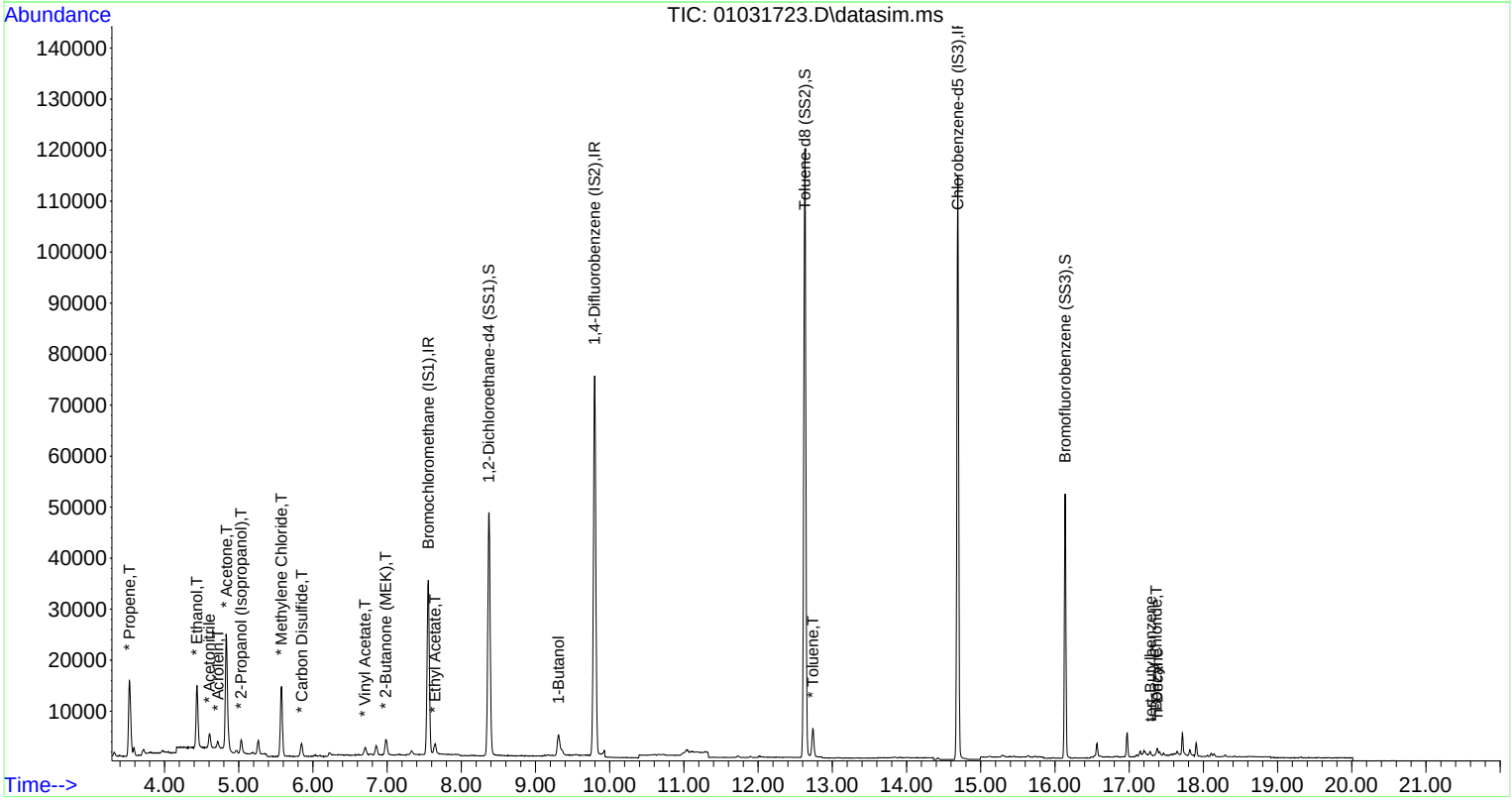
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42080	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	136311	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107799	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71953	868.222	pg		0.00
Spiked Amount 1000.000			Recovery = 86.82%				
57) Toluene-d8 (SS2)	12.63	98	130687	992.111	pg		0.00
Spiked Amount 1000.000			Recovery = 99.21%				
74) Bromofluorobenzene (SS3)	16.14	174	36212	834.691	pg		0.00
Spiked Amount 1000.000			Recovery = 83.47%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7286	86.266	pg	#	75
10) * Ethanol	4.44	45	14030	243.558	pg		100
11) * Acetonitrile	4.60	41	3456	23.928	pg		89
12) * Acrolein	4.72	56	1317	27.290	pg		90
13) * Acetone	4.84	58	13016	239.225	pg	#	48
15) * 2-Propanol (Isopropa...	5.03	45	3624	24.583	pg		95
19) * Methylene Chloride	5.58	84	15355	253.355	pg		99
22) * Carbon Disulfide	5.85	76	4642	20.893	pg		100
26) * Vinyl Acetate	6.70	86	419	36.720	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1073	32.856	pg		98
30) * Ethyl Acetate	7.65	61	253	15.154	pg	#	63
41) 1-Butanol	9.31	56	3777	128.173	pg	#	51
58) * Toluene	12.74	91	6561	43.063	pg		99
83) tert-Butylbenzene	17.29	134	278	14.084	pg	#	1
85) * Benzyl Chloride	17.36	126	86	10.742	pg	#	27
88) n-Decane	17.38	85	401	26.410	pg	#	51

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031723.D
Acq On : 4 Jan 2017 3:30 am
Operator : SM
Sample : AS01024 FCA00281
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 04 09:32:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231615.D
Acq On : 23 Dec 2016 2:57 pm
Operator : SM
Sample : AS00834 FCA00061
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

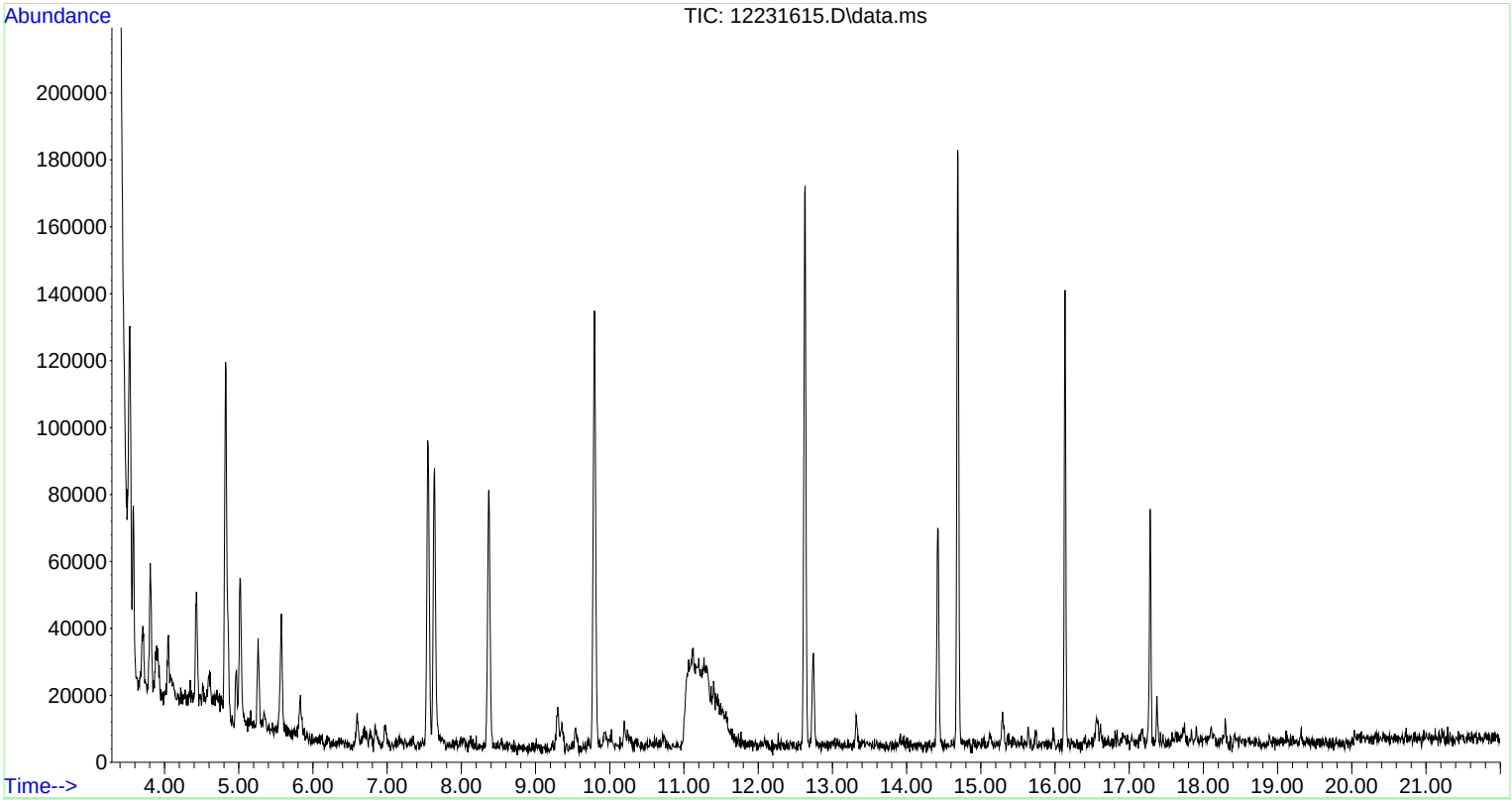
Quant Time: Dec 27 08:41:41 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

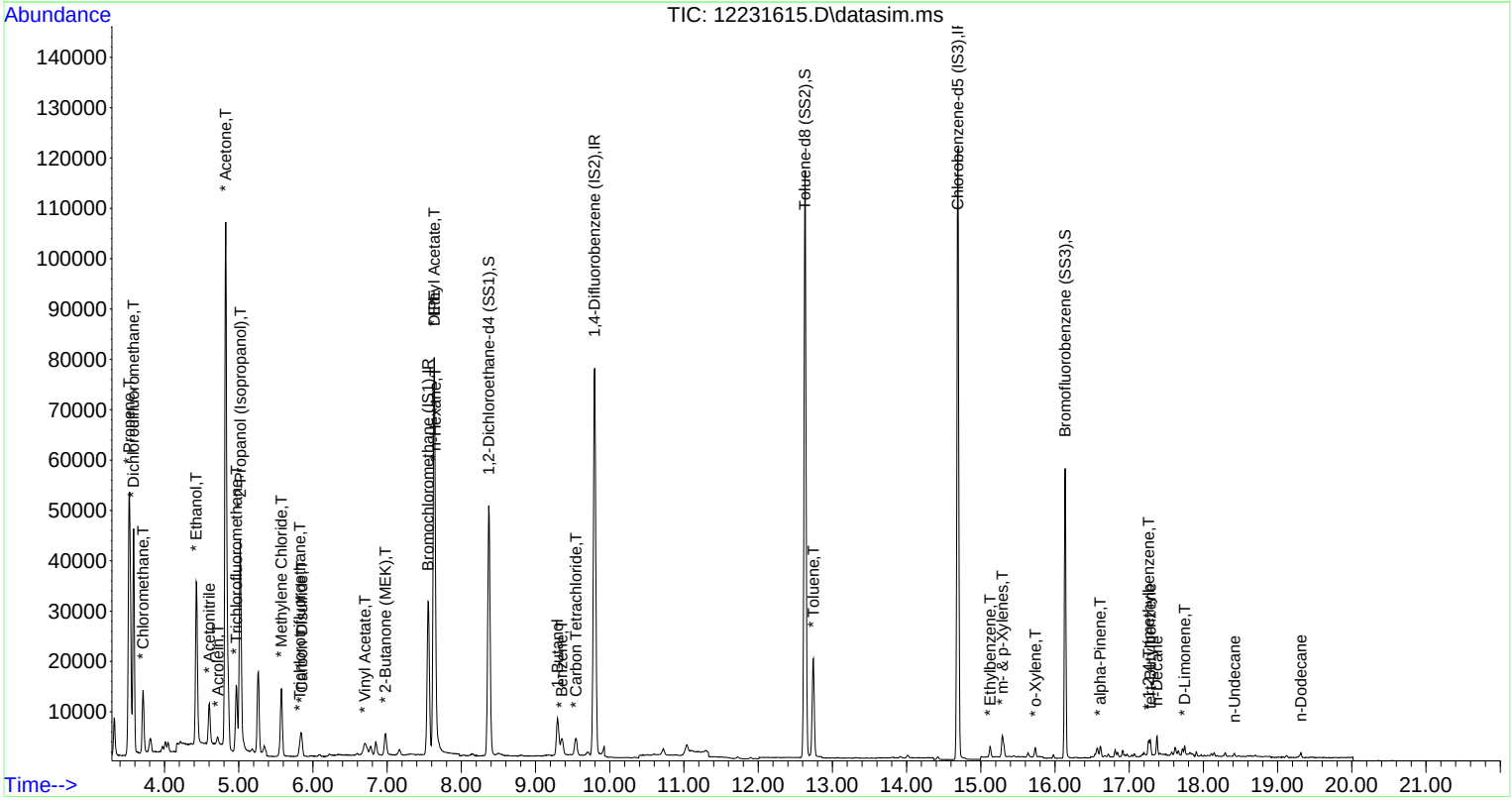
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	37679	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	140568	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111566	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73873	995.507	pg		0.00
Spiked Amount 1000.000			Recovery = 99.55%				
57) Toluene-d8 (SS2)	12.63	98	127221	933.189	pg		0.00
Spiked Amount 1000.000			Recovery = 93.32%				
74) Bromofluorobenzene (SS3)	16.14	174	40885	910.584	pg		0.00
Spiked Amount 1000.000			Recovery = 91.06%				
Target Compounds							Qvalue
2) * Propene	3.52	42	26253	347.142	pg	#	61
3) * Dichlorodifluoromethane	3.58	85	45405	281.848	pg		100
4) * Chloromethane	3.71	50	14476	120.206	pg		99
10) * Ethanol	4.43	45	36782	713.109	pg		99
11) * Acetonitrile	4.60	41	9721	75.166	pg		99
12) * Acrolein	4.72	56	1575	36.448	pg		96
13) * Acetone	4.82	58	42444	871.207	pg		89
14) * Trichlorofluoromethane	4.97	101	15258	141.774	pg		100
15) * 2-Propanol (Isopropa...	5.02	45	58925	446.396	pg		90
19) * Methylene Chloride	5.58	84	15059	277.493	pg		98
21) * Trichlorotrifluoroet...	5.82	151	2533	60.052	pg		98
22) * Carbon Disulfide	5.85	76	7088	35.628	pg		95
26) * Vinyl Acetate	6.70	86	629	61.562	pg	#	39
27) * 2-Butanone (MEK)	6.98	72	1489	50.920	pg		91
29) DIPE	7.63	45	17357	101.846	pg	#	56
30) * Ethyl Acetate	7.63	61	15569	1041.440	pg		97
31) * n-Hexane	7.65	57	2264	29.450	pg		98
39) * Benzene	9.35	78	5844	36.049	pg		100
41) 1-Butanol	9.30	56	6630	218.176	pg	#	49
42) * Carbon Tetrachloride	9.55	117	3867	61.315	pg		100
58) * Toluene	12.74	91	23702	150.313	pg		100
66) * Ethylbenzene	15.12	91	2239	16.837	pg		99
67) * m- & p-Xylenes	15.29	91	5763	55.779	pg		96
71) * o-Xylene	15.73	91	1855	18.355	pg		99
76) * alpha-Pinene	16.61	93	1538	23.478	pg		91
83) tert-Butylbenzene	17.28	134	1208	59.135	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	2493	30.333	pg	#	85
88) n-Decane	17.38	85	669	42.574	pg	#	64
93) * D-Limonene	17.75	68	903	24.952	pg		92
96) n-Undecane	18.42	85	232	25.820	pg	#	48
99) n-Dodecane	19.31	85	229	40.578	pg	#	49

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\22\
Data File : 12231615.D
Acq On : 23 Dec 2016 2:57 pm
Operator : SM
Sample : AS00834 FCA00061
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Dec 27 08:41:41 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291622.D
Acq On : 29 Dec 2016 11:21 pm
Operator : JM
Sample : AC01119 FCA01087
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 30 10:17:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39507	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	140933	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106447	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	72394	930.436 pg		0.00
Spiked Amount 1000.000			Recovery = 93.04%			
57) Toluene-d8 (SS2)	12.63	98	126283	970.854 pg		0.00
Spiked Amount 1000.000			Recovery = 97.08%			
74) Bromofluorobenzene (SS3)	16.14	174	40132	936.796 pg		0.00
Spiked Amount 1000.000			Recovery = 93.68%			
Target Compounds						Qvalue
2) * Propene	3.52	42	23324	294.142 pg	#	74
3) * Dichlorodifluoromethane	3.58	85	45087	266.924 pg		99
4) * Chloromethane	3.71	50	14671	116.189 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	1628	12.984 pg		96
10) * Ethanol	4.43	45	43296	800.560 pg		98
11) * Acetonitrile	4.60	41	12123	89.402 pg		98
12) * Acrolein	4.71	56	4212	92.962 pg		97
13) * Acetone	4.82	58	84216	1648.636 pg	#	64
14) * Trichlorofluoromethane	4.97	101	16335	144.759 pg		100
15) * 2-Propanol (Isopropa...	5.02	45	80697	583.047 pg		91
18) tert-Butanol	5.55	59	2090	25.054 pg	#	20
19) * Methylene Chloride	5.58	84	33070	581.187 pg		100
21) * Trichlorotrifluoroet...	5.83	151	2815	63.650 pg		97
22) * Carbon Disulfide	5.84	76	12581	60.312 pg		100
26) * Vinyl Acetate	6.70	86	1087	101.465 pg		97
27) * 2-Butanone (MEK)	6.98	72	3809	124.232 pg		100
29) DIPE	7.63	45	4188	23.437 pg	#	60
30) * Ethyl Acetate	7.63	61	3675	234.453 pg		95
31) * n-Hexane	7.64	57	3453	42.838 pg	#	92
32) * Chloroform	7.69	83	1089	10.930 pg		95
34) * Tetrahydrofuran	8.15	71	275	11.190 pg		91
36) * 1,2-Dichloroethane	8.50	62	902	10.697 pg	#	82
39) * Benzene	9.36	78	9481	58.333 pg		100
41) 1-Butanol	9.30	56	13997	459.412 pg	#	52
43) * Cyclohexane	9.71	84	696	13.461 pg		87
49) Isooctane	10.72	56	2939	37.830 pg		73
51) * n-Heptane	11.04	71	1895	22.706 pg		93
53) * 4-Methyl-2-pentanone	11.72	58	728	24.792 pg	#	83
58) * Toluene	12.74	91	35638	236.878 pg		99
59) * 2-Hexanone	13.07	58	831	32.290 pg	#	89
63) * n-Octane	13.91	85	281	11.973 pg		88
64) * Tetrachloroethene	14.01	166	626	12.512 pg		93
66) * Ethylbenzene	15.12	91	3124	24.621 pg		96
67) * m- & p-Xylenes	15.29	91	7319	74.246 pg		96
69) Cyclohexanone	15.44	98	180	16.349 pg		99
71) * o-Xylene	15.73	91	2244	23.272 pg		99
72) * n-Nonane	15.98	57	455	10.470 pg	#	81
76) * alpha-Pinene	16.61	93	2039	32.623 pg		100
78) 3-Ethyltoluene	16.81	105	1170	13.260 pg		95
79) * 4-Ethyltoluene	16.81	105	1170	15.123 pg		98
84) * 1,2,4-Trimethylbenzene	17.26	105	1543	19.677 pg		85
85) * Benzyl Chloride	17.37	126	90	11.385 pg	#	49
88) n-Decane	17.37	85	302	20.143 pg		95
93) * D-Limonene	17.75	68	2045	59.226 pg		94
96) n-Undecane	18.41	85	127	14.814 pg	#	50

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291622.D
Acq On : 29 Dec 2016 11:21 pm
Operator : JM
Sample : AC01119 FCA01087
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

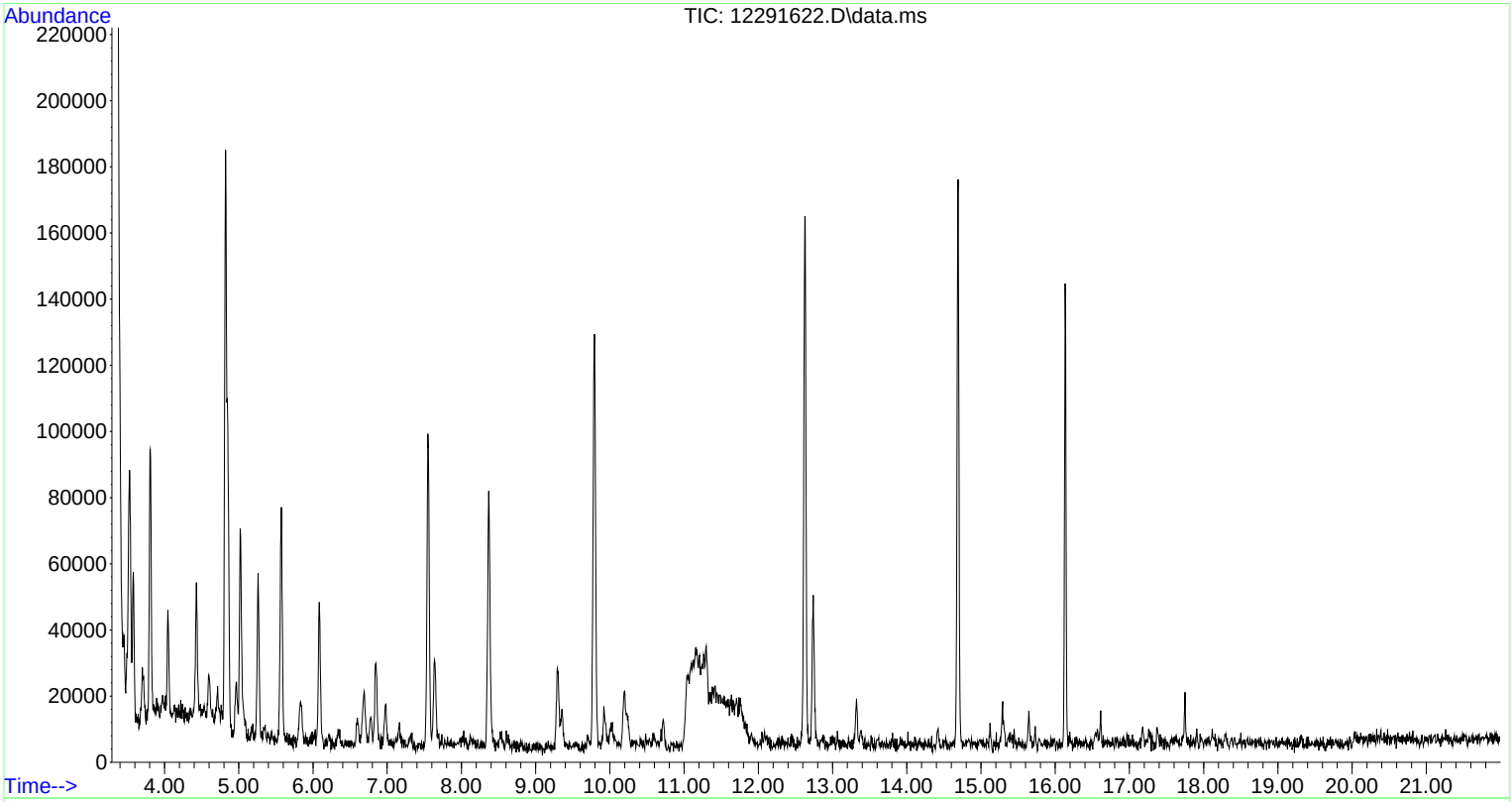
Quant Time: Dec 30 10:17:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

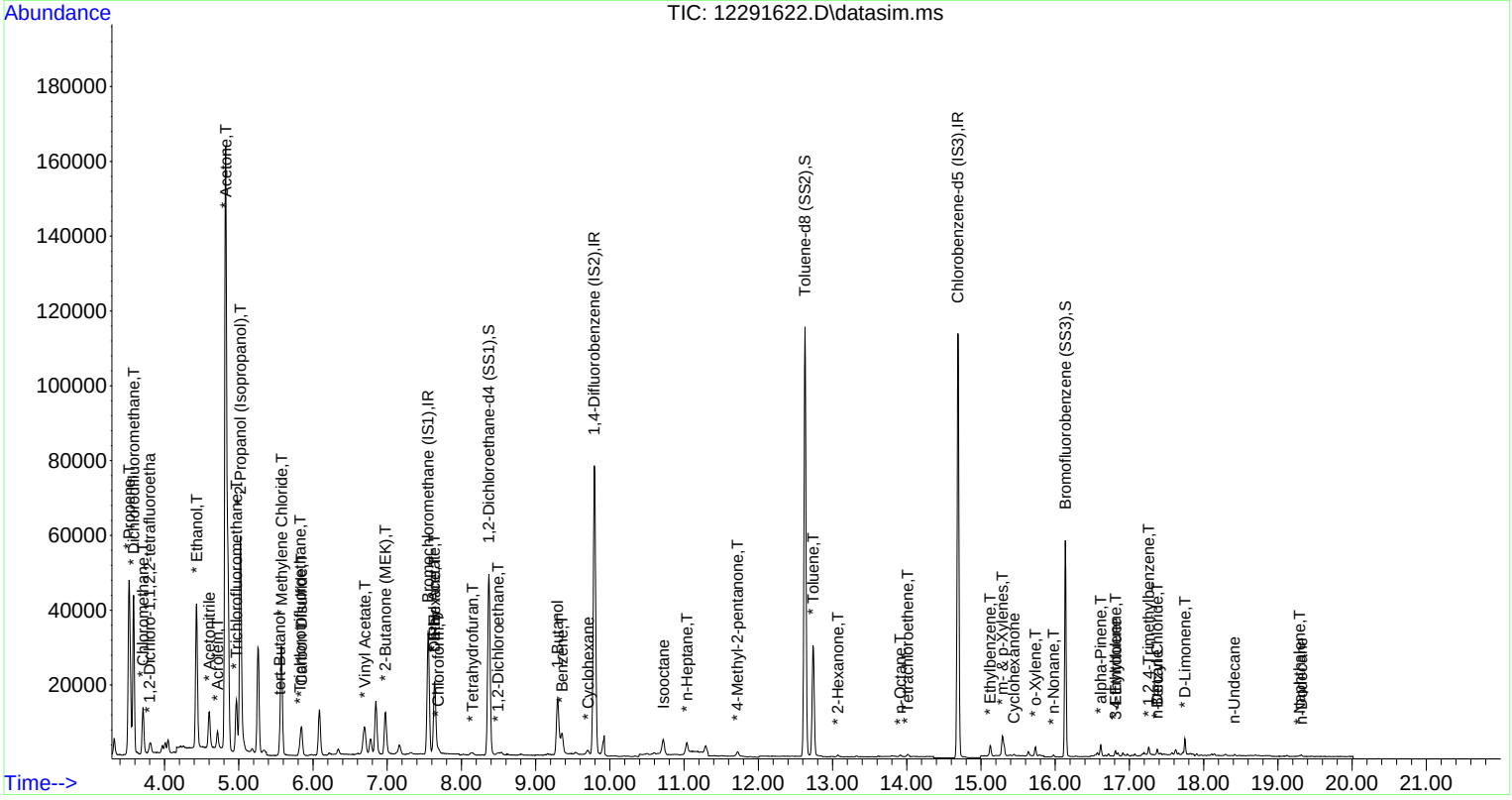
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
98) * Naphthalene	19.29	128	335	10.009	pg	#	66
99) n-Dodecane	19.32	85	87	16.157	pg		87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291622.D
Acq On : 29 Dec 2016 11:21 pm
Operator : JM
Sample : AC01119 FCA01087
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 30 10:17:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081705.D
Acq On : 8 Jan 2017 12:41 pm
Operator : JM
Sample : AS01016 FCR00183
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 09 10:25:24 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47659	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	156062	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	117194	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79103	842.764	pg		0.00
Spiked Amount 1000.000			Recovery = 84.28%				
57) Toluene-d8 (SS2)	12.63	98	133785	934.210	pg		0.00
Spiked Amount 1000.000			Recovery = 93.42%				
74) Bromofluorobenzene (SS3)	16.14	174	39686	841.433	pg		0.00
Spiked Amount 1000.000			Recovery = 84.14%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5354	55.971	pg	#	72
3) * Dichlorodifluoromethane	3.59	85	796	3.906	pg		95
4) * Chloromethane	3.71	50	912	5.987	pg		94
7) * 1,3-Butadiene	4.00	54	68	0.629	pg	#	1
8) * Bromomethane	4.21	94	87	0.940	pg		89
9) * Chloroethane	4.35	64	91	1.377	pg	#	29
10) * Ethanol	4.43	45	26536	406.734	pg		99
11) * Acetonitrile	4.60	41	627	3.833	pg	#	70
12) * Acrolein	4.72	56	1262	23.089	pg		100
13) * Acetone	4.83	58	20166	327.250	pg	#	48
14) * Trichlorofluoromethane	4.97	101	266	1.954	pg		85
15) * 2-Propanol (Isopropa...	5.03	45	4932	29.539	pg		91
16) * Acrylonitrile	5.19	53	291	2.999	pg		83
18) tert-Butanol	5.55	59	1131	11.239	pg		95
19) * Methylene Chloride	5.58	84	777	11.320	pg		97
20) * 3-Chloro-1-propene (...	5.63	41	62	0.676	pg	#	43
21) * Trichlorotrifluoroet...	5.82	151	52	0.975	pg	#	19
22) * Carbon Disulfide	5.84	76	5035	20.009	pg		100
26) * Vinyl Acetate	6.71	86	319	24.684	pg	#	20
27) * 2-Butanone (MEK)	6.98	72	7080	191.419	pg		84
29) DIPE	7.63	45	314	1.457	pg	#	53
30) * Ethyl Acetate	7.64	61	354	18.721	pg		87
31) * n-Hexane	7.65	57	665	6.839	pg		97
36) * 1,2-Dichloroethane	8.50	62	103	1.013	pg	#	66
39) * Benzene	9.35	78	1162	6.456	pg	#	76
41) 1-Butanol	9.30	56	8837	261.932	pg	#	48
45) * 1,2-Dichloropropane	10.32	63	66	0.988	pg	#	32
46) * Bromodichloromethane	10.52	83	79	0.975	pg	#	19
48) * 1,4-Dioxane	10.64	88	1843	49.100	pg		97
49) Isooctane	10.71	56	189	2.197	pg		81
51) * n-Heptane	11.04	71	857	9.273	pg		98
53) * 4-Methyl-2-pentanone	11.73	58	106	3.260	pg	#	47
54) * trans-1,3-Dichloropr...	12.23	75	51	1.013	pg	#	43
58) * Toluene	12.74	91	1107	6.683	pg		92
59) * 2-Hexanone	13.08	58	400	14.117	pg	#	91
63) * n-Octane	13.91	85	196	7.585	pg	#	33
65) * Chlorobenzene	14.73	112	83	0.761	pg	#	42
66) * Ethylbenzene	15.12	91	118	0.845	pg	#	45
67) * m- & p-Xylenes	15.29	91	290	2.672	pg	#	40
69) Cyclohexanone	15.44	98	72	5.940	pg	#	38
70) * Styrene	15.63	104	54	0.935	pg	#	28
71) * o-Xylene	15.73	91	151	1.422	pg		99
72) * n-Nonane	15.97	57	296	6.187	pg	#	42
78) 3-Ethyltoluene	16.81	105	54	0.556	pg	#	45
79) * 4-Ethyltoluene	16.81	105	54	0.634	pg	#	46

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081705.D
Acq On : 8 Jan 2017 12:41 pm
Operator : JM
Sample : AS01016 FCR00183
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

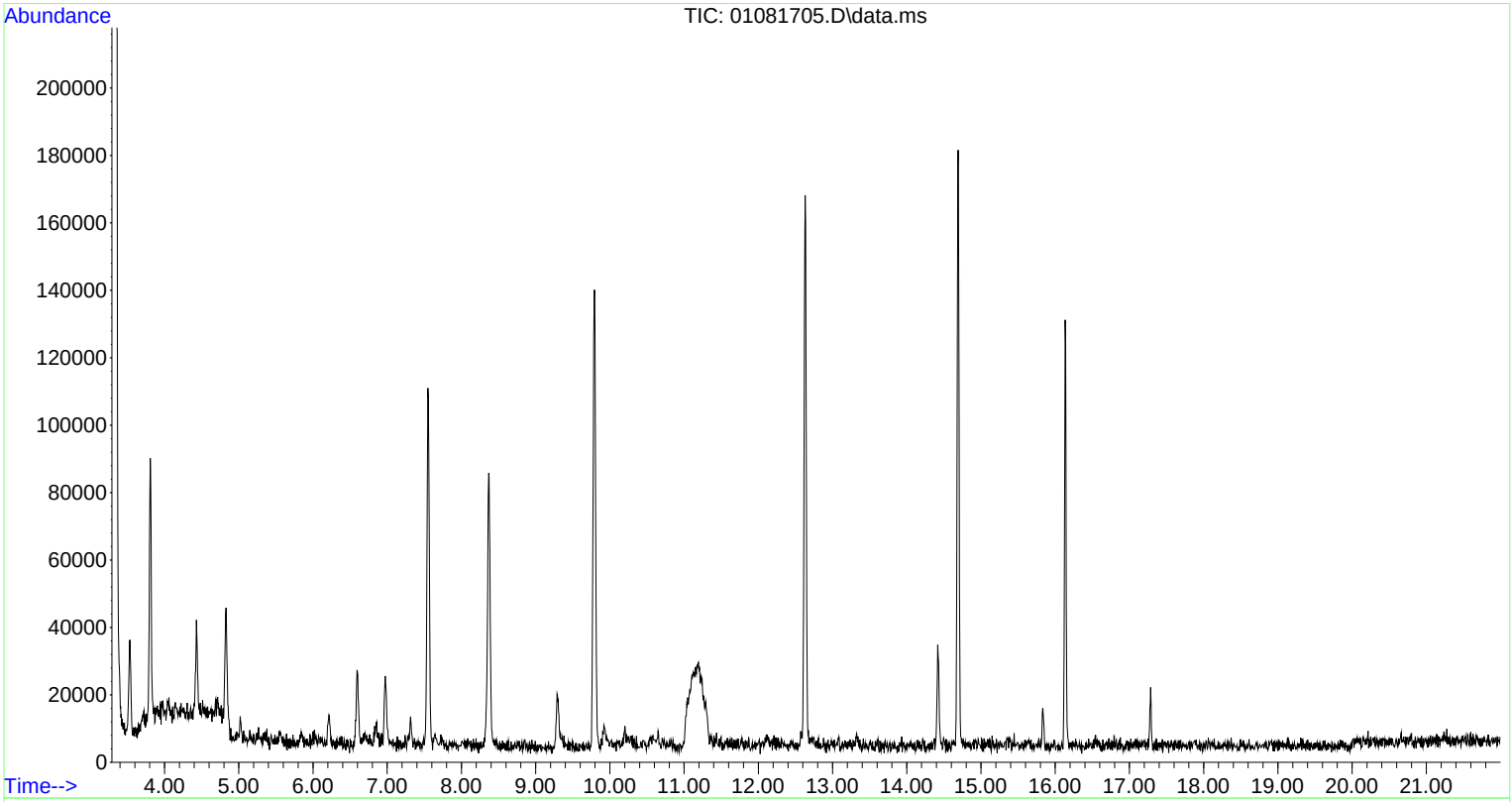
Quant Time: Jan 09 10:25:24 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

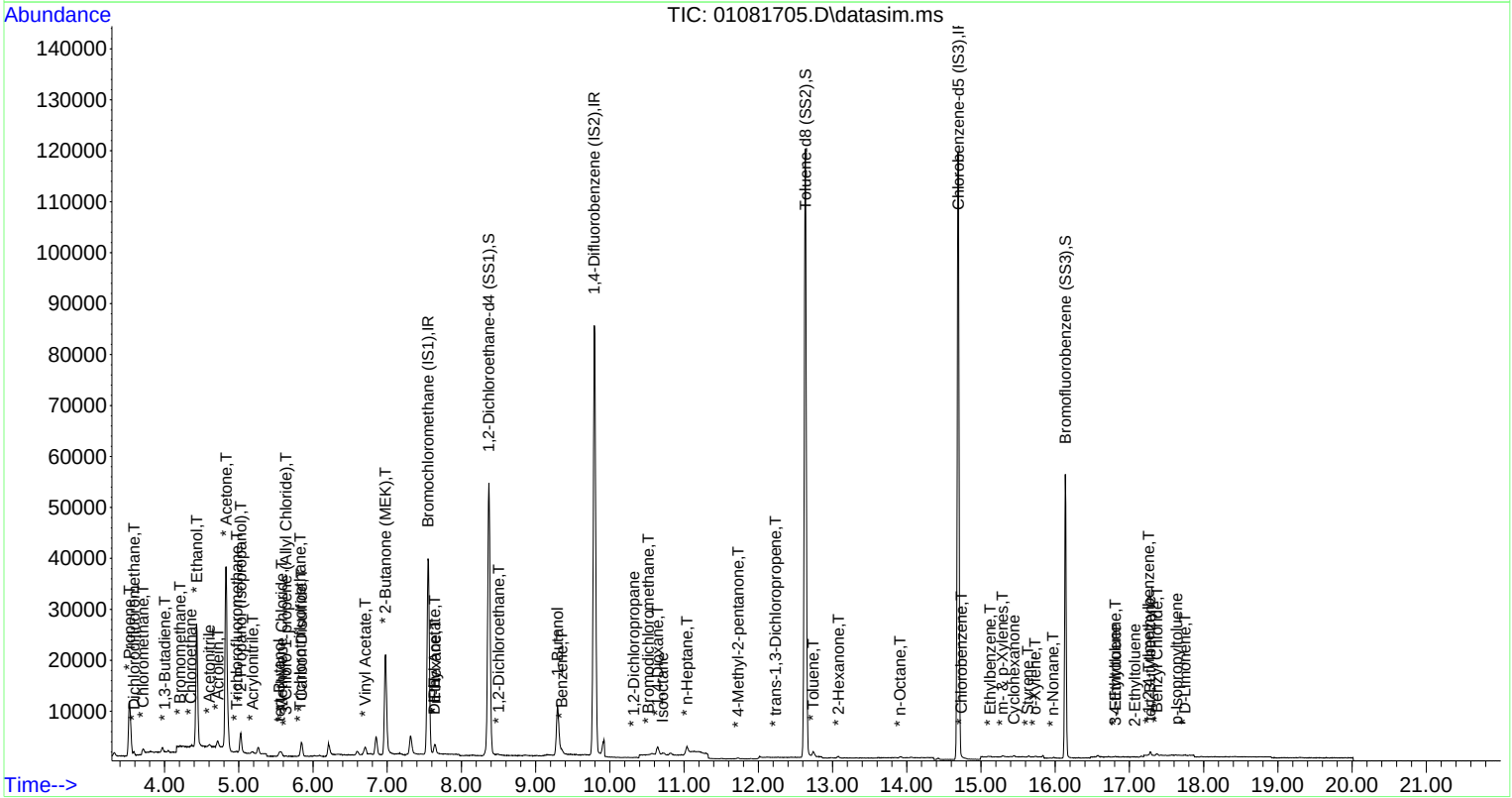
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
82) 2-Ethyltoluene	17.07	105	54	0.466	pg	#	45
83) tert-Butylbenzene	17.28	134	327	15.239	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	99	1.147	pg	#	24
85) * Benzyl Chloride	17.37	126	62	7.124	pg	#	48
91) p-Isopropyltoluene	17.64	134	56	2.044	pg	#	1
93) * D-Limonene	17.75	68	59	1.552	pg	#	15

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081705.D
Acq On : 8 Jan 2017 12:41 pm
Operator : JM
Sample : AS01016 FCR00183
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 09 10:25:24 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031724.D
Acq On : 4 Jan 2017 4:11 am
Operator : SM
Sample : AS01125 FCA01075
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

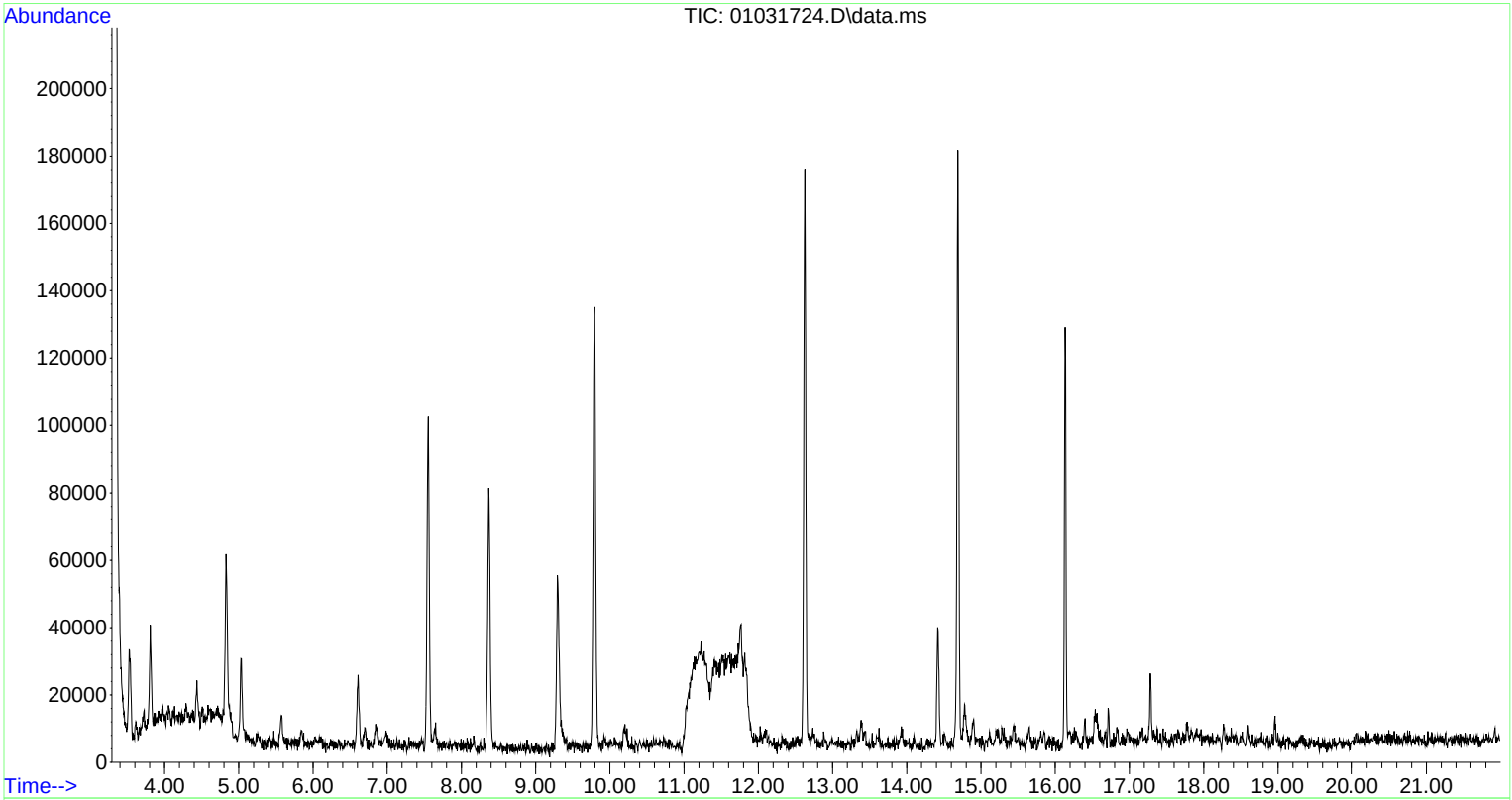
Quant Time: Jan 04 09:32:05 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

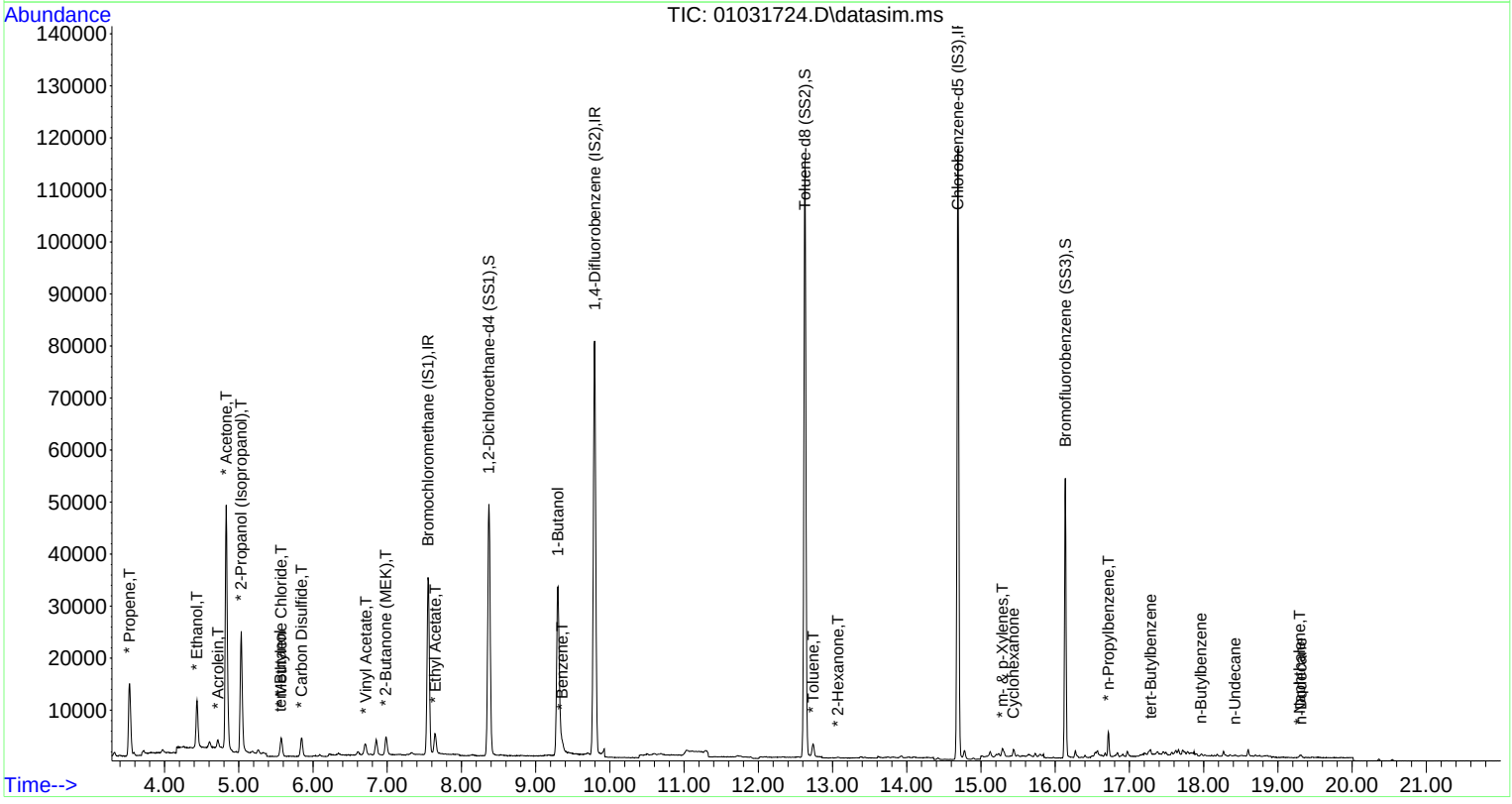
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	41844	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	146697	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110173	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72005	873.750	pg		0.00
Spiked Amount 1000.000			Recovery = 87.38%				
57) Toluene-d8 (SS2)	12.63	98	126515	939.744	pg		0.00
Spiked Amount 1000.000			Recovery = 93.97%				
74) Bromofluorobenzene (SS3)	16.14	174	38529	868.961	pg		0.00
Spiked Amount 1000.000			Recovery = 86.90%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6885	81.978	pg	#	74
10) * Ethanol	4.44	45	10786	188.299	pg		96
12) * Acrolein	4.72	56	1561	32.528	pg		96
13) * Acetone	4.83	58	24248	448.174	pg	#	52
15) * 2-Propanol (Isopropa...	5.03	45	31987	218.203	pg		91
18) tert-Butanol	5.56	59	1244	14.079	pg		92
19) * Methylene Chloride	5.57	84	3256	54.027	pg		94
22) * Carbon Disulfide	5.84	76	6659	30.140	pg		98
26) * Vinyl Acetate	6.71	86	501	44.154	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1157	35.628	pg		93
30) * Ethyl Acetate	7.65	61	751	45.236	pg		86
39) * Benzene	9.36	78	2033	12.017	pg		100
41) 1-Butanol	9.30	56	32345	1019.920	pg	#	46
58) * Toluene	12.74	91	2975	19.105	pg		99
59) * 2-Hexanone	13.07	58	323	12.126	pg	#	86
67) * m- & p-Xylenes	15.29	91	1791	17.554	pg	#	78
69) Cyclohexanone	15.44	98	586	51.425	pg		99
77) * n-Propylbenzene	16.72	91	4850	36.991	pg		98
83) tert-Butylbenzene	17.28	134	337	16.706	pg	#	1
94) n-Butylbenzene	17.96	134	188	12.476	pg	#	19
96) n-Undecane	18.42	85	90	10.143	pg	#	45
98) * Naphthalene	19.29	128	525	15.156	pg		98
99) n-Dodecane	19.31	85	125	22.429	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031724.D
Acq On : 4 Jan 2017 4:11 am
Operator : SM
Sample : AS01125 FCA01075
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Jan 04 09:32:05 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051707.D
Acq On : 5 Jan 2017 12:46 pm
Operator : JM
Sample : AS01087 FCA00894
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

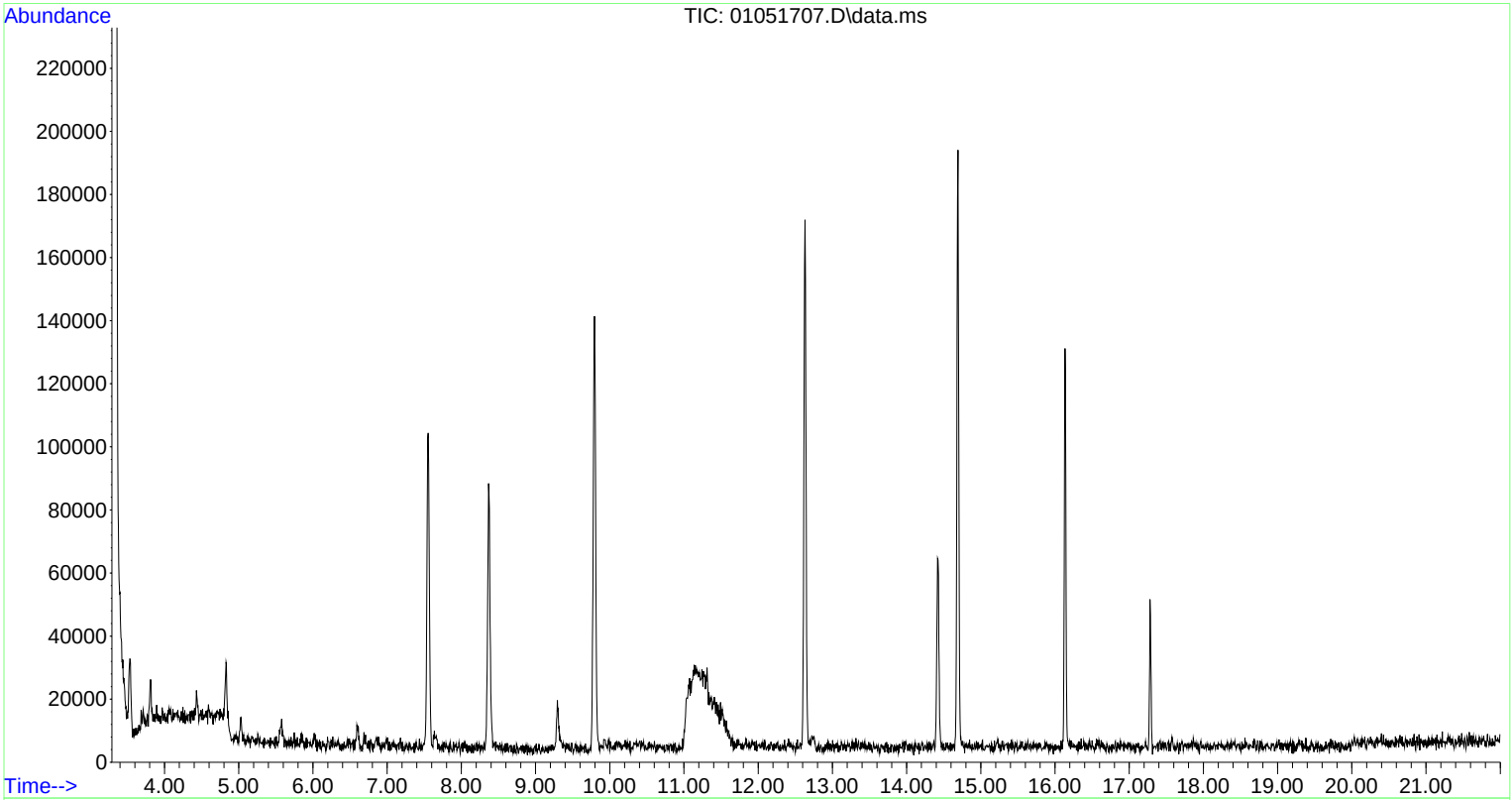
Quant Time: Jan 06 08:14:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

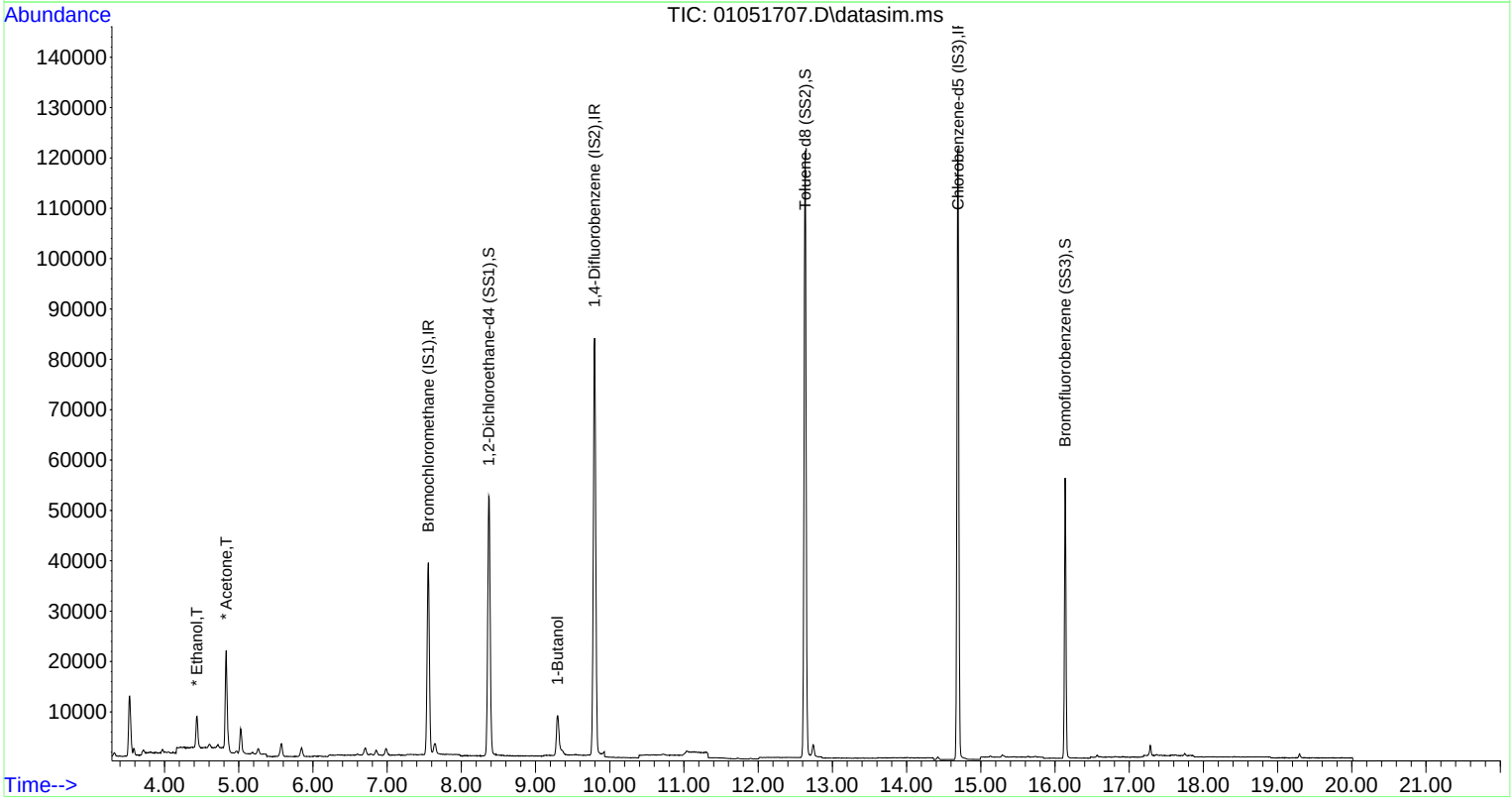
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46705	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	153895	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	119433	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78325	851.520	pg		0.00
Spiked Amount 1000.000			Recovery = 85.15%				
57) Toluene-d8 (SS2)	12.63	98	135179	926.248	pg		0.00
Spiked Amount 1000.000			Recovery = 92.63%				
74) Bromofluorobenzene (SS3)	16.14	174	39764	827.282	pg		0.00
Spiked Amount 1000.000			Recovery = 82.73%				
Target Compounds							Qvalue
10) * Ethanol	4.44	45	7369	115.256	pg		99
13) * Acetone	4.83	58	9517	157.594	pg	#	60
41) 1-Butanol	9.30	56	7648	229.881	pg	#	47

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051707.D
Acq On : 5 Jan 2017 12:46 pm
Operator : JM
Sample : AS01087 FCA00894
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

Quant Time: Jan 06 08:14:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031718.D
Acq On : 4 Jan 2017 12:06 am
Operator : SM
Sample : AS00912 FCA00719
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

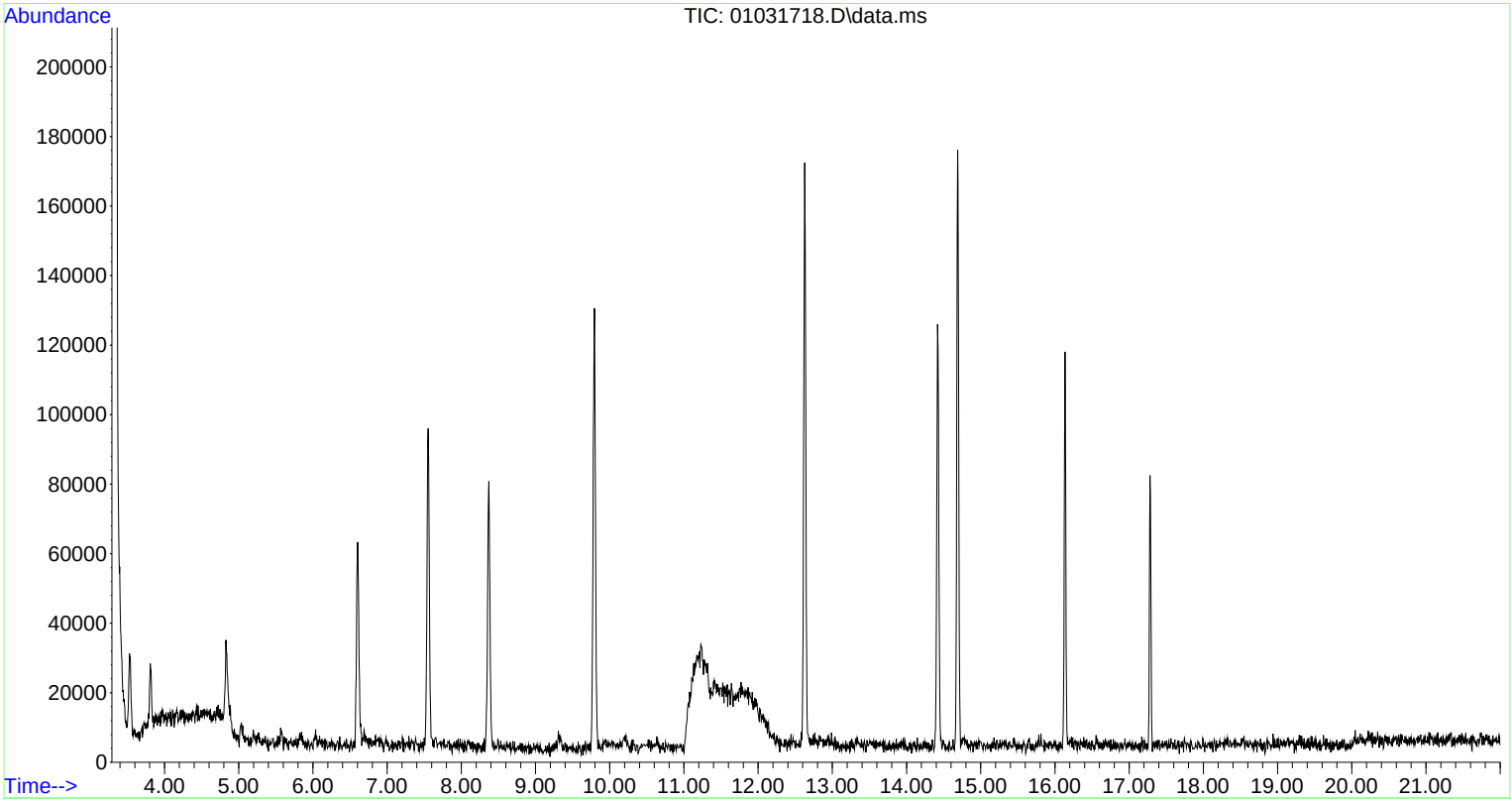
Quant Time: Jan 04 09:31:33 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

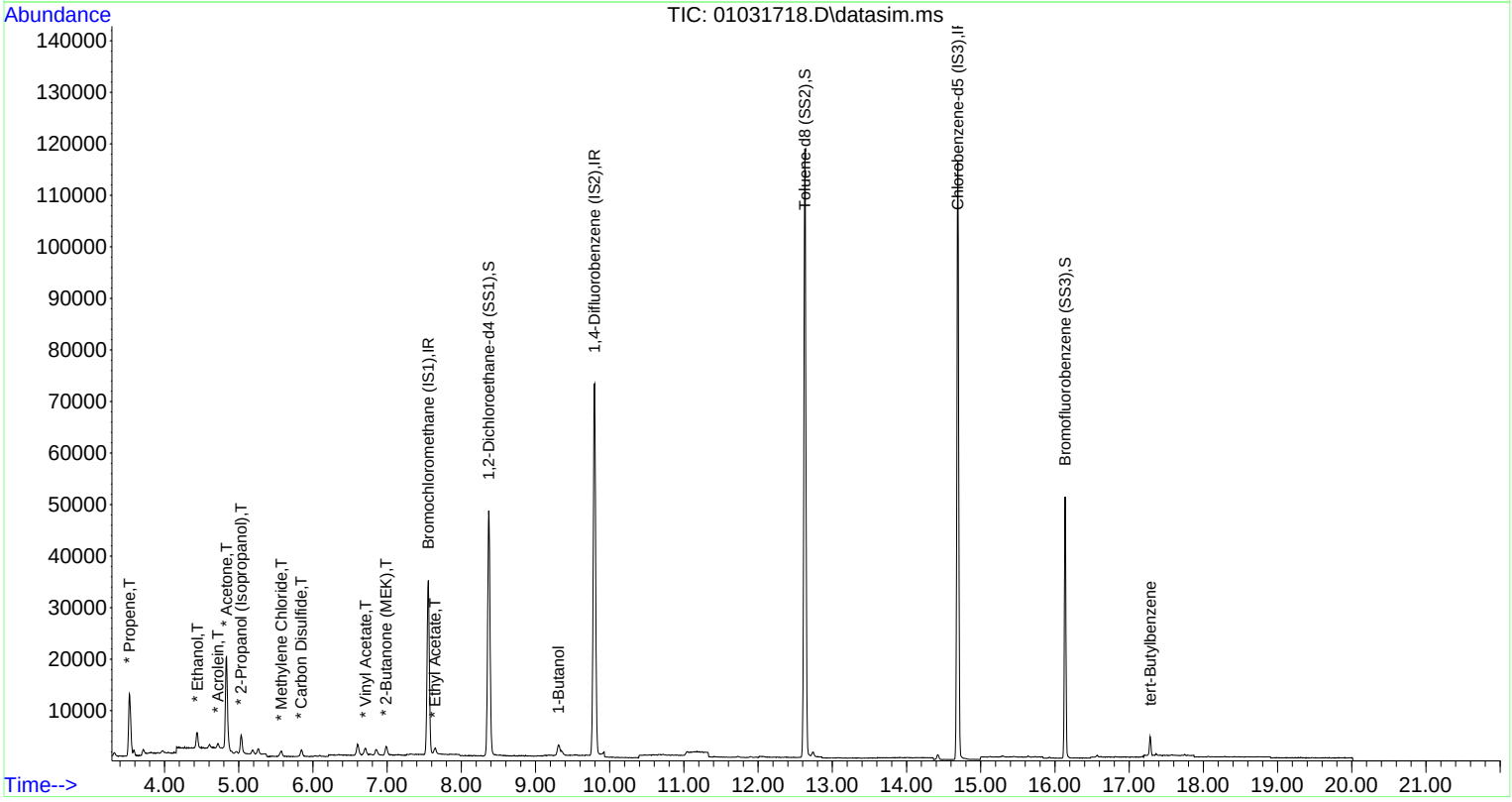
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	41519	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134453	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110633	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71764	877.642	pg		0.00
Spiked Amount 1000.000			Recovery = 87.76%				
57) Toluene-d8 (SS2)	12.63	98	130620	966.201	pg		0.00
Spiked Amount 1000.000			Recovery = 96.62%				
74) Bromofluorobenzene (SS3)	16.14	174	35717	802.191	pg		0.00
Spiked Amount 1000.000			Recovery = 80.22%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6055	72.660	pg	#	77
10) * Ethanol	4.44	45	3566	62.741	pg		98
12) * Acrolein	4.72	56	900	18.901	pg	#	82
13) * Acetone	4.84	58	9689	180.483	pg	#	54
15) * 2-Propanol (Isopropa...	5.03	45	4950	34.031	pg		97
19) * Methylene Chloride	5.58	84	1004	16.790	pg		94
22) * Carbon Disulfide	5.84	76	2250	10.264	pg		99
26) * Vinyl Acetate	6.71	86	319	28.334	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	696	21.600	pg		70
30) * Ethyl Acetate	7.65	61	258	15.662	pg		95
41) 1-Butanol	9.31	56	1791	61.618	pg	#	57
83) tert-Butylbenzene	17.28	134	1507	74.394	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031718.D
Acq On : 4 Jan 2017 12:06 am
Operator : SM
Sample : AS00912 FCA00719
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 04 09:31:33 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051719.D
Acq On : 5 Jan 2017 9:05 pm
Operator : JM
Sample : AC01051 FCA00680
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

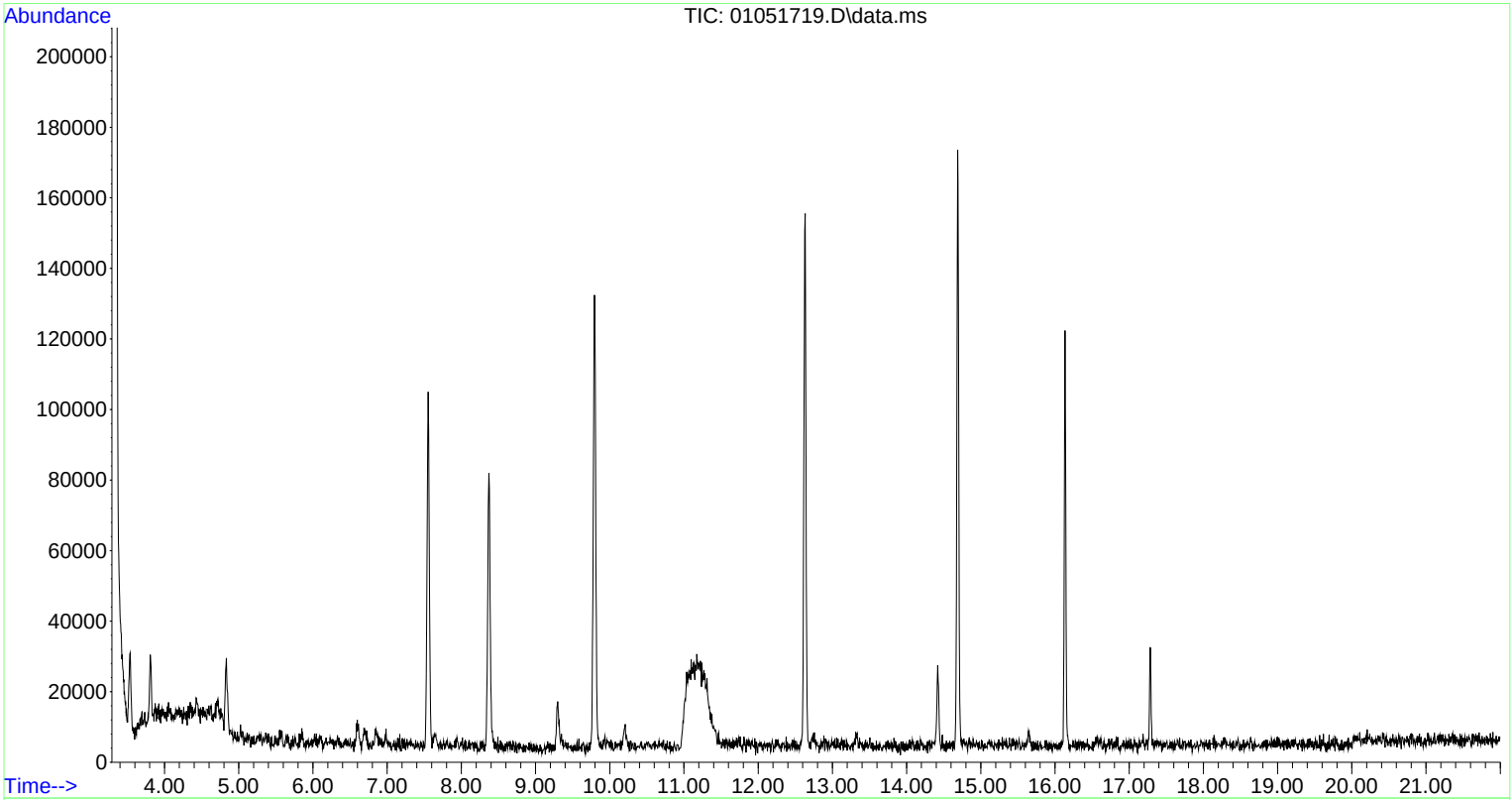
Quant Time: Jan 06 08:15:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

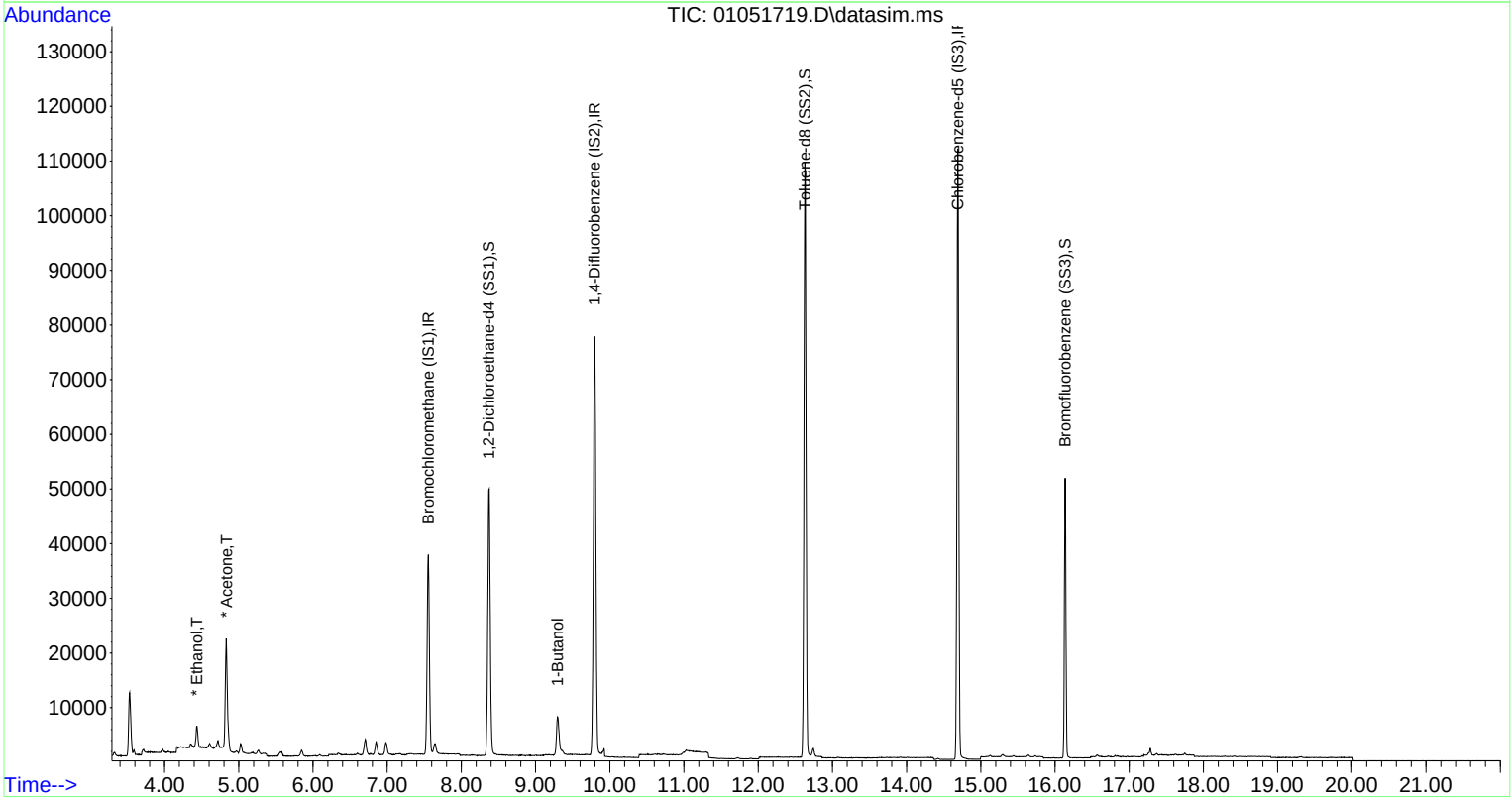
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44487	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142655	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107531	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73444	838.264	pg		0.00
Spiked Amount 1000.000			Recovery = 83.83%				
57) Toluene-d8 (SS2)	12.63	98	121638	925.717	pg		0.00
Spiked Amount 1000.000			Recovery = 92.57%				
74) Bromofluorobenzene (SS3)	16.14	174	36098	834.137	pg		0.00
Spiked Amount 1000.000			Recovery = 83.41%				
Target Compounds							Qvalue
10) * Ethanol	4.44	45	4267	70.066	pg	#	86
13) * Acetone	4.84	58	12222	212.478	pg	#	40
41) 1-Butanol	9.30	56	6365	206.391	pg	#	52

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051719.D
Acq On : 5 Jan 2017 9:05 pm
Operator : JM
Sample : AC01051 FCA00680
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 06 08:15:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051718.D
Acq On : 5 Jan 2017 8:25 pm
Operator : JM
Sample : AC01775 FCA00723
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 06 08:15:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

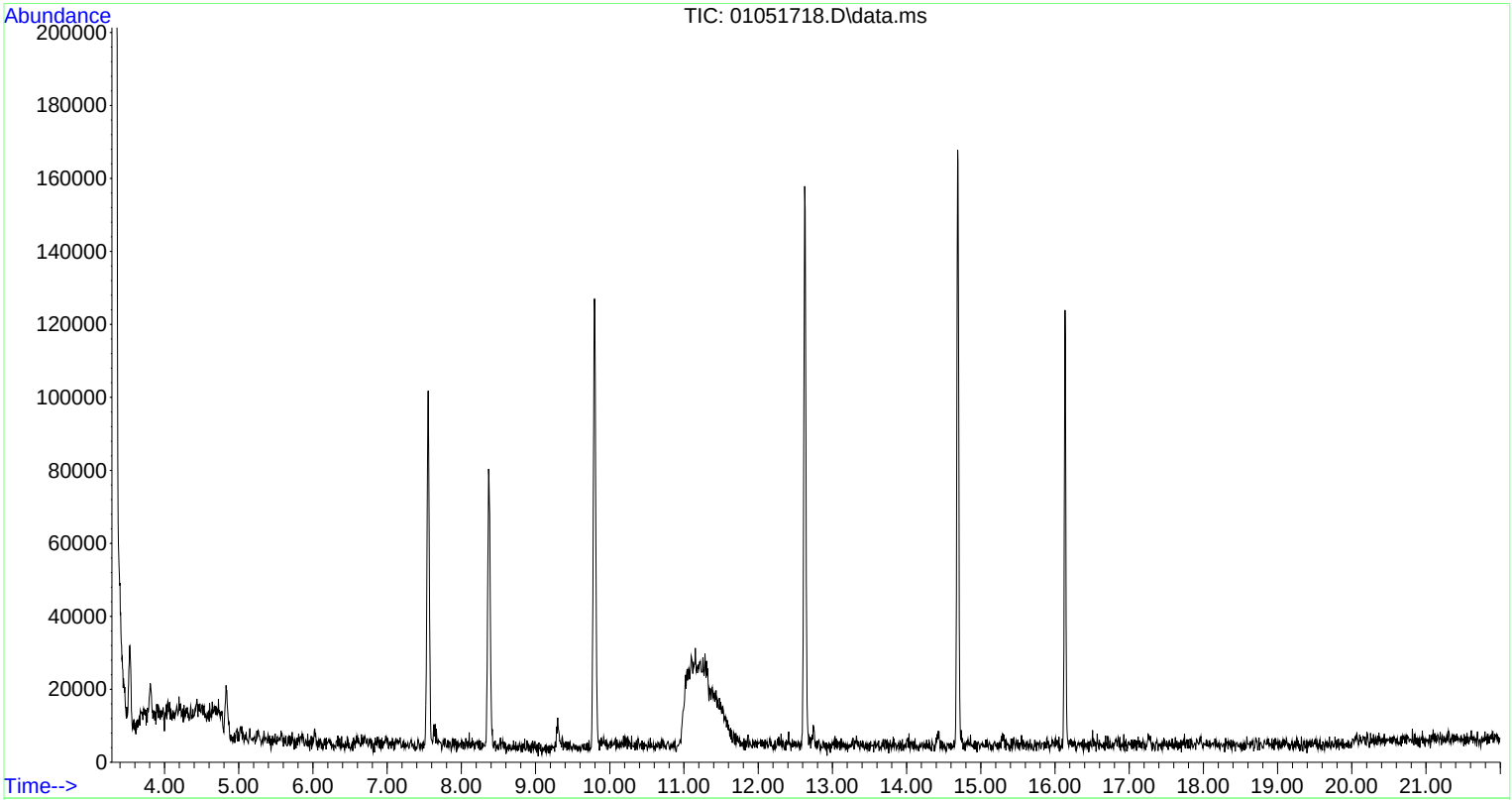
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44398	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138589	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105784	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74144	847.950	pg		0.00
Spiked Amount 1000.000			Recovery = 84.80%				
57) Toluene-d8 (SS2)	12.63	98	123685	956.841	pg		0.00
Spiked Amount 1000.000			Recovery = 95.68%				
74) Bromofluorobenzene (SS3)	16.14	174	35967	844.835	pg		0.00
Spiked Amount 1000.000			Recovery = 84.48%				
Target Compounds							Qvalue
13) * Acetone	4.83	58	6327	110.214	pg		69
41) 1-Butanol	9.30	56	3275	109.311	pg	#	49

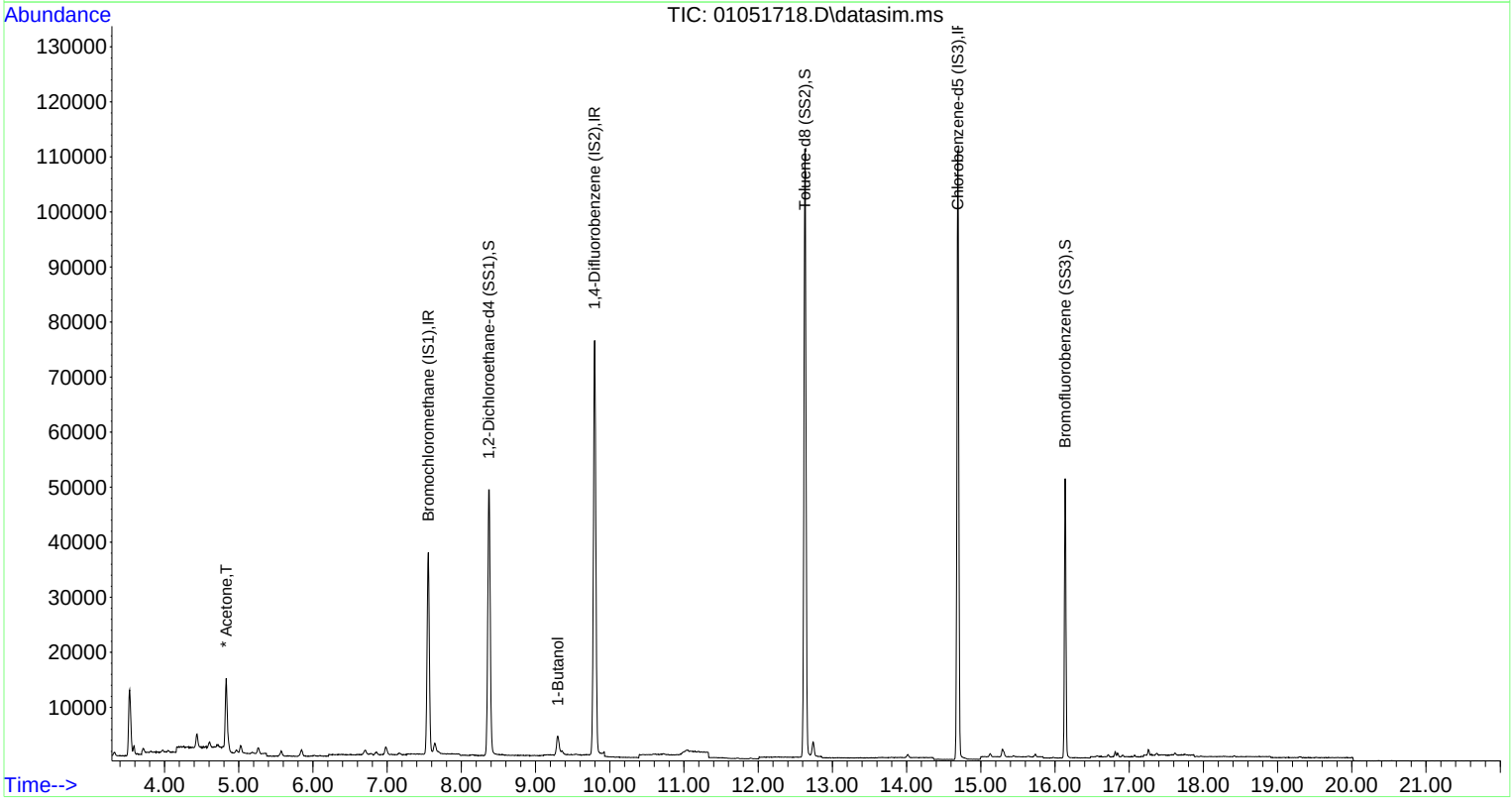
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051718.D
Acq On : 5 Jan 2017 8:25 pm
Operator : JM
Sample : AC01775 FCA00723
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 06 08:15:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051722.D
Acq On : 5 Jan 2017 11:32 pm
Operator : JM
Sample : AC02221 FCA01068
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 06 08:16:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

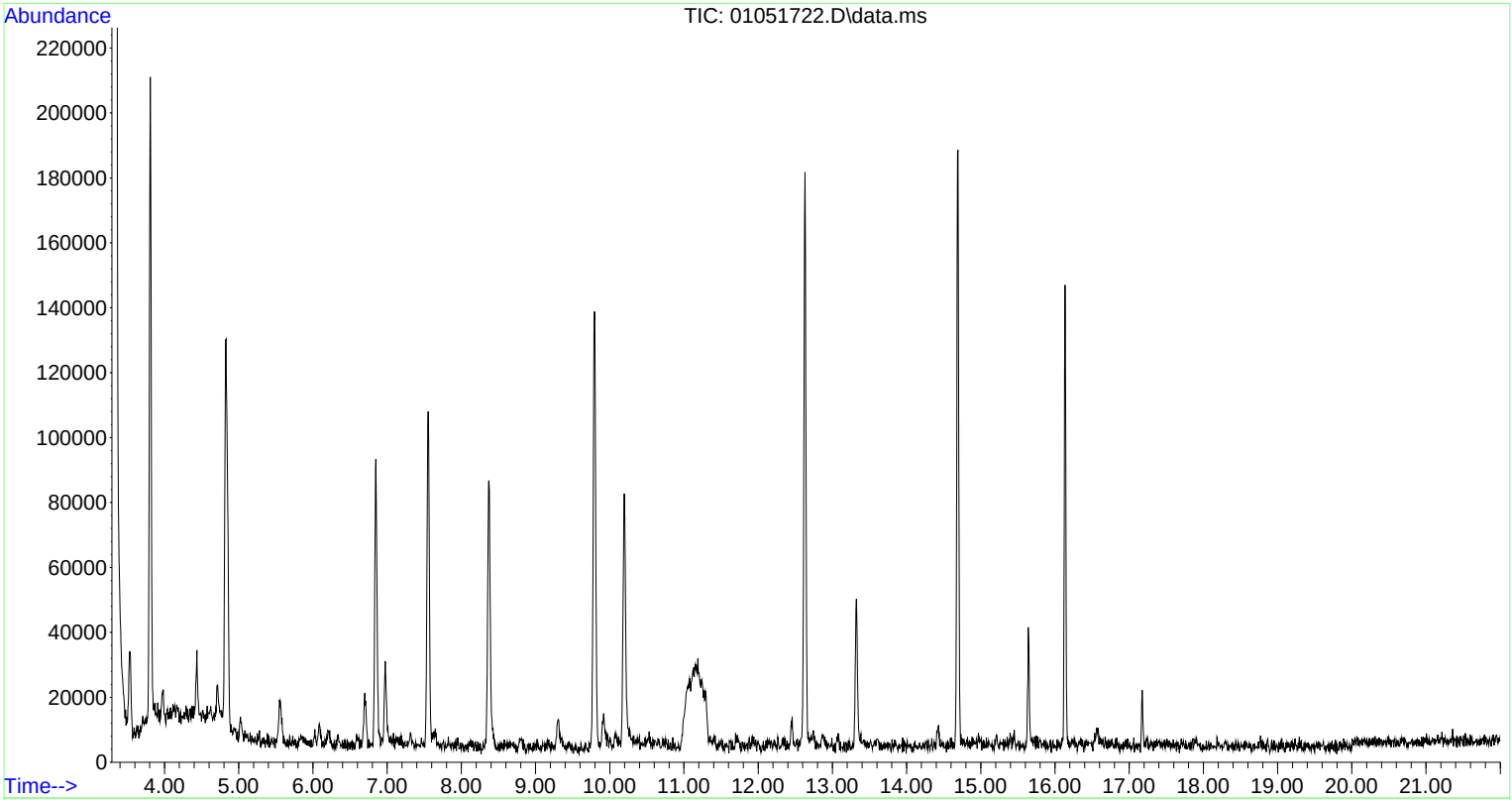
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47488	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	156317	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	121054	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78803	842.591	pg		0.00
Spiked Amount 1000.000			Recovery = 84.26%				
57) Toluene-d8 (SS2)	12.63	98	138912	939.081	pg		0.00
Spiked Amount 1000.000			Recovery = 93.91%				
74) Bromofluorobenzene (SS3)	16.14	174	44629	916.064	pg		0.00
Spiked Amount 1000.000			Recovery = 91.61%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6742	70.735	pg		81
10) * Ethanol	4.43	45	18057	277.768	pg		97
12) * Acrolein	4.71	56	8369	153.667	pg		98
13) * Acetone	4.85	58	122315	1992.049	pg	#	1
18) tert-Butanol	5.55	59	8482	84.589	pg		84
26) * Vinyl Acetate	6.71	86	3535	274.516	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	8322	225.808	pg		85
41) 1-Butanol	9.30	56	5013	148.345	pg	#	43

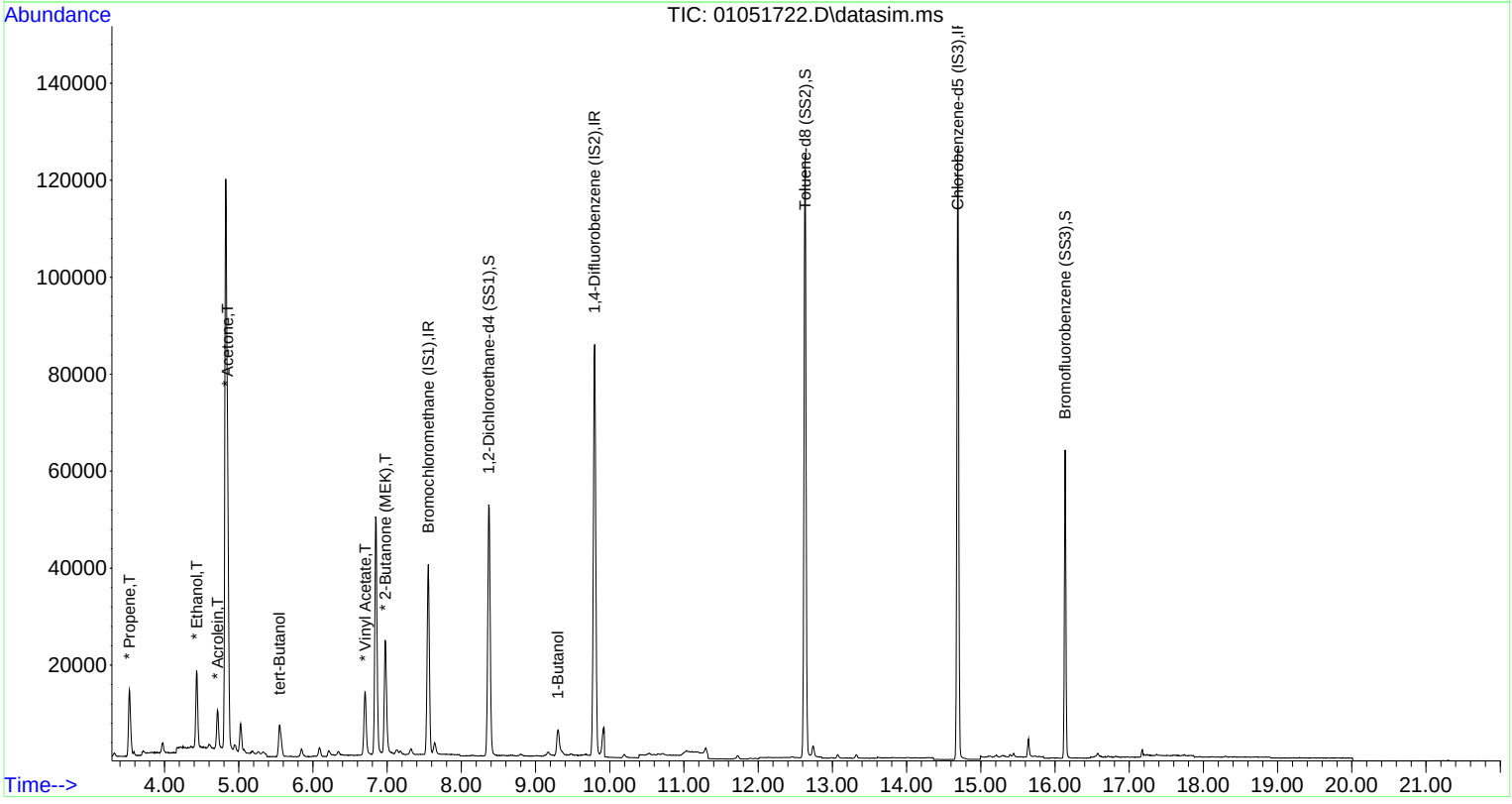
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051722.D
Acq On : 5 Jan 2017 11:32 pm
Operator : JM
Sample : AC02221 FCA01068
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 06 08:16:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041725.D
Acq On : 5 Jan 2017 4:18
Operator : JM
Sample : AS01040 FCA00434 (Sig #1); AC01040 FCA00434 (Sig #2)
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 05 08:04:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46222	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150356	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116712	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77832	855.002	pg		0.00
Spiked Amount 1000.000			Recovery = 85.50%				
57) Toluene-d8 (SS2)	12.63	98	129748	909.762	pg		0.00
Spiked Amount 1000.000			Recovery = 90.98%				
74) Bromofluorobenzene (SS3)	16.14	174	39221	835.008	pg		0.00
Spiked Amount 1000.000			Recovery = 83.50%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5911	63.715	pg		79
3) * Dichlorodifluoromethane	3.59	85	767	3.881	pg		95
4) * Chloromethane	3.71	50	747	5.056	pg	#	60
7) * 1,3-Butadiene	4.00	54	71	0.677	pg	#	1
9) * Chloroethane	4.39	64	50	0.780	pg	#	41
10) * Ethanol	4.44	45	8228	130.037	pg		98
11) * Acetonitrile	4.60	41	744	4.690	pg		93
12) * Acrolein	4.72	56	951	17.940	pg		93
13) * Acetone	4.83	58	7286	121.912	pg	#	56
14) * Trichlorofluoromethane	4.97	101	313	2.371	pg		93
15) * 2-Propanol (Isopropa...	5.03	45	1608	9.930	pg		89
16) * Acrylonitrile	5.19	53	311	3.304	pg		82
18) tert-Butanol	5.56	59	517	5.297	pg		93
19) * Methylene Chloride	5.57	84	1251	18.792	pg		97
20) * 3-Chloro-1-propene (...	5.65	41	60	0.675	pg	#	43
22) * Carbon Disulfide	5.84	76	2522	10.334	pg		100
26) * Vinyl Acetate	6.72	86	273	21.781	pg	#	12
27) * 2-Butanone (MEK)	6.99	72	614	17.117	pg		77
29) DIPE	7.65	45	738	3.530	pg	#	53
30) * Ethyl Acetate	7.65	61	704	38.388	pg		95
31) * n-Hexane	7.65	57	238	2.524	pg	#	78
39) * Benzene	9.35	78	1040	5.998	pg	#	73
41) 1-Butanol	9.31	56	5018	154.380	pg	#	44
42) * Carbon Tetrachloride	9.53	117	117	1.734	pg	#	79
46) * Bromodichloromethane	10.58	83	62	0.794	pg	#	19
48) * 1,4-Dioxane	10.67	88	51	1.410	pg	#	9
49) Isooctane	10.71	56	98	1.182	pg	#	62
51) * n-Heptane	11.03	71	167	1.876	pg	#	43
53) * 4-Methyl-2-pentanone	11.73	58	92	2.937	pg	#	47
58) * Toluene	12.74	91	2342	14.198	pg		100
59) * 2-Hexanone	13.07	58	52	1.843	pg	#	68
64) * Tetrachloroethene	14.02	166	54	0.984	pg	#	8
65) * Chlorobenzene	14.74	112	68	0.626	pg	#	42
66) * Ethylbenzene	15.13	91	265	1.905	pg	#	86
67) * m- & p-Xylenes	15.29	91	622	5.755	pg		98
70) * Styrene	15.63	104	187	3.250	pg	#	82
71) * o-Xylene	15.73	91	228	2.157	pg		95
76) * alpha-Pinene	16.61	93	186	2.714	pg	#	82
78) 3-Ethyltoluene	16.81	105	167	1.726	pg	#	45
79) * 4-Ethyltoluene	16.84	105	51	0.601	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	102	1.072	pg	#	29
82) 2-Ethyltoluene	17.08	105	132	1.143	pg	#	45
83) tert-Butylbenzene	17.28	134	773	36.172	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.28	105	179	2.082	pg		91
88) n-Decane	17.37	85	58	3.528	pg	#	58

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041725.D
Acq On : 5 Jan 2017 4:18
Operator : JM
Sample : AS01040 FCA00434 (Sig #1); AC01040 FCA00434 (Sig #2)
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

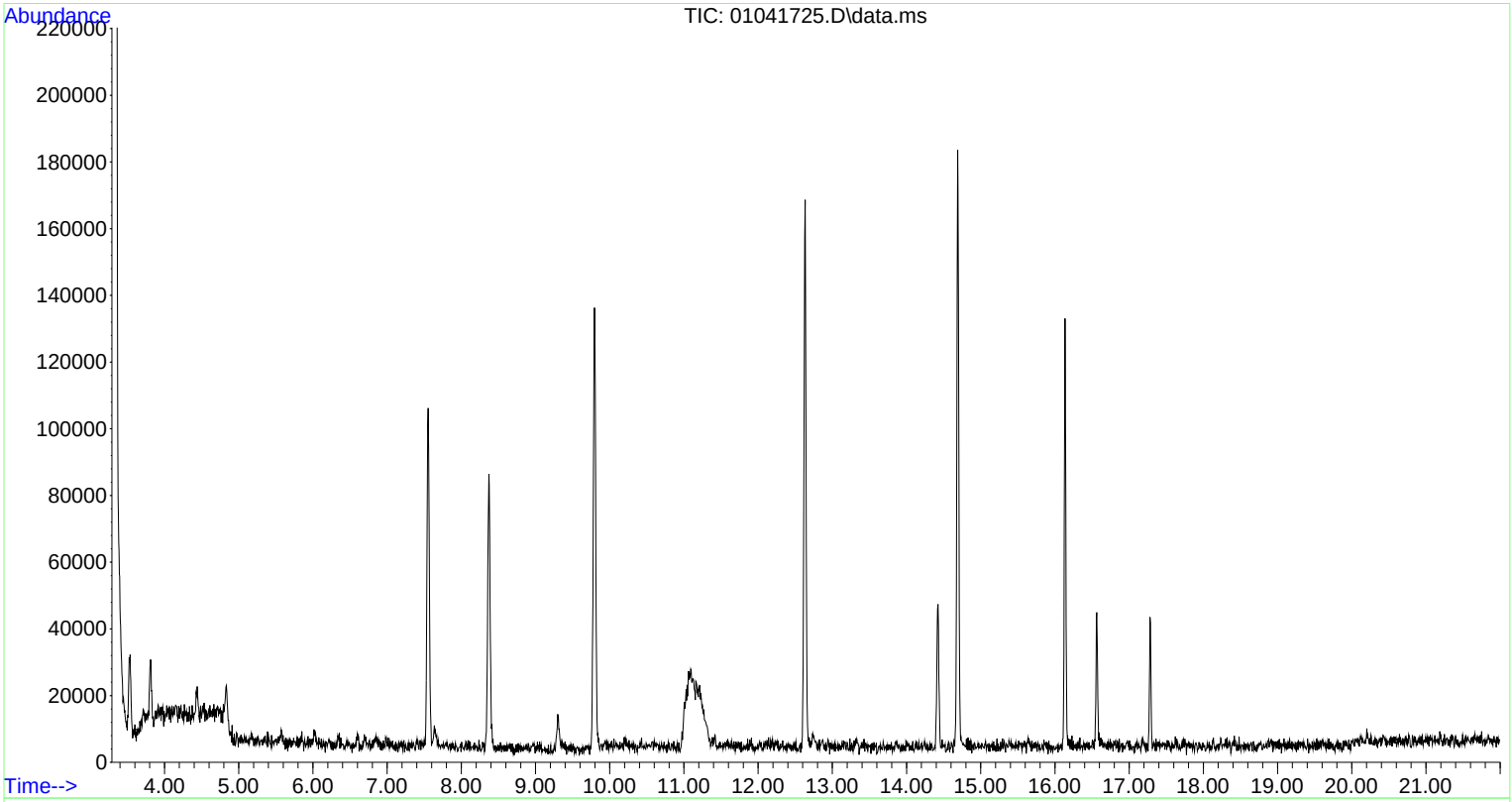
Quant Time: Jan 05 08:04:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

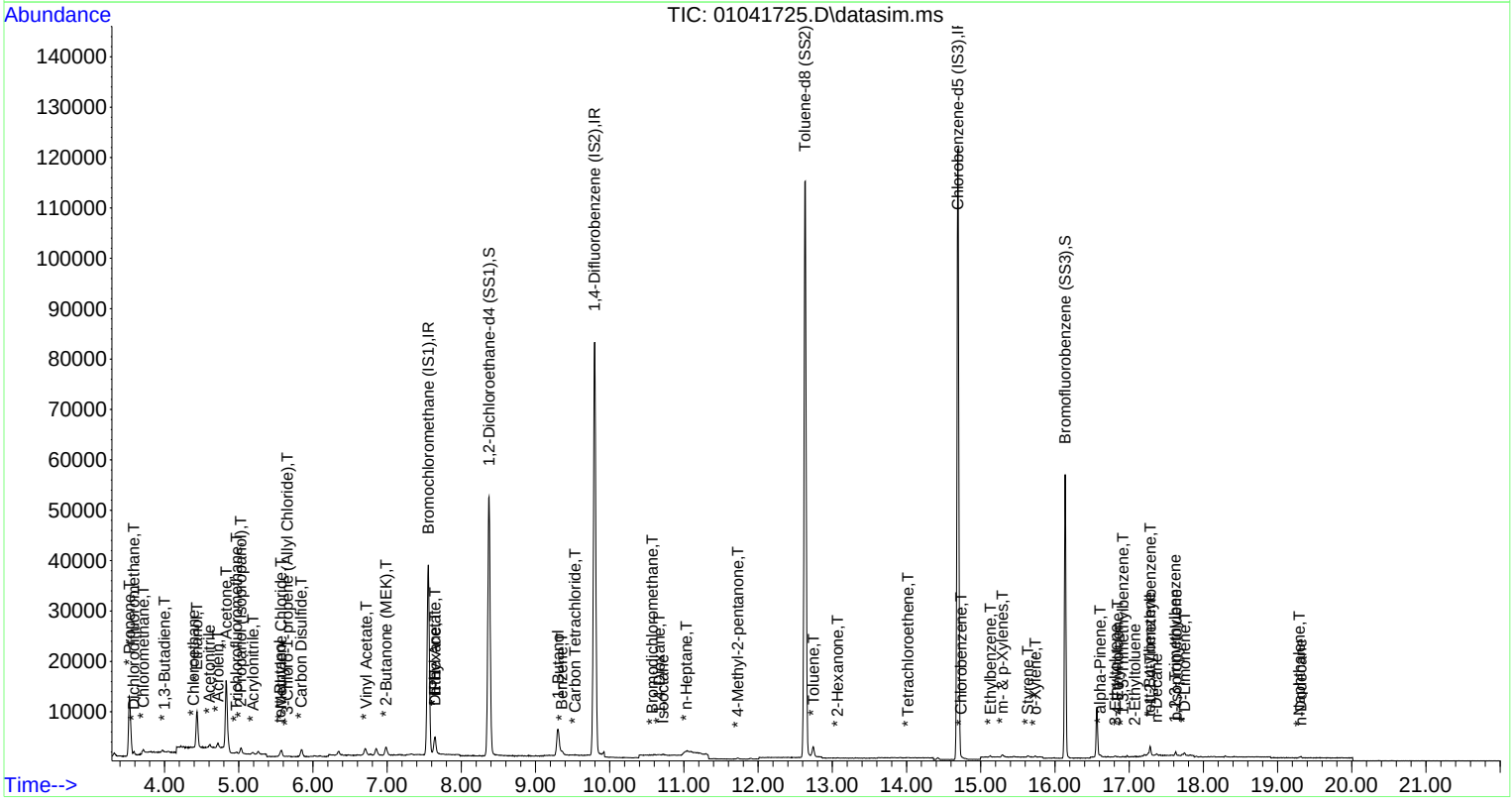
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
90) 1,2,3-Trimethylbenzene	17.62	105	71	0.788	pg	#	1
91) p-Isopropyltoluene	17.63	134	137	5.021	pg		73
93) * D-Limonene	17.75	68	250	6.604	pg	#	65
98) * Naphthalene	19.29	128	185	5.041	pg	#	66
99) n-Dodecane	19.31	85	115	19.479	pg	#	8

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041725.D
Acq On : 5 Jan 2017 4:18
Operator : JM
Sample : AS01040 FCA00434 (Sig #1); AC01040 FCA00434 (Sig #2)
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 05 08:04:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051712.D
Acq On : 5 Jan 2017 4:15 pm
Operator : JM
Sample : AS01190 FCA00670
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

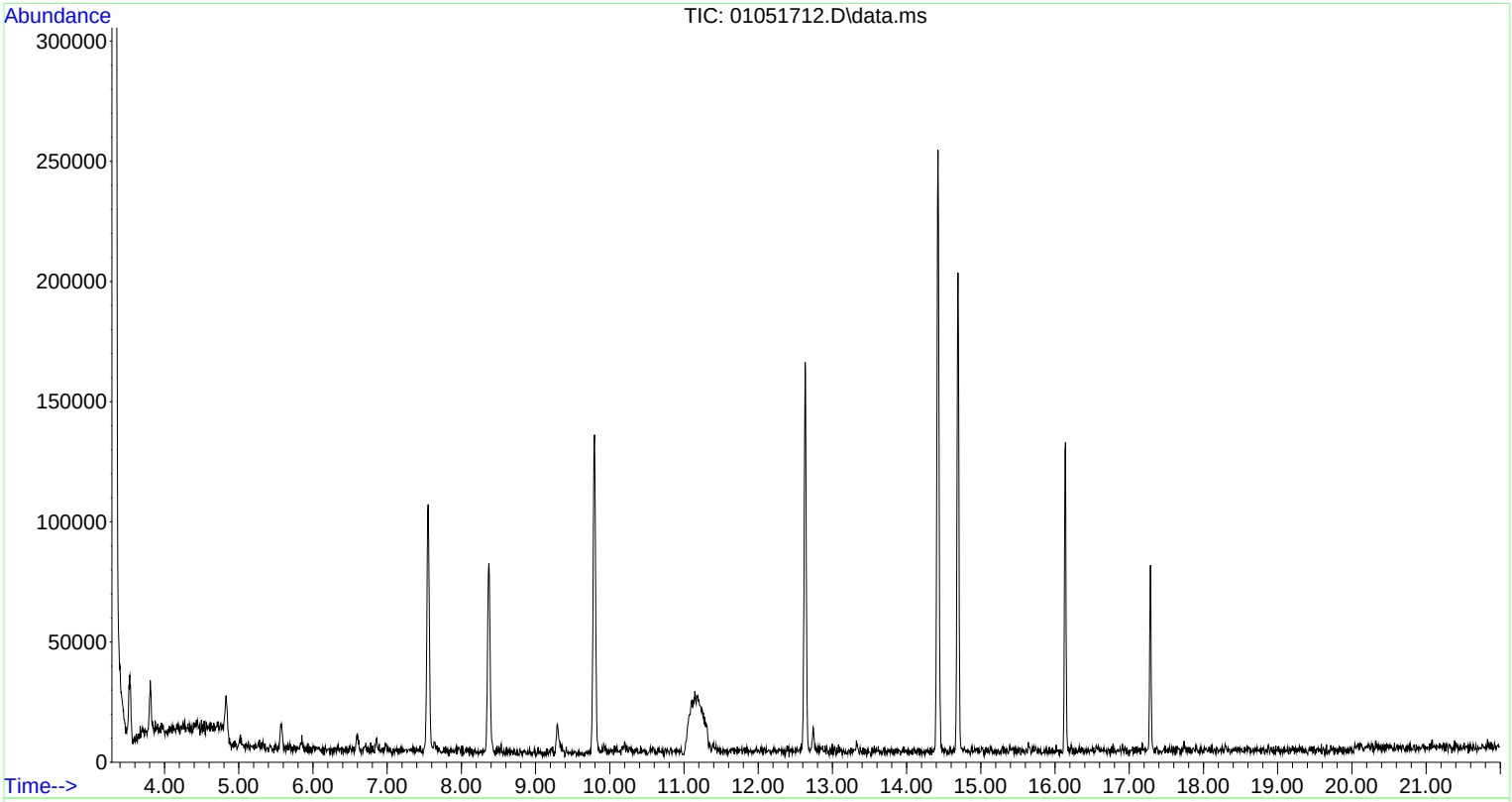
Quant Time: Jan 06 08:15:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

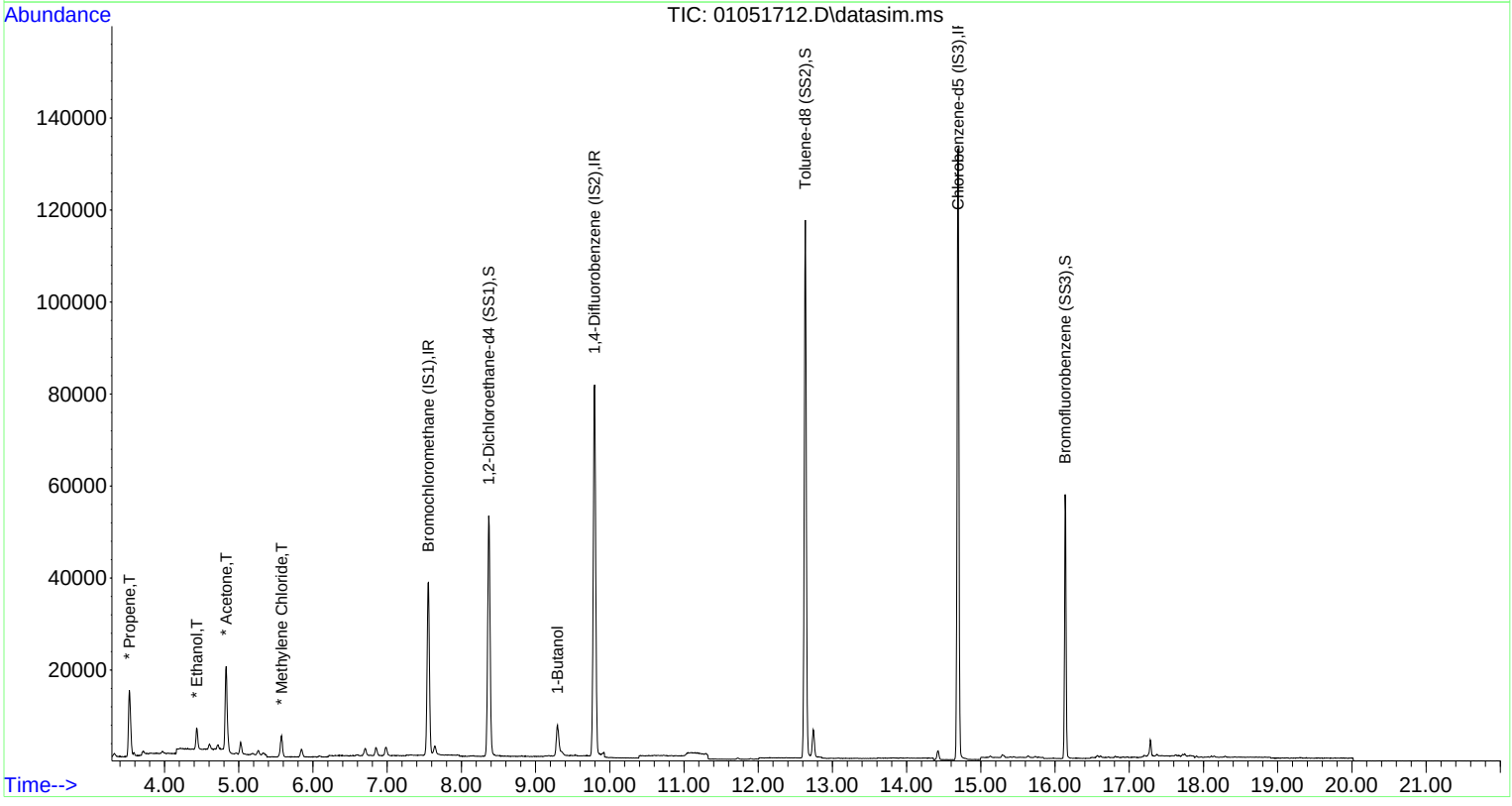
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46901	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	151271	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	130510	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77423	838.196	pg		0.00
Spiked Amount 1000.000			Recovery = 83.82%				
57) Toluene-d8 (SS2)	12.63	98	128886	808.173	pg		0.00
Spiked Amount 1000.000			Recovery = 80.82%				
74) Bromofluorobenzene (SS3)	16.14	174	40689	774.677	pg		0.00
Spiked Amount 1000.000			Recovery = 77.47%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7017	74.541	pg	#	77
10) * Ethanol	4.43	45	5041	78.515	pg		98
13) * Acetone	4.83	58	9898	163.219	pg	#	53
19) * Methylene Chloride	5.58	84	5175	76.610	pg		99
41) 1-Butanol	9.30	56	6203	189.682	pg	#	49

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051712.D
Acq On : 5 Jan 2017 4:15 pm
Operator : JM
Sample : AS01190 FCA00670
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Jan 06 08:15:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041718.D
Acq On : 4 Jan 2017 11:31 pm
Operator : JM
Sample : AC02227 FCA01067
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

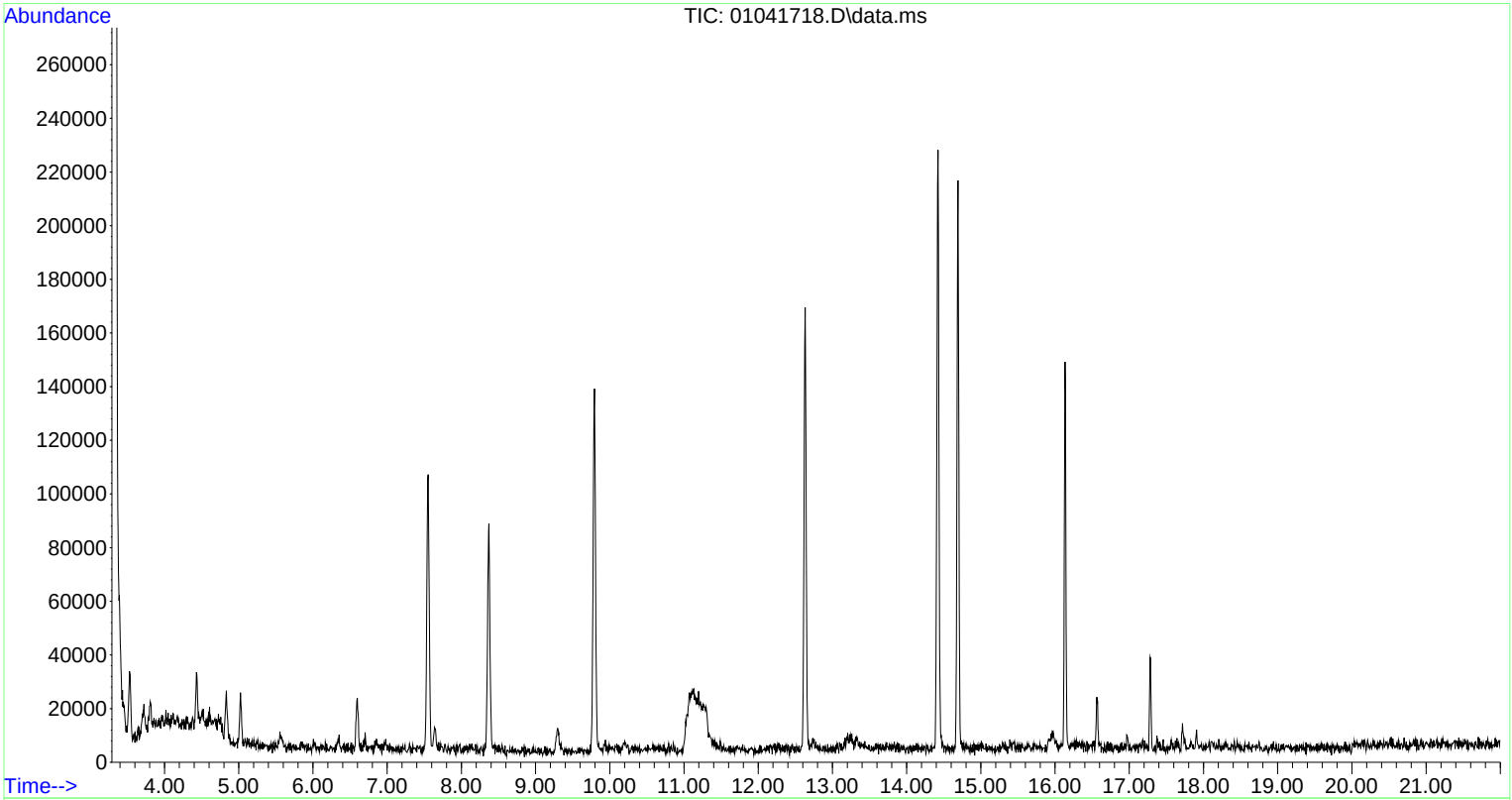
Quant Time: Jan 05 08:03:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

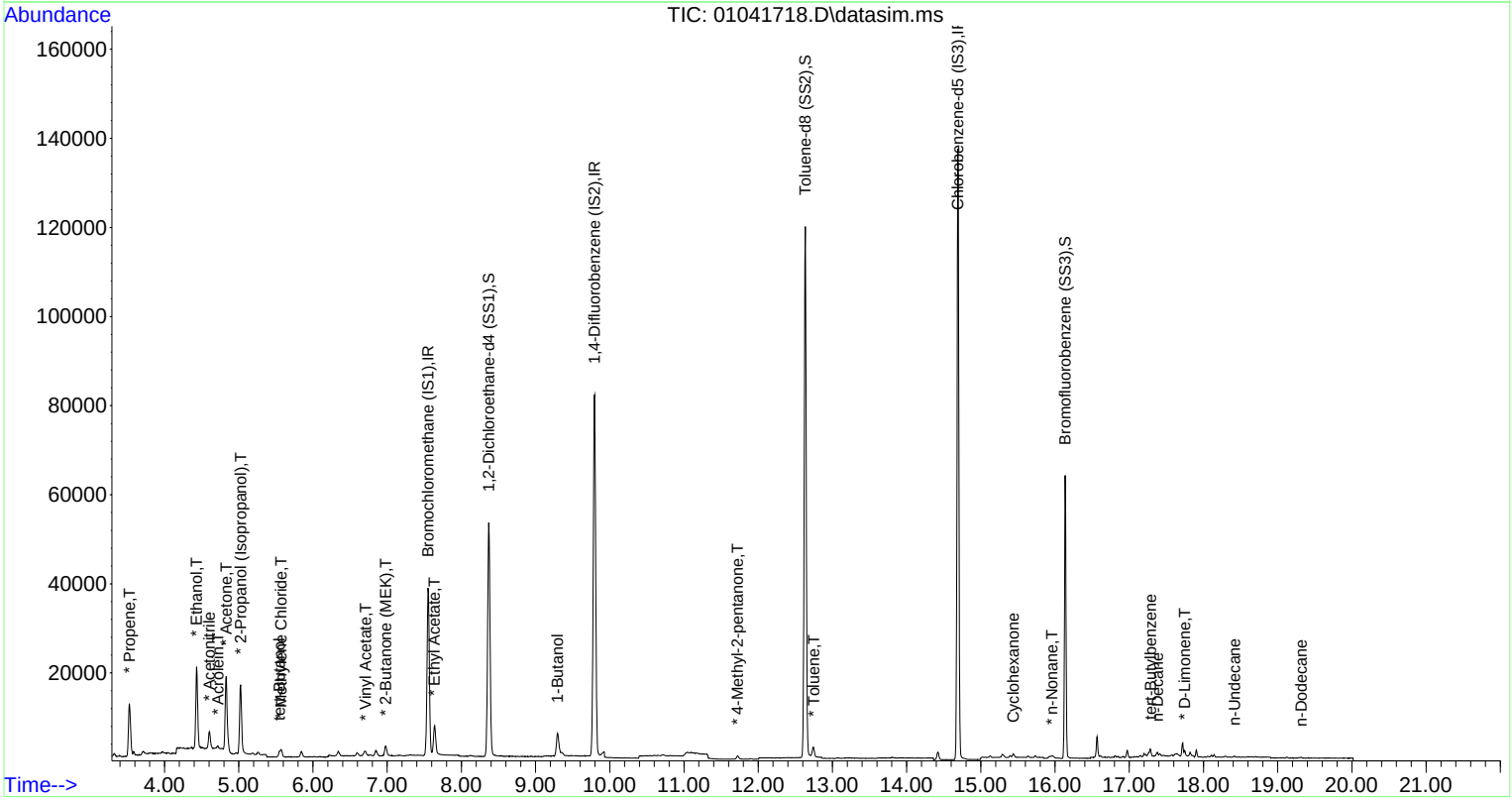
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46071	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150665	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	131529	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77616	855.424	pg		0.00
Spiked Amount 1000.000			Recovery = 85.54%				
57) Toluene-d8 (SS2)	12.63	98	132056	821.636	pg		0.00
Spiked Amount 1000.000			Recovery = 82.16%				
74) Bromofluorobenzene (SS3)	16.14	174	44287	836.647	pg		0.00
Spiked Amount 1000.000			Recovery = 83.67%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5768	62.377	pg	#	75
10) * Ethanol	4.43	45	20074	318.292	pg		97
11) * Acetonitrile	4.60	41	4746	30.013	pg		100
12) * Acrolein	4.72	56	692	13.097	pg		96
13) * Acetone	4.83	58	8465	142.103	pg	#	63
15) * 2-Propanol (Isopropa...	5.03	45	21146	131.015	pg		94
18) tert-Butanol	5.55	59	1492	15.337	pg		87
19) * Methylene Chloride	5.57	84	1593	24.007	pg		96
26) * Vinyl Acetate	6.71	86	332	26.575	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	762	21.312	pg		83
30) * Ethyl Acetate	7.63	61	1343	73.472	pg		95
41) 1-Butanol	9.30	56	4549	139.664	pg	#	47
53) * 4-Methyl-2-pentanone	11.72	58	419	13.347	pg		94
58) * Toluene	12.75	91	2693	14.486	pg		94
69) Cyclohexanone	15.44	98	367	26.977	pg		93
72) * n-Nonane	15.96	57	1041	19.387	pg	#	57
83) tert-Butylbenzene	17.29	134	636	26.409	pg	#	1
88) n-Decane	17.38	85	187	10.094	pg		89
93) * D-Limonene	17.75	68	661	15.493	pg		93
96) n-Undecane	18.42	85	120	11.328	pg	#	33
99) n-Dodecane	19.32	85	82	12.325	pg	#	14

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041718.D
Acq On : 4 Jan 2017 11:31 pm
Operator : JM
Sample : AC02227 FCA01067
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 05 08:03:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061713.D
Acq On : 6 Jan 2017 4:38 pm
Operator : JM
Sample : AS01038 FCA00916-dont use 12.D
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 09 08:37:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	48699	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	153645	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116901	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	79392	827.779 pg		0.00
Spiked Amount 1000.000			Recovery = 82.78%			
57) Toluene-d8 (SS2)	12.63	98	132321	926.303 pg		0.00
Spiked Amount 1000.000			Recovery = 92.63%			
74) Bromofluorobenzene (SS3)	16.14	174	39029	829.577 pg		0.00
Spiked Amount 1000.000			Recovery = 82.96%			
Target Compounds						Qvalue
2) * Propene	3.53	42	5760	58.929 pg	#	77
3) * Dichlorodifluoromethane	3.59	85	681	3.271 pg		97
4) * Chloromethane	3.71	50	578	3.714 pg	#	75
7) * 1,3-Butadiene	4.00	54	11	0.100 pg	#	1
10) * Ethanol	4.44	45	4741	71.116 pg		97
11) * Acetonitrile	4.60	41	591	3.536 pg	#	76
12) * Acrolein	4.72	56	768	13.751 pg		86
13) * Acetone	4.84	58	6526	103.641 pg	#	51
14) * Trichlorofluoromethane	4.97	101	289	2.078 pg		91
15) * 2-Propanol (Isopropa...	5.03	45	2396	14.044 pg		89
16) * Acrylonitrile	5.19	53	222	2.239 pg	#	77
18) tert-Butanol	5.56	59	296	2.879 pg		87
19) * Methylene Chloride	5.58	84	668	9.524 pg		93
20) * 3-Chloro-1-propene (...	5.69	41	50	0.534 pg	#	43
22) * Carbon Disulfide	5.85	76	2076	8.074 pg		99
26) * Vinyl Acetate	6.71	86	222	16.811 pg	#	1
27) * 2-Butanone (MEK)	6.99	72	477	12.621 pg		76
28) * cis-1,2-Dichloroethene	7.40	96	56	0.921 pg	#	17
29) DIPE	7.64	45	299	1.357 pg	#	53
30) * Ethyl Acetate	7.65	61	395	20.443 pg	#	69
31) * n-Hexane	7.65	57	282	2.838 pg	#	87
39) * Benzene	9.35	78	856	4.831 pg		93
41) 1-Butanol	9.30	56	5043	151.828 pg	#	42
49) Isooctane	10.73	56	159	1.877 pg	#	54
50) * Methyl Methacrylate	10.89	69	67	1.508 pg	#	42
51) * n-Heptane	11.04	71	181	1.989 pg	#	43
58) * Toluene	12.74	91	1243	7.523 pg		99
64) * Tetrachloroethene	14.01	166	83	1.511 pg		91
66) * Ethylbenzene	15.12	91	229	1.643 pg	#	71
67) * m- & p-Xylenes	15.29	91	411	3.796 pg		91
70) * Styrene	15.63	104	60	1.041 pg	#	28
71) * o-Xylene	15.73	91	161	1.520 pg		88
72) * n-Nonane	15.98	57	52	1.090 pg	#	42
76) * alpha-Pinene	16.61	93	71	1.034 pg	#	18
78) 3-Ethyltoluene	16.80	105	99	1.022 pg	#	45
79) * 4-Ethyltoluene	16.80	105	99	1.165 pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	56	0.588 pg	#	29
82) 2-Ethyltoluene	17.08	105	52	0.450 pg	#	45
83) tert-Butylbenzene	17.28	134	491	22.939 pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	328	3.809 pg	#	72
85) * Benzyl Chloride	17.36	126	84	9.675 pg	#	5
90) 1,2,3-Trimethylbenzene	17.62	105	93	1.030 pg		88
93) * D-Limonene	17.75	68	163	4.299 pg		99
98) * Naphthalene	19.30	128	164	4.462 pg	#	66

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061713.D
Acq On : 6 Jan 2017 4:38 pm
Operator : JM
Sample : AS01038 FCA00916-dont use 12.D
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

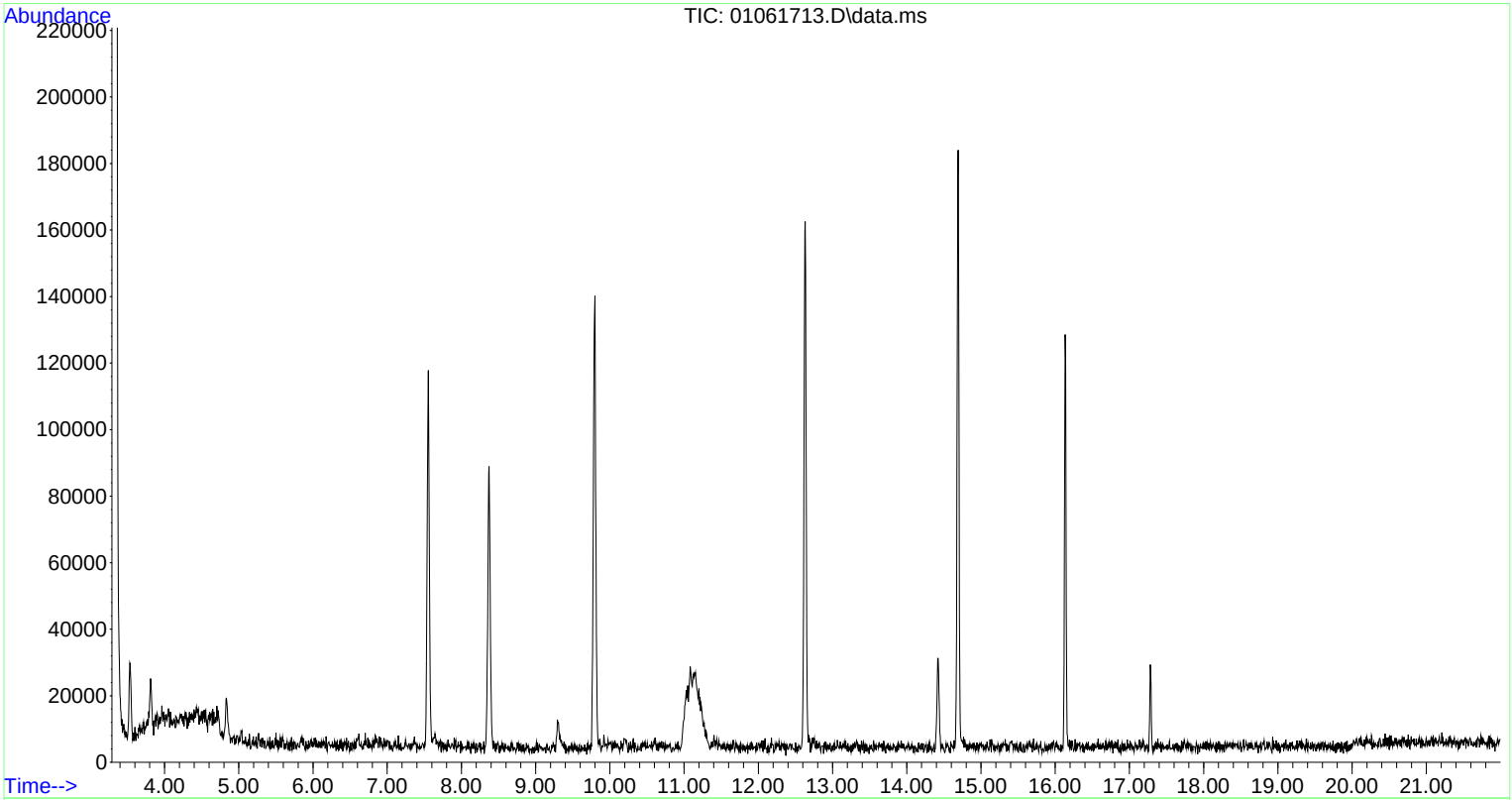
Quant Time: Jan 09 08:37:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

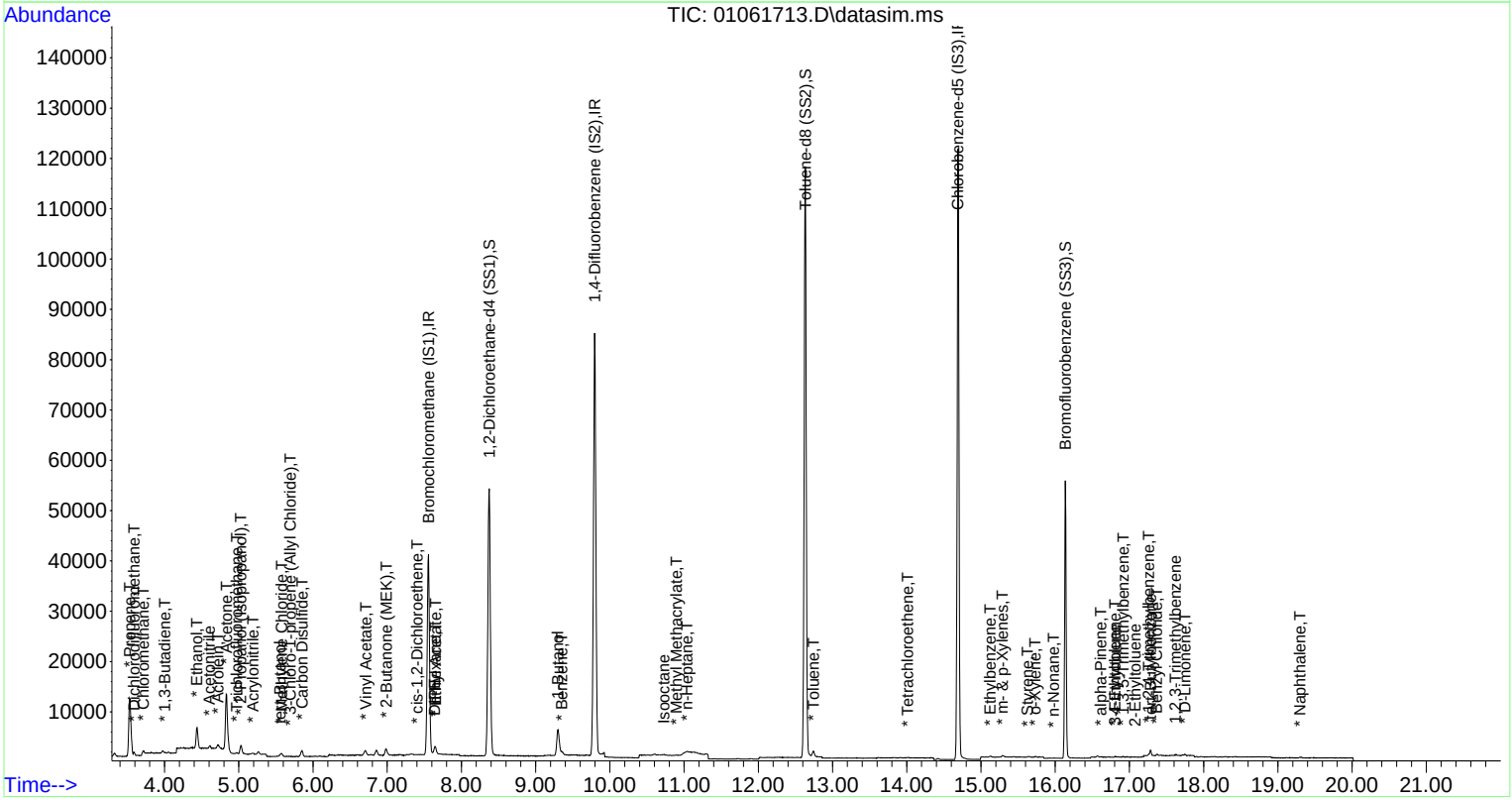
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061713.D
Acq On : 6 Jan 2017 4:38 pm
Operator : JM
Sample : AS01038 FCA00916-dont use 12.D
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 09 08:37:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041721.D
Acq On : 5 Jan 2017 1:34 am
Operator : JM
Sample : AS01176 FCA00428
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

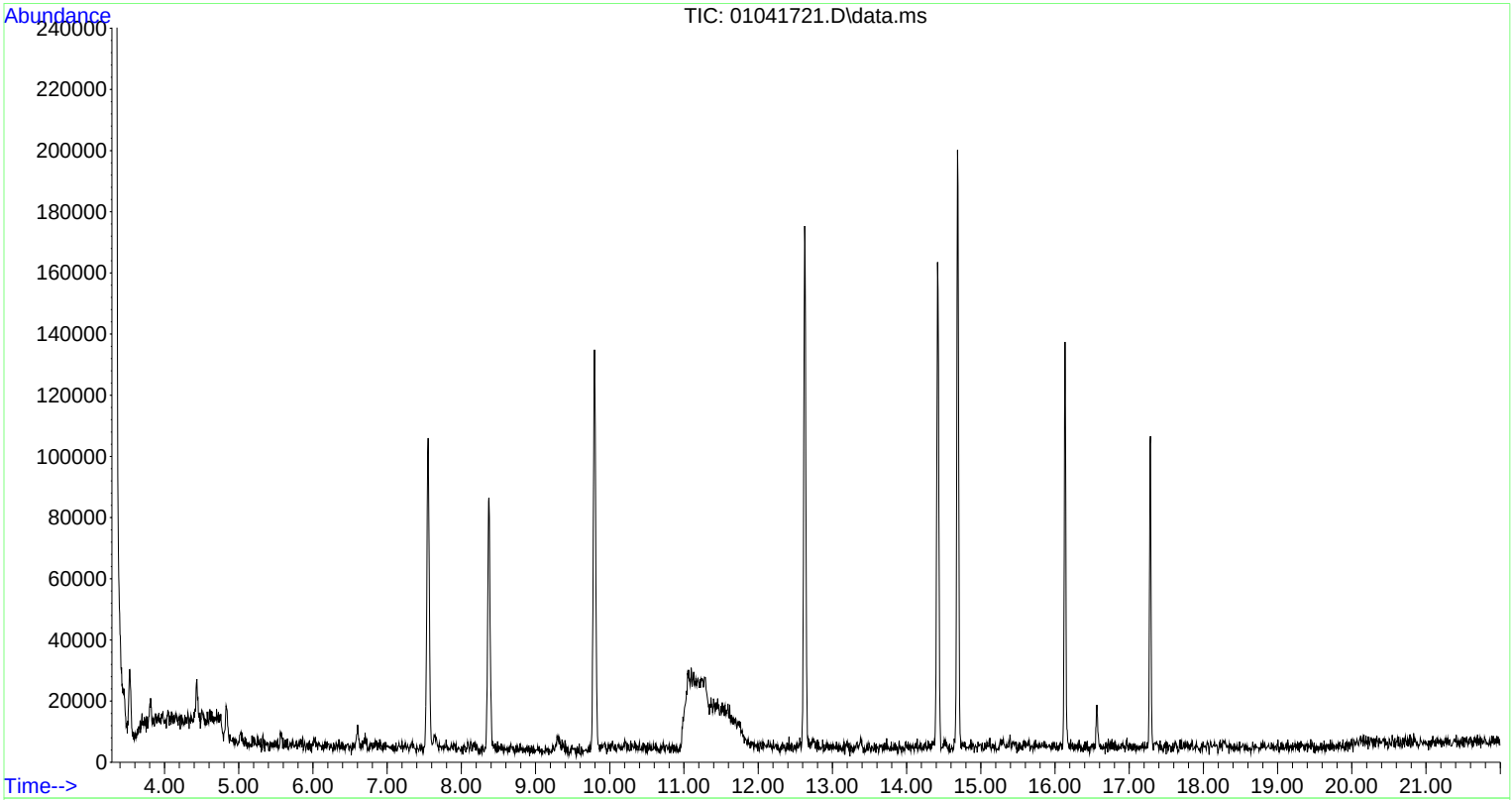
Quant Time: Jan 05 08:04:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

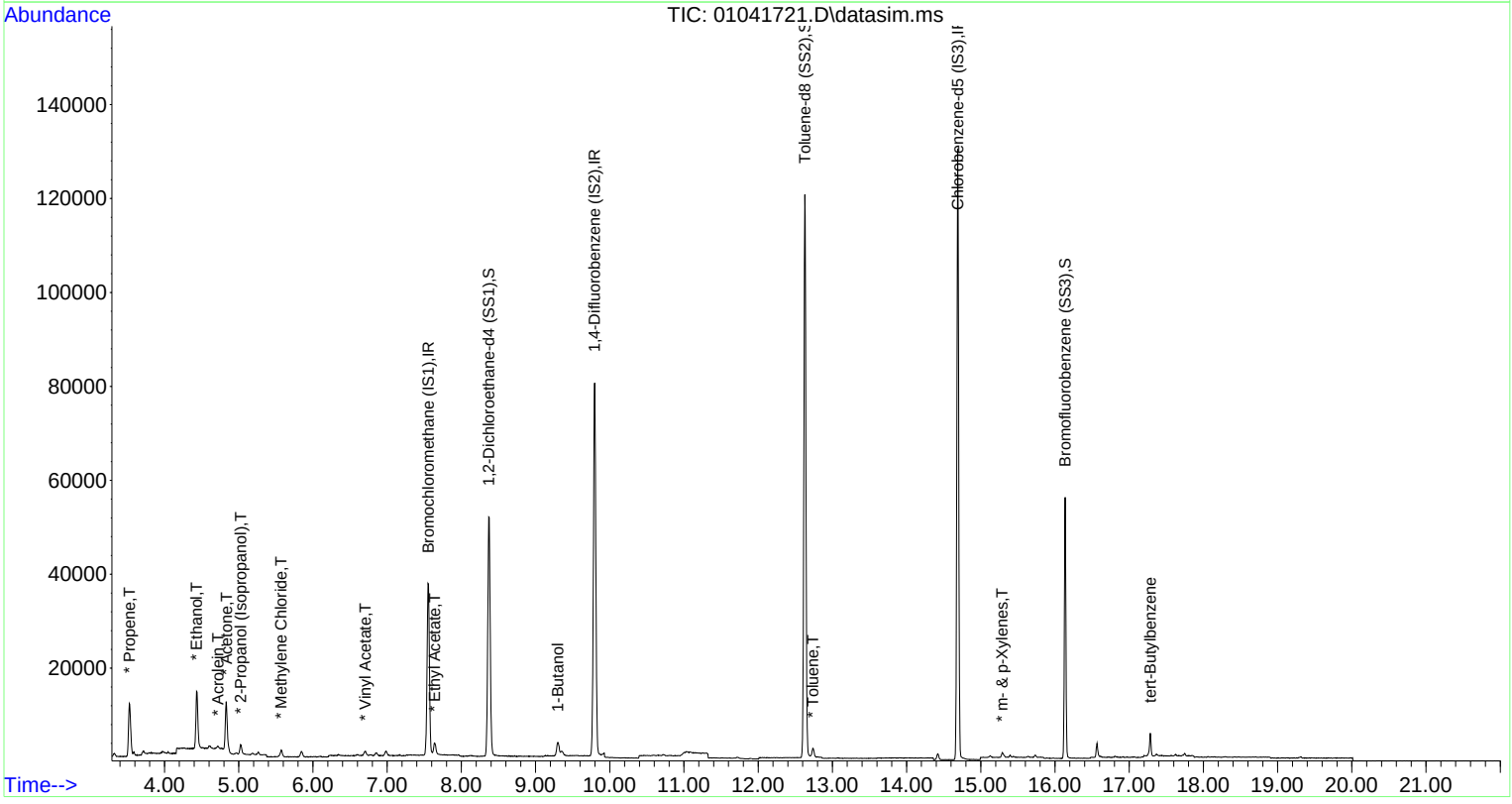
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46121	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	146153	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	123510	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76661	843.983	pg		0.00
Spiked Amount 1000.000			Recovery = 84.40%				
57) Toluene-d8 (SS2)	12.63	98	134622	891.983	pg		0.00
Spiked Amount 1000.000			Recovery = 89.20%				
74) Bromofluorobenzene (SS3)	16.14	174	39569	796.051	pg		0.00
Spiked Amount 1000.000			Recovery = 79.60%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5618	60.689	pg	#	77
10) * Ethanol	4.43	45	14517	229.931	pg		100
12) * Acrolein	4.72	56	612	11.570	pg		97
13) * Acetone	4.84	58	5402	90.586	pg	#	65
15) * 2-Propanol (Isopropa...	5.03	45	2818	17.441	pg		96
19) * Methylene Chloride	5.57	84	1684	25.351	pg		100
26) * Vinyl Acetate	6.71	86	268	21.429	pg	#	1
30) * Ethyl Acetate	7.64	61	525	28.690	pg		100
41) 1-Butanol	9.30	56	2558	80.960	pg	#	50
58) * Toluene	12.74	91	2146	12.293	pg		97
67) * m- & p-Xylenes	15.29	91	1308	11.436	pg		93
83) tert-Butylbenzene	17.28	134	1868	82.601	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041721.D
Acq On : 5 Jan 2017 1:34 am
Operator : JM
Sample : AS01176 FCA00428
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 05 08:04:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291621.D
Acq On : 29 Dec 2016 10:40 pm
Operator : JM
Sample : AS00019 FCA00784
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

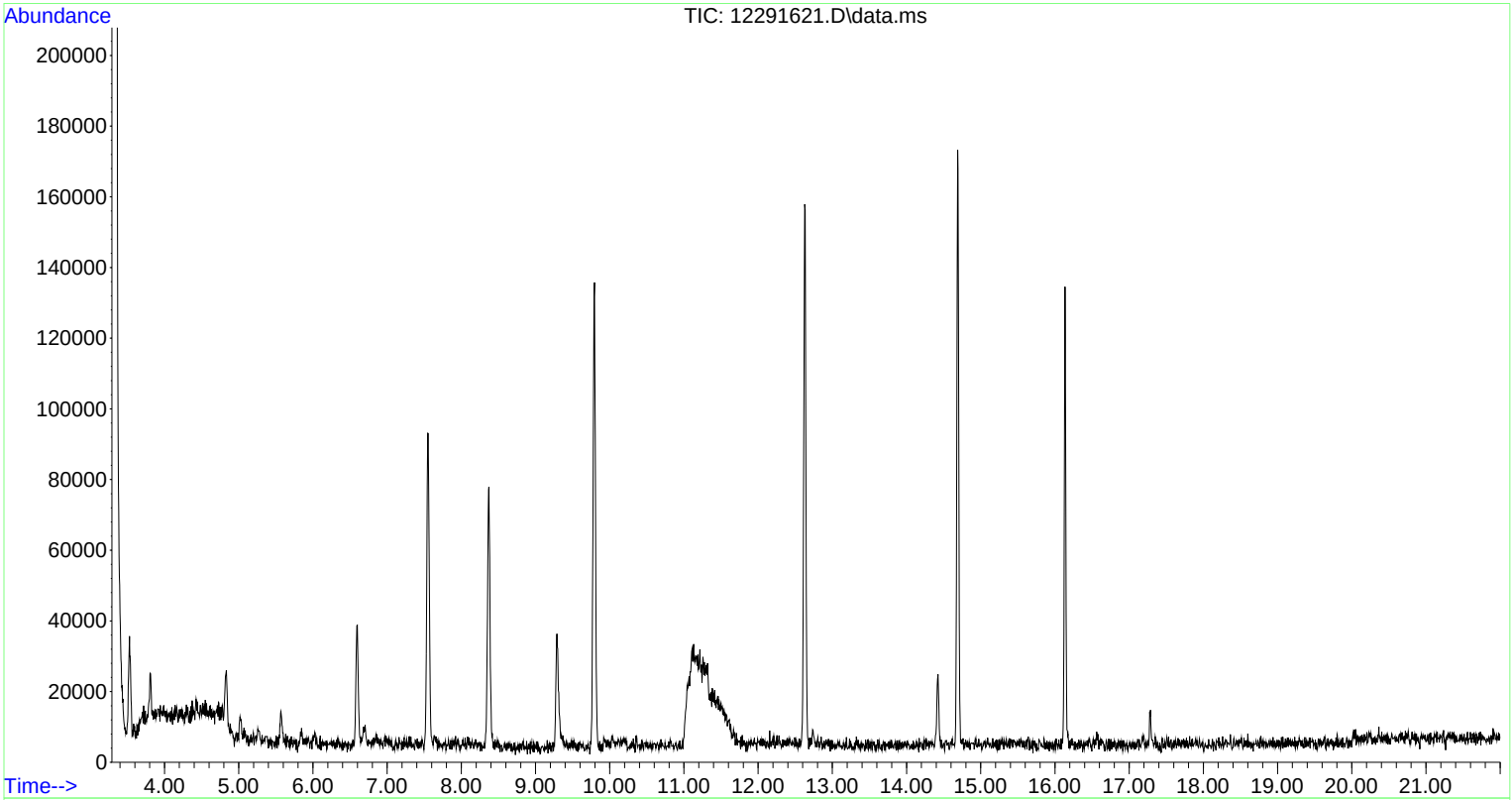
Quant Time: Dec 30 10:16:14 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

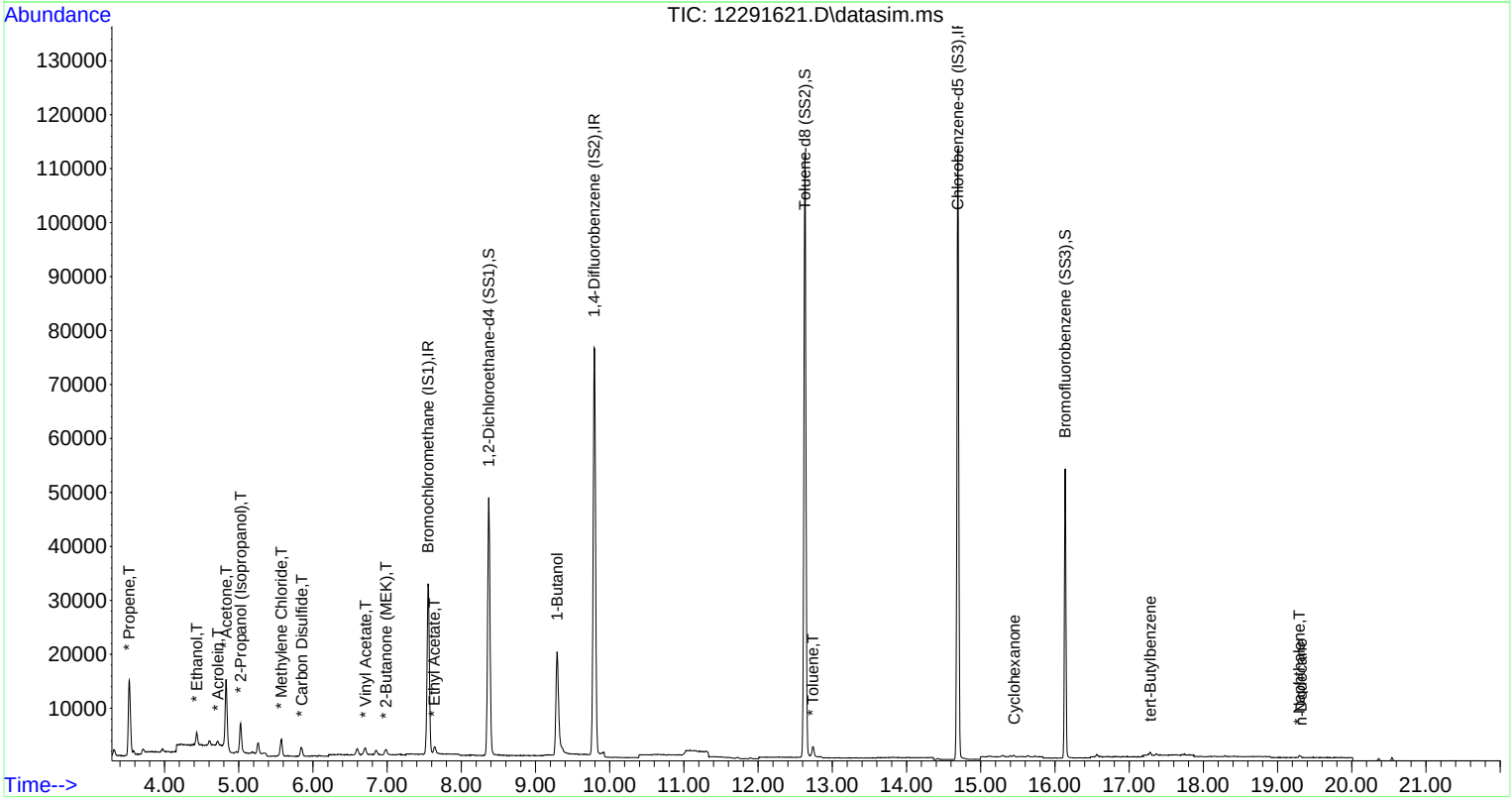
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38924	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	139132	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104301	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71510	932.840	pg		0.00
Spiked Amount 1000.000			Recovery = 93.28%				
57) Toluene-d8 (SS2)	12.63	98	121862	956.142	pg		0.00
Spiked Amount 1000.000			Recovery = 95.61%				
74) Bromofluorobenzene (SS3)	16.14	174	37263	887.722	pg		0.00
Spiked Amount 1000.000			Recovery = 88.77%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6740	86.272	pg	#	74
10) * Ethanol	4.43	45	2483	46.599	pg	#	80
12) * Acrolein	4.72	56	839	18.795	pg		90
13) * Acetone	4.83	58	6306	125.297	pg		70
15) * 2-Propanol (Isopropa...	5.03	45	7386	54.164	pg		96
19) * Methylene Chloride	5.58	84	3473	61.950	pg		96
22) * Carbon Disulfide	5.85	76	3060	14.889	pg		99
26) * Vinyl Acetate	6.71	86	128	12.127	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	399	13.208	pg		84
30) * Ethyl Acetate	7.63	61	209	13.533	pg		89
41) 1-Butanol	9.29	56	18503	615.170	pg	#	48
58) * Toluene	12.74	91	2342	15.887	pg		99
69) Cyclohexanone	15.45	98	125	11.587	pg		95
83) tert-Butylbenzene	17.28	134	241	12.619	pg	#	1
98) * Naphthalene	19.29	128	542	16.527	pg		94
99) n-Dodecane	19.32	85	64	12.130	pg	#	16

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291621.D
Acq On : 29 Dec 2016 10:40 pm
Operator : JM
Sample : AS00019 FCA00784
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 30 10:16:14 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291610.D
Acq On : 29 Dec 2016 2:42 pm
Operator : JM
Sample : AS00411 FCA00473
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

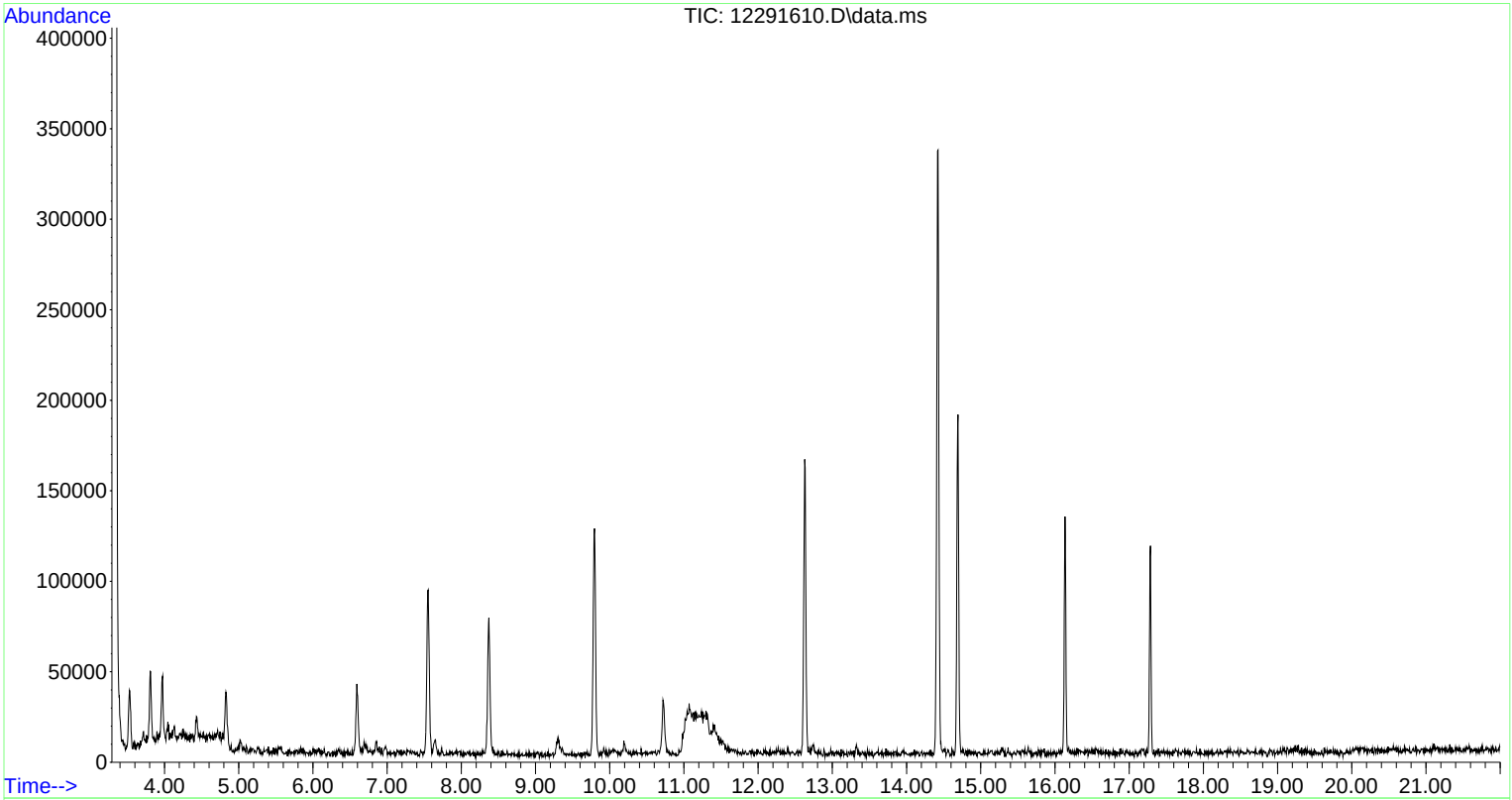
Quant Time: Dec 30 09:50:21 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

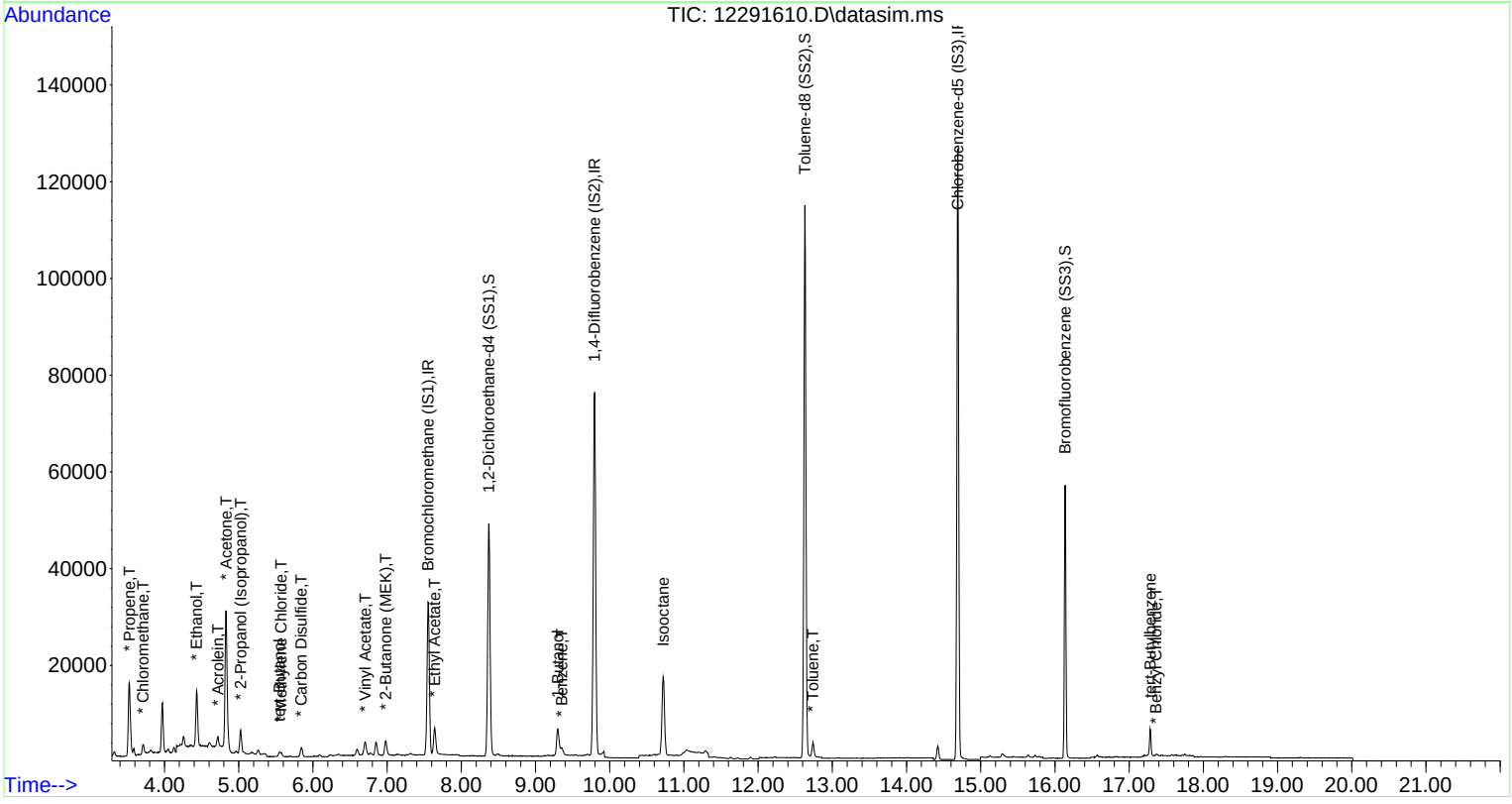
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39159	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	137653	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	117939	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72314	937.667	pg		0.00
Spiked Amount 1000.000			Recovery = 93.77%				
57) Toluene-d8 (SS2)	12.63	98	125031	867.567	pg		0.00
Spiked Amount 1000.000			Recovery = 86.76%				
74) Bromofluorobenzene (SS3)	16.14	174	39653	835.423	pg		0.00
Spiked Amount 1000.000			Recovery = 83.54%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7443	94.699	pg		81
4) * Chloromethane	3.71	50	2189	17.490	pg		99
10) * Ethanol	4.43	45	12691	236.747	pg		98
12) * Acrolein	4.72	56	2032	45.246	pg		99
13) * Acetone	4.83	58	14709	290.506	pg	#	65
15) * 2-Propanol (Isopropa...	5.03	45	6334	46.171	pg		98
18) tert-Butanol	5.55	59	1207	14.597	pg	#	83
19) * Methylene Chloride	5.57	84	764	13.546	pg		98
22) * Carbon Disulfide	5.84	76	3485	16.855	pg		100
26) * Vinyl Acetate	6.71	86	637	59.989	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	988	32.510	pg		98
30) * Ethyl Acetate	7.64	61	1107	71.251	pg		98
39) * Benzene	9.35	78	2473	15.578	pg		99
41) 1-Butanol	9.30	56	5182	174.137	pg	#	49
49) Isooctane	10.72	56	10059	132.562	pg		96
58) * Toluene	12.74	91	3461	20.763	pg		97
83) tert-Butylbenzene	17.28	134	2171	100.534	pg	#	1
85) * Benzyl Chloride	17.36	126	95	10.846	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291610.D
Acq On : 29 Dec 2016 2:42 pm
Operator : JM
Sample : AS00411 FCA00473
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Dec 30 09:50:21 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041716.D
Acq On : 4 Jan 2017 10:09 pm
Operator : JM
Sample : AS00764 FCA00927
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

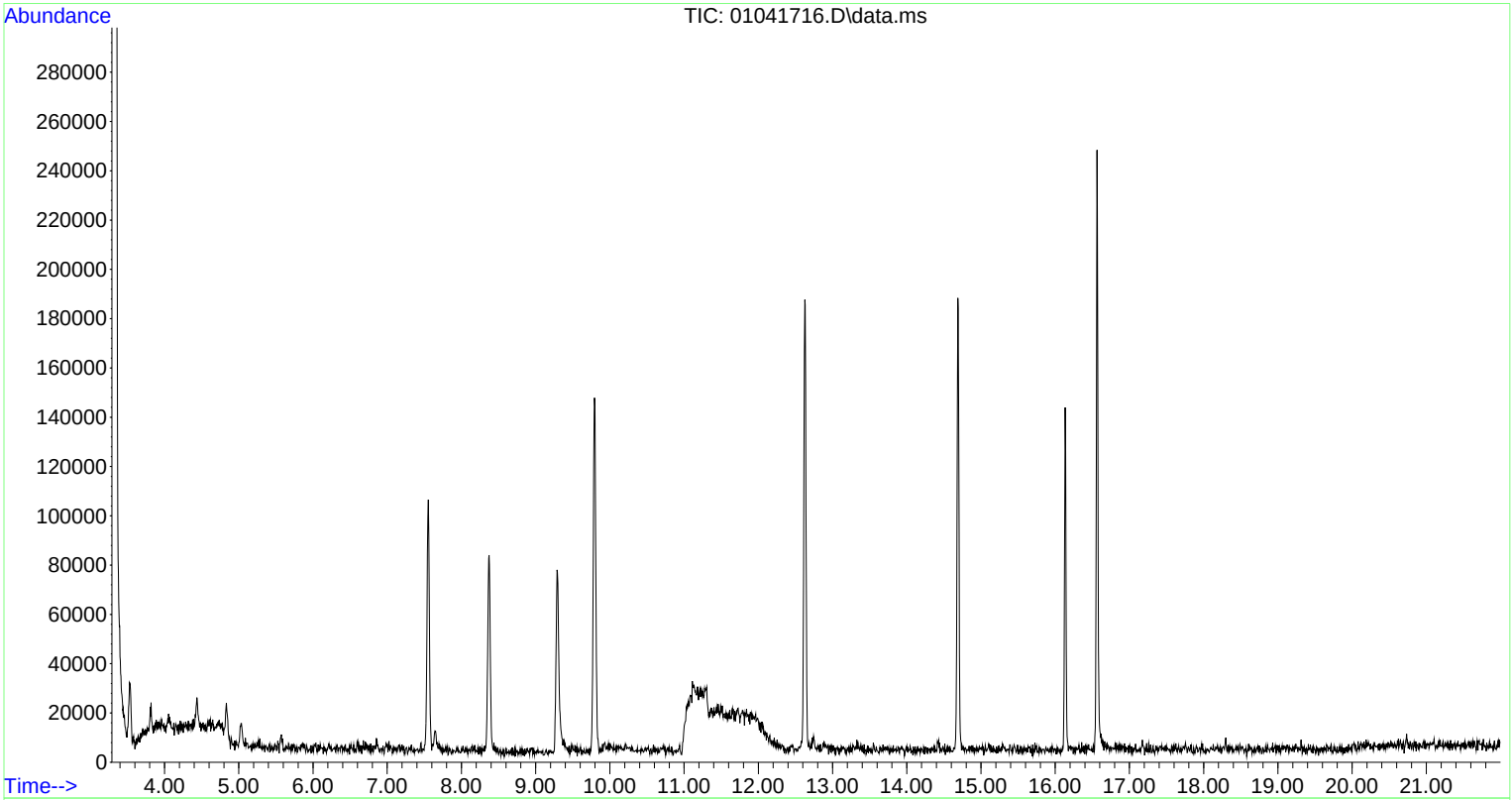
Quant Time: Jan 05 08:03:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

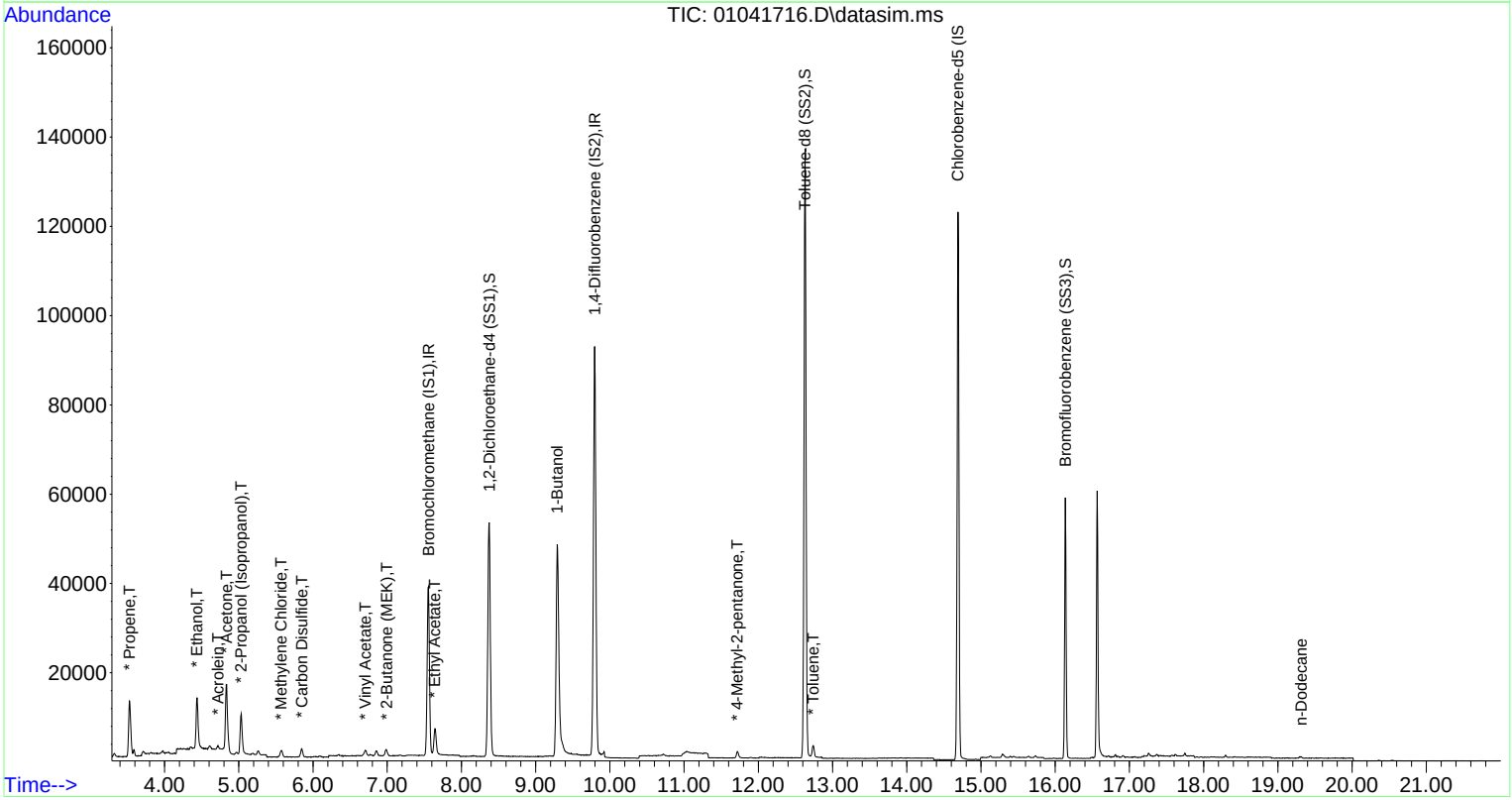
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46749	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	168089	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	117452	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79221	860.450	pg		0.00
Spiked Amount 1000.000			Recovery = 86.05%				
57) Toluene-d8 (SS2)	12.63	98	148656	1035.773	pg		0.00
Spiked Amount 1000.000			Recovery = 103.58%				
74) Bromofluorobenzene (SS3)	16.14	174	40699	861.016	pg		0.00
Spiked Amount 1000.000			Recovery = 86.10%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6145	65.490	pg	#	76
10) * Ethanol	4.44	45	14174	221.483	pg		100
12) * Acrolein	4.72	56	762	14.213	pg		100
13) * Acetone	4.84	58	7302	120.802	pg		71
15) * 2-Propanol (Isopropa...	5.03	45	12602	76.946	pg		96
19) * Methylene Chloride	5.57	84	1676	24.892	pg		94
22) * Carbon Disulfide	5.85	76	3160	12.802	pg		99
26) * Vinyl Acetate	6.71	86	173	13.647	pg		81
27) * 2-Butanone (MEK)	6.99	72	498	13.726	pg		94
30) * Ethyl Acetate	7.64	61	1230	66.314	pg		100
41) 1-Butanol	9.29	56	49152	1352.640	pg	#	44
53) * 4-Methyl-2-pentanone	11.71	58	822	23.471	pg	#	63
58) * Toluene	12.74	91	3031	18.259	pg		98
99) n-Dodecane	19.31	85	82	13.802	pg	#	55

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041716.D
Acq On : 4 Jan 2017 10:09 pm
Operator : JM
Sample : AS00764 FCA00927
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 05 08:03:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041720.D
Acq On : 5 Jan 2017 12:53 am
Operator : JM
Sample : AS01128 FCA00731
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 05 08:04:08 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

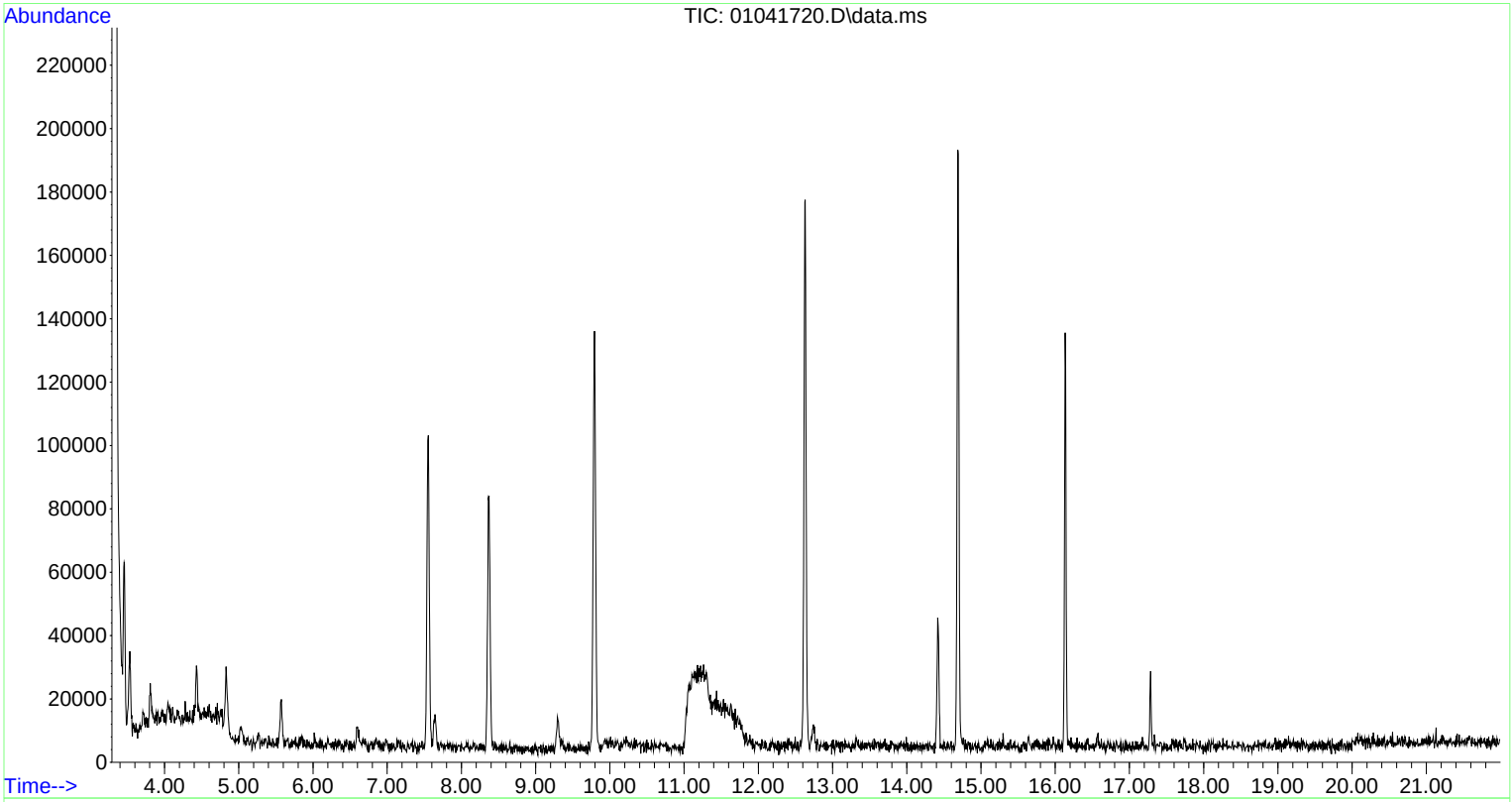
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46239	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150504	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	118536	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78079	857.400	pg		0.00
Spiked Amount 1000.000			Recovery = 85.74%				
57) Toluene-d8 (SS2)	12.63	98	137872	951.850	pg		0.00
Spiked Amount 1000.000			Recovery = 95.19%				
74) Bromofluorobenzene (SS3)	16.14	174	40454	848.006	pg		0.00
Spiked Amount 1000.000			Recovery = 84.80%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6635	71.492	pg	#	72
3) * Dichlorodifluoromethane	3.58	85	2780	14.062	pg		98
10) * Ethanol	4.43	45	18444	291.385	pg		98
11) * Acetonitrile	4.61	41	1626	10.245	pg		85
12) * Acrolein	4.71	56	741	13.973	pg		85
13) * Acetone	4.83	58	9031	151.054	pg		74
15) * 2-Propanol (Isopropa...	5.03	45	6010	37.101	pg		98
19) * Methylene Chloride	5.57	84	6488	97.422	pg		100
22) * Carbon Disulfide	5.84	76	2859	11.710	pg	#	94
26) * Vinyl Acetate	6.71	86	213	16.988	pg	#	35
27) * 2-Butanone (MEK)	6.98	72	490	13.655	pg		85
30) * Ethyl Acetate	7.64	61	1498	81.654	pg		99
39) * Benzene	9.35	78	1868	10.762	pg		95
41) 1-Butanol	9.30	56	5214	160.252	pg	#	49
58) * Toluene	12.74	91	5379	32.107	pg		98
67) * m- & p-Xylenes	15.29	91	1213	11.050	pg		96
83) tert-Butylbenzene	17.28	134	430	19.812	pg	#	1
93) * D-Limonene	17.75	68	415	10.793	pg		96
99) n-Dodecane	19.31	85	72	12.008	pg	#	48

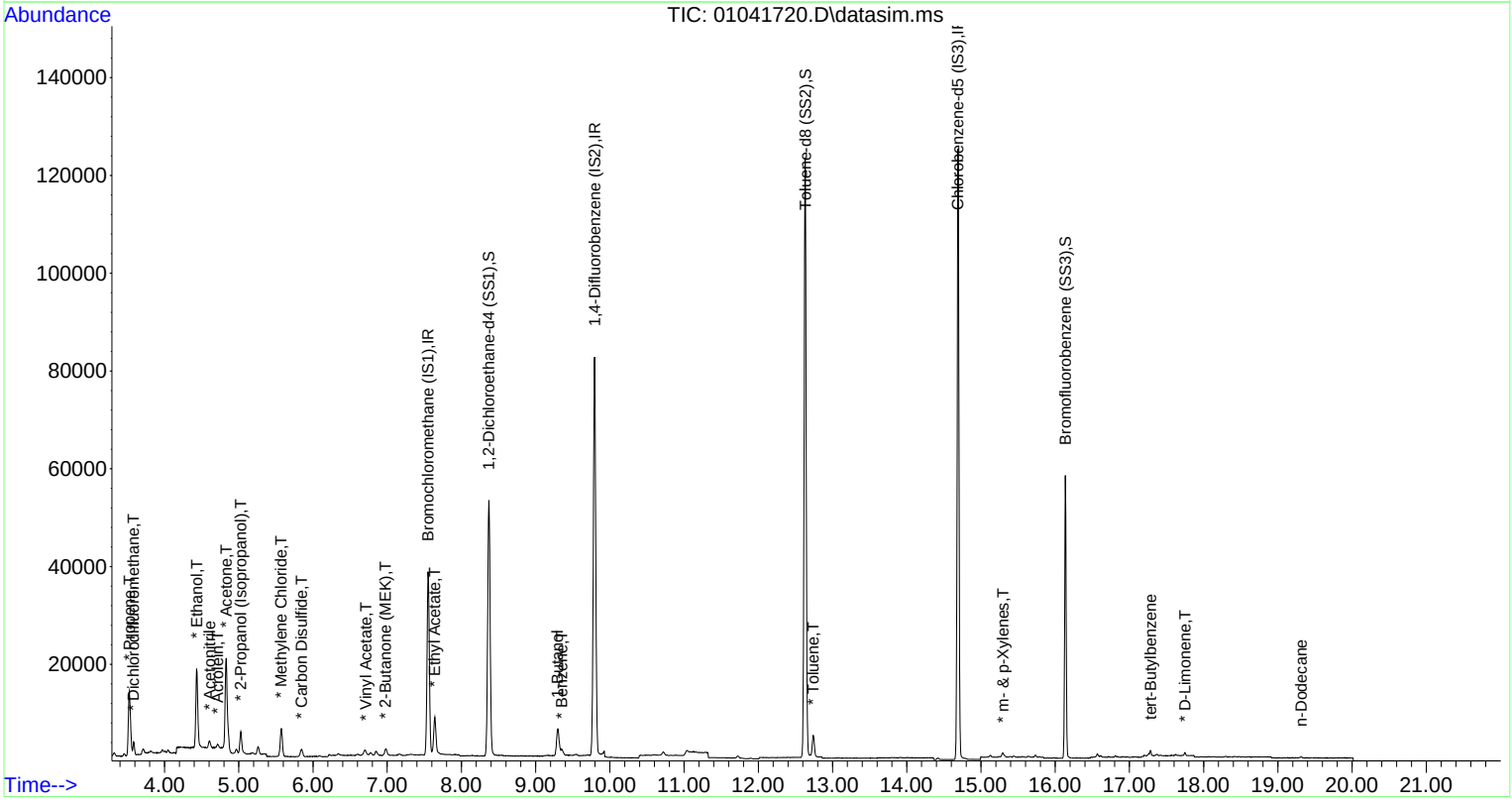
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041720.D
Acq On : 5 Jan 2017 12:53 am
Operator : JM
Sample : AS01128 FCA00731
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 05 08:04:08 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281613.D
Acq On : 28 Dec 2016 7:55 pm
Operator : JM
Sample : AS00959 FCA01019
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

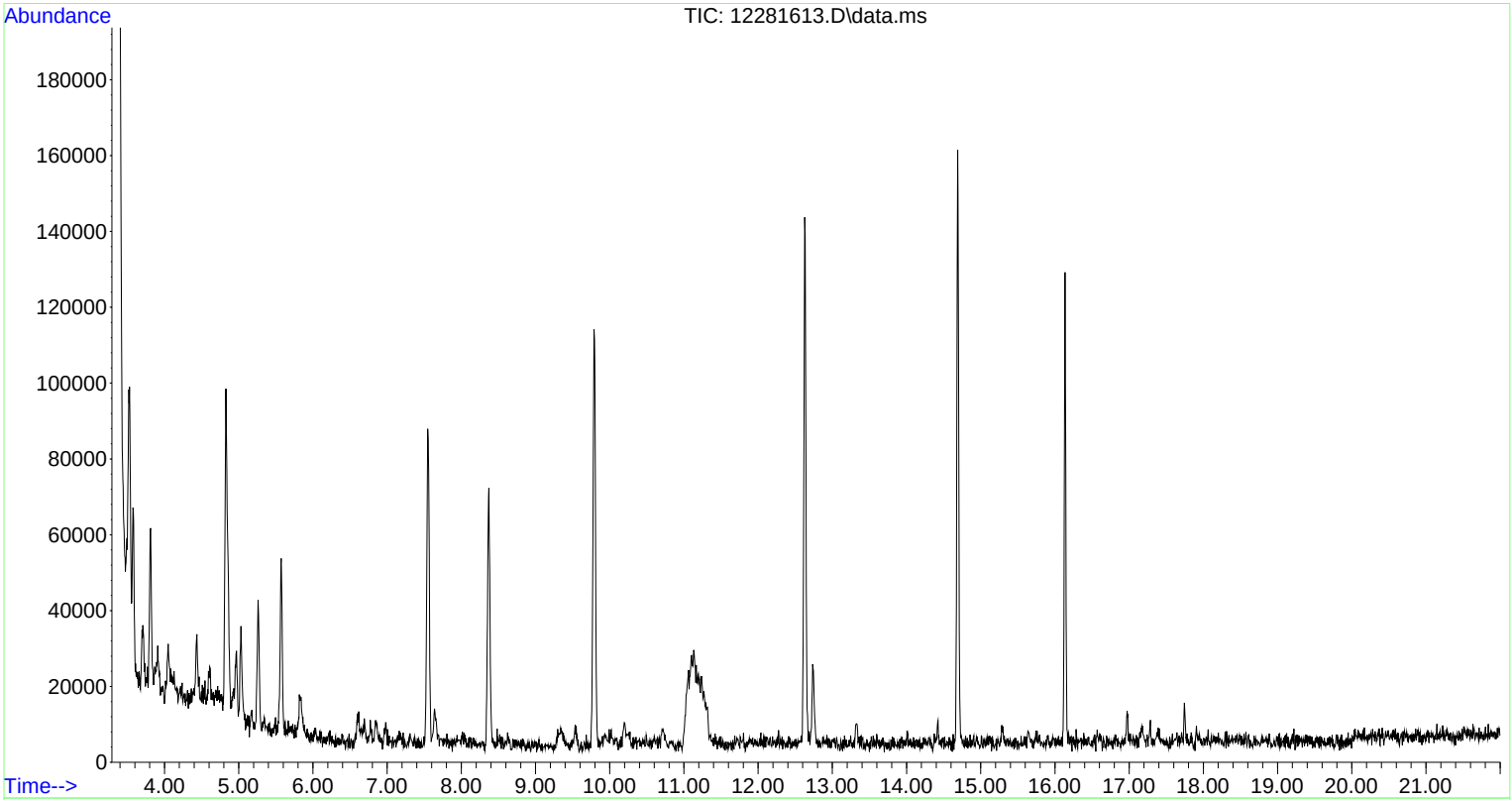
Quant Time: Dec 29 09:50:04 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

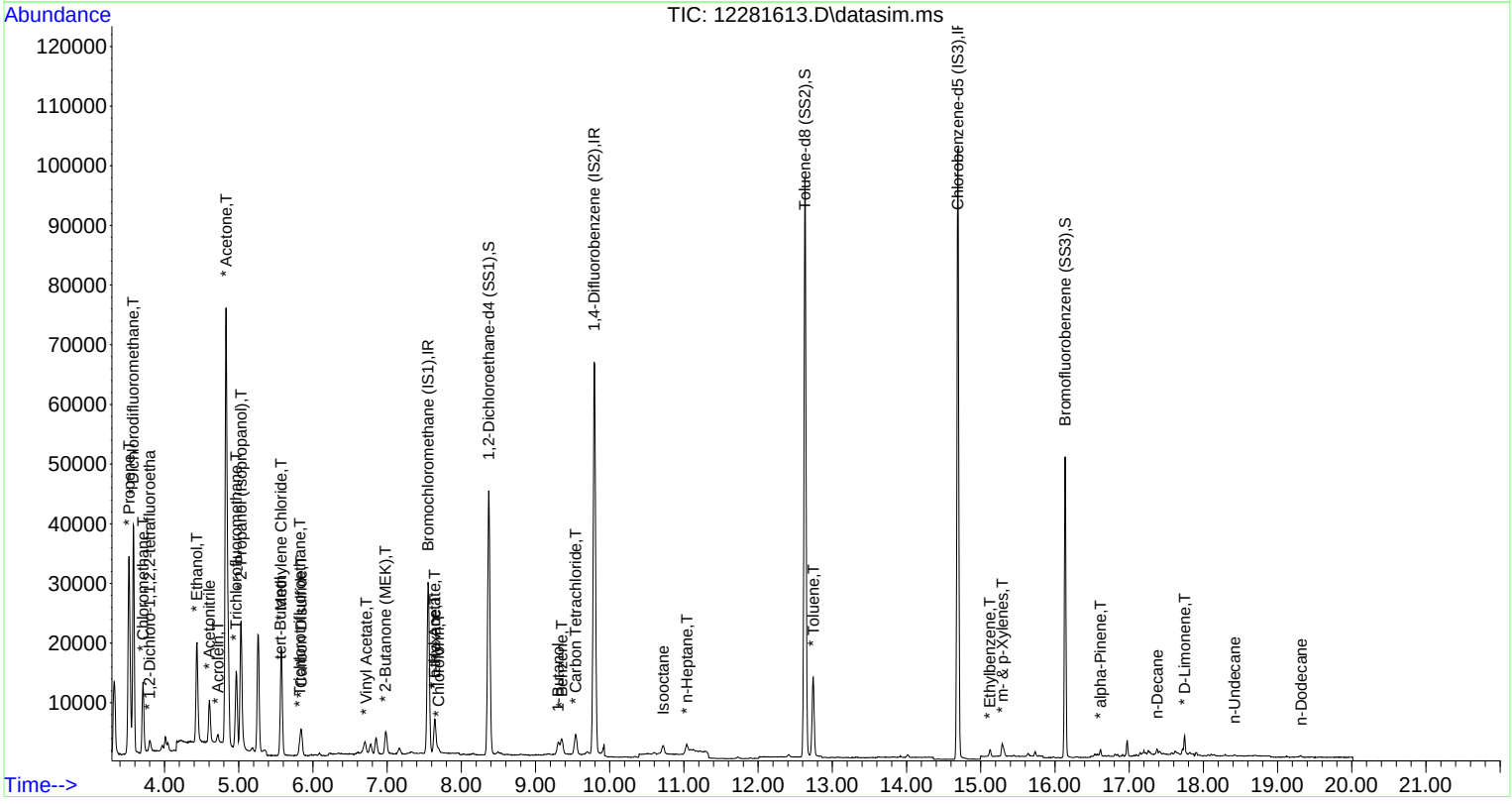
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	35183	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	119667	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	93475	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	65636	947.255	pg		0.00
Spiked Amount 1000.000			Recovery = 94.73%				
57) Toluene-d8 (SS2)	12.63	98	106873	935.654	pg		0.00
Spiked Amount 1000.000			Recovery = 93.56%				
74) Bromofluorobenzene (SS3)	16.14	174	35677	948.376	pg		0.00
Spiked Amount 1000.000			Recovery = 94.84%				
Target Compounds							Qvalue
2) * Propene	3.52	42	15888	224.990	pg		79
3) * Dichlorodifluoromethane	3.58	85	40610	269.967	pg		100
4) * Chloromethane	3.71	50	14134	125.693	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	1596	14.294	pg		98
10) * Ethanol	4.44	45	19154	397.692	pg		99
11) * Acetonitrile	4.60	41	8376	69.361	pg		97
12) * Acrolein	4.72	56	1247	30.905	pg		99
13) * Acetone	4.83	58	32737	719.632	pg		88
14) * Trichlorofluoromethane	4.97	101	15857	157.793	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	30632	248.521	pg		95
18) tert-Butanol	5.56	59	1192	16.045	pg	#	12
19) * Methylene Chloride	5.57	84	19682	388.412	pg		100
21) * Trichlorotrifluoroet...	5.82	151	2539	64.465	pg		98
22) * Carbon Disulfide	5.84	76	6562	35.324	pg	#	93
26) * Vinyl Acetate	6.72	86	351	36.791	pg	#	48
27) * 2-Butanone (MEK)	6.98	72	1324	48.490	pg		94
30) * Ethyl Acetate	7.64	61	965	69.130	pg		96
31) * n-Hexane	7.65	57	1227	17.093	pg		96
32) * Chloroform	7.69	83	945	10.650	pg		88
39) * Benzene	9.35	78	4795	34.745	pg		99
41) 1-Butanol	9.31	56	1756	67.878	pg	#	53
42) * Carbon Tetrachloride	9.54	117	3810	70.963	pg		99
49) Isooctane	10.72	56	991	15.023	pg		80
51) * n-Heptane	11.04	71	846	11.938	pg	#	65
58) * Toluene	12.74	91	16073	121.659	pg		99
66) * Ethylbenzene	15.12	91	1254	11.255	pg		95
67) * m- & p-Xylenes	15.29	91	2966	34.263	pg		95
76) * alpha-Pinene	16.62	93	726	13.228	pg	#	81
88) n-Decane	17.38	85	235	17.849	pg	#	37
93) * D-Limonene	17.75	68	1534	50.592	pg		95
96) n-Undecane	18.42	85	86	11.424	pg	#	43
99) n-Dodecane	19.32	85	66	13.958	pg	#	64

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281613.D
Acq On : 28 Dec 2016 7:55 pm
Operator : JM
Sample : AS00959 FCA01019
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 29 09:50:04 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281622.D
Acq On : 29 Dec 2016 2:06 am
Operator : JM
Sample : AS00566 FCA00874
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

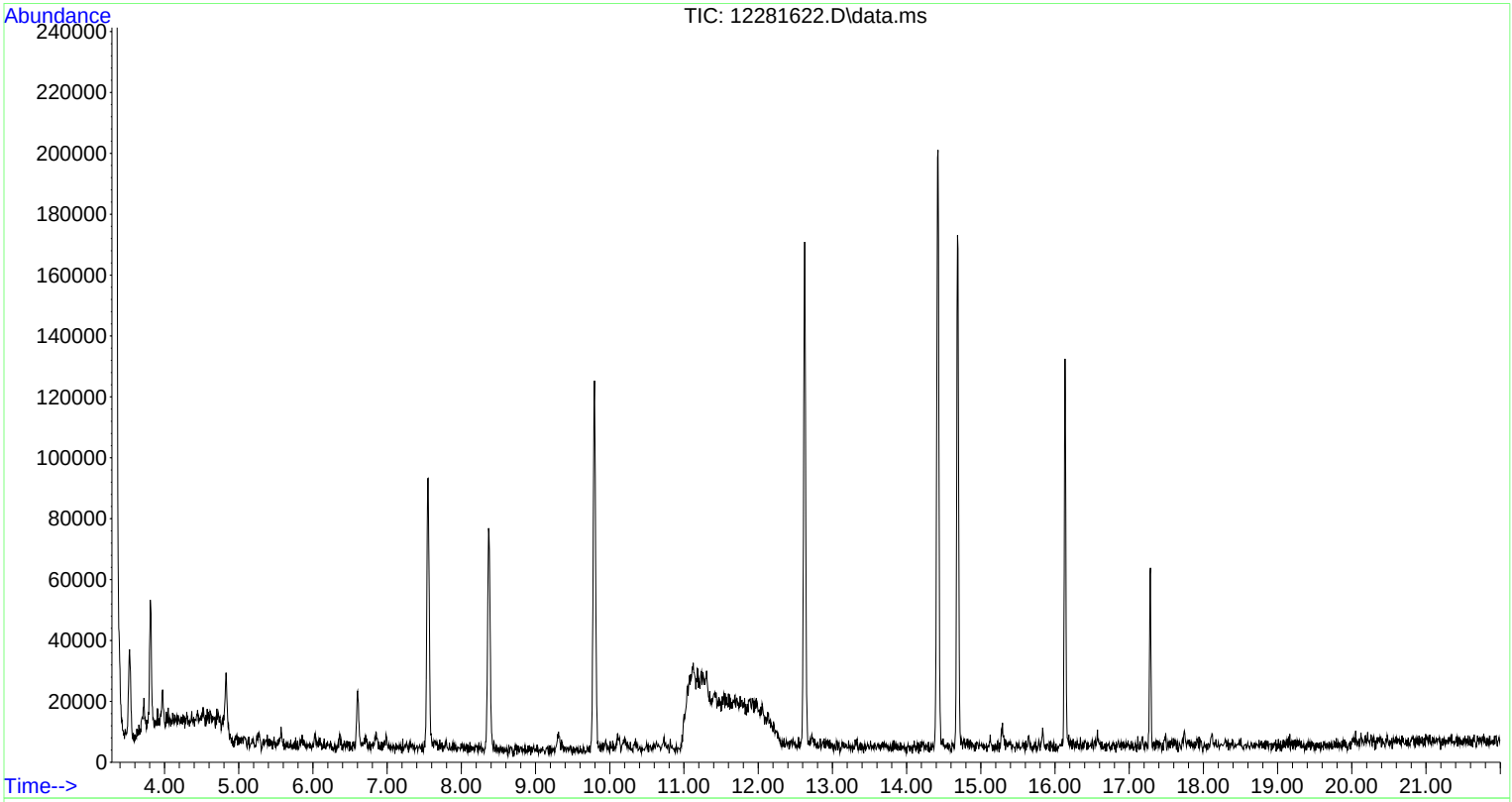
Quant Time: Dec 29 10:14:05 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

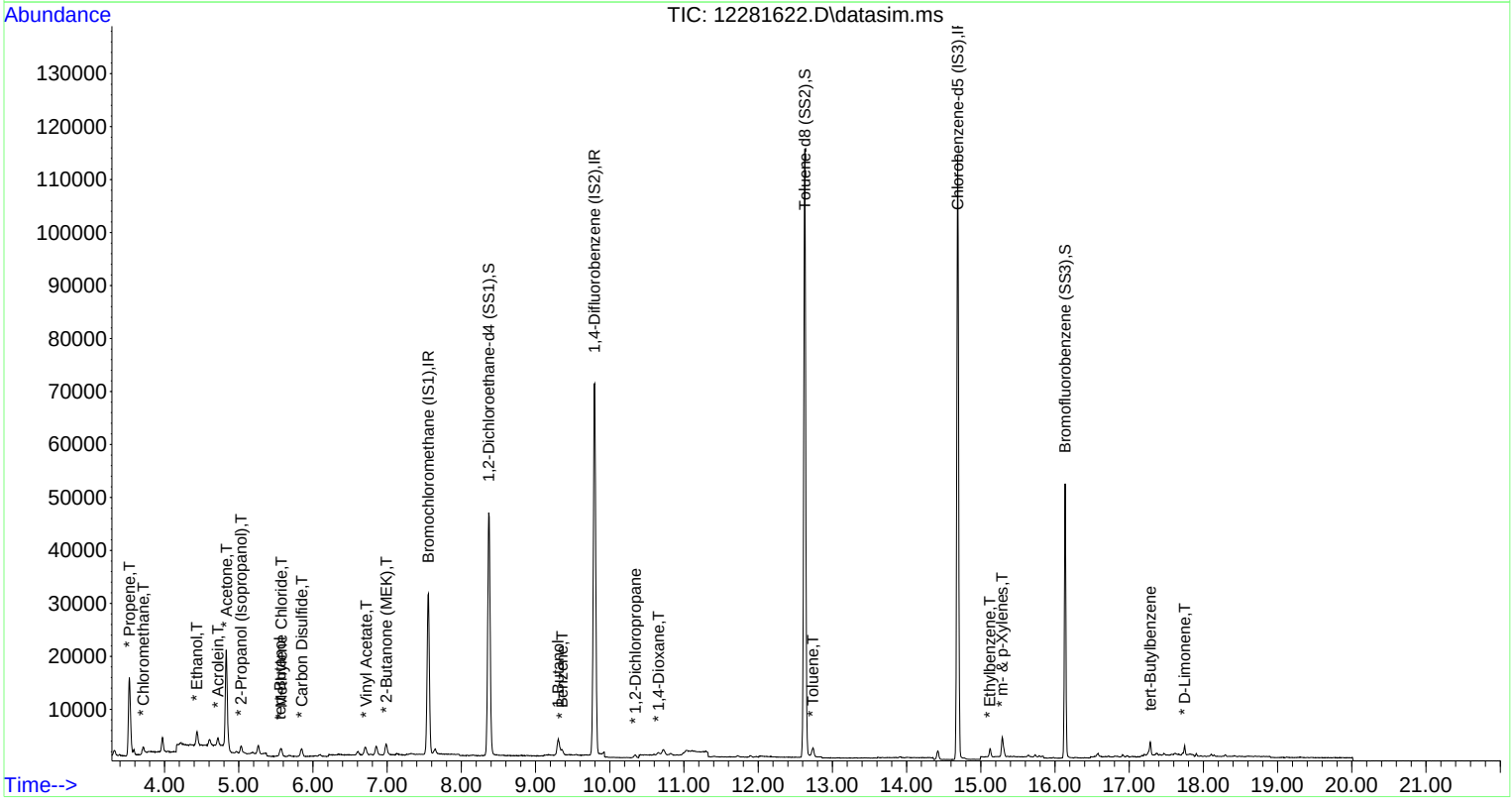
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	37278	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	129468	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105692	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	69484	946.433	pg		0.00
Spiked Amount 1000.000			Recovery = 94.64%				
57) Toluene-d8 (SS2)	12.63	98	124289	962.350	pg		0.00
Spiked Amount 1000.000			Recovery = 96.23%				
74) Bromofluorobenzene (SS3)	16.14	174	35992	846.158	pg		0.00
Spiked Amount 1000.000			Recovery = 84.62%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7090	94.759	pg	#	76
4) * Chloromethane	3.71	50	1432	12.019	pg		90
10) * Ethanol	4.44	45	2913	57.083	pg		97
12) * Acrolein	4.72	56	1388	32.466	pg		95
13) * Acetone	4.84	58	9456	196.182	pg	#	61
15) * 2-Propanol (Isopropa...	5.03	45	1854	14.196	pg		89
18) tert-Butanol	5.56	59	1058	13.441	pg		99
19) * Methylene Chloride	5.58	84	1254	23.356	pg		90
22) * Carbon Disulfide	5.85	76	2715	13.794	pg		98
26) * Vinyl Acetate	6.72	86	338	33.437	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	667	23.055	pg		91
39) * Benzene	9.36	78	1593	10.669	pg		92
41) 1-Butanol	9.31	56	2613	93.359	pg	#	51
45) * 1,2-Dichloropropane	10.34	63	825	14.891	pg		96
48) * 1,4-Dioxane	10.66	88	460	14.772	pg		89
58) * Toluene	12.74	91	1974	13.214	pg		97
66) * Ethylbenzene	15.12	91	1699	13.486	pg		97
67) * m- & p-Xylenes	15.29	91	4602	47.017	pg		98
83) tert-Butylbenzene	17.28	134	1066	55.084	pg	#	1
93) * D-Limonene	17.75	68	859	25.056	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\28\
Data File : 12281622.D
Acq On : 29 Dec 2016 2:06 am
Operator : JM
Sample : AS00566 FCA00874
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 29 10:14:05 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041717.D
Acq On : 4 Jan 2017 10:50 pm
Operator : JM
Sample : AC02230 FCA00704
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

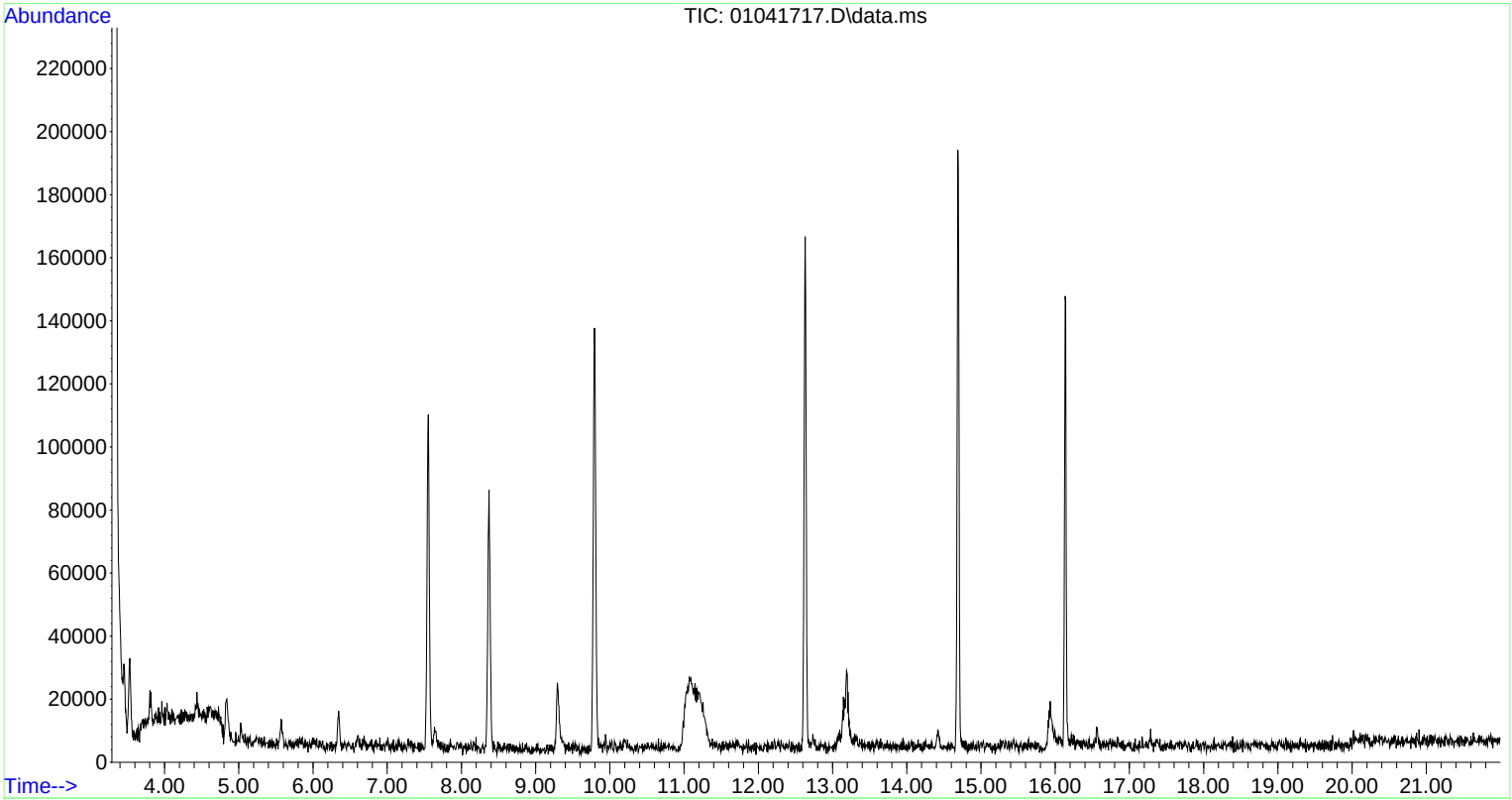
Quant Time: Jan 05 08:03:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

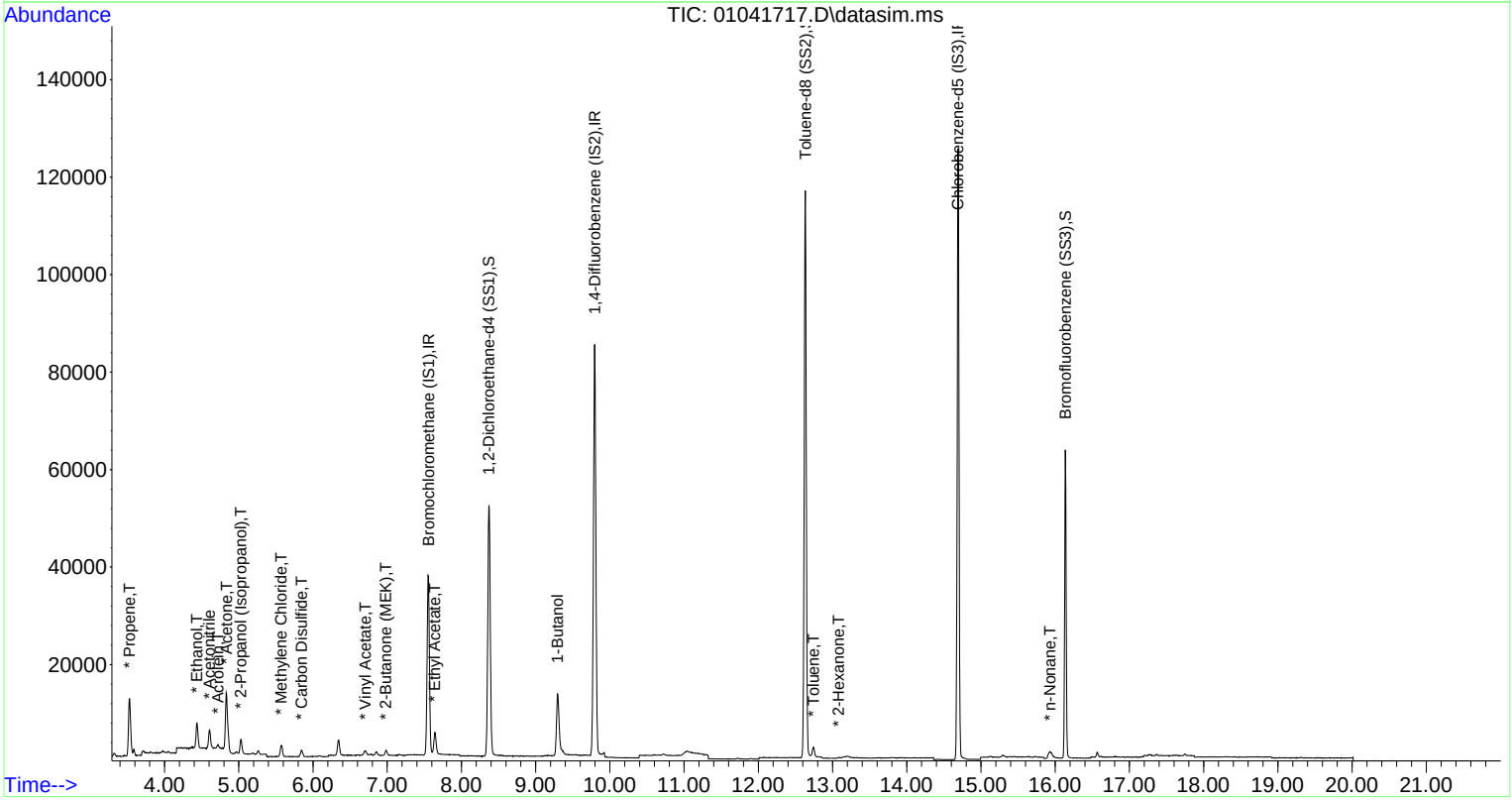
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	45681	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	153834	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	121031	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77367	859.960	pg		0.00
Spiked Amount 1000.000			Recovery = 86.00%				
57) Toluene-d8 (SS2)	12.63	98	129324	874.430	pg		0.00
Spiked Amount 1000.000			Recovery = 87.44%				
74) Bromofluorobenzene (SS3)	16.14	174	44766	919.050	pg		0.00
Spiked Amount 1000.000			Recovery = 91.90%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5844	63.739	pg	#	77
10) * Ethanol	4.43	45	5792	92.622	pg		95
11) * Acetonitrile	4.60	41	4739	30.225	pg		100
12) * Acrolein	4.72	56	746	14.239	pg		85
13) * Acetone	4.84	58	7548	127.791	pg	#	39
15) * 2-Propanol (Isopropa...	5.03	45	4173	26.076	pg		95
19) * Methylene Chloride	5.57	84	2660	40.430	pg		99
22) * Carbon Disulfide	5.84	76	2489	10.319	pg	#	92
26) * Vinyl Acetate	6.71	86	170	13.724	pg		52
27) * 2-Butanone (MEK)	6.98	72	395	11.142	pg		64
30) * Ethyl Acetate	7.64	61	928	51.202	pg		93
41) 1-Butanol	9.30	56	11918	358.370	pg	#	50
58) * Toluene	12.74	91	2459	14.375	pg		99
59) * 2-Hexanone	13.08	58	301	10.286	pg	#	68
72) * n-Nonane	15.93	57	3600	72.860	pg	#	42

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041717.D
Acq On : 4 Jan 2017 10:50 pm
Operator : JM
Sample : AC02230 FCA00704
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 05 08:03:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271624.D
Acq On : 28 Dec 2016 5:06 am
Operator : JM
Sample : AS01009 FCA00709
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

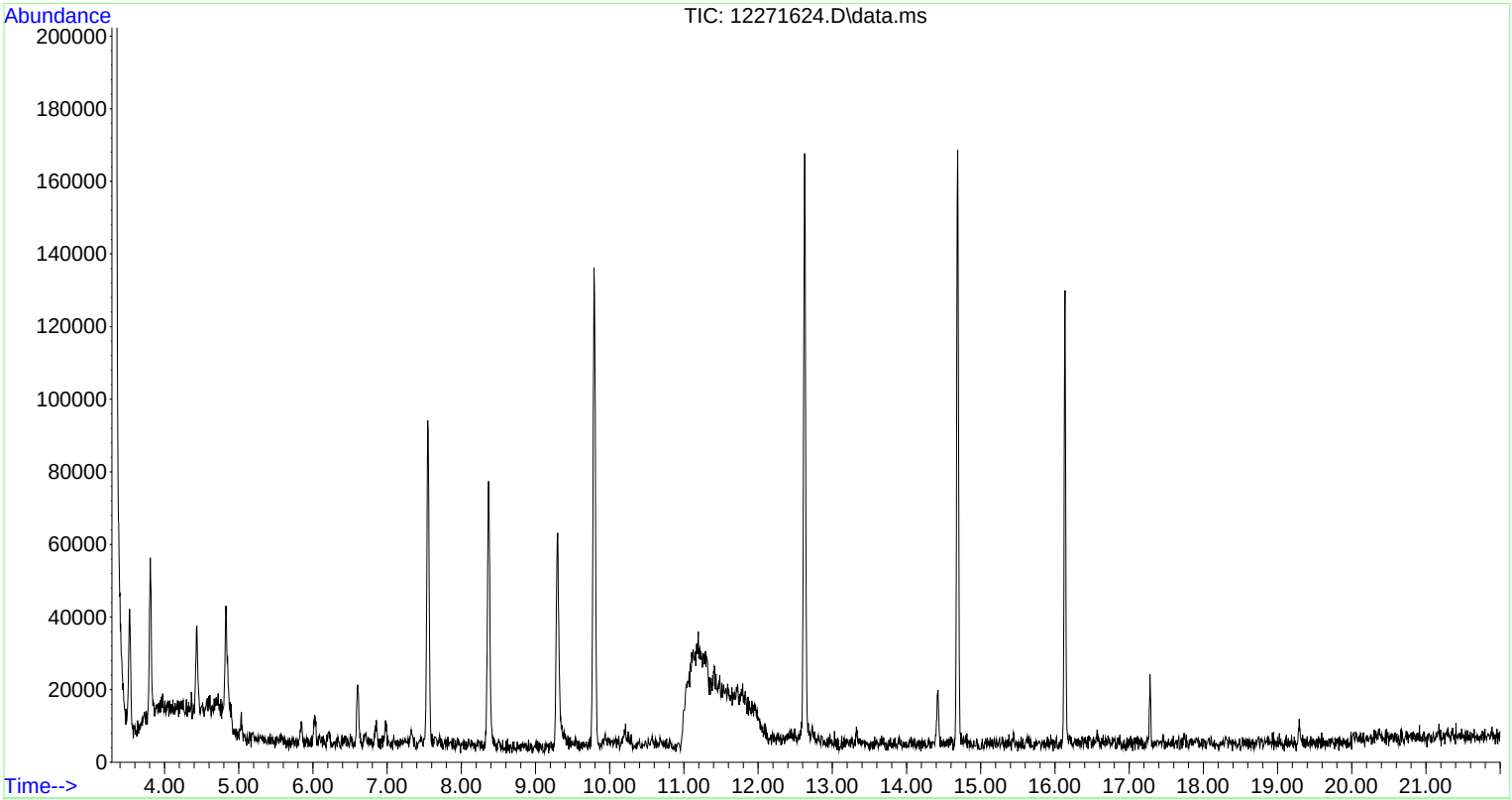
Quant Time: Dec 28 09:41:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

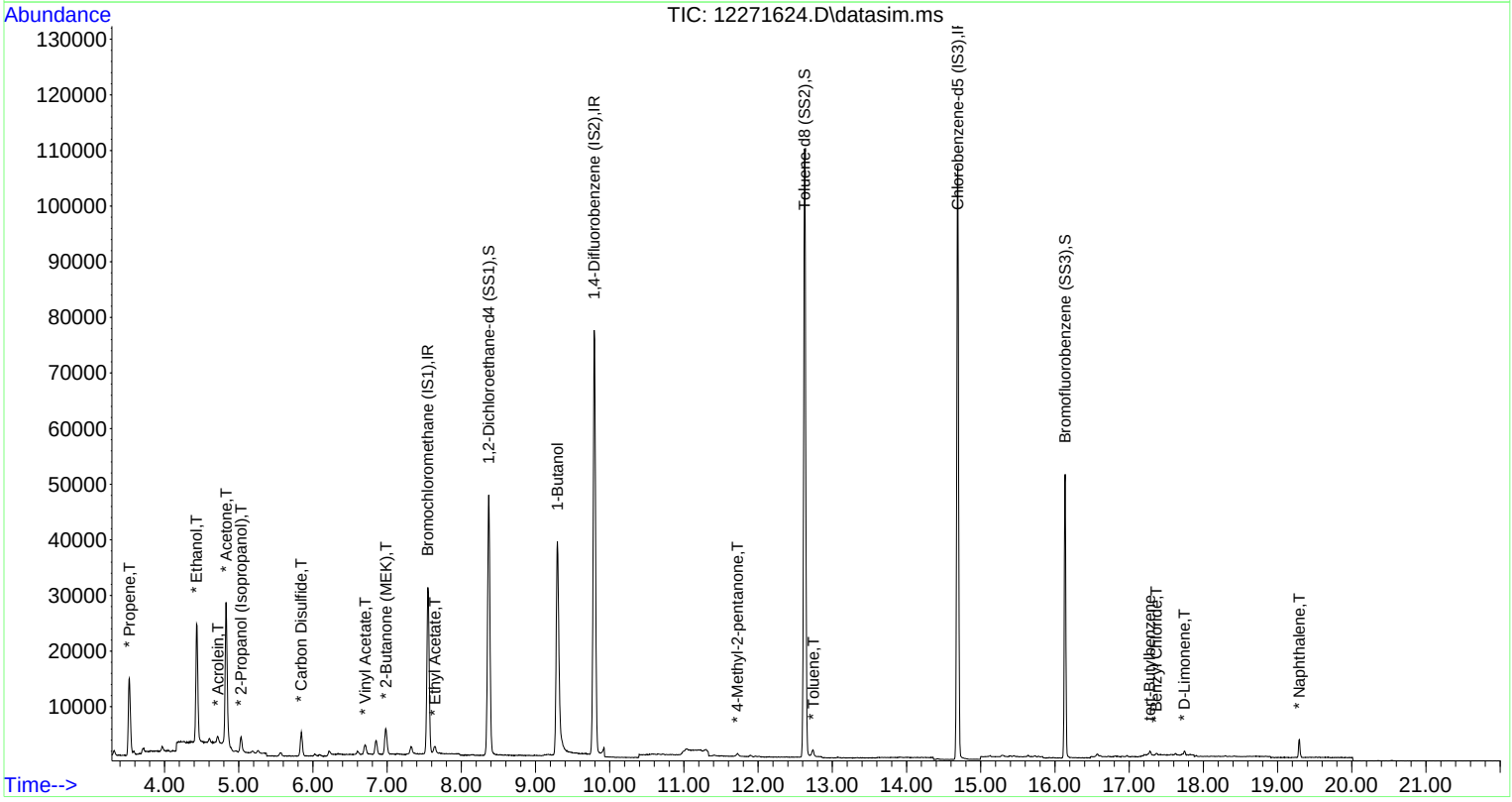
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	36719	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	137624	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	99510	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	70194	970.660 pg		0.00
Spiked Amount 1000.000			Recovery = 97.07%			
57) Toluene-d8 (SS2)	12.62	98	121909	1002.563 pg		0.00
Spiked Amount 1000.000			Recovery = 100.26%			
74) Bromofluorobenzene (SS3)	16.14	174	36418	909.363 pg		0.00
Spiked Amount 1000.000			Recovery = 90.94%			
Target Compounds						Qvalue
2) * Propene	3.53	42	6861	93.095 pg		83
10) * Ethanol	4.43	45	24745	492.285 pg		100
12) * Acrolein	4.72	56	1198	28.448 pg		93
13) * Acetone	4.83	58	13860	291.929 pg	#	54
15) * 2-Propanol (Isopropa...	5.03	45	3982	30.955 pg		93
22) * Carbon Disulfide	5.84	76	7644	39.427 pg		99
26) * Vinyl Acetate	6.71	86	422	42.382 pg	#	1
27) * 2-Butanone (MEK)	6.99	72	1714	60.147 pg		82
30) * Ethyl Acetate	7.65	61	239	16.405 pg	#	82
41) 1-Butanol	9.30	56	38294	1287.113 pg	#	47
53) * 4-Methyl-2-pentanone	11.72	58	308	10.741 pg	#	79
58) * Toluene	12.74	91	1426	10.139 pg		97
83) tert-Butylbenzene	17.28	134	328	18.002 pg	#	1
85) * Benzyl Chloride	17.36	126	77	10.419 pg	#	20
93) * D-Limonene	17.74	68	346	10.719 pg	#	78
98) * Naphthalene	19.29	128	3901	124.680 pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\27\
Data File : 12271624.D
Acq On : 28 Dec 2016 5:06 am
Operator : JM
Sample : AS01009 FCA00709
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 28 09:41:36 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291633.D
Acq On : 30 Dec 2016 7:15 am
Operator : JM
Sample : AS00586 FCA00757 (Sig #1); AC00586 FCA00757 (Sig #2)
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

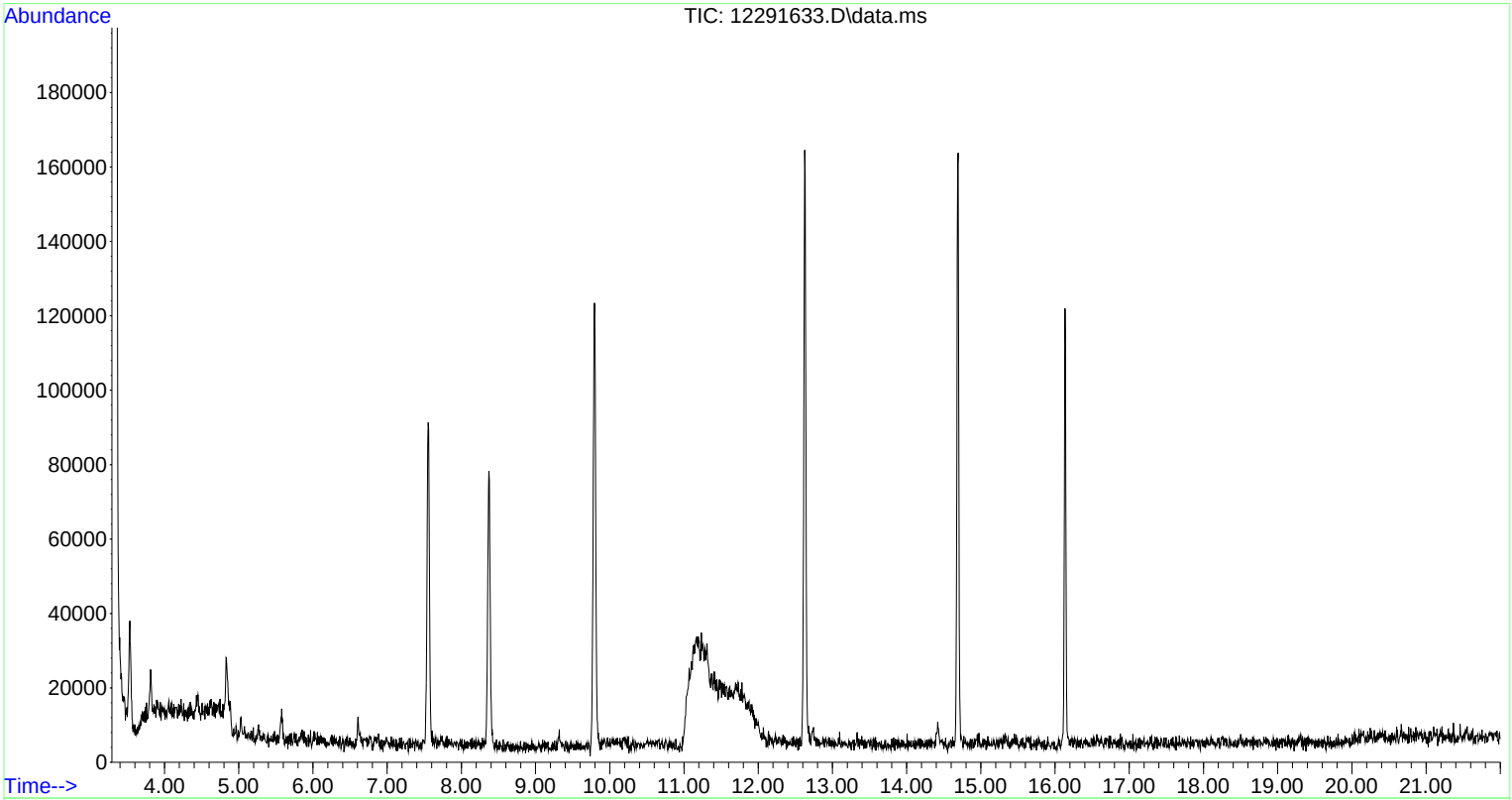
Quant Time: Dec 30 10:41:24 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

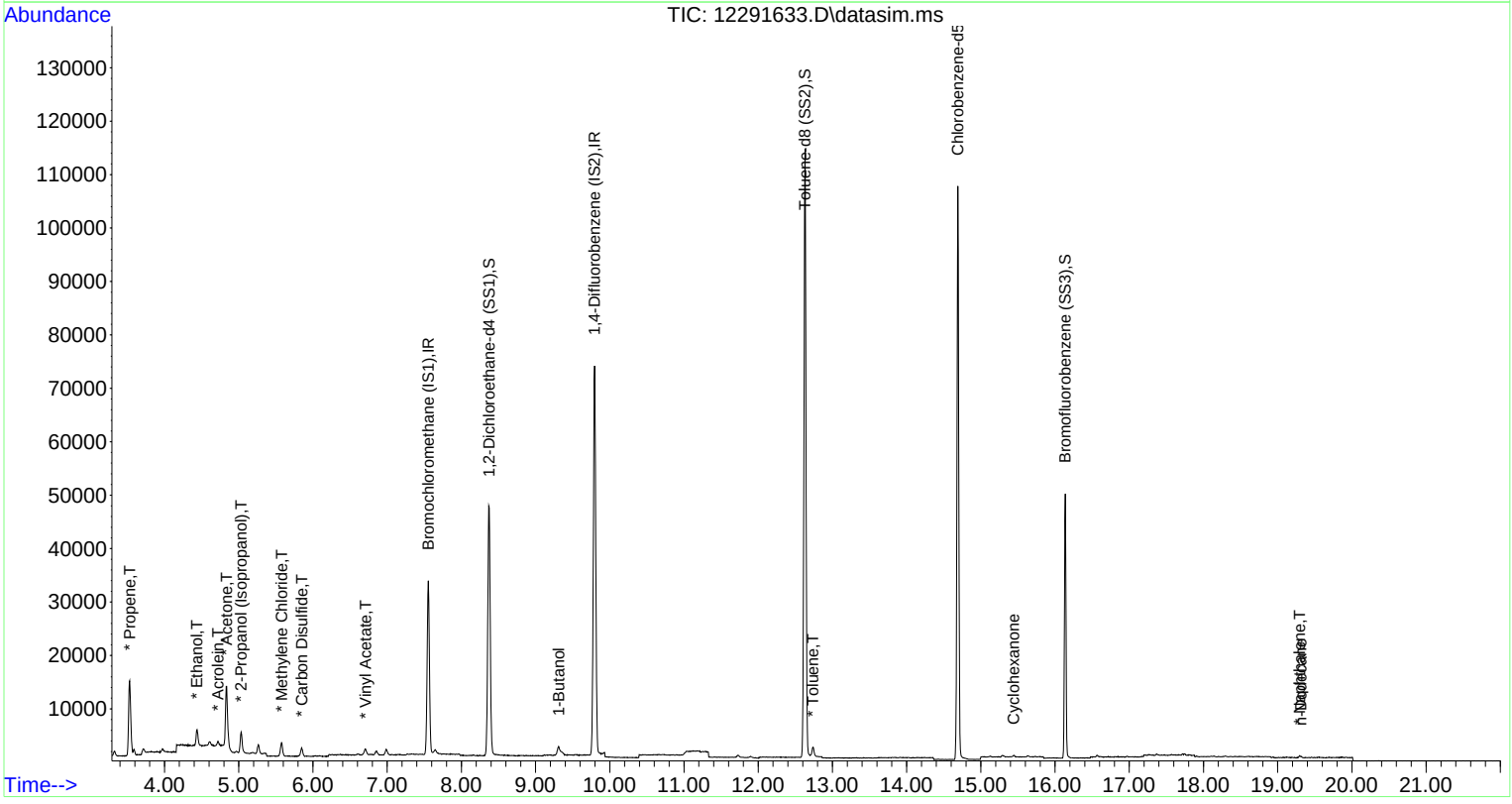
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39700	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133640	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	100705	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71121	909.631	pg		0.00
Spiked Amount 1000.000			Recovery = 90.96%				
57) Toluene-d8 (SS2)	12.63	98	125454	1019.474	pg		0.00
Spiked Amount 1000.000			Recovery = 101.95%				
74) Bromofluorobenzene (SS3)	16.14	174	34832	859.439	pg		0.00
Spiked Amount 1000.000			Recovery = 85.94%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6915	86.782	pg		80
10) * Ethanol	4.44	45	3811	70.124	pg		94
12) * Acrolein	4.72	56	794	17.439	pg		97
13) * Acetone	4.84	58	6343	123.569	pg	#	60
15) * 2-Propanol (Isopropa...	5.03	45	5512	39.631	pg		95
19) * Methylene Chloride	5.58	84	2918	51.033	pg		94
22) * Carbon Disulfide	5.85	76	2763	13.181	pg		98
26) * Vinyl Acetate	6.71	86	109	10.125	pg	#	1
41) 1-Butanol	9.31	56	1423	49.255	pg	#	61
58) * Toluene	12.74	91	2054	14.431	pg		96
69) Cyclohexanone	15.44	98	147	14.113	pg	#	63
98) * Naphthalene	19.29	128	429	13.549	pg		98
99) n-Dodecane	19.31	85	110	21.594	pg	#	3

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291633.D
Acq On : 30 Dec 2016 7:15 am
Operator : JM
Sample : AS00586 FCA00757 (Sig #1); AC00586 FCA00757 (Sig #2)
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 30 10:41:24 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291634.D
Acq On : 30 Dec 2016 7:55 am
Operator : JM
Sample : AC00982 FCA00631
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

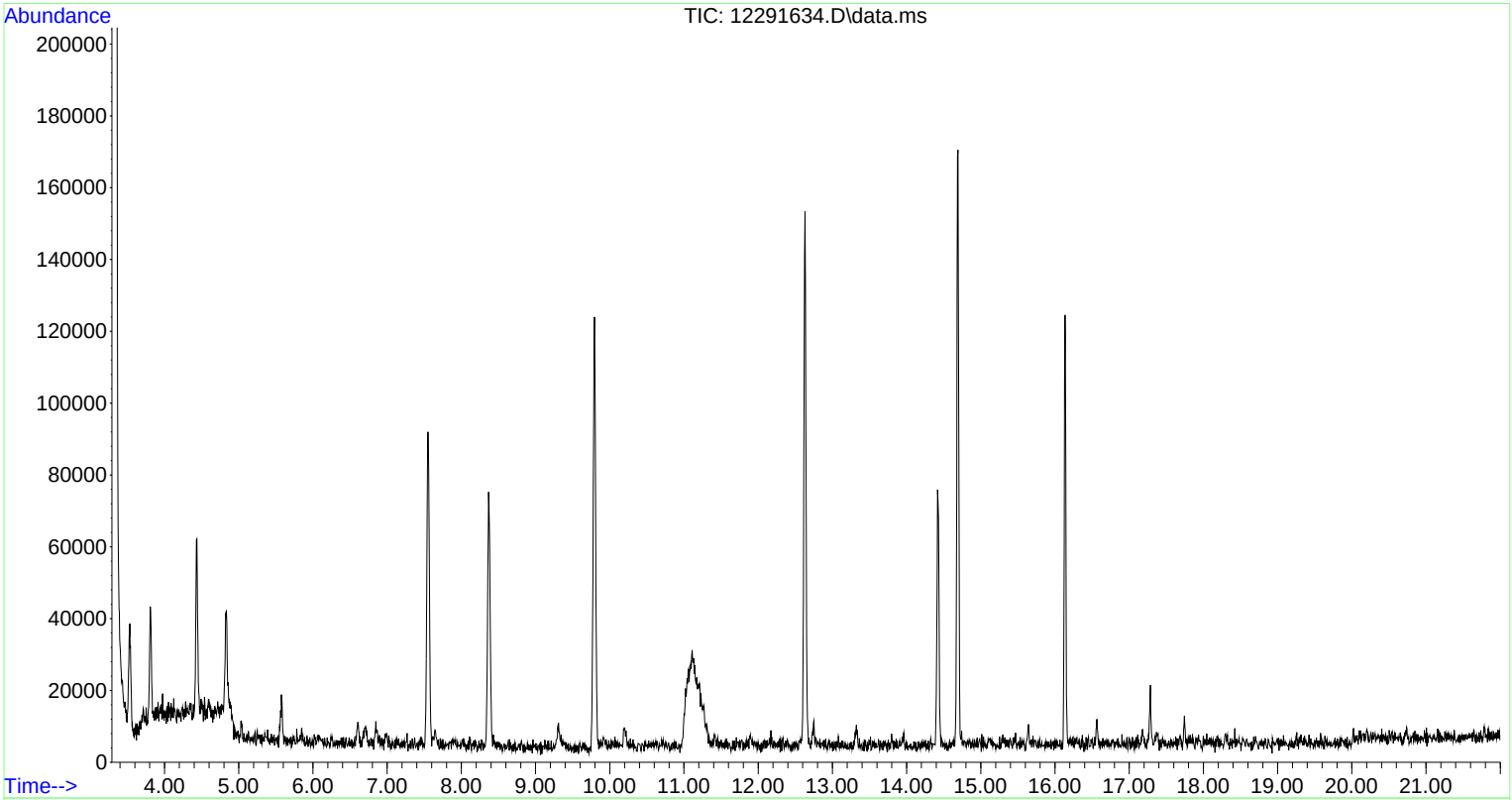
Quant Time: Dec 30 10:42:39 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

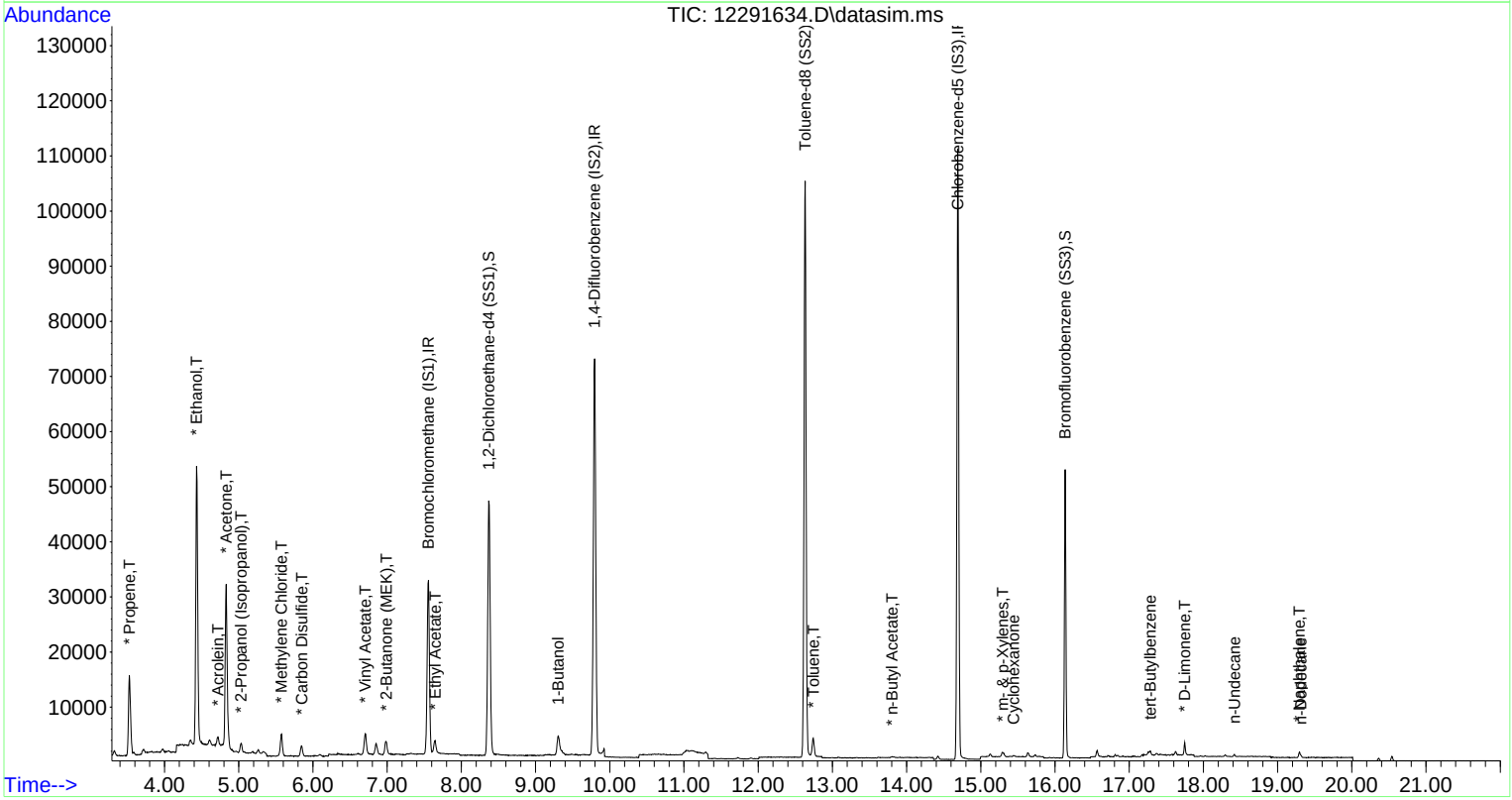
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	38964	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	131803	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105296	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70121	913.782	pg		0.00
Spiked Amount 1000.000			Recovery = 91.38%				
57) Toluene-d8 (SS2)	12.63	98	116140	902.636	pg		0.00
Spiked Amount 1000.000			Recovery = 90.26%				
74) Bromofluorobenzene (SS3)	16.14	174	36631	864.420	pg		0.00
Spiked Amount 1000.000			Recovery = 86.44%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6945	88.805	pg	#	78
10) * Ethanol	4.43	45	56713	1063.259	pg		99
12) * Acrolein	4.72	56	1564	35.000	pg		97
13) * Acetone	4.83	58	15639	310.420	pg	#	52
15) * 2-Propanol (Isopropa...	5.03	45	2448	17.934	pg		98
19) * Methylene Chloride	5.58	84	4203	74.895	pg		99
22) * Carbon Disulfide	5.85	76	3409	16.570	pg		97
26) * Vinyl Acetate	6.71	86	982	92.942	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	869	28.738	pg		92
30) * Ethyl Acetate	7.65	61	438	28.332	pg	#	77
41) 1-Butanol	9.31	56	3179	111.569	pg	#	50
58) * Toluene	12.74	91	3877	26.051	pg		99
62) * n-Butyl Acetate	13.81	56	188	10.326	pg		98
67) * m- & p-Xylenes	15.29	91	1237	12.686	pg		91
69) Cyclohexanone	15.44	98	123	11.294	pg		74
83) tert-Butylbenzene	17.28	134	271	14.056	pg	#	1
93) * D-Limonene	17.75	68	1146	33.553	pg		100
96) n-Undecane	18.42	85	127	14.976	pg	#	50
98) * Naphthalene	19.29	128	1151	34.766	pg		99
99) n-Dodecane	19.31	85	110	20.652	pg	#	59

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291634.D
Acq On : 30 Dec 2016 7:55 am
Operator : JM
Sample : AC00982 FCA00631
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Dec 30 10:42:39 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031728.D
Acq On : 4 Jan 2017 6:55 am
Operator : SM
Sample : AS00852 FCA00960
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

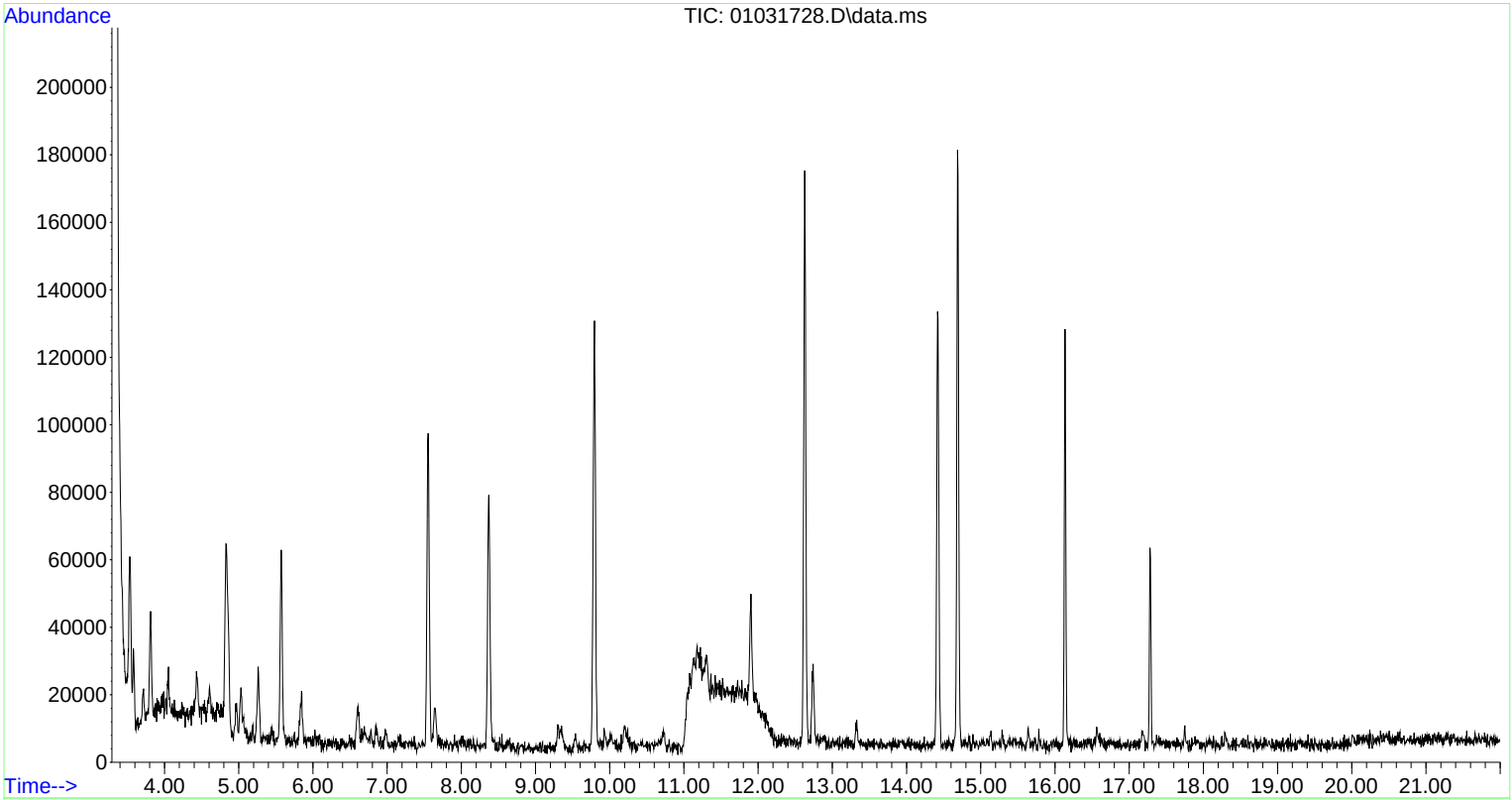
Quant Time: Jan 04 09:32:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

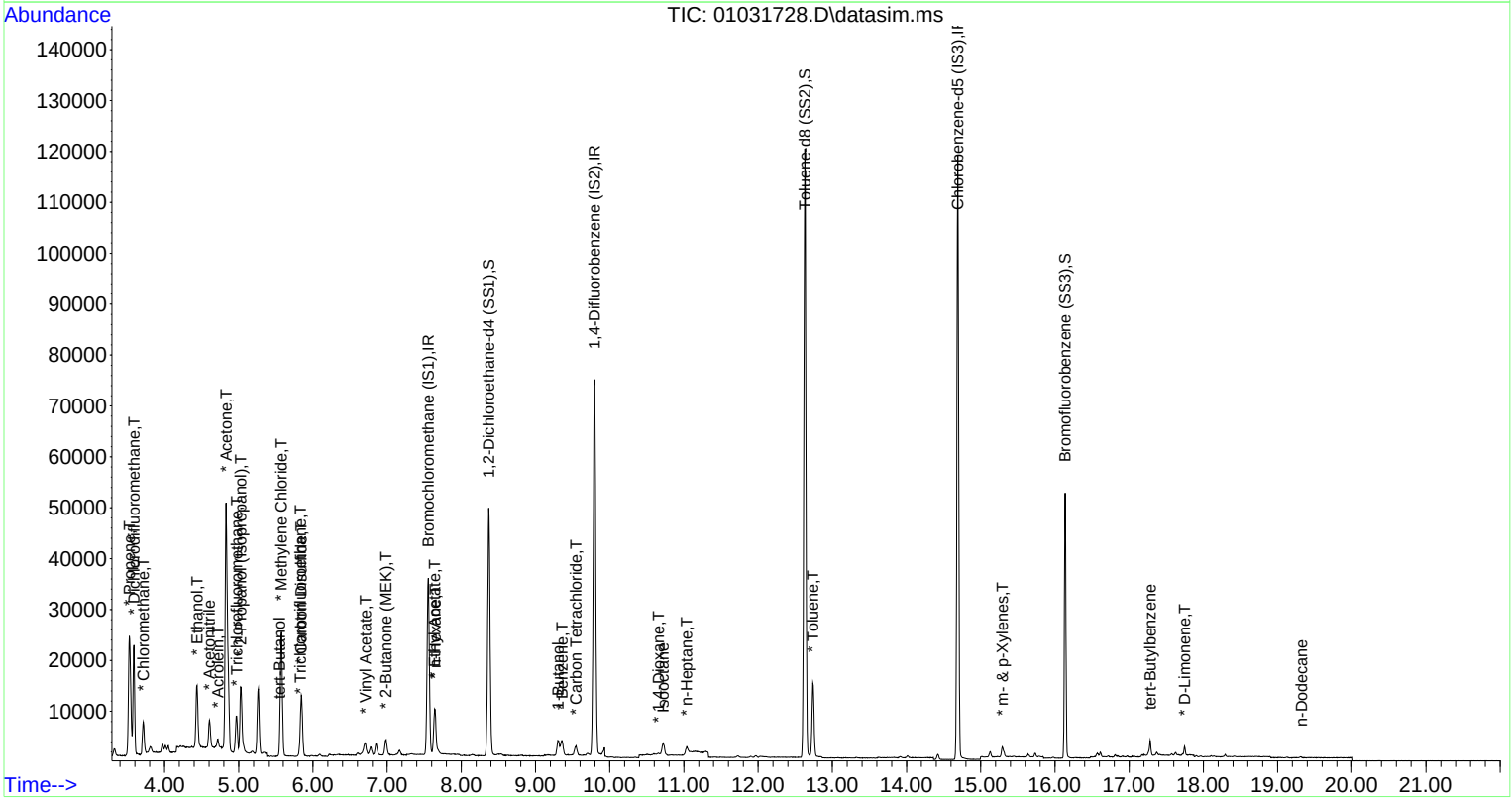
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42172	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	136383	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111694	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72371	871.361	pg		0.00
Spiked Amount 1000.000			Recovery = 87.14%				
57) Toluene-d8 (SS2)	12.63	98	130408	955.470	pg		0.00
Spiked Amount 1000.000			Recovery = 95.55%				
74) Bromofluorobenzene (SS3)	16.14	174	36548	813.058	pg		0.00
Spiked Amount 1000.000			Recovery = 81.31%				
Target Compounds							Qvalue
2) * Propene	3.53	42	12155	143.601	pg	#	73
3) * Dichlorodifluoromethane	3.59	85	22680	125.785	pg		100
4) * Chloromethane	3.71	50	7497	55.621	pg		97
10) * Ethanol	4.44	45	14609	253.056	pg		99
11) * Acetonitrile	4.60	41	6440	44.491	pg		100
12) * Acrolein	4.72	56	1686	34.860	pg		99
13) * Acetone	4.83	58	23579	432.420	pg		74
14) * Trichlorofluoromethane	4.97	101	8586	71.280	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	18423	124.697	pg		92
18) tert-Butanol	5.55	59	944	10.601	pg	#	1
19) * Methylene Chloride	5.58	84	27544	453.481	pg		99
21) * Trichlorotrifluoroet...	5.83	151	1544	32.705	pg		100
22) * Carbon Disulfide	5.84	76	21367	95.958	pg		98
26) * Vinyl Acetate	6.71	86	481	42.061	pg	#	21
27) * 2-Butanone (MEK)	6.99	72	1061	32.418	pg		95
30) * Ethyl Acetate	7.64	61	1713	102.378	pg		95
31) * n-Hexane	7.65	57	1591	18.491	pg		95
39) * Benzene	9.36	78	5176	32.909	pg		100
41) 1-Butanol	9.31	56	2628	89.134	pg	#	55
42) * Carbon Tetrachloride	9.55	117	2164	35.365	pg		91
48) * 1,4-Dioxane	10.66	88	330	10.060	pg		97
49) Isooctane	10.72	56	1710	22.745	pg		74
51) * n-Heptane	11.04	71	854	10.574	pg		99
58) * Toluene	12.74	91	17557	111.215	pg		100
67) * m- & p-Xylenes	15.29	91	2652	25.639	pg		93
83) tert-Butylbenzene	17.28	134	1085	53.053	pg	#	1
93) * D-Limonene	17.75	68	883	24.372	pg		95
99) n-Dodecane	19.32	85	69	12.212	pg	#	30

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031728.D
Acq On : 4 Jan 2017 6:55 am
Operator : SM
Sample : AS00852 FCA00960
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Jan 04 09:32:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041727.D
Acq On : 5 Jan 2017 6:04 am
Operator : JM
Sample : AS00603 FCA00829
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

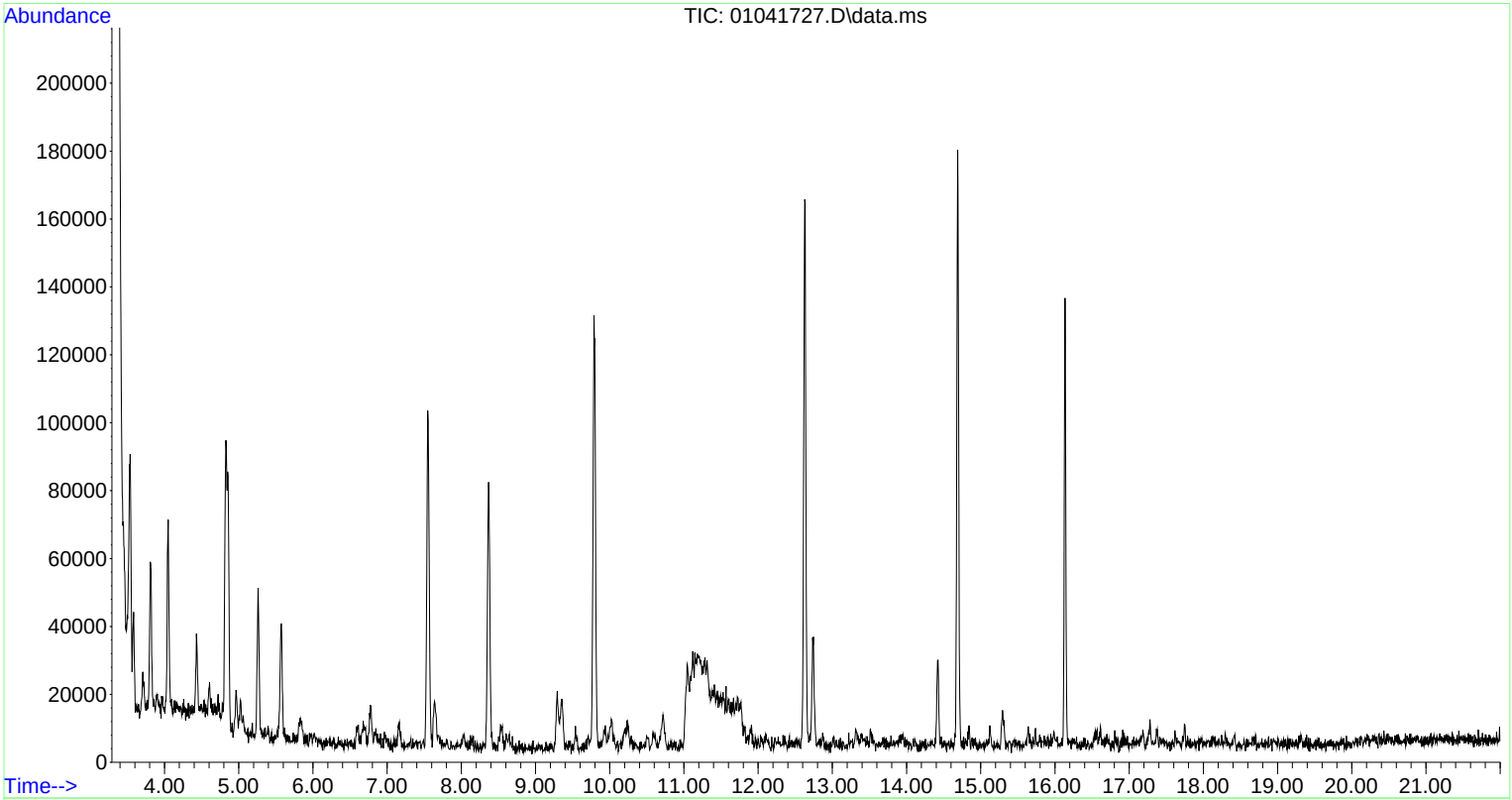
Quant Time: Jan 05 08:04:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

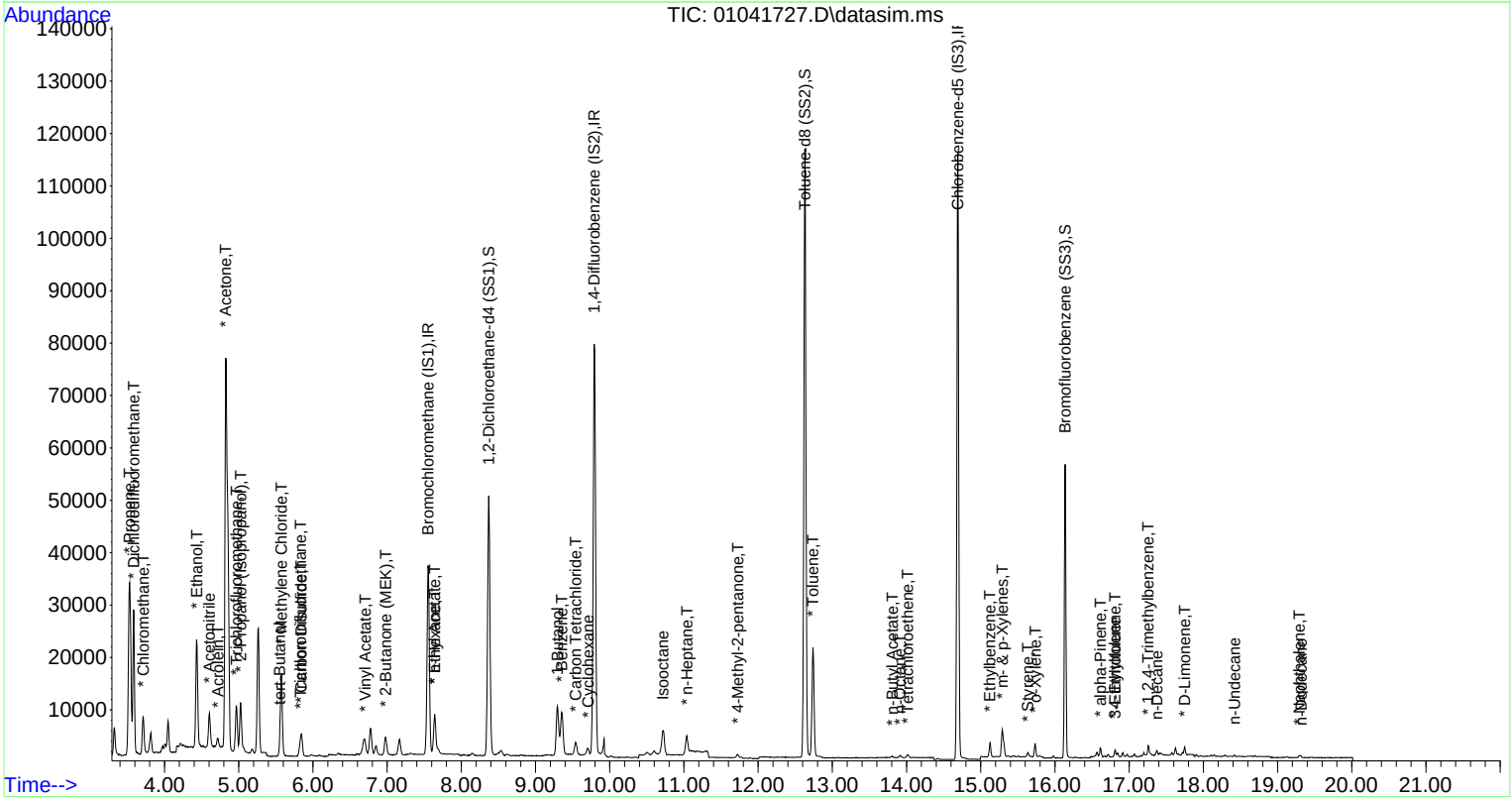
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44577	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	144643	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110679	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	73707	839.568 pg		0.00
Spiked Amount 1000.000			Recovery = 83.96%			
57) Toluene-d8 (SS2)	12.63	98	127497	942.708 pg		0.00
Spiked Amount 1000.000			Recovery = 94.27%			
74) Bromofluorobenzene (SS3)	16.14	174	39928	896.396 pg		0.00
Spiked Amount 1000.000			Recovery = 89.64%			
Target Compounds						Qvalue
2) * Propene	3.53	42	17343	193.839 pg	#	61
3) * Dichlorodifluoromethane	3.58	85	28631	150.223 pg		100
4) * Chloromethane	3.71	50	8457	59.359 pg		100
10) * Ethanol	4.43	45	23352	382.678 pg		100
11) * Acetonitrile	4.60	41	7534	49.241 pg		93
12) * Acrolein	4.72	56	1912	37.400 pg		96
13) * Acetone	4.82	58	34863	604.865 pg		99
14) * Trichlorofluoromethane	4.97	101	10417	81.815 pg		99
15) * 2-Propanol (Isopropa...	5.03	45	13053	83.583 pg		96
18) tert-Butanol	5.55	59	947	10.061 pg	#	12
19) * Methylene Chloride	5.58	84	17543	273.243 pg		99
21) * Trichlorotrifluoroet...	5.83	151	1971	39.497 pg		98
22) * Carbon Disulfide	5.84	76	6920	29.401 pg		99
26) * Vinyl Acetate	6.71	86	559	46.245 pg	#	28
27) * 2-Butanone (MEK)	6.98	72	1337	38.647 pg		68
30) * Ethyl Acetate	7.64	61	1068	60.386 pg		94
31) * n-Hexane	7.64	57	3054	33.579 pg		98
39) * Benzene	9.35	78	14677	87.986 pg		98
41) 1-Butanol	9.30	56	8856	283.218 pg	#	47
42) * Carbon Tetrachloride	9.54	117	2492	38.400 pg		96
43) * Cyclohexane	9.71	84	807	15.207 pg		94
49) Isooctane	10.71	56	3701	46.416 pg	#	65
51) * n-Heptane	11.04	71	2081	24.295 pg		94
53) * 4-Methyl-2-pentanone	11.73	58	403	13.372 pg	#	82
58) * Toluene	12.74	91	25291	161.676 pg		100
62) * n-Butyl Acetate	13.81	56	256	13.378 pg		95
63) * n-Octane	13.91	85	266	10.901 pg		90
64) * Tetrachloroethene	14.01	166	624	11.995 pg		98
66) * Ethylbenzene	15.12	91	2879	21.823 pg		97
67) * m- & p-Xylenes	15.29	91	6933	67.641 pg		94
70) * Styrene	15.63	104	601	11.013 pg		94
71) * o-Xylene	15.73	91	2369	23.629 pg		95
76) * alpha-Pinene	16.61	93	1231	18.942 pg		99
78) 3-Ethyltoluene	16.81	105	1106	12.056 pg		93
79) * 4-Ethyltoluene	16.81	105	1106	13.749 pg		90
84) * 1,2,4-Trimethylbenzene	17.26	105	1451	17.796 pg		87
88) n-Decane	17.38	85	156	10.007 pg		99
93) * D-Limonene	17.75	68	803	22.367 pg		88
96) n-Undecane	18.42	85	90	10.097 pg	#	45
98) * Naphthalene	19.29	128	478	13.736 pg	#	91
99) n-Dodecane	19.32	85	104	18.576 pg	#	41

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041727.D
Acq On : 5 Jan 2017 6:04 am
Operator : JM
Sample : AS00603 FCA00829
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 05 08:04:50 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051724.D
Acq On : 6 Jan 2017 12:54 am
Operator : JM
Sample : AC02222 FCA00497
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 06 08:16:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

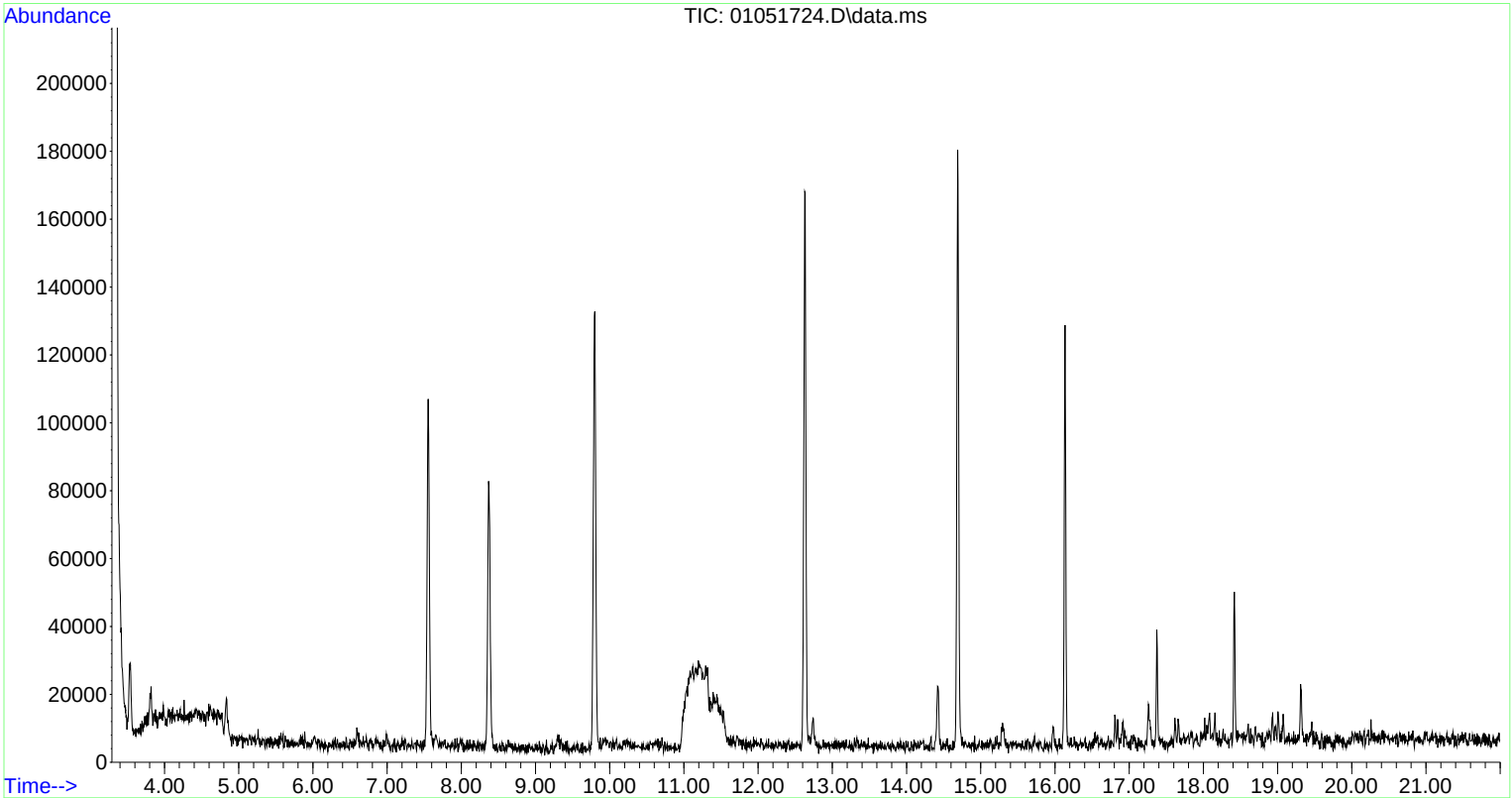
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45815	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144600	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111752	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76314	845.774	pg		0.00
Spiked Amount 1000.000			Recovery = 84.58%				
57) Toluene-d8 (SS2)	12.63	98	129818	950.653	pg		0.00
Spiked Amount 1000.000			Recovery = 95.06%				
74) Bromofluorobenzene (SS3)	16.14	174	38929	865.577	pg		0.00
Spiked Amount 1000.000			Recovery = 86.56%				
Target Compounds							Qvalue
13) * Acetone	4.84	58	5755	97.150	pg	#	60
88) n-Decane	17.38	85	1774	112.705	pg		81
96) n-Undecane	18.42	85	2616	290.657	pg		88
99) n-Dodecane	19.32	85	1045	184.860	pg		86

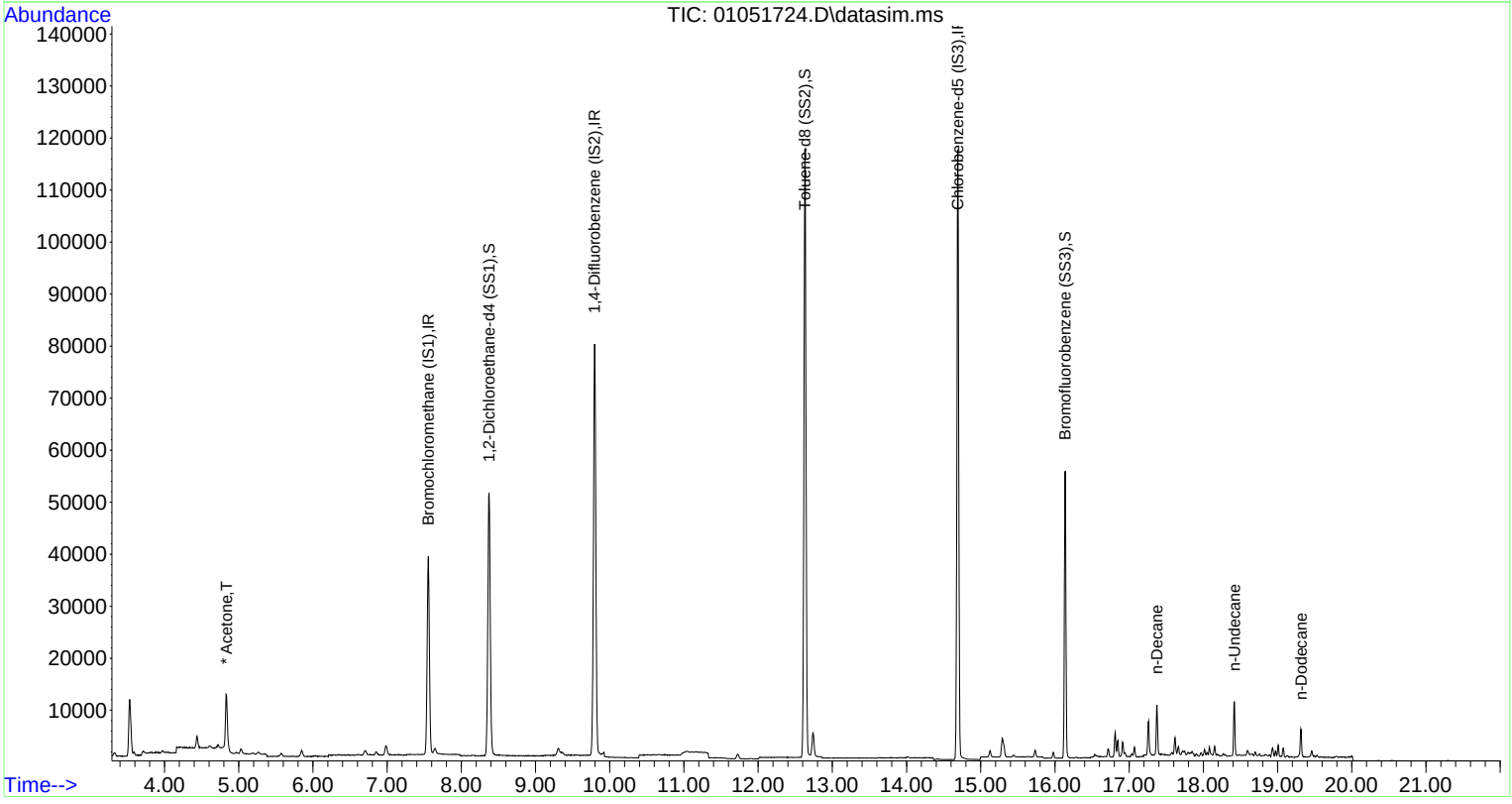
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051724.D
Acq On : 6 Jan 2017 12:54 am
Operator : JM
Sample : AC02222 FCA00497
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 06 08:16:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201623.D
Acq On : 20 Dec 2016 11:57 pm
Operator : SM
Sample : AC02185 FCR00035
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

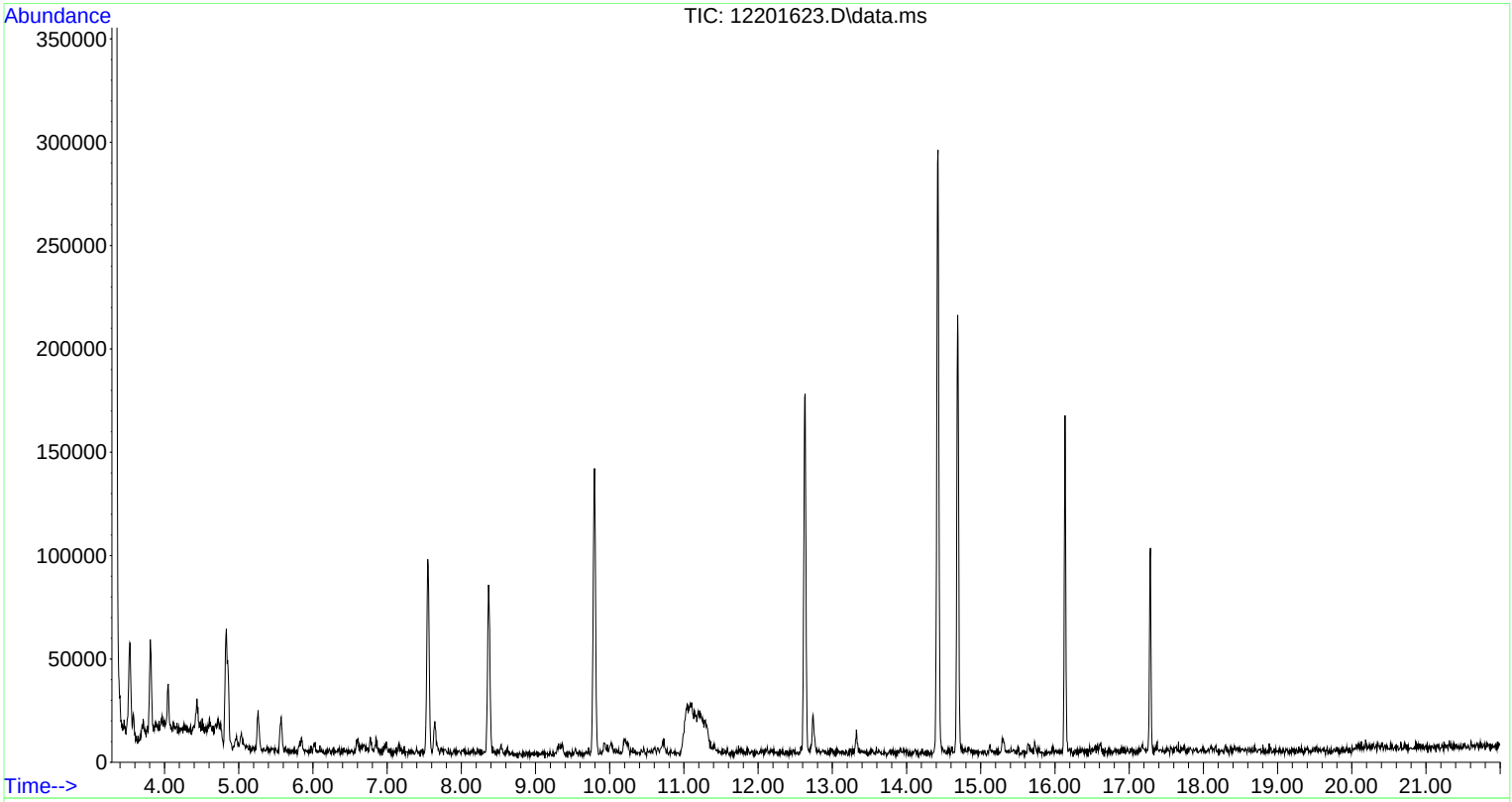
Quant Time: Dec 21 09:41:53 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration

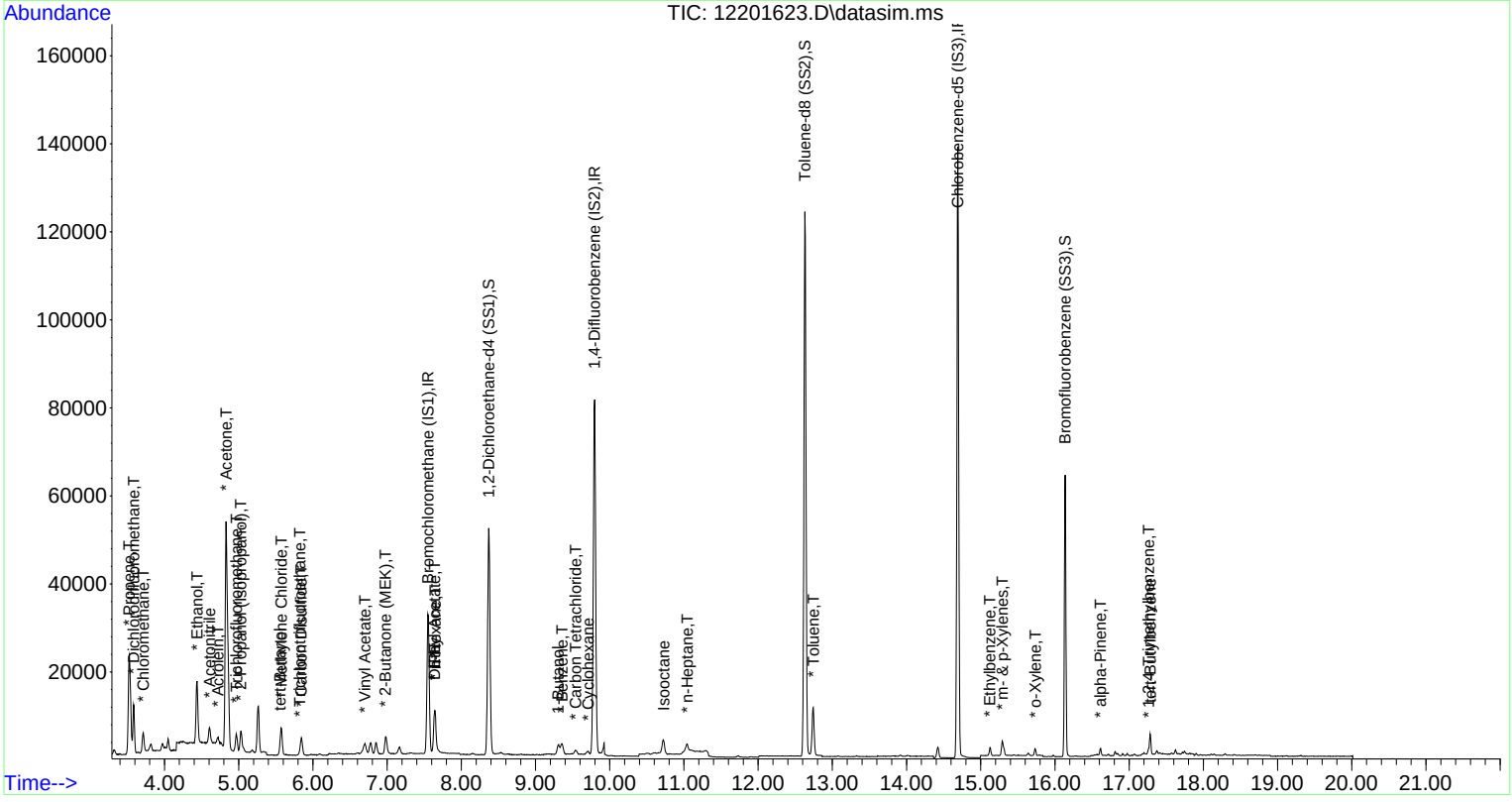
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38548	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	145125	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	125765	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77783	1014.783	pg		0.00
Spiked Amount 1000.000			Recovery = 101.48%				
57) Toluene-d8 (SS2)	12.63	98	137330	876.198	pg		0.00
Spiked Amount 1000.000			Recovery = 87.62%				
74) Bromofluorobenzene (SS3)	16.14	174	44490	806.211	pg		0.00
Spiked Amount 1000.000			Recovery = 80.62%				
Target Compounds							Qvalue
2) * Propene	3.52	42	11144	153.250	pg	#	54
3) * Dichlorodifluoromethane	3.58	85	11571	90.158	pg		100
4) * Chloromethane	3.71	50	5288	67.510	pg		100
10) * Ethanol	4.44	45	15788	450.684	pg		99
11) * Acetonitrile	4.61	41	4216	48.804	pg		88
12) * Acrolein	4.72	56	1430	41.921	pg	#	73
13) * Acetone	4.83	58	21820	496.296	pg		98
14) * Trichlorofluoromethane	4.97	101	4587	45.797	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	7314	46.786	pg		91
18) tert-Butanol	5.56	59	1143	9.171	pg	#	1
19) * Methylene Chloride	5.58	84	6551	127.686	pg		100
21) * Trichlorotrifluoroet...	5.82	151	783	18.741	pg		94
22) * Carbon Disulfide	5.84	76	6909	34.514	pg		100
26) * Vinyl Acetate	6.70	86	340	27.525	pg		90
27) * 2-Butanone (MEK)	6.98	72	1272	37.795	pg		87
29) DIPE	7.64	45	2012	9.807	pg	#	59
30) * Ethyl Acetate	7.64	61	1867	107.878	pg		83
31) * n-Hexane	7.65	57	1609	18.216	pg		99
39) * Benzene	9.36	78	4322	29.010	pg		98
41) 1-Butanol	9.31	56	1997	55.994	pg	#	61
42) * Carbon Tetrachloride	9.54	117	988	17.748	pg		98
43) * Cyclohexane	9.71	84	496	8.719	pg	#	18
49) Isooctane	10.73	56	2261	29.728	pg	#	69
51) * n-Heptane	11.04	71	1346	25.899	pg		95
58) * Toluene	12.74	91	13297	79.624	pg		98
66) * Ethylbenzene	15.12	91	2004	11.170	pg		96
67) * m- & p-Xylenes	15.29	91	4475	31.468	pg		97
71) * o-Xylene	15.73	91	1543	10.385	pg		98
76) * alpha-Pinene	16.62	93	1259	12.685	pg		87
83) tert-Butylbenzene	17.28	134	1774	56.844	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	1397	10.169	pg		89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\20\
Data File : 12201623.D
Acq On : 20 Dec 2016 11:57 pm
Operator : SM
Sample : AC02185 FCR00035
Misc : 74995 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 21 09:41:53 2016
Quant Method : I:\MS21\Methods\F21121516.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 15 08:20:11 2016
Response via : Initial Calibration





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LABORATORY REPORT

February 14, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Your report number P1700259 has been amended for the samples submitted to our laboratory on January 20, 2017. The sample IDs have been corrected to delete out an extra hyphen that was entered for samples P1700259-017 through P1700259-024. None of the sample results were affected by this change. The revised pages have been indicated by the "Revised Page" footer located at the bottom right of the page

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:08 pm, Feb 14, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700259

CASE NARRATIVE

The samples were received intact under chain of custody on January 20, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The upper surrogate control criterion was exceeded for toluene-D8 in the Laboratory Control Sample run on January 28, 2017. However, the associated spike recoveries of target compounds and the surrogate recoveries in the associated samples were acceptable, indicating the analysis was in control. The surrogate outlier has been flagged accordingly. No further corrective action was appropriate.

The surrogate bromofluorobenzene was outside control criteria in samples 17M003-1-04-F (P1700259-004), 17M003-A-01-F (P1700259-010), 17M012-1-01-F (P1700259-011), 17M012-1-02-F (P1700259-012), 17M012-1-03-F (P1700259-013) and 17M012-C-05-F (P1700259-014). However, the results were not affected as this compound is not associated with the target analytes included in this report. No corrective action was appropriate.

The response for the third internal standard in samples 17M312-1-03-F (P1700259-015) and 17M012-A-01-F (P1700259-016) was outside control criteria; however, since this compound is not associated with the target analytes included in this report the results were not affected. No corrective action was appropriate.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700259

CASE NARRATIVE

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1700259-002, 004	1,1-Dichloroethane

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700259
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/20/2017
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC SIM
17M003-1-01-F	P1700259-001	Air	1/16/2017	07:32	AC02115	-5.09	3.68			X
17M003-1-02-F	P1700259-002	Air	1/16/2017	07:29	SSC00127	-2.60	3.73			X
17M003-1-03-F	P1700259-003	Air	1/16/2017	07:31	AC00894	-1.52	3.67			X
17M003-1-04-F	P1700259-004	Air	1/16/2017	07:27	AC01252	-1.88	3.59			X
17M003-1-06-F	P1700259-005	Air	1/16/2017	07:23	AS01230	-1.47	5.89			X
17M003-1-07-F	P1700259-006	Air	1/16/2017	07:33	SSC00016	-2.76	3.58			X
17M003-1-08-F	P1700259-007	Air	1/16/2017	07:34	AC02017	-2.59	3.62			X
17M003-1-09-F	P1700259-008	Air	1/16/2017	07:25	AC02069	-1.26	3.86			X
17M303-1-06-F	P1700259-009	Air	1/16/2017	07:23	AS00560	-1.44	4.09			X
17M003-A-01-F	P1700259-010	Air	1/16/2017	15:10	AS01096	0.21	3.71			X
17M012-1-01-F	P1700259-011	Air	1/15/2017	08:40	AS00340	-4.37	4.30			X
17M012-1-02-F	P1700259-012	Air	1/15/2017	08:39	SC01710	-7.68	4.03			X
17M012-1-03-F	P1700259-013	Air	1/15/2017	08:40	AC02048	-0.13	3.50			X
17M012-C-05-F	P1700259-014	Air	1/15/2017	08:49	AS01076	-1.68	4.13			X
17M312-1-03-F	P1700259-015	Air	1/15/2017	08:41	AC01603	-2.31	3.93			X
17M012-A-01-F	P1700259-016	Air	1/15/2017	08:48	AC01870	-0.66	3.95			X
17M014-C-01-F	P1700259-017	Air	1/16/2017	08:38	AS01140	-2.20	4.06			X
17M014-C-02-F	P1700259-018	Air	1/16/2017	08:39	AC01780	-3.03	5.13			X
17M014-1-03-F	P1700259-019	Air	1/16/2017	08:36	AC02183	-1.73	3.88			X
17M014-1-04-F	P1700259-020	Air	1/16/2017	08:31	AS01166	-2.40	4.14			X
17M014-1-05-F	P1700259-021	Air	1/16/2017	08:34	AS00976	-4.46	3.88			X
17M015-1-01-F	P1700259-022	Air	1/15/2017	09:03	AC01642	-1.68	3.63	-1.10	3.50	X
17M015-1-02-F	P1700259-023	Air	1/15/2017	09:07	AC01036	-1.27	3.80	-1.09	2.21	X
17M015-1-03-F	P1700259-024	Air	1/15/2017	09:05	AS00739	-2.03	4.16	-0.60	2.10	X

Revised Page

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005
PAGE 1 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** R1700259
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M003-1-01-F	N0698	FCA00632	1/16/17	0732	-29.75	-12.51	6L	10hr, Summa ID not legible	X				
2	17M003-1-02-F	SSC00127	FCA00530	1/16/17	0729	-29.91	-7.63	6L	10hr	X				
3	17M003-1-03-F	AC00894	FCA00874	1/16/17	0731	-29.65	-5.64	6L	10hr	X				
4	17M003-1-04-F	AC01252	FCA00077	1/16/17	0727	-29.74	-6.22	6L	10hr	X				X
5	17M003-1-06-F	AS01230	FCA00403	1/16/17	0723	-30.22	-5.33	6L	10hr	X				
6	17M003-1-07-F	SSC00016	FCA00079	1/16/17	0733	-29.72	-7.93	6L	10hr	X				
7	17M003-1-08-F	AC02017	FCA00405	1/16/17	0734	-30.22	-7.59	6L	10hr	X				X
8	17M003-1-09-F	AC02069	FCA01039	1/16/17	0725	-30.24	-4.87	6L	10hr	X				
9	17M303-1-06-F	AS00560	FCA00822	1/16/17	0723	-29.92	-5.31	6L	10hr	X				
10	17M003-A-01-F	AS01096	FCR00197	1/16/17	1510	-28.94	-0.72	6L	24hr	X				
11	17M012-1-01-F	AS00340	FCA00654	1/15/17	0840	-29.9	-10.59	6L	24hr	X				
12	17M012-1-02-F	SC01710	FCA01019	1/15/17	0839	-29.9	-17	6L	24hr	X				

60f291

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/16/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature): FedEx	Date	Received By (signature)	Date 01/20/17 0930
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005
PAGE 2 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1700259
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17M012-1-03-F	AC02048	FCA00849	1/15/17	0840	-29.83	-1.73	6L	24hr	X				X
14	17M012-C-05-F	AS01076	FAC00029	1/15/17	0849	-29.75	-5.51	6L	24hr	X				
15	17M312-1-03-F	AC01603	FCA00077	1/15/17	0841	-29.79	-6.26	6L	24hr	X				
16	17M012-A-01-F	AC01870	FCA00968	1/15/17	0848	-29.9	-3.55	6L	24hr	X				
8	17M014-C-01-F	AS01140	FCA00918	1/16/17	0838	-29.76	-6.32	6L	8hr	X				
18	17M014-C-02-F	AC01780	FCA01047	1/16/17	0839	-30.25	-7.56	6L	8hr	X				
17	17M014-1-03-F	AC02183	FCA00541	1/16/17	0836	-30.21	-4.74	6L	8hr	X				
2	17M014-1-04-F	AS01166	FCA01075	1/16/17	0831	-30.49	-6.14	6L	8hr	X				
21	17M014-1-05-F	AS00676	FCA00123	1/16/17	0834	-30.23	-10.38	6L	8hr	X				X
22	17M015-1-01-F	AC01642	FCA00813	1/15/17	0903	-30.25	-4.91	6L	24hr	X				
23	17M015-1-02-F	AC01036	FCR0089	1/15/17	0907	-30.25	-4.07	6L	24hr	X				
24	17M015-1-03-F	AS00739	FCR00016	1/15/17	0905	-30.23	-5.17	6L	24hr	X				X

7 of 291

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 01/20/17
Company	Time	Company	Time 0930

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700259

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700259-001.01	6.0 L Ambient Can					AS02115 / S/N N0698
P1700259-002.01	6.0 L Silonite Can					
P1700259-003.01	6.0 L Ambient Can					
P1700259-004.01	6.0 L Ambient Can					
P1700259-005.01	6.0 L Silonite Can					
P1700259-006.01	6.0 L Silonite Can					
P1700259-007.01	6.0 L Ambient Can					
P1700259-008.01	6.0 L Ambient Can					
P1700259-009.01	6.0 L Silonite Can					
P1700259-010.01	6.0 L Silonite Can					
P1700259-011.01	6.0 L Silonite Can					
P1700259-012.01	6.0 L Source Can					
P1700259-013.01	6.0 L Ambient Can					
P1700259-014.01	6.0 L Silonite Can					
P1700259-015.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

Canister ID for sample -021 is AS00976 but listed as AS00676 on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700259

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700259-016.01	6.0 L Ambient Can					
P1700259-017.01	6.0 L Silonite Can					
P1700259-018.01	6.0 L Ambient Can					
P1700259-019.01	6.0 L Ambient Can					
P1700259-020.01	6.0 L Silonite Can					
P1700259-021.01	6.0 L Silonite Can					
P1700259-022.01	6.0 L Ambient Can					
P1700259-023.01	6.0 L Ambient Can					
P1700259-024.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-001

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02115

Initial Pressure (psig): -5.09 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.91

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.048	0.038	0.015	**J**
75-35-4	1,1-Dichloroethene	**0.018**	0.048	0.040	0.016	**J**
156-60-5	trans-1,2-Dichloroethene	**0.22**	0.048	0.040	0.014	
75-34-3	1,1-Dichloroethane	**0.028**	0.048	0.038	0.012	**J**
156-59-2	cis-1,2-Dichloroethene	**0.091**	0.048	0.040	0.018	
79-01-6	Trichloroethene	**1.5**	0.048	0.040	0.016	
127-18-4	Tetrachloroethene	**0.084**	0.048	0.040	0.016	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-02-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-002

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00127
Initial Pressure (psig): -2.60 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.013**	0.038	0.030	0.012	**J**
75-35-4	1,1-Dichloroethene	**0.019**	0.038	0.032	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.049**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.031**	0.038	0.030	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.084**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**1.4**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.059**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-003

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00894
Initial Pressure (psig): -1.52 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.032**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.029**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.45**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.031**	0.035	0.028	0.0085	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**2.6**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-04-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-004

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01252
Initial Pressure (psig): -1.88 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.043**	0.036	0.029	0.011	
75-35-4	1,1-Dichloroethene	**0.013**	0.036	0.030	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.060**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.035**	0.036	0.029	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.071**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**1.7**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.058**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-06-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-005

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01230

Initial Pressure (psig): -1.47 Final Pressure (psig): 5.89

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.11**	0.039	0.031	0.012	
75-35-4	1,1-Dichloroethene	0.033	0.039	0.033	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.029**	0.039	0.033	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.016**	0.039	0.031	0.0095	**J**
156-59-2	cis-1,2-Dichloroethene	**0.052**	0.039	0.033	0.014	
79-01-6	Trichloroethene	**0.66**	0.039	0.033	0.013	
127-18-4	Tetrachloroethene	**0.084**	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-07-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-006

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00016
Initial Pressure (psig): -2.76 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.073**	0.038	0.031	0.012	
75-35-4	1,1-Dichloroethene	**0.047**	0.038	0.032	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.071**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.046**	0.038	0.031	0.0093	
156-59-2	cis-1,2-Dichloroethene	**0.21**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**4.6**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.078**	0.038	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-08-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-007

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02017
Initial Pressure (psig): -2.59 Final Pressure (psig): 3.62

Canister Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.052**	0.038	0.030	0.011	
75-35-4	1,1-Dichloroethene	**0.044**	0.038	0.032	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.067**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.044**	0.038	0.030	0.0092	
156-59-2	cis-1,2-Dichloroethene	**0.20**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**4.5**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.081**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-09-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-008

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02069

Initial Pressure (psig): -1.26 Final Pressure (psig): 3.86

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.11**	0.035	0.028	0.010	
75-35-4	1,1-Dichloroethene	**0.024**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.045**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.028**	0.035	0.028	0.0084	**J**
156-59-2	cis-1,2-Dichloroethene	**0.081**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.90**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M303-1-06-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-009

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00560

Initial Pressure (psig): -1.44 Final Pressure (psig): 4.09

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.10**	0.036	0.028	0.011	
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.028**	0.036	0.030	0.010	**J**
75-34-3	1,1-Dichloroethane	**0.016**	0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.047**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.73**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.047**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-A-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-010

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01096
Initial Pressure (psig): 0.21 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.031	0.025	0.0093	**U**
75-35-4	1,1-Dichloroethene	0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.034**	0.031	0.026	0.0090	
75-34-3	1,1-Dichloroethane	0.025	0.031	0.025	0.0075	**U**
156-59-2	cis-1,2-Dichloroethene	**0.023**	0.031	0.026	0.011	**J**
79-01-6	Trichloroethene	**0.087**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.058**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-011

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00340

Initial Pressure (psig): -4.37 Final Pressure (psig): 4.30

Canister Dilution Factor: 1.84

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.037	0.046	0.037	0.014	**U**
75-35-4	1,1-Dichloroethene	0.039	0.046	0.039	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	**0.77**	0.046	0.039	0.013	
75-34-3	1,1-Dichloroethane	**0.020**	0.046	0.037	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.069**	0.046	0.039	0.017	
79-01-6	Trichloroethene	**0.65**	0.046	0.039	0.016	
127-18-4	Tetrachloroethene	**0.14**	0.046	0.039	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-02-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-012

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01710

Initial Pressure (psig): -7.68 Final Pressure (psig): 4.03

Canister Dilution Factor: 2.67

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.053	0.067	0.053	0.020	**U**
75-35-4	1,1-Dichloroethene	0.056	0.067	0.056	0.023	**U**
156-60-5	trans-1,2-Dichloroethene	**0.11**	0.067	0.056	0.019	
75-34-3	1,1-Dichloroethane	0.053	0.067	0.053	0.016	**U**
156-59-2	cis-1,2-Dichloroethene	**0.041**	0.067	0.056	0.025	**J**
79-01-6	Trichloroethene	**0.31**	0.067	0.056	0.023	
127-18-4	Tetrachloroethene	**0.076**	0.067	0.056	0.022	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-013

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02048
Initial Pressure (psig): -0.13 Final Pressure (psig): 3.50

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride		0.025	0.031	0.025	0.0095	**U**
75-35-4	1,1-Dichloroethene		0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.079**		0.031	0.026	0.0091	
75-34-3	1,1-Dichloroethane		0.025	0.031	0.025	0.0076	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**		0.031	0.026	0.012	**J**
79-01-6	Trichloroethene	**0.060**		0.031	0.026	0.011	
127-18-4	Tetrachloroethene	**0.089**		0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-C-05-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-014

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01076
Initial Pressure (psig): -1.68 Final Pressure (psig): 4.13

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.14**	0.036	0.029	0.011	
75-35-4	1,1-Dichloroethene	**0.015**	0.036	0.030	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.20**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.025**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.15**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.98**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.063**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M312-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-015

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01603
Initial Pressure (psig): -2.31 Final Pressure (psig): 3.93

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030		0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032		0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.45**		0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	0.030		0.038	0.030	0.0092	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**		0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.062**		0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.11**		0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-A-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-016

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01870
Initial Pressure (psig): -0.66 Final Pressure (psig): 3.95

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.079**	0.033	0.028	0.0097	
75-34-3	1,1-Dichloroethane	**0.0095**	0.033	0.027	0.0081	**J**
156-59-2	cis-1,2-Dichloroethene	**0.020**	0.033	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.097**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.069**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-C-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-017

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01140
Initial Pressure (psig): -2.20 Final Pressure (psig): 4.06

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.14**	0.038	0.030	0.011	
75-35-4	1,1-Dichloroethene	**0.034**	0.038	0.032	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.81**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.079**	0.038	0.030	0.0092	
156-59-2	cis-1,2-Dichloroethene	**0.32**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**4.6**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.15**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-C-02-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-018

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01780
Initial Pressure (psig): -3.03 Final Pressure (psig): 5.13

Canister Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.064**	0.043	0.034	0.013	
75-35-4	1,1-Dichloroethene	**0.027**	0.043	0.036	0.015	**J**
156-60-5	trans-1,2-Dichloroethene	**0.053**	0.043	0.036	0.012	
75-34-3	1,1-Dichloroethane	**0.046**	0.043	0.034	0.010	
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.043	0.036	0.016	
79-01-6	Trichloroethene	**3.1**	0.043	0.036	0.014	
127-18-4	Tetrachloroethene	**0.094**	0.043	0.036	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-019

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02183
Initial Pressure (psig): -1.73 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.052**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.021**	0.036	0.029	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.18**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.94**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.21**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-04-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-020

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01166

Initial Pressure (psig): -2.40 Final Pressure (psig): 4.14

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.031	0.038	0.031	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.052**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.021**	0.038	0.031	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.20**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.96**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.23**	0.038	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-05-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-021

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00976
Initial Pressure (psig): -4.46 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.81

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.036	0.045	0.036	0.014	**U**
75-35-4	1,1-Dichloroethene	0.038	0.045	0.038	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	**0.044**	0.045	0.038	0.013	**J**
75-34-3	1,1-Dichloroethane	**0.019**	0.045	0.036	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.068**	0.045	0.038	0.017	
79-01-6	Trichloroethene	**1.3**	0.045	0.038	0.015	
127-18-4	Tetrachloroethene	**0.11**	0.045	0.038	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-01-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-022

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01642

Initial Pressure (psig): -1.68 Final Pressure (psig): 3.63
Initial Pressure 2 (psig): -1.10 Final Pressure 2 (psig): 3.50

Canister Dilution Factor: 1.88

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.038	0.047	0.038	0.014	**U**
75-35-4	1,1-Dichloroethene	**0.028**	0.047	0.039	0.016	**J**
156-60-5	trans-1,2-Dichloroethene	**0.068**	0.047	0.039	0.014	
75-34-3	1,1-Dichloroethane	**0.040**	0.047	0.038	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.18**	0.047	0.039	0.017	
79-01-6	Trichloroethene	**3.3**	0.047	0.039	0.016	
127-18-4	Tetrachloroethene	**0.12**	0.047	0.039	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-02-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-023

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01036

Initial Pressure (psig): -1.27 Final Pressure (psig): 3.80
Initial Pressure 2 (psig): -1.09 Final Pressure 2 (psig): 2.21

Canister Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034	0.043	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.036	0.043	0.036	0.015	**U**
156-60-5	trans-1,2-Dichloroethene	**0.067**	0.043	0.036	0.012	
75-34-3	1,1-Dichloroethane	0.034	0.043	0.034	0.010	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**	0.043	0.036	0.016	**J**
79-01-6	Trichloroethene	**0.090**	0.043	0.036	0.015	
127-18-4	Tetrachloroethene	**0.058**	0.043	0.036	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-024

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00739

Initial Pressure (psig): -2.03 Final Pressure (psig): 4.16
Initial Pressure 2 (psig): -0.60 Final Pressure 2 (psig): 2.10

Canister Dilution Factor: 1.77

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.035	0.044	0.035	0.013	**U**
75-35-4	1,1-Dichloroethene	0.037	0.044	0.037	0.015	**U**
156-60-5	trans-1,2-Dichloroethene	**0.063**	0.044	0.037	0.013	
75-34-3	1,1-Dichloroethane	**0.016**	0.044	0.035	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.057**	0.044	0.037	0.016	
79-01-6	Trichloroethene	**0.95**	0.044	0.037	0.015	
127-18-4	Tetrachloroethene	**0.072**	0.044	0.037	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170127-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170128-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170201-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/15 - 1/16/17
Analyst: Cory Lewis Date(s) Received: 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/27 - 2/1/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170127-MB	**90**	**99**	**98**	70-130	
Method Blank	P170128-MB	**92**	**101**	**83**	70-130	
Method Blank	P170201-MB	**101**	**99**	**98**	70-130	
Lab Control Sample	P170127-LCS	**93**	**94**	**111**	70-130	
Lab Control Sample	P170128-LCS	**92**	**131**	**108**	70-130	**S**
Lab Control Sample	P170201-LCS	**98**	**100**	**101**	70-130	
17M003-1-01-F	P1700259-001	**91**	**102**	**114**	70-130	
17M003-1-02-F	P1700259-002	**91**	**104**	**112**	70-130	
17M003-1-03-F	P1700259-003	**90**	**102**	**116**	70-130	
17M003-1-04-F	P1700259-004	**90**	**101**	**133**	70-130	**S**
17M003-1-06-F	P1700259-005	**96**	**102**	**108**	70-130	
17M003-1-07-F	P1700259-006	**93**	**103**	**109**	70-130	
17M003-1-07-F	P1700259-006DUP	**94**	**102**	**111**	70-130	
17M003-1-08-F	P1700259-007	**91**	**102**	**112**	70-130	
17M003-1-09-F	P1700259-008	**96**	**99**	**109**	70-130	
17M303-1-06-F	P1700259-009	**94**	**90**	**114**	70-130	
17M003-A-01-F	P1700259-010	**92**	**103**	**138**	70-130	**S**
17M012-1-01-F	P1700259-011	**93**	**100**	**131**	70-130	**S**
17M012-1-02-F	P1700259-012	**93**	**100**	**134**	70-130	**S**
17M012-1-03-F	P1700259-013	**92**	**103**	**132**	70-130	**S**
17M012-C-05-F	P1700259-014	**91**	**102**	**134**	70-130	**S**
17M312-1-03-F	P1700259-015	**91**	**103**	**86**	70-130	
17M012-A-01-F	P1700259-016	**92**	**110**	**90**	70-130	
17M014-C-01-F	P1700259-017	**91**	**115**	**96**	70-130	
17M014-C-02-F	P1700259-018	**91**	**102**	**116**	70-130	
17M014-1-03-F	P1700259-019	**91**	**102**	**98**	70-130	
17M014-1-04-F	P1700259-020	**91**	**110**	**117**	70-130	
17M014-1-05-F	P1700259-021	**92**	**113**	**105**	70-130	
17M015-1-01-F	P1700259-022	**99**	**101**	**106**	70-130	
17M015-1-02-F	P1700259-023	**100**	**101**	**104**	70-130	
17M015-1-03-F	P1700259-024	**99**	**101**	**102**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.
S = Surrogate recovery not within specified limits.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170127-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.89**	**93**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.09**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.10**	**96**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.84**	**90**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.12**	**97**	70-121	
79-01-6	Trichloroethene	4.25	**4.04**	**95**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.91**	**92**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170128-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.75**	**89**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.94**	**93**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.99**	**93**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.77**	**89**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.92**	**92**	70-121	
79-01-6	Trichloroethene	4.25	**3.86**	**91**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.69**	**87**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170201-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**4.04**	**96**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.10**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.34**	**102**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.18**	**98**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.25**	**100**	70-121	
79-01-6	Trichloroethene	4.25	**4.21**	**99**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.18**	**98**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17M003-1-07-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-006DUP

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00016

Initial Pressure (psig): -2.76 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.53

CAS #	Compound	Sample Result		Duplicate Sample Result		Average	% RPD	RPD Limit	Data Qualifier
		µg/m³	ppbV	**µg/m³**	ppbV	µg/m³			
75-01-4	Vinyl Chloride	0.0734	0.0287	0.0707	0.0277	0.07205	**4**	25	
75-35-4	1,1-Dichloroethene	0.0467	0.0118	0.0463	0.0117	0.0465	**0.9**	25	
156-60-5	trans-1,2-Dichloroethene	0.0714	0.0180	0.0694	0.0175	0.0704	**3**	25	
75-34-3	1,1-Dichloroethane	0.0459	0.0113	0.0455	0.0112	0.0457	**0.9**	25	
156-59-2	cis-1,2-Dichloroethene	0.207	0.0523	0.207	0.0521	0.207	**0**	25	
79-01-6	Trichloroethene	4.63	0.862	5.02	0.935	4.825	**8**	25	
127-18-4	Tetrachloroethene	0.0782	0.0115	0.0787	0.0116	0.07845	**0.6**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01271706.D
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 10:02
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170127-LCS	01271707.D	10:32
17M003-1-01-F	P1700259-001	01271728.D	22:05
17M003-1-02-F	P1700259-002	01271729.D	22:37
17M003-1-03-F	P1700259-003	01271730.D	23:08
17M003-1-04-F	P1700259-004	01271731.D	23:39

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01281703.D
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 04:25
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170128-LCS	01281704.D	04:57
17M003-1-06-F	P1700259-005	01281706.D	06:00
17M003-1-07-F	P1700259-006	01281707.D	06:31
17M003-1-07-F (Lab Duplicate)	P1700259-006DUP	01281708.D	07:03
17M003-1-08-F	P1700259-007	01281709.D	07:34
17M003-1-09-F	P1700259-008	01281710.D	09:01
17M303-1-06-F	P1700259-009	01281711.D	09:32
17M003-A-01-F	P1700259-010	01281713.D	10:35
17M012-1-01-F	P1700259-011	01281714.D	11:06
17M012-1-02-F	P1700259-012	01281715.D	11:38
17M012-1-03-F	P1700259-013	01281716.D	12:09
17M012-C-05-F	P1700259-014	01281717.D	12:41
17M312-1-03-F	P1700259-015	01281718.D	13:13
17M012-A-01-F	P1700259-016	01281720.D	14:16
17M014-C-01-F	P1700259-017	01281721.D	14:47
17M014-C-02-F	P1700259-018	01281722.D	15:19
17M014-1-03-F	P1700259-019	01281723.D	15:50
17M014-1-04-F	P1700259-020	01281724.D	15:50
17M014-1-05-F	P1700259-021	01281725.D	16:54

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02011703.D
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:50
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170201-LCS	02011704.D	09:21
17M015-1-01-F	P1700259-022	02011711.D	13:22
17M015-1-02-F	P1700259-023	02011712.D	13:53
17M015-1-03-F	P1700259-024	02011713.D	14:25

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01271705.D

Analyst: Cory Lewis Date Analyzed: 1/27/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 09:30

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	51625		9.75	255804		11.71		35048		16.05	
	Upper Limit	72275		10.08	358126		12.04		49067		16.38	
	Lower Limit	30975		9.42	153482		11.38		21029		15.72	
	Client Sample ID											
01	Method Blank	49310		9.78	214885		11.72		31834		16.06	
02	Lab Control Sample	48731		9.76	241793		11.71		33444		16.05	
03	17M003-1-01-F	50483		9.75	245321		11.71		37366		16.05	
04	17M003-1-02-F	50059		9.75	241121		11.71		36596		16.05	
05	17M003-1-03-F	51507		9.76	251180		11.71		37866		16.05	
06	17M003-1-04-F	51808		9.75	251016		11.71		37509		16.05	
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01281702.D

Analyst: Cory Lewis Date Analyzed: 1/28/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:54

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	AREA	#	RT
	24 Hour Standard	46983		9.75	232872		11.71	35690		16.05
	Upper Limit	65776		10.08	326021		12.04	49966		16.38
	Lower Limit	28190		9.42	139723		11.38	21414		15.72
	Client Sample ID									
01	Method Blank	46053		9.78	200327		11.72	34621		16.06
02	Lab Control Sample	47639		9.75	236483		11.71	33815		16.05
03	17M003-1-06-F	45465		9.76	218645		11.71	48378		16.05
04	17M003-1-07-F	48962		9.75	237600		11.71	36703		16.05
05	17M003-1-07-F (Lab Duplicate)	50088		9.76	242384		11.71	36924		16.05
06	17M003-1-08-F	50454		9.75	243957		11.71	37001		16.05
07	17M003-1-09-F	58057		9.75	265908		11.70	38838		16.05
08	17M303-1-06-F	50804		9.75	282162		11.71	38068		16.05
09	17M003-A-01-F	50410		9.75	239054		11.71	42072		16.05
10	17M012-1-01-F	49367		9.75	250895		11.71	42772		16.05
11	17M012-1-02-F	50356		9.76	255708		11.71	38503		16.05
12	17M012-1-03-F	50944		9.76	246244		11.71	38955		16.05
13	17M012-C-05-F	54071		9.76	259694		11.71	40116		16.05
14	17M312-1-03-F	51750		9.76	249442		11.71	52330	I	16.05
15	17M012-A-01-F	50446		9.76	255364		11.71	50397	I	16.05
16	17M014-C-01-F	53742		9.75	259051		11.71	47954		16.05
17	17M014-C-02-F	55414		9.76	266165		11.71	47944		16.05
18	17M014-1-03-F	52746		9.76	256204		11.71	47565		16.05
19	17M014-1-04-F	52612		9.76	257837		11.71	39087		16.05
20	17M014-1-05-F	52667		9.75	258287		11.71	46016		16.05

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700259

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02011702.D
Analyst: Cory Lewis Date Analyzed: 2/1/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:19
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	49213		9.76	235962		11.71		38571		16.05	
	Upper Limit	68898		10.09	330347		12.04		53999		16.38	
	Lower Limit	29528		9.43	141577		11.38		23143		15.72	
	Client Sample ID											
01	Method Blank	46969		9.79	232268		11.72		37388		16.06	
02	Lab Control Sample	48161		9.75	231933		11.71		37706		16.05	
03	17M015-1-01-F	48838		9.76	235816		11.71		38830		16.05	
04	17M015-1-02-F	48171		9.76	232828		11.71		38269		16.05	
05	17M015-1-03-F	46867		9.76	227438		11.71		37139		16.05	
06												
07												
08												
09												
10												
11												
12	(Lab Duplicate)											
13	(Lab Duplicate)											
14	17M003-1-01-F (Dilution)											
15	17M003-1-02-F (Dilution)											
16	17M003-1-03-F (Dilution)											
17	17M003-1-04-F (Dilution)											
18	17M003-1-06-F (Dilution)											
19	17M003-1-07-F (Dilution)											
20	17M003-1-08-F (Dilution)											

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51808	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	251016	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	37509	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	80926	901.940	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.19%			
33) Toluene-d8 (SS2)	14.14	98	250906	1006.265	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.63%			
45) Bromofluorobenzene (SS3)	17.55	174	90835	1323.753	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 132.38%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	350220	2675.843	pg	100
3) Chloromethane	4.63	52	9274	237.837	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	10233	79.468	pg	99
5) Vinyl Chloride	4.94	62	3788	30.274	pg	89
6) 1,3-Butadiene	5.13	54	3865	51.955	pg	87
7) Bromomethane	5.46	94	1627	32.324	pg	97
8) Chloroethane	5.68	64	437	11.352	pg	97
9) Acrolein	6.26	56	24247	886.652	pg	99
10) Acetone	6.39	58	249844	7066.219	pg #	87
11) Trichlorofluoromethane	6.59	101	125644	1403.553	pg	100
12) 1,1-Dichloroethene	7.34	96	519	9.254	pg	87
13) Methylene Chloride	7.47	84	19899	326.962	pg	99
14) Trichlorotrifluoroethane	7.80	151	21751	388.742	pg	100
15) trans-1,2-Dichloroethene	8.51	96	2555	42.259	pg	96
16) 1,1-Dichloroethane	8.71	63	2620m	24.425	pg	
17) Methyl tert-Butyl Ether	8.80	73	934	5.835	pg	80
18) cis-1,2-Dichloroethene	9.59	96	3133	49.380	pg	96
19) Chloroform	9.89	83	34955	309.886	pg	99
21) 1,2-Dichloroethane	10.64	62	6777	78.048	pg	99
22) 1,1,1-Trichloroethane	10.91	97	1736	16.579	pg	99
23) Benzene	11.36	78	140067	563.595	pg	100
24) Carbon Tetrachloride	11.52	117	29425	349.971	pg	99
26) 1,2-Dichloropropane	12.18	63	1300	20.332	pg	98
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	78287	1199.590	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	13.25	75	106	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	228809	982.477	pg	99
35) Dibromochloromethane	14.66	129	341	5.288	pg	95
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	2750	40.640	pg	97
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.48	91	40920	191.908	pg	99
41) m,p-Xylene	16.65	91	94184	588.897	pg	99
42) Styrene	17.01	104	21634	193.076	pg	99
43) o-Xylene	17.12	106	22186	270.031	pg	100
44) 1,1,2,2-Tetrachloroethane	17.05	83	318	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	9205	54.371	pg	96
47) 1,2,4-Trimethylbenzene	18.77	105	27854	167.621	pg	88
48) 1,3-Dichlorobenzene	18.92	146	72	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	1953	18.367	pg	99
50) 1,2-Dichlorobenzene	19.31	146	187	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.		
53) Naphthalene	21.09	128	1485	7.591	pg	88

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

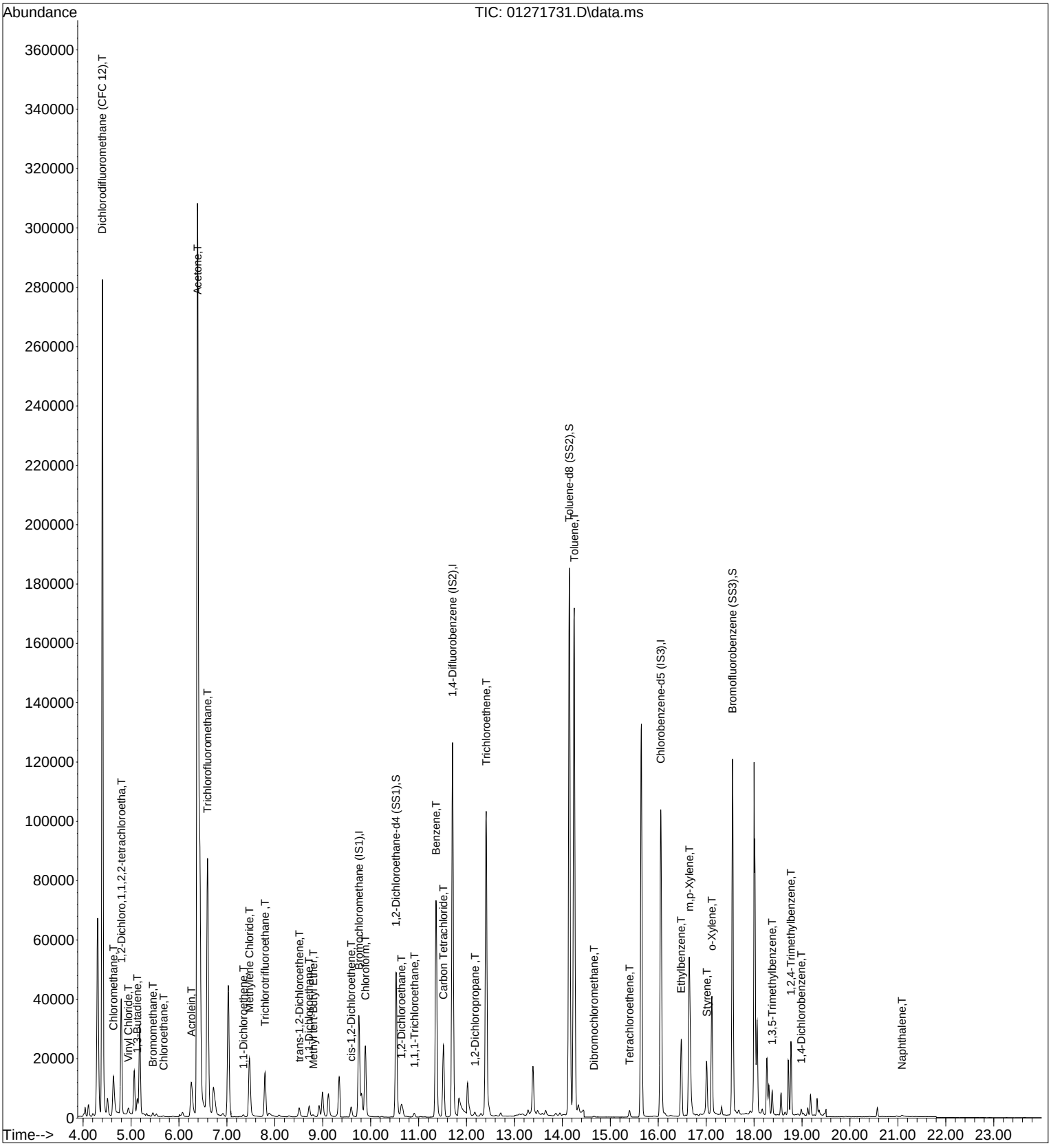
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

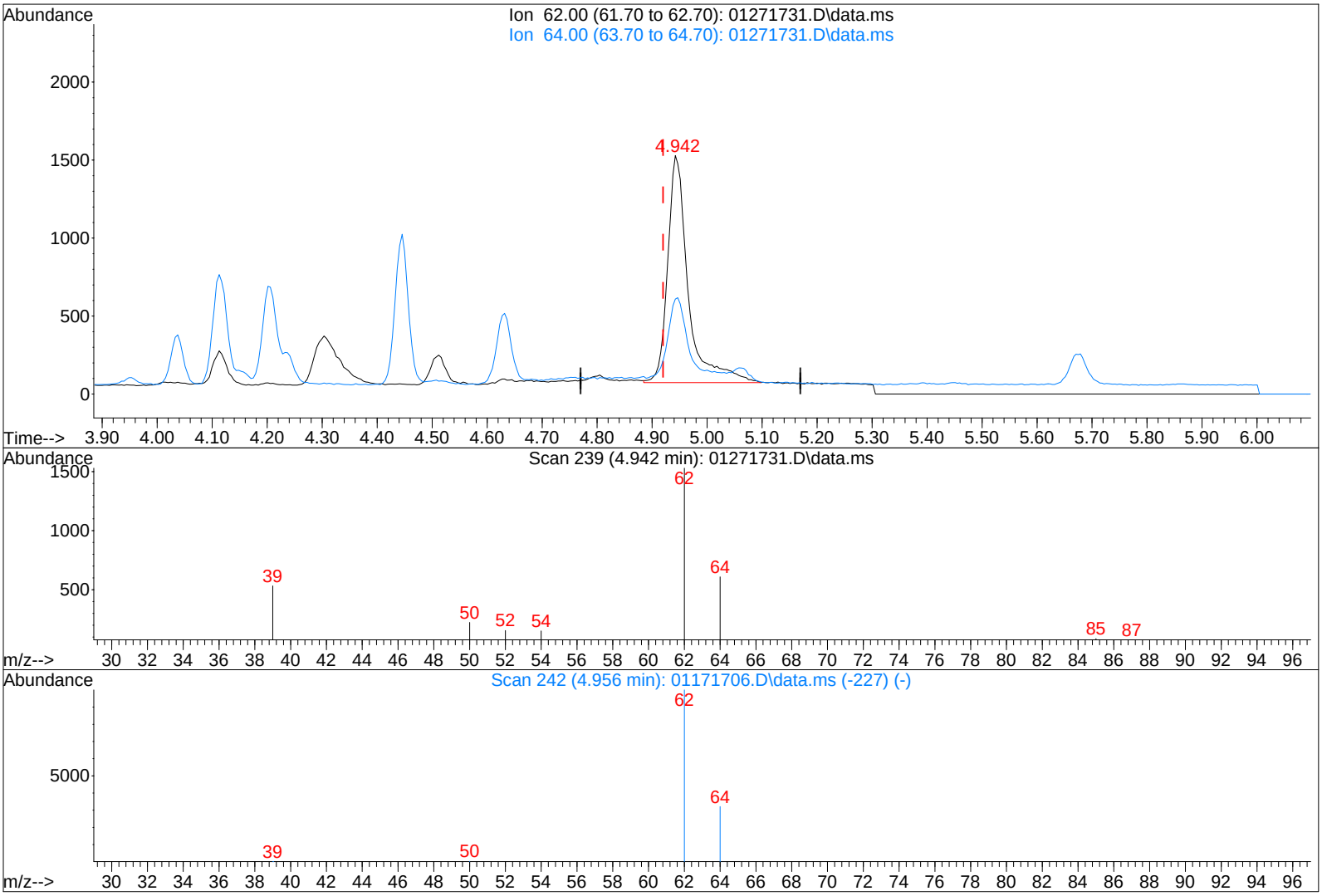
Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271731.D\data.ms

(5) Vinyl Chloride (T)

4.942min (+0.022) 30.27pg

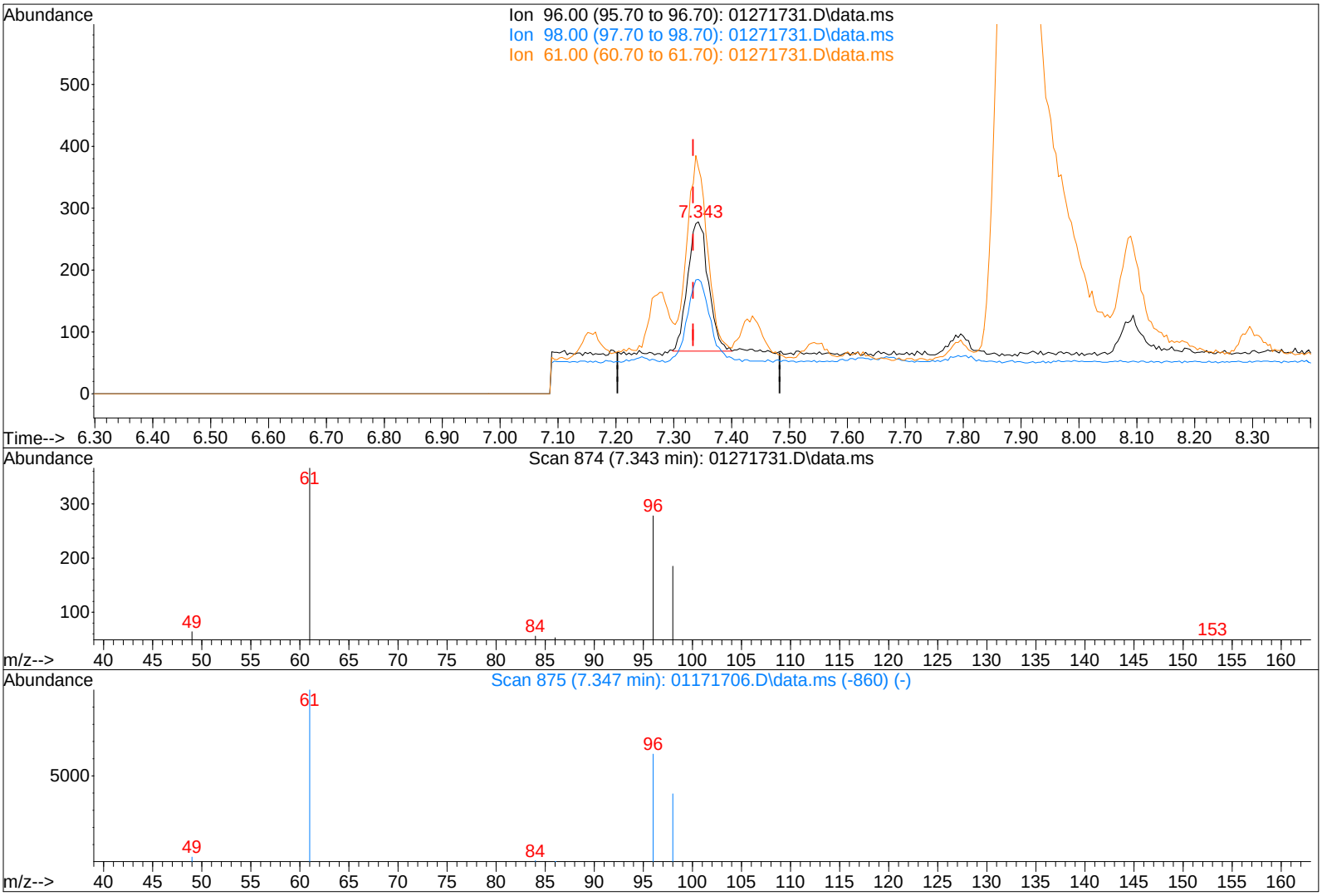
response 3788

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	37.94
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271731.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 9.25pg

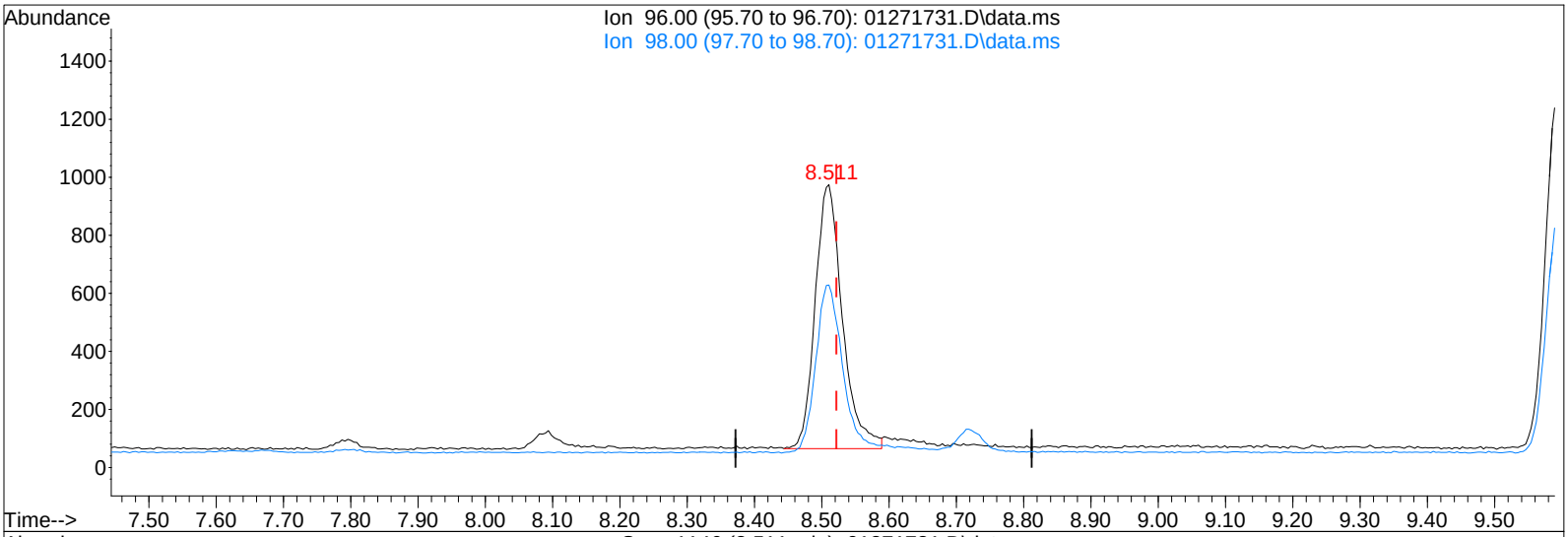
response 519

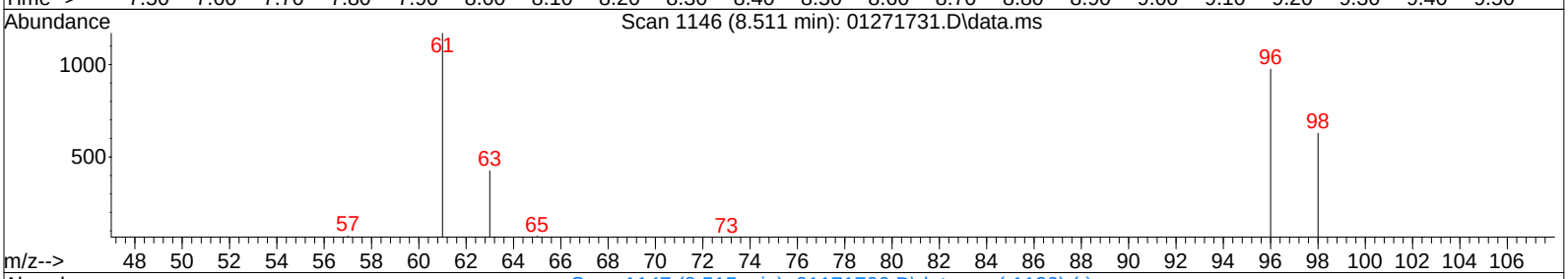
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	70.71
61.00	162.10	142.77
0.00	0.00	0.00

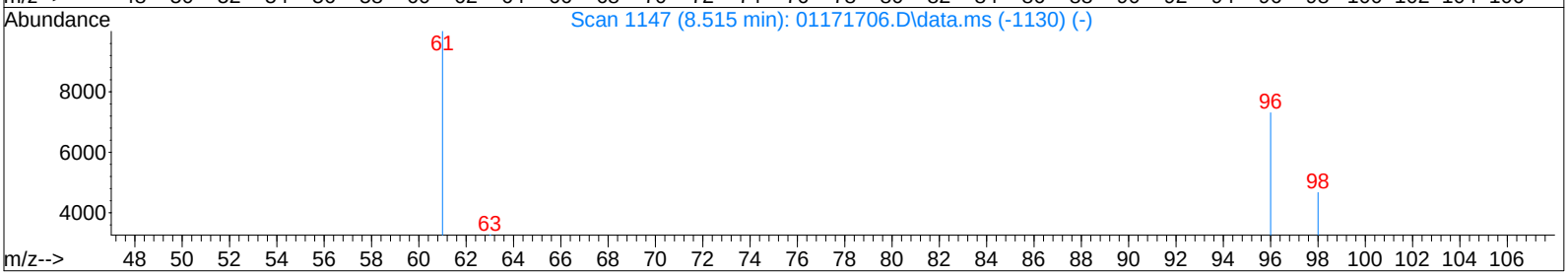
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271731.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 42.26pg

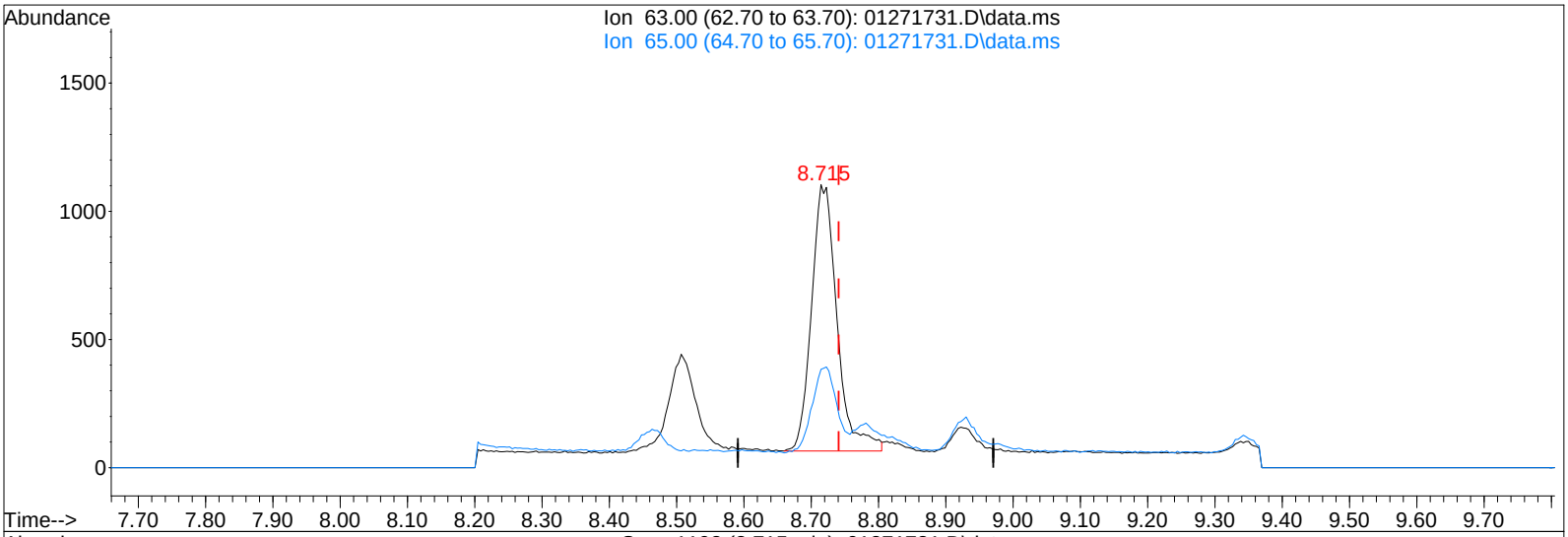
response 2555

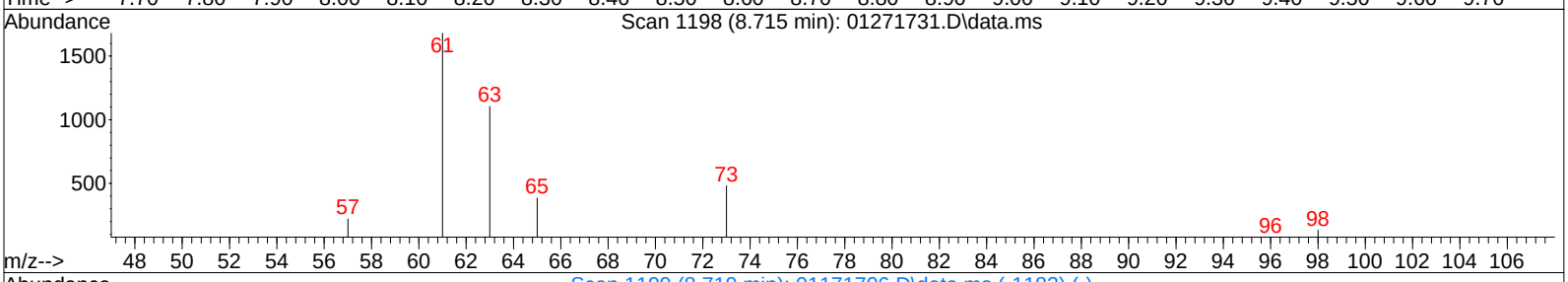
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	64.89
0.00	0.00	0.00
0.00	0.00	0.00

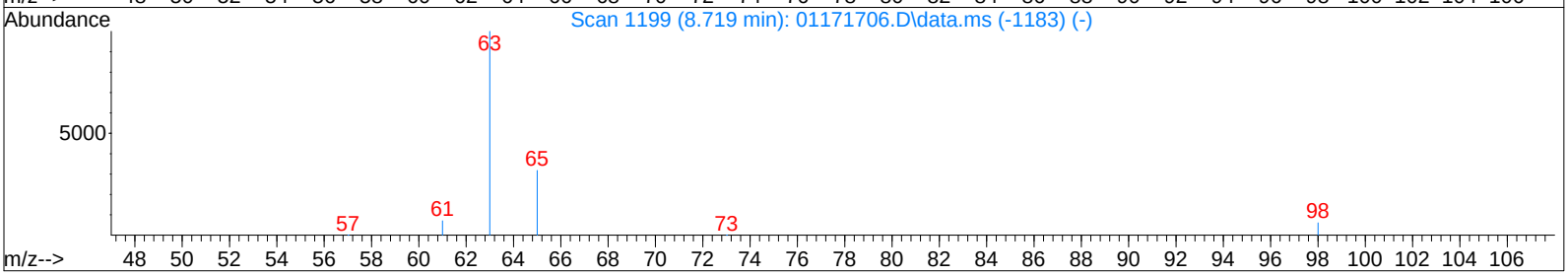
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:10 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271731.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 25.56pg

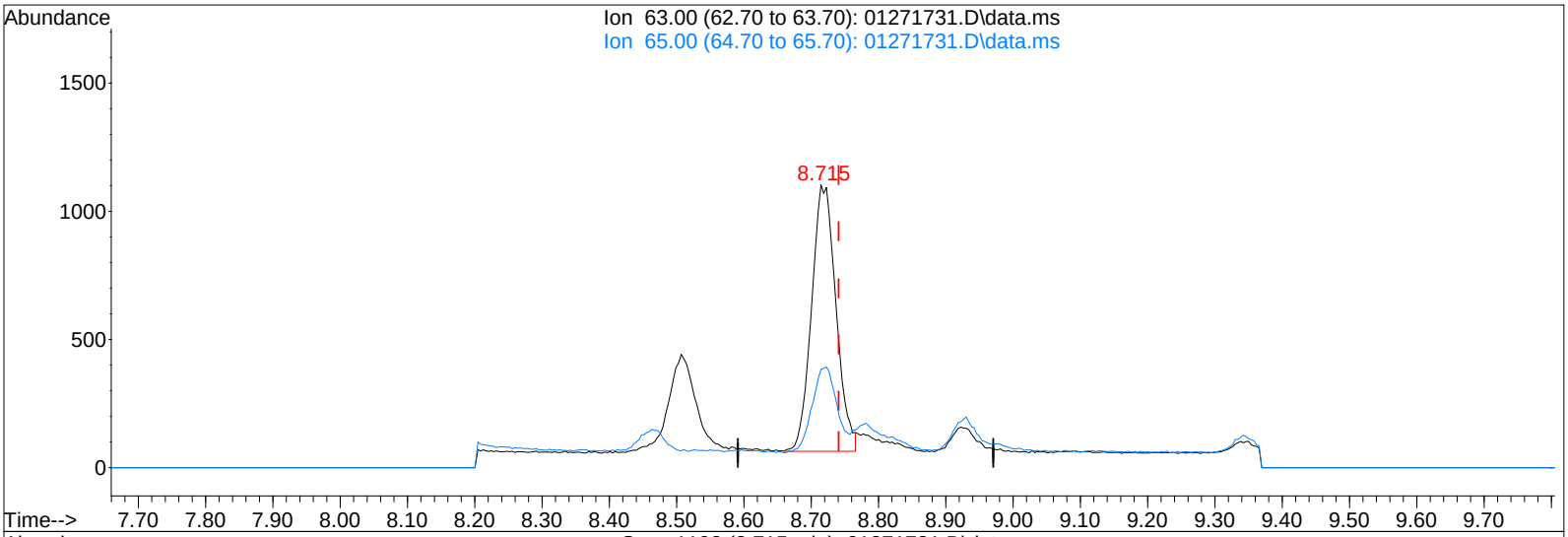
response 2742

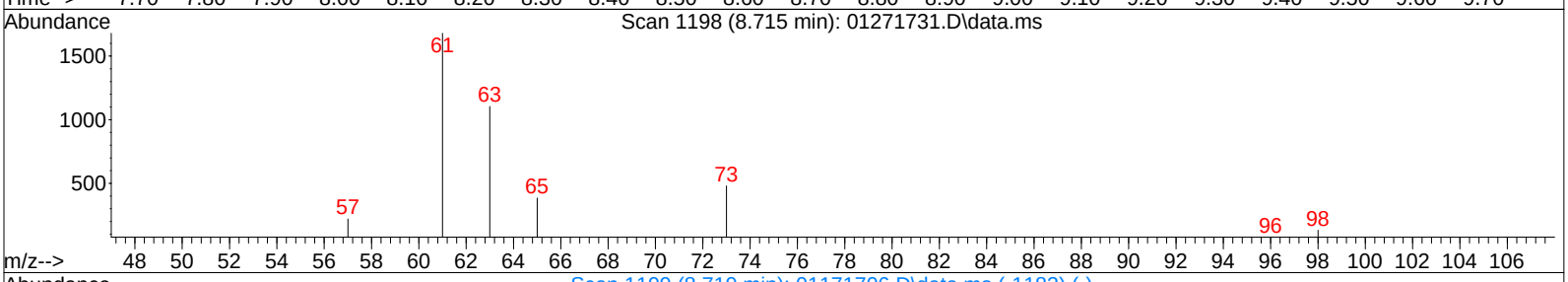
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.77
0.00	0.00	0.00
0.00	0.00	0.00

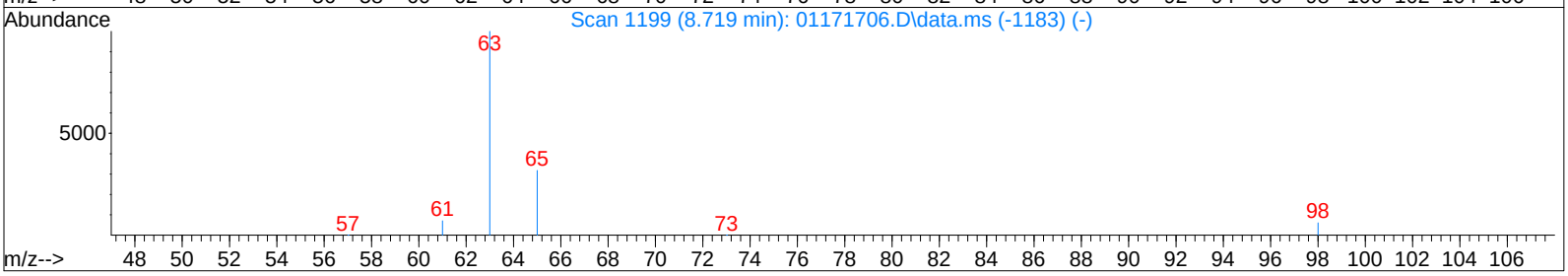
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:10 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271731.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 24.43pg m

response 2620

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.24
0.00	0.00	0.00
0.00	0.00	0.00

BLC

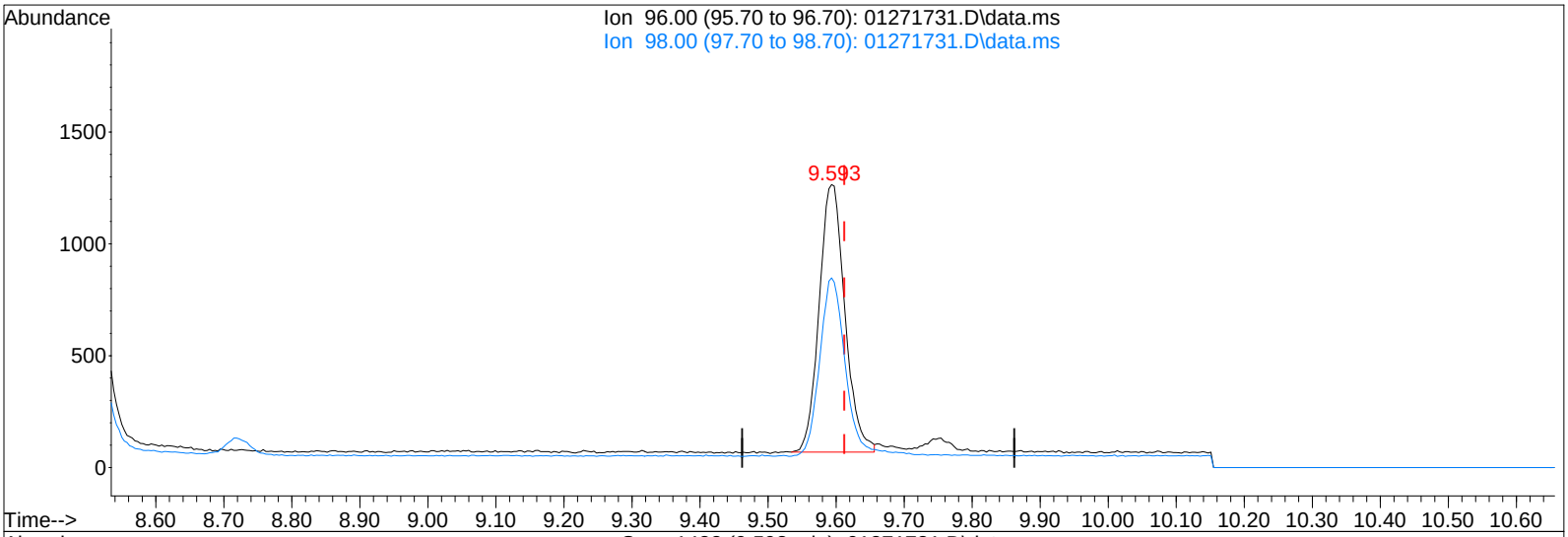
CL 2/1/17

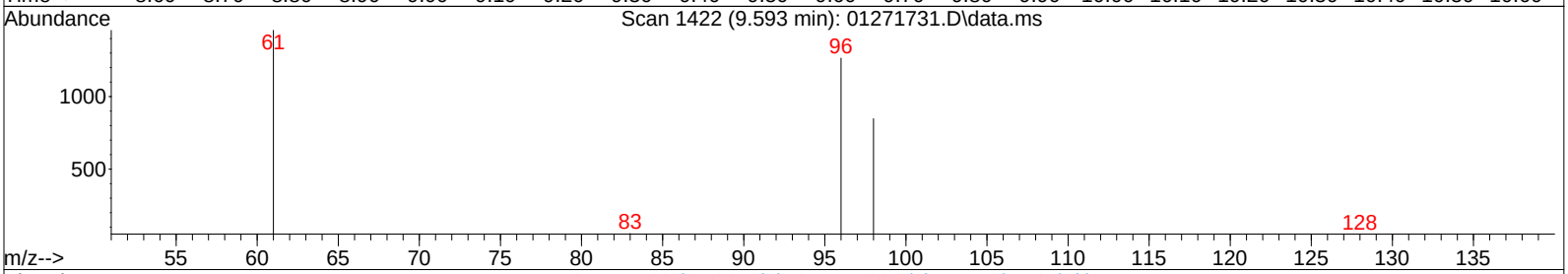
02/01/17

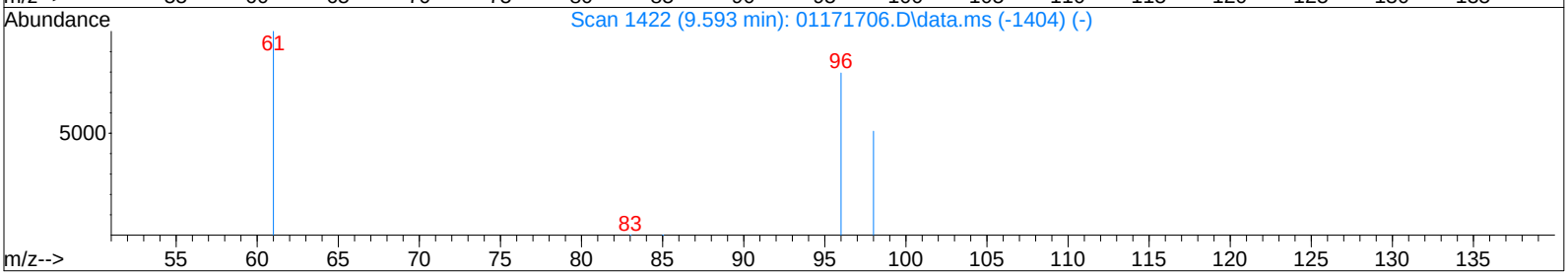
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271731.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.593min (-0.019) 49.38pg

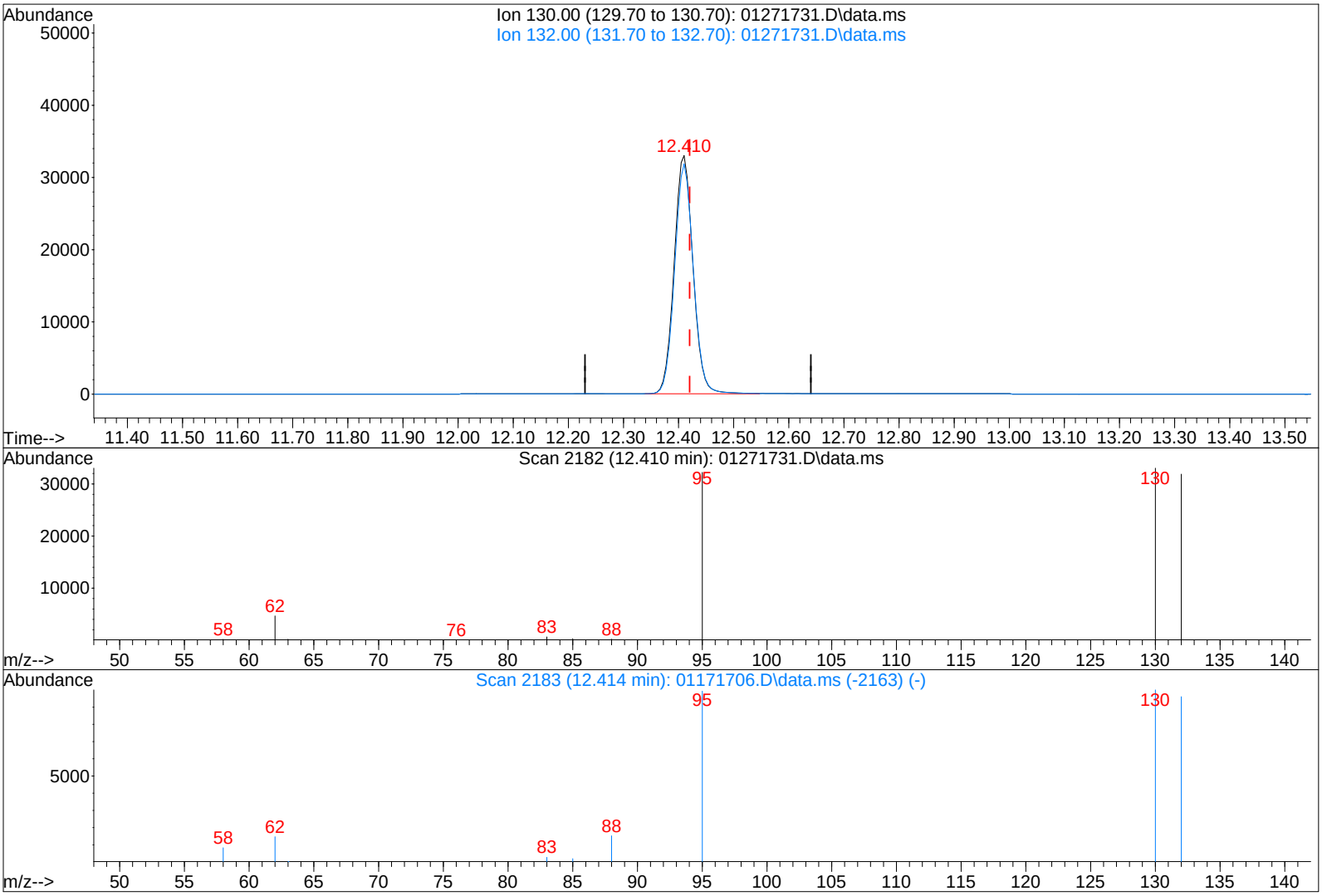
response 3133

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.80
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271731.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 1199.59pg

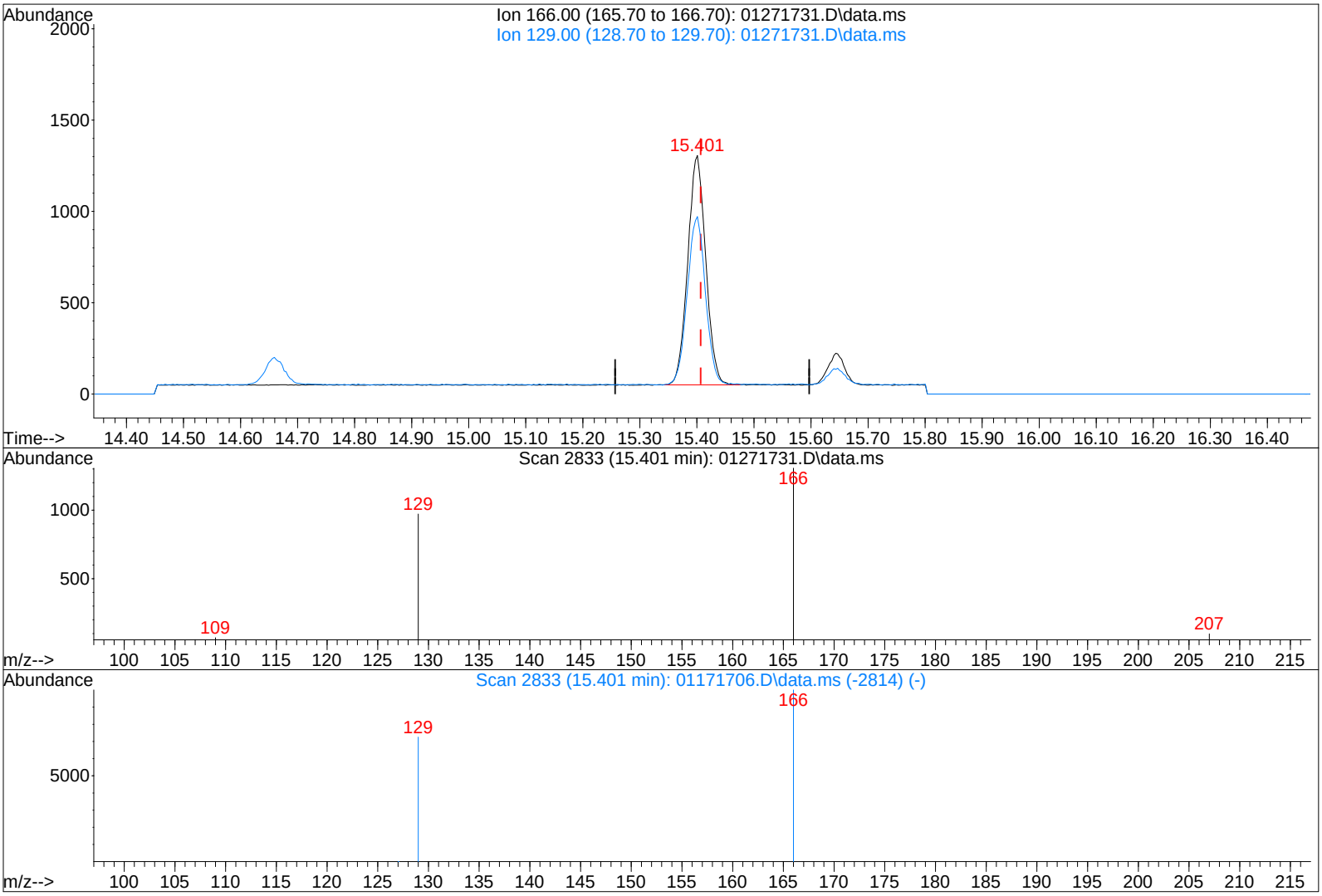
response 78287

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.01
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271731.D Vial: 6
Acq On : 27 Jan 2017 23:39 Operator: CL
Sample : P1700259-004 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:14:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271731.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 40.64pg

response 2750

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.91
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:19:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	50454	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	243957	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	37001	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	79838	913.694	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.37%				
33) Toluene-d8 (SS2)	14.14	98	246526	1017.307	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.73%				
45) Bromofluorobenzene (SS3)	17.55	174	75479	1115.069	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.51%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.38	85	1301031	10207.246	pg		99
3) Chloromethane	4.63	52	8419	221.704	pg		100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	9335	74.440	pg		99
5) Vinyl Chloride	4.94	62	4187	34.361	pg		92
6) 1,3-Butadiene	5.13	54	4506	62.197	pg	#	24
7) Bromomethane	5.46	94	1280	26.113	pg		99
8) Chloroethane	5.68	64	432	11.523	pg		92
9) Acrolein	6.26	56	13286	498.873	pg		98
10) Acetone	6.39	58	161788	4698.570	pg	#	85
11) Trichlorofluoromethane	6.59	101	242726	2784.227	pg		100
12) 1,1-Dichloroethene	7.33	96	1580	28.929	pg		93
13) Methylene Chloride	7.47	84	24428	412.150	pg		100
14) Trichlorotrifluoroethane	7.79	151	20461	375.501	pg		100
15) trans-1,2-Dichloroethene	8.51	96	2625	44.582	pg		98
16) 1,1-Dichloroethane	8.71	63	3061	29.302	pg		99
17) Methyl tert-Butyl Ether	8.80	73	877	5.626	pg		76
18) cis-1,2-Dichloroethene	9.59	96	8082	130.801	pg		100
19) Chloroform	9.88	83	91912	836.693	pg		100
21) 1,2-Dichloroethane	10.64	62	8034	95.007	pg		99
22) 1,1,1-Trichloroethane	10.91	97	5098	49.994	pg		100
23) Benzene	11.36	78	141644	585.236	pg		100
24) Carbon Tetrachloride	11.51	117	27937	341.190	pg		100
26) 1,2-Dichloropropane	12.18	63	1329	21.387	pg		100
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.40	130	189124	2981.795	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.25	75	276	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	13.94	83	183	N.D.			
34) Toluene	14.24	91	440756	1947.313	pg		99
35) Dibromochloromethane	14.66	129	695	11.089	pg		99
36) 1,2-Dibromoethane	14.92	107	187	N.D.			
37) Tetrachloroethene	15.40	166	3523	53.570	pg		97
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.48	91	58066	276.058	pg		99
41) m,p-Xylene	16.64	91	147683	936.085	pg		99
42) Styrene	17.01	104	31118	281.531	pg		99
43) o-Xylene	17.12	106	30333	374.259	pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	13983	83.727	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	50103	305.651	pg		88
48) 1,3-Dichlorobenzene	18.92	146	330	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	5841	55.685	pg		100
50) 1,2-Dichlorobenzene	19.31	146	1065	10.373	pg		100
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.94	182	307	5.052	pg		96
53) Naphthalene	21.06	128	47338	245.303	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:19:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

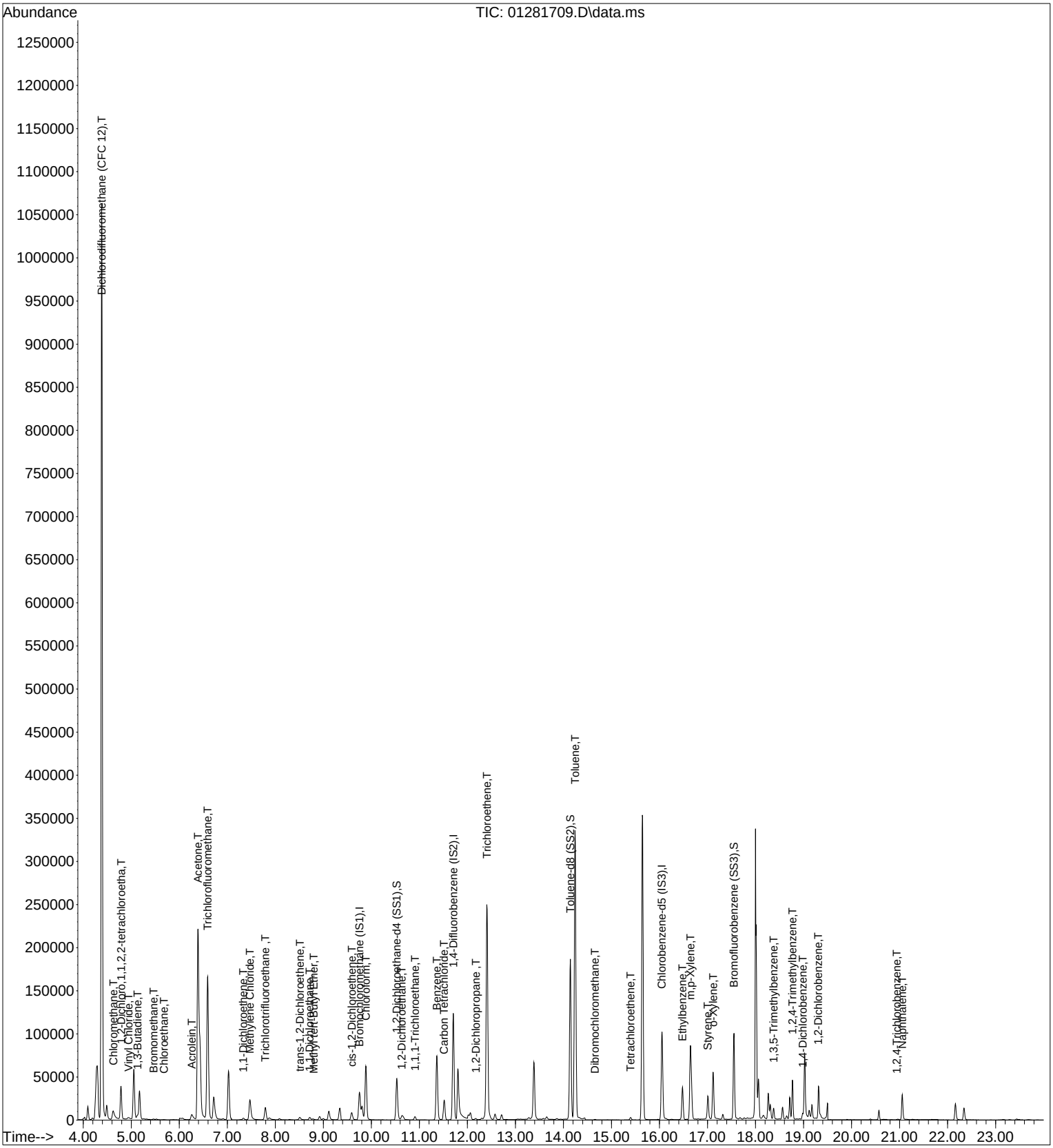
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

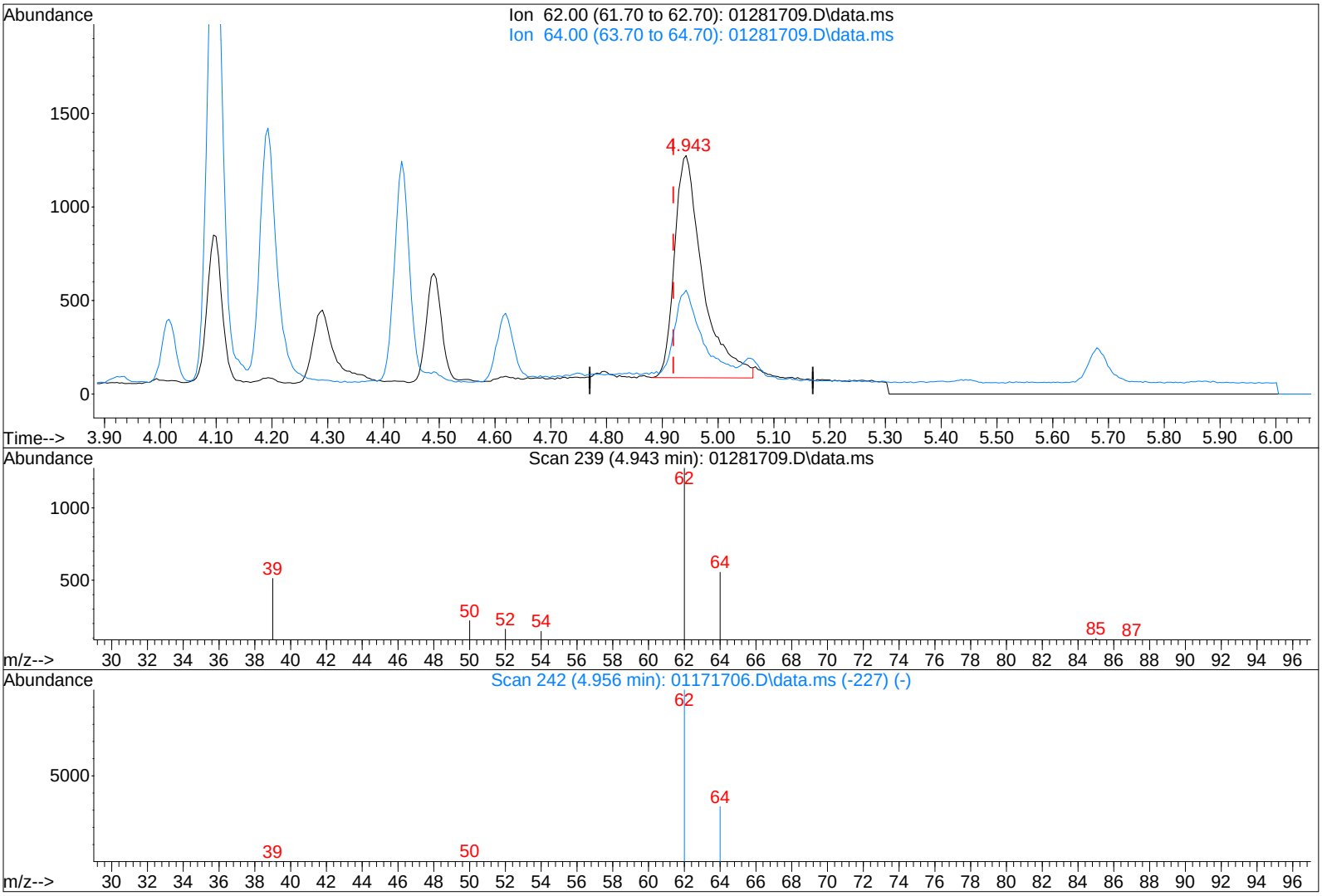
Quant Time: Feb 01 14:19:30 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281709.D\data.ms

(5) Vinyl Chloride (T)

4.943min (+0.023) 34.36pg

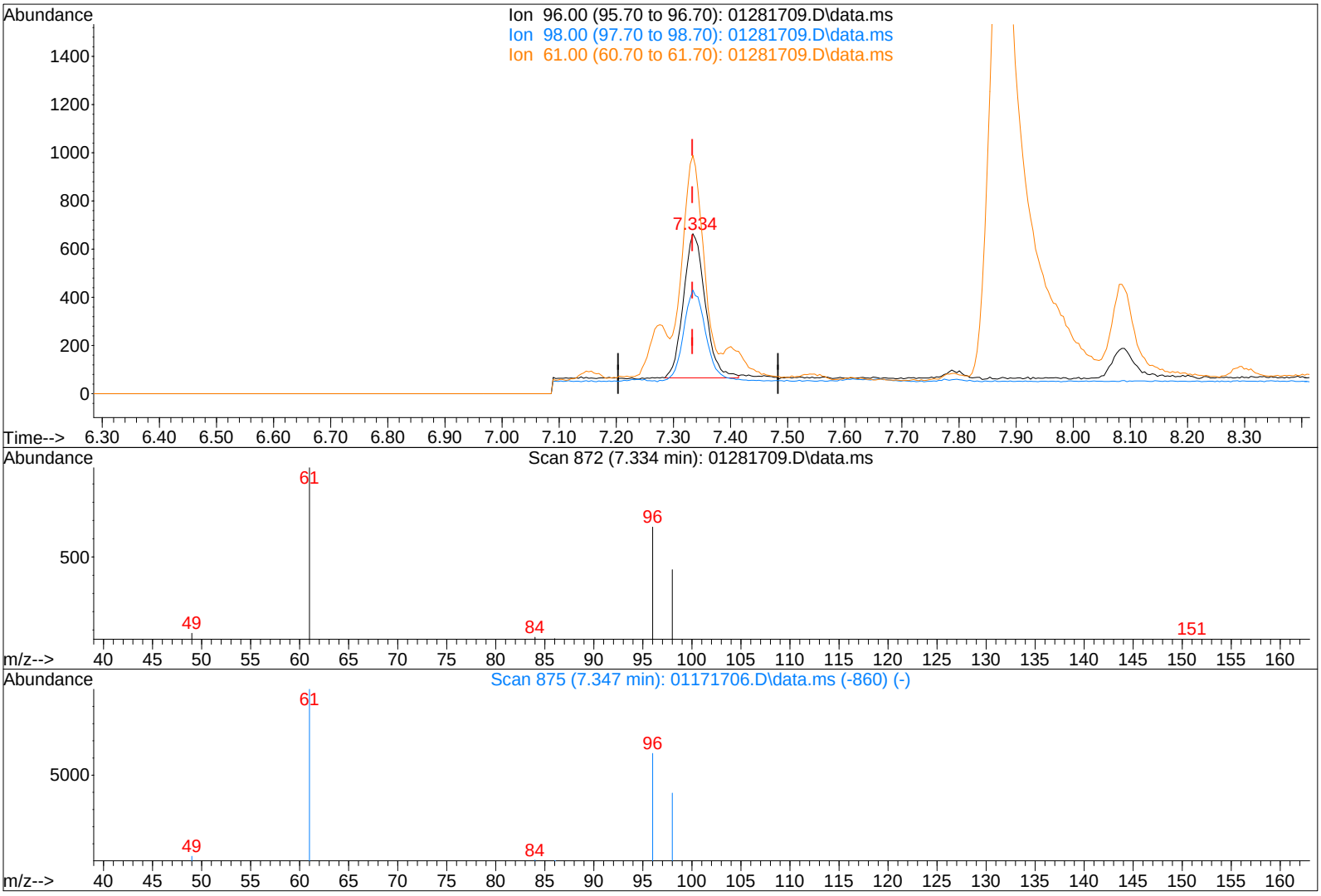
response 4187

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	36.37
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281709.D\data.ms

(12) 1,1-Dichloroethene (T)

7.334min (+0.001) 28.93pg

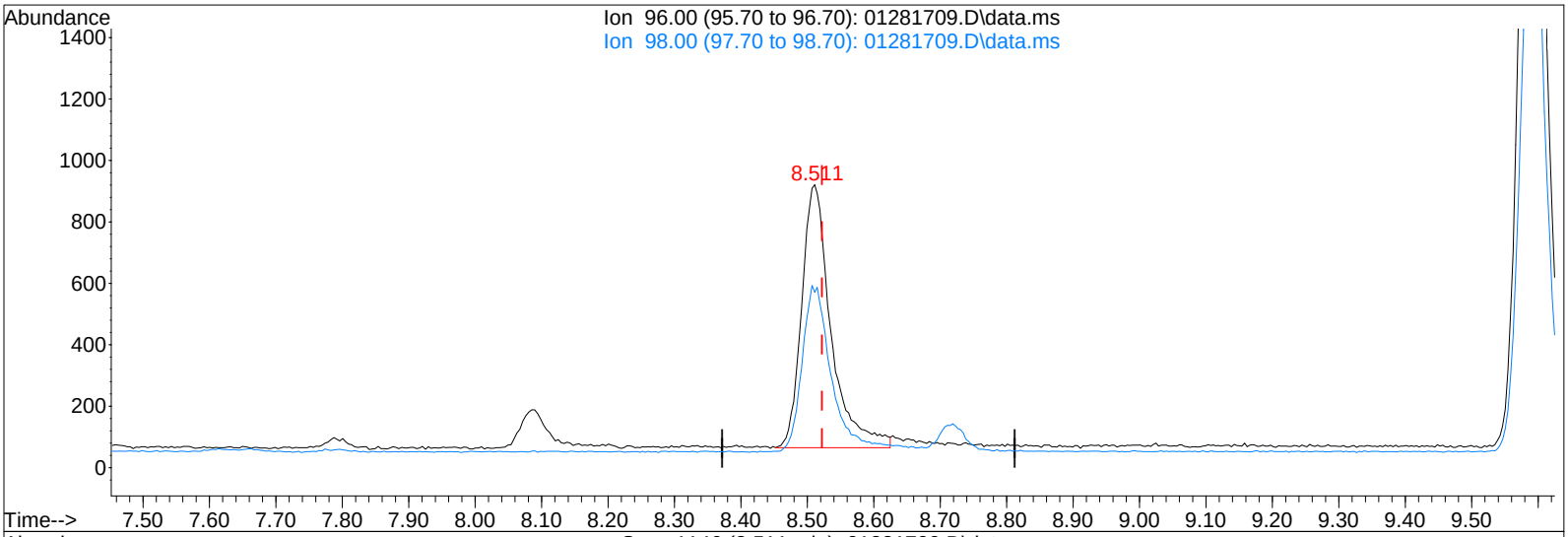
response 1580

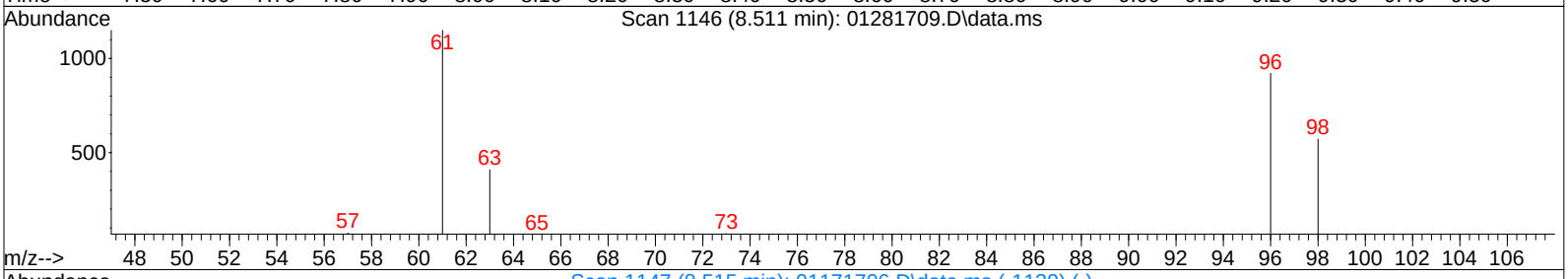
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	63.42
61.00	162.10	149.05
0.00	0.00	0.00

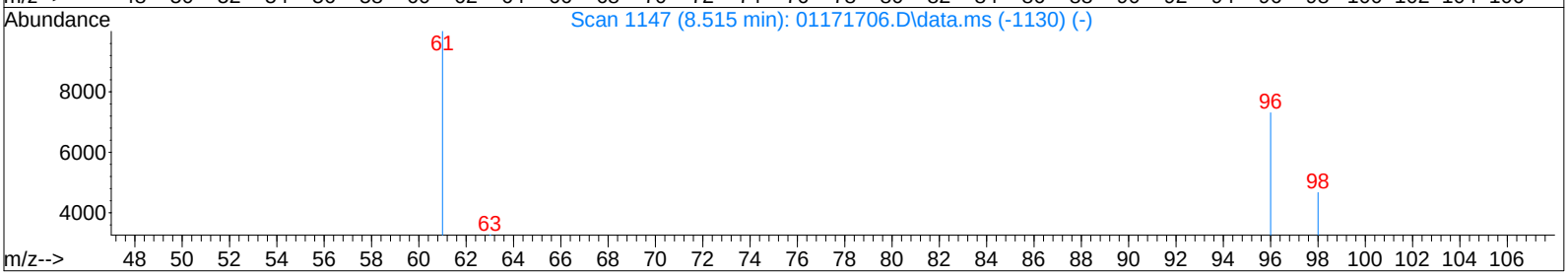
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281709.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 44.58pg

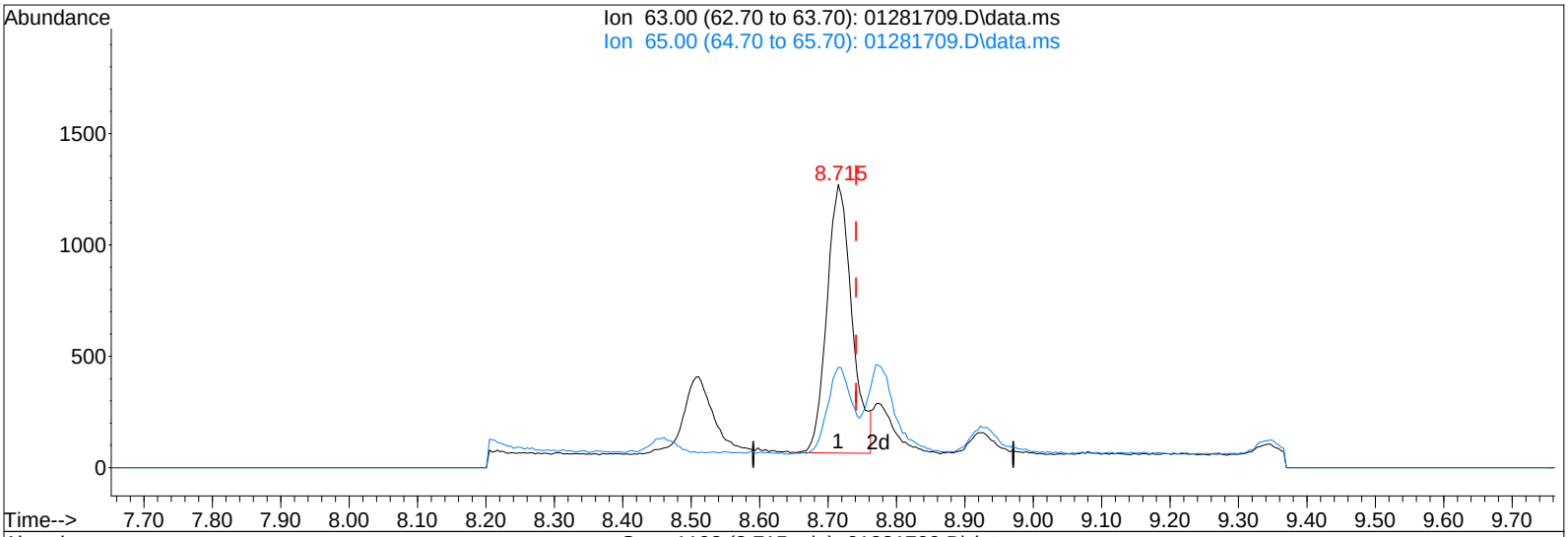
response 2625

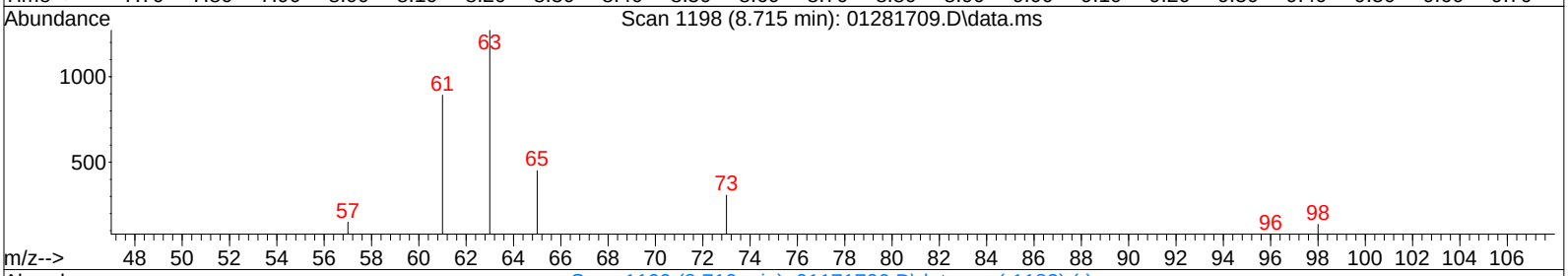
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.73
0.00	0.00	0.00
0.00	0.00	0.00

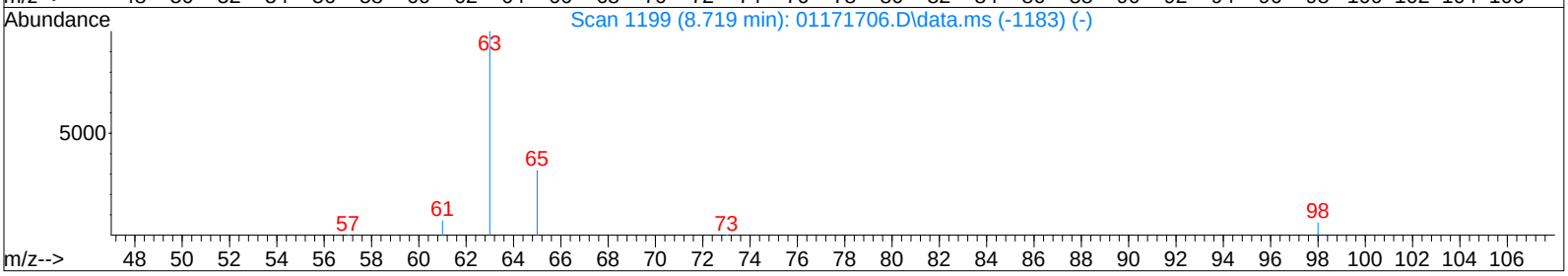
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281709.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 29.30pg

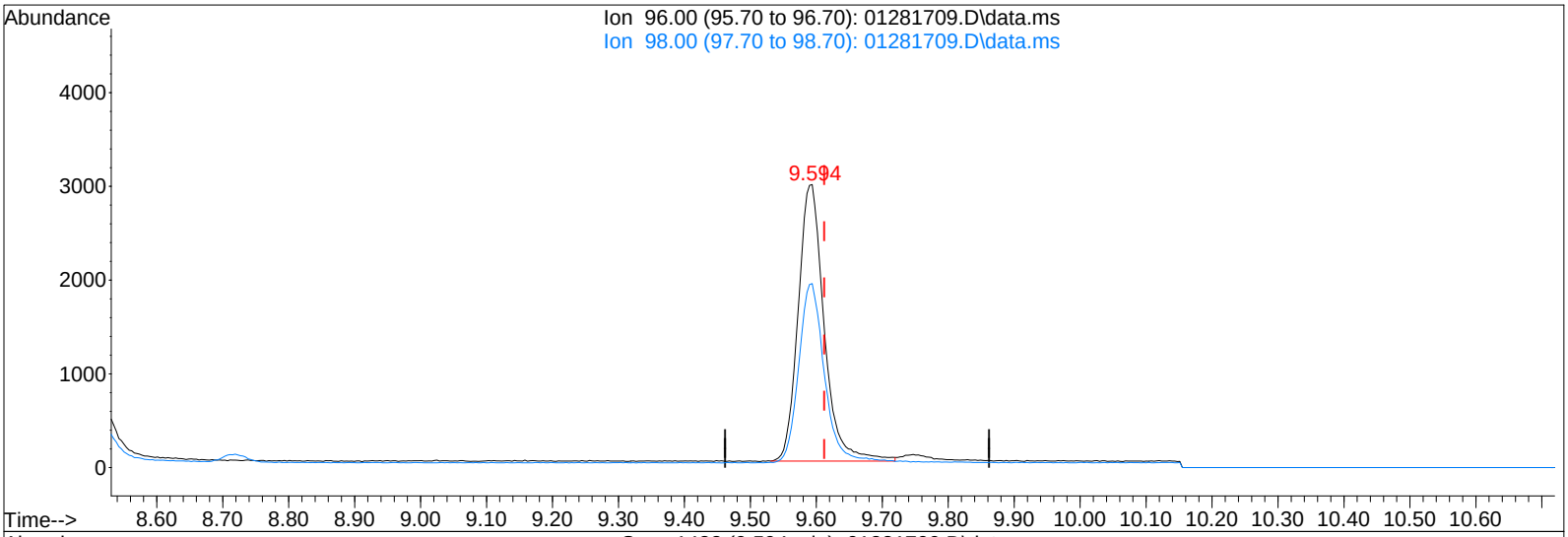
response 3061

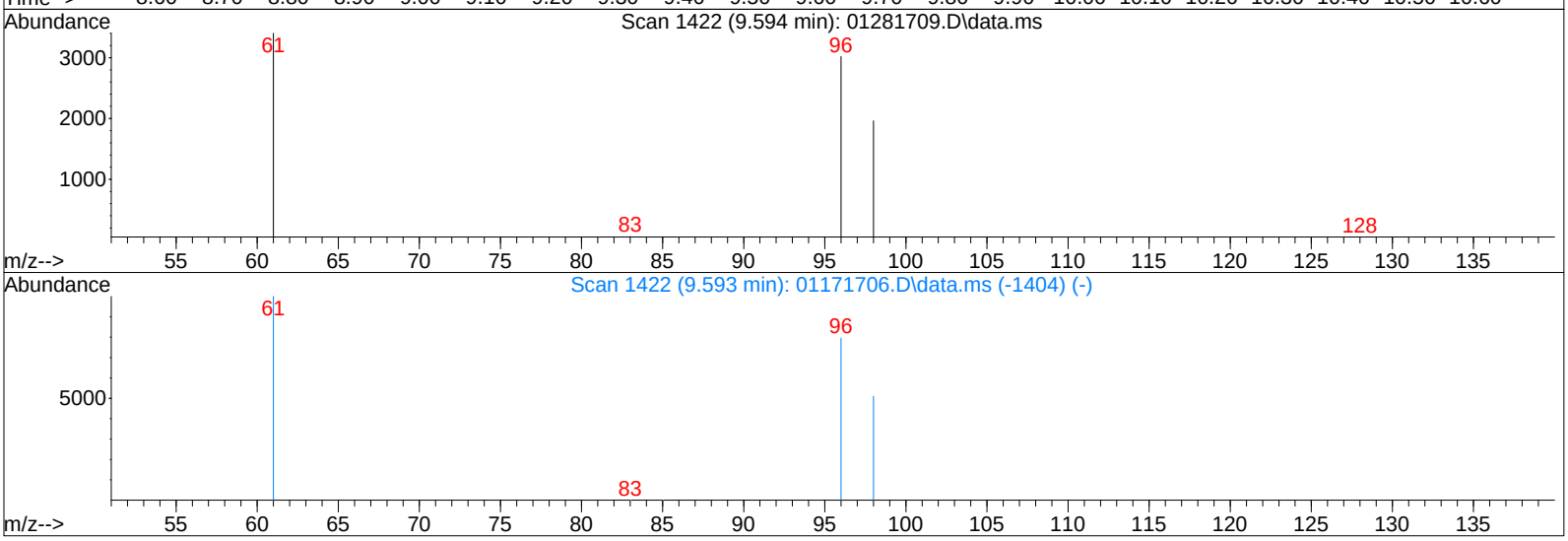
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.20
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01281709.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 130.80pg

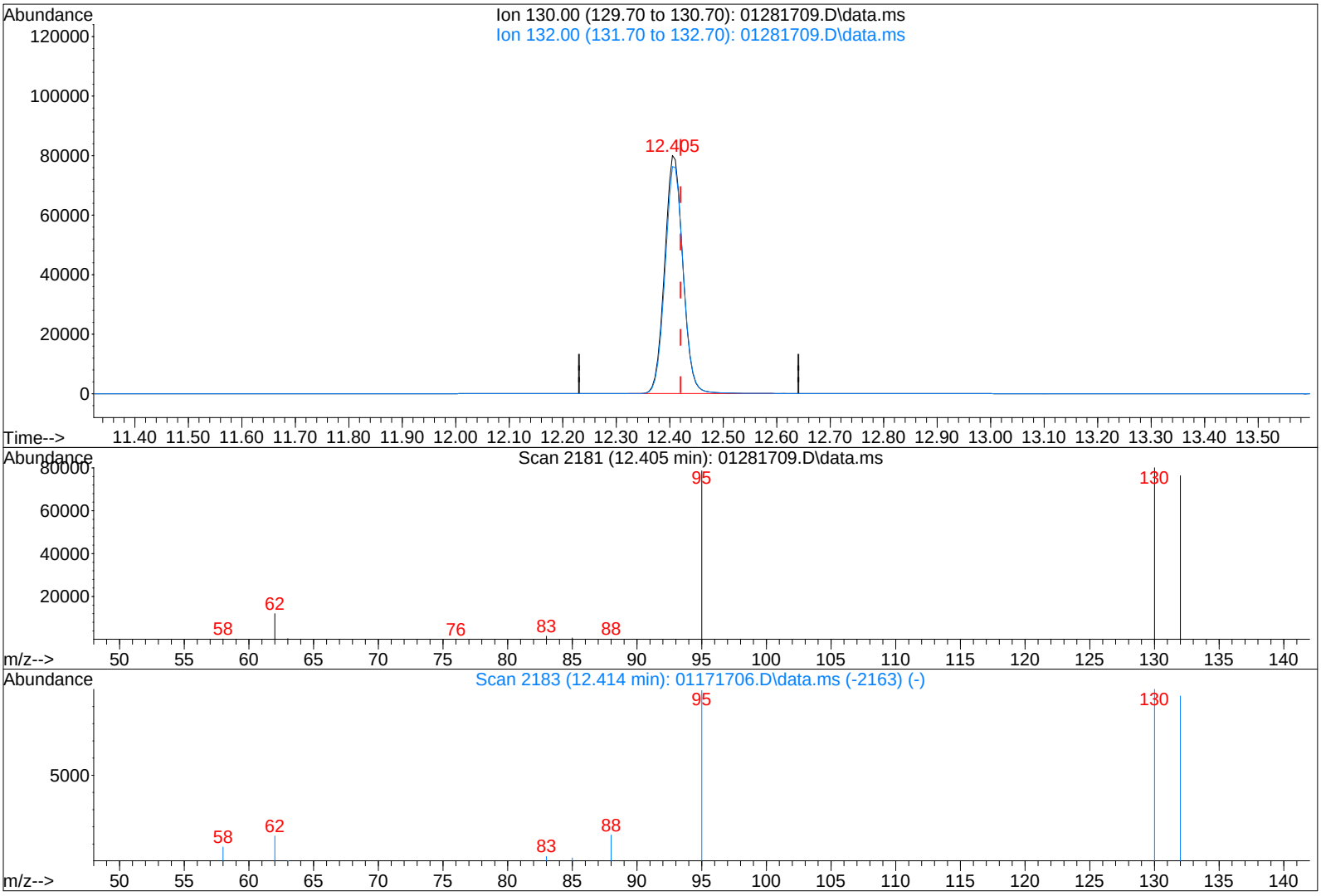
response 8082

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.60
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281709.D\data.ms

(28) Trichloroethene (T)

12.405min (-0.015) 2981.80pg

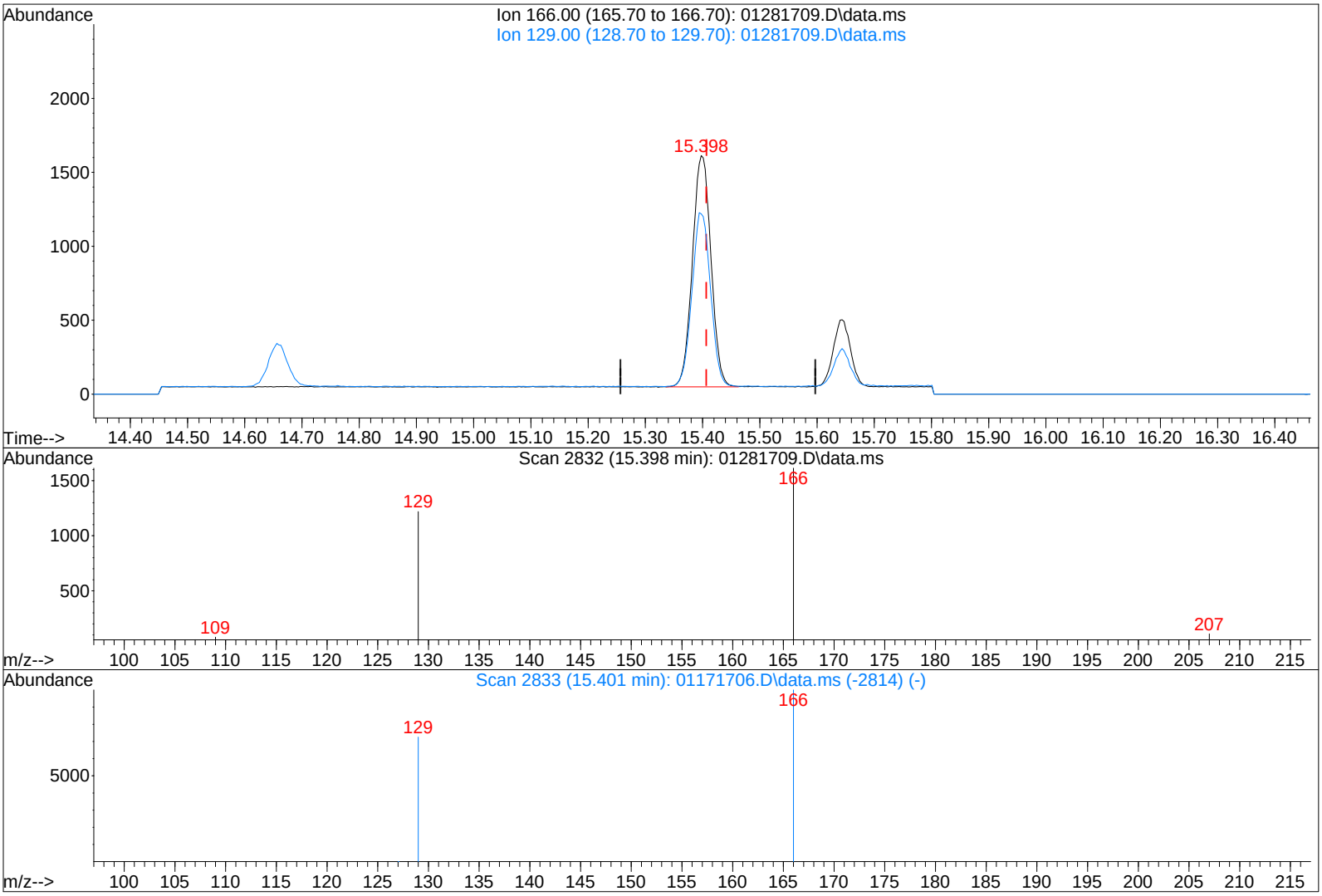
response 189124

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.85
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281709.D Vial: 9
Acq On : 28 Jan 2017 7:34 Operator: CL
Sample : P1700259-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:04:21 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281709.D\data.ms

(37) Tetrachloroethene (T)

15.398min (-0.009) 53.57pg

response 3523

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	75.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:28:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50944	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	246244	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	38955	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	81081	918.994	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.90%			
33) Toluene-d8 (SS2)	14.14	98	252445	1032.057	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.21%			
45) Bromofluorobenzene (SS3)	17.55	174	94263	1322.718	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 132.27%#			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	264106	2052.115	pg	100
3) Chloromethane	4.64	52	11671	304.386	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	11517	90.957	pg	100
5) Vinyl Chloride	4.96	62	174	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.47	94	1199	24.225	pg	99
8) Chloroethane	5.69	64	381	10.065	pg	99
9) Acrolein	6.27	56	9135	339.709	pg	98
10) Acetone	6.40	58	160100	4604.827	pg	100
11) Trichlorofluoromethane	6.60	101	128436	1459.075	pg	100
12) 1,1-Dichloroethene	7.34	96	76	N.D.		
13) Methylene Chloride	7.48	84	19437	324.788	pg	100
14) Trichlorotrifluoroethane	7.80	151	22871	415.692	pg	99
15) trans-1,2-Dichloroethene	8.51	96	3756	63.177	pg	97
16) 1,1-Dichloroethane	8.72	63	540	5.120	pg	96
17) Methyl tert-Butyl Ether	8.80	73	1169	7.427	pg	83
18) cis-1,2-Dichloroethene	9.59	96	930	14.907	pg	97
19) Chloroform	9.89	83	23775	214.347	pg	100
21) 1,2-Dichloroethane	10.64	62	4253	49.811	pg	100
22) 1,1,1-Trichloroethane	10.91	97	1363	13.238	pg	99
23) Benzene	11.37	78	161545	661.042	pg	100
24) Carbon Tetrachloride	11.52	117	33718	407.832	pg	100
26) 1,2-Dichloropropane	12.18	63	1242	19.802	pg	95
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.41	130	3094	48.328	pg	97
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	13.26	75	81	N.D.		
31) trans-1,3-Dichloropropene	13.73	75	118	N.D.		
32) 1,1,2-Trichloroethane	13.95	83	242	N.D.		
34) Toluene	14.25	91	249013	1089.951	pg	100
35) Dibromochloromethane	14.66	129	398	6.291	pg	99
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	4722	71.135	pg	98
39) Chlorobenzene	16.11	112	844	5.620	pg	90
40) Ethylbenzene	16.48	91	52316	236.245	pg	99
41) m,p-Xylene	16.65	91	123424	743.078	pg	99
42) Styrene	17.01	104	12018	103.275	pg	98
43) o-Xylene	17.12	106	28038	328.590	pg	95
44) 1,1,2,2-Tetrachloroethane	17.05	83	295	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	13967	79.437	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	51321	297.377	pg	89
48) 1,3-Dichlorobenzene	18.92	146	97	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	7137	64.627	pg	100
50) 1,2-Dichlorobenzene	19.31	146	495	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	78	N.D.		
53) Naphthalene	21.06	128	33076	162.801	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:28:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

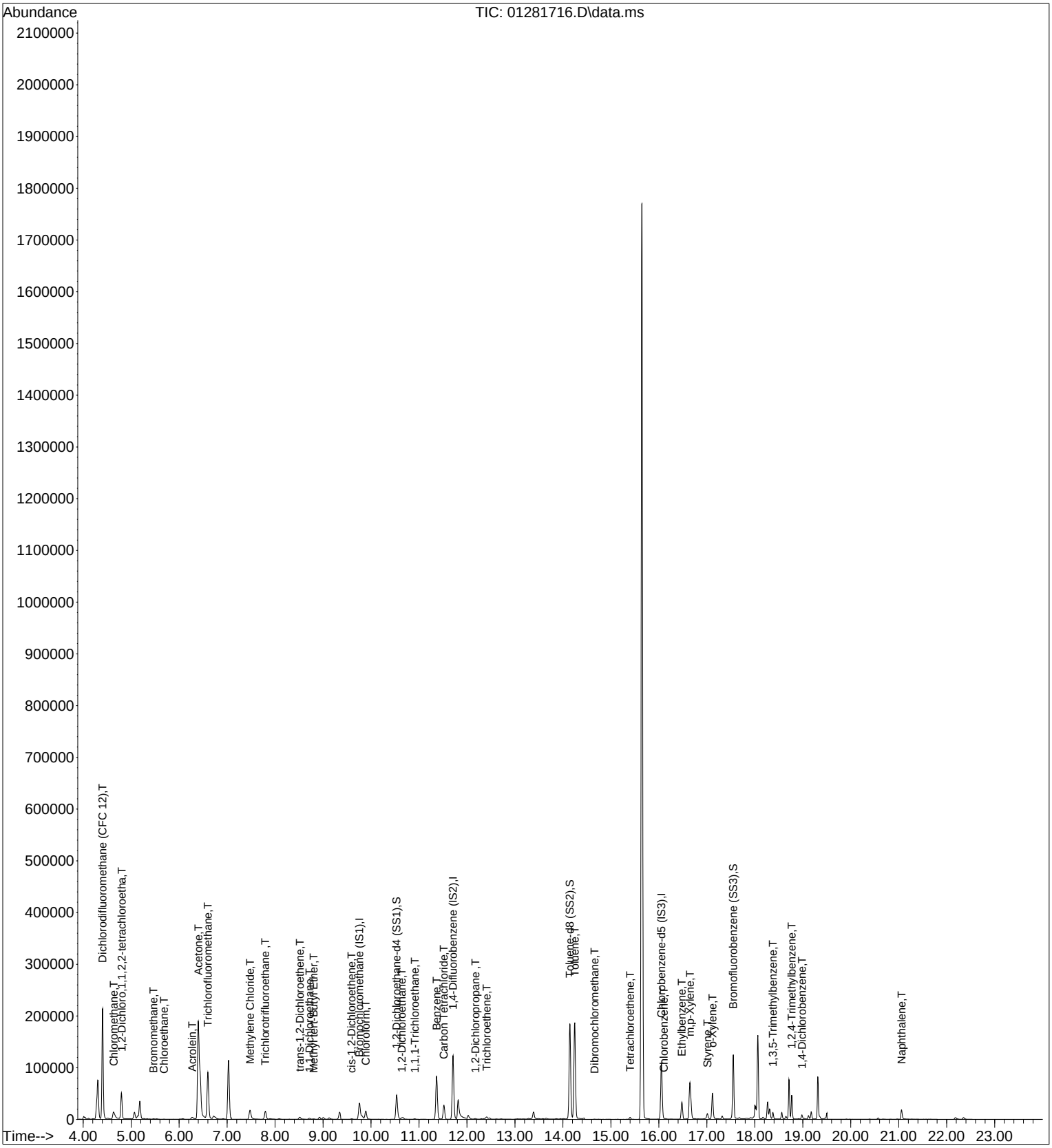
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	51	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

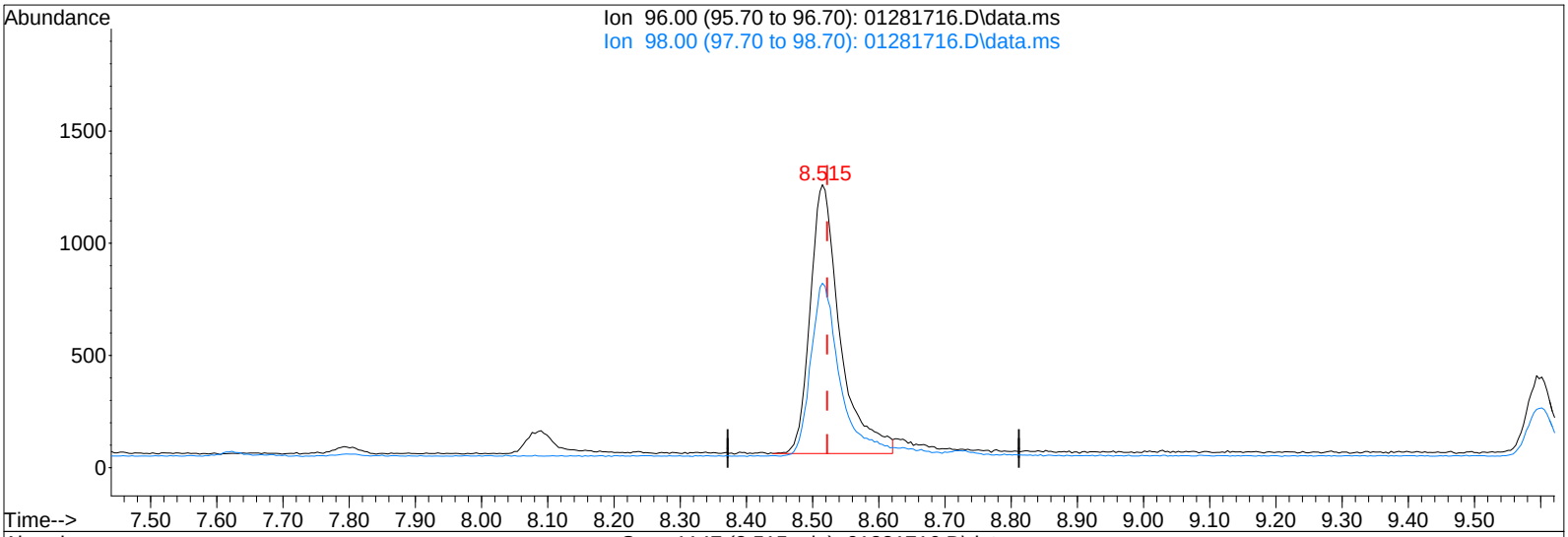
Quant Time: Feb 01 14:28:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

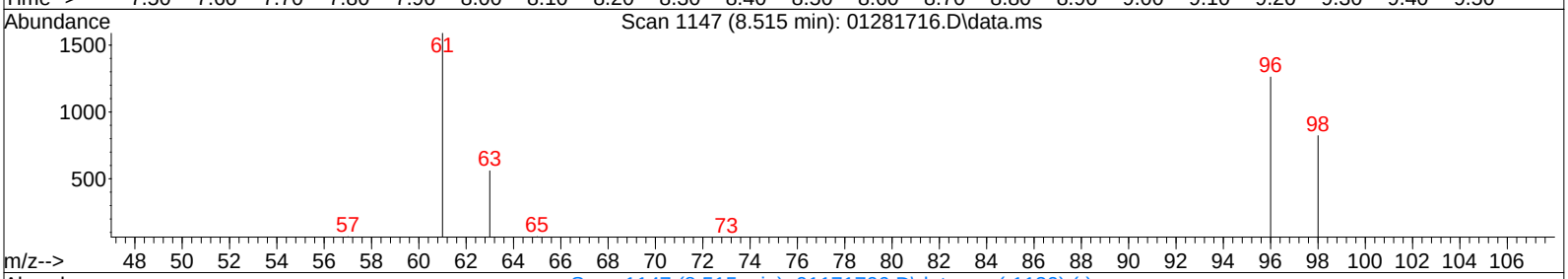


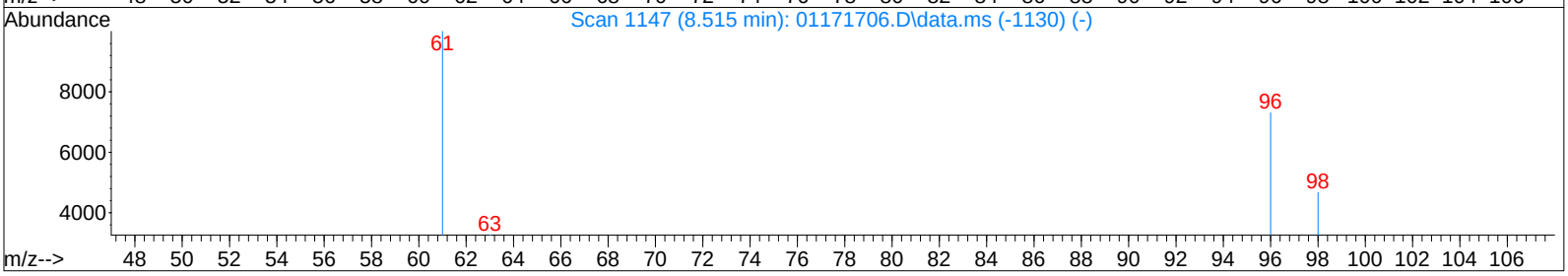
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281716.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.515min (-0.007) 63.18pg

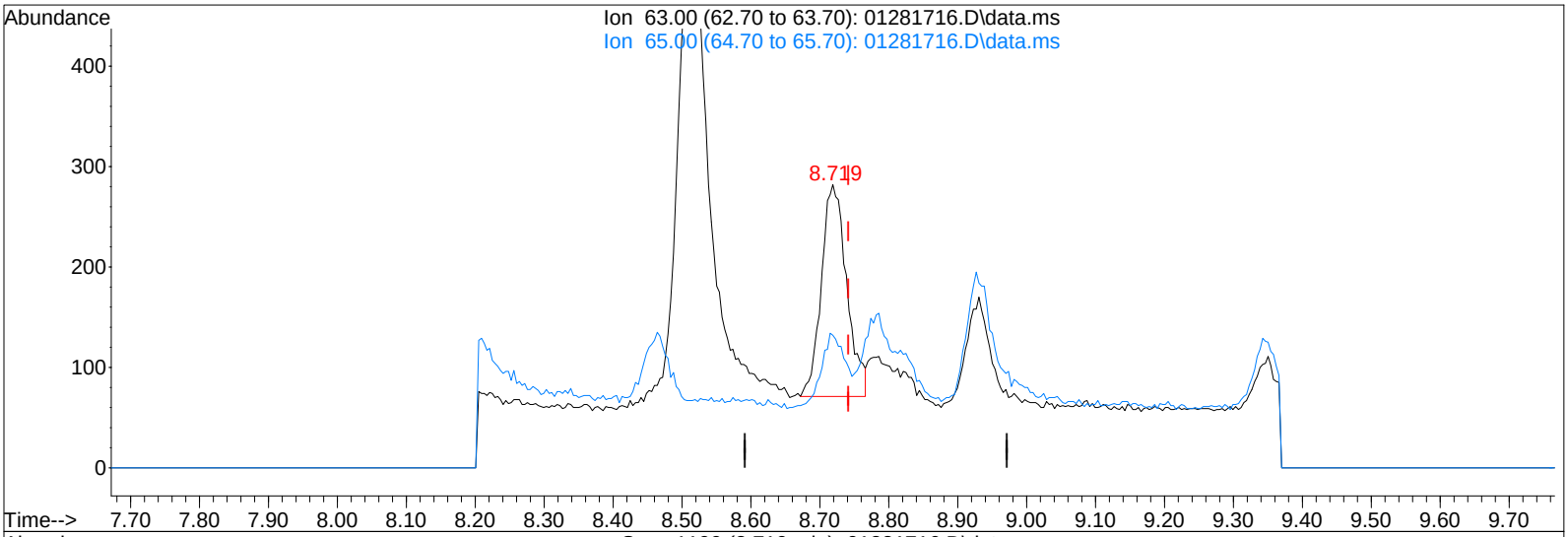
response 3756

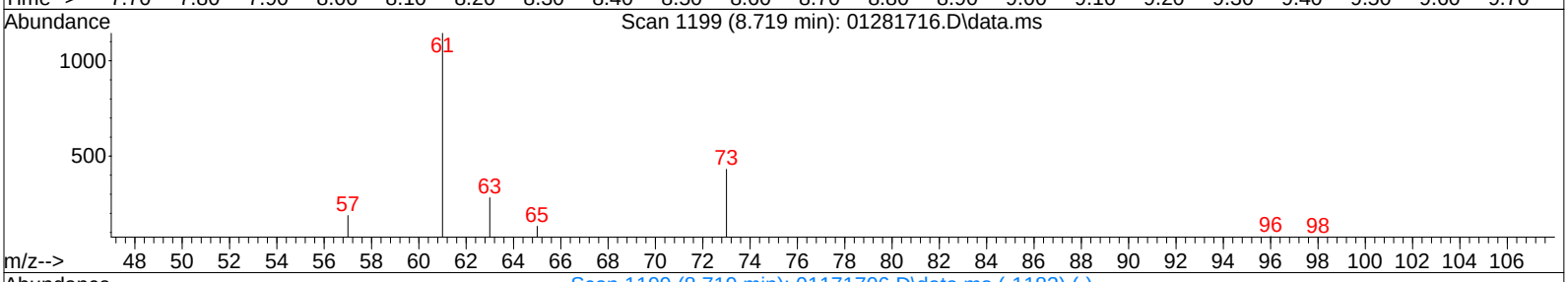
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	64.06
0.00	0.00	0.00
0.00	0.00	0.00

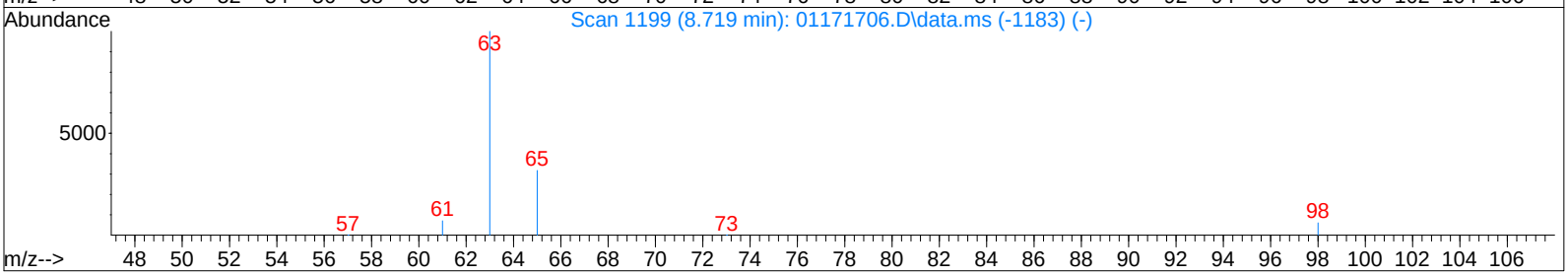
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281716.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 5.12pg

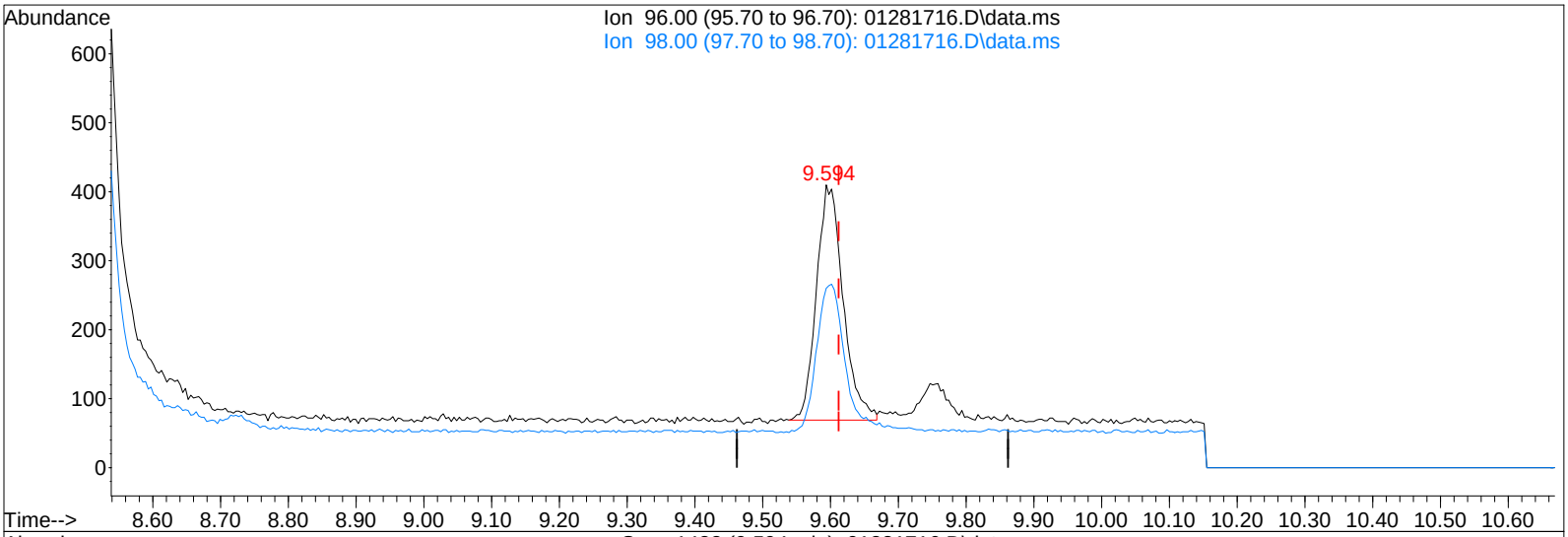
response 540

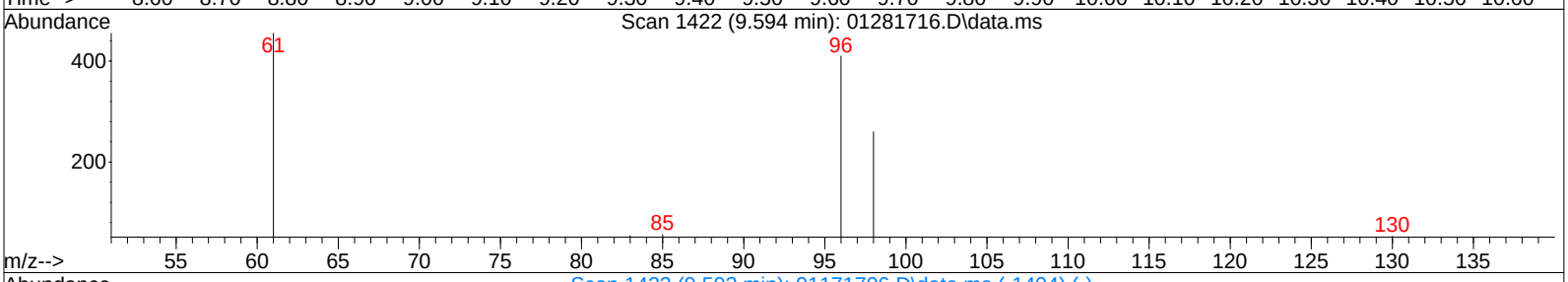
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.89
0.00	0.00	0.00
0.00	0.00	0.00

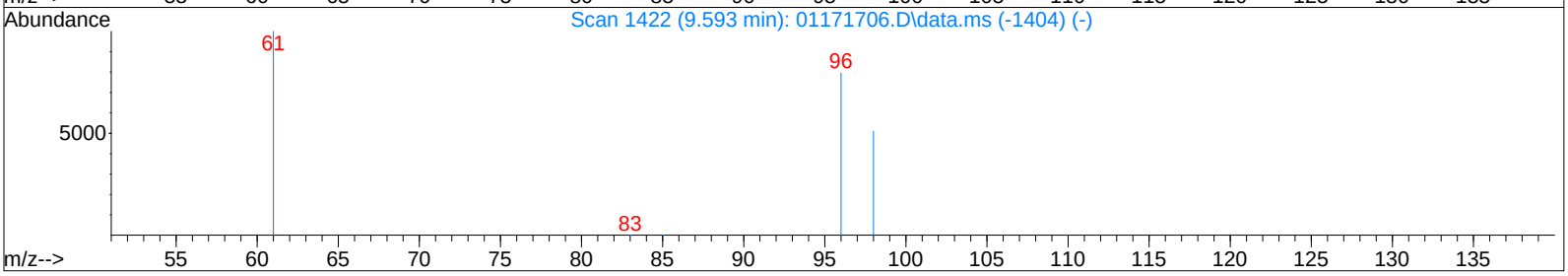
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281716.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 14.91pg

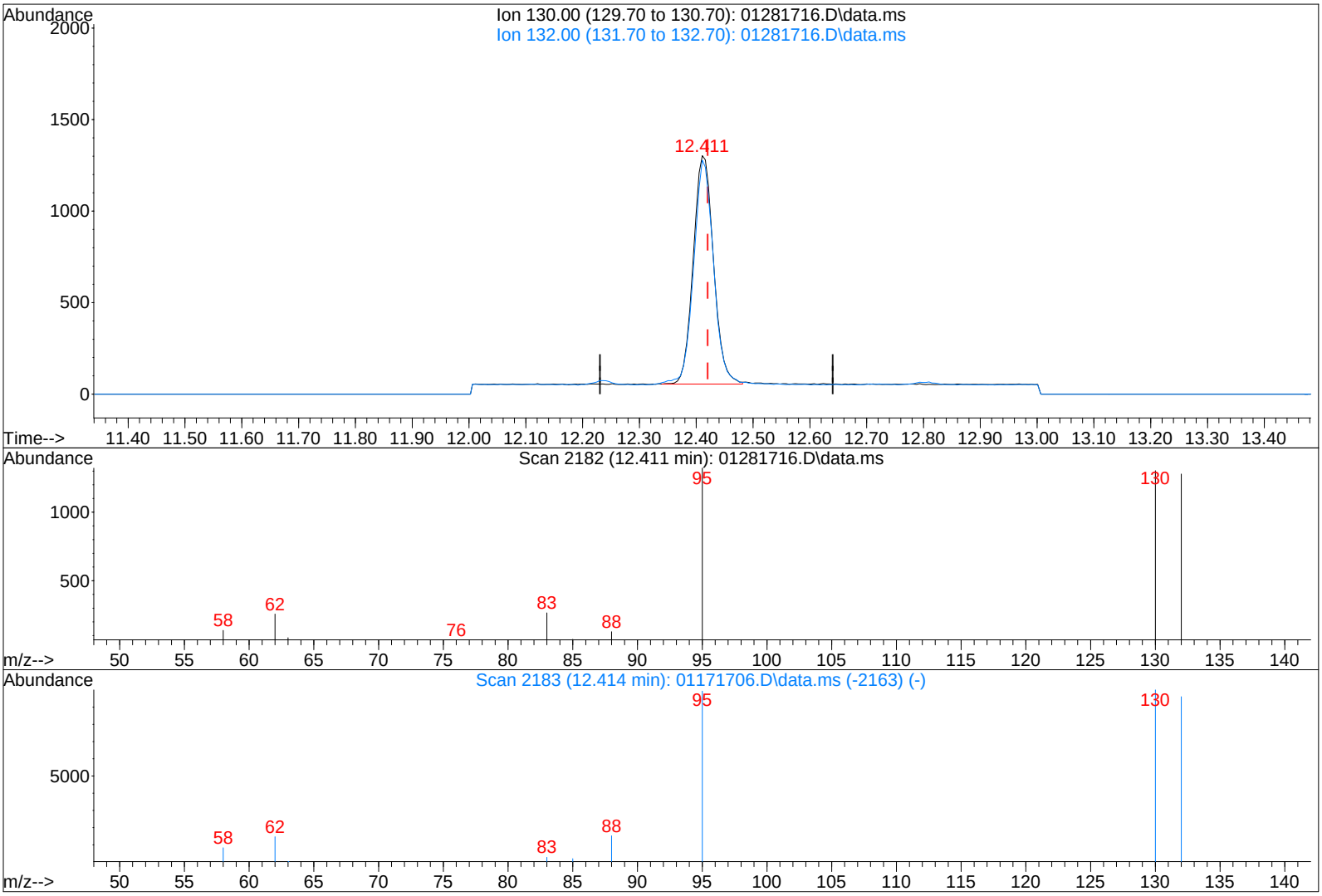
response 930

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.45
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281716.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 48.33pg

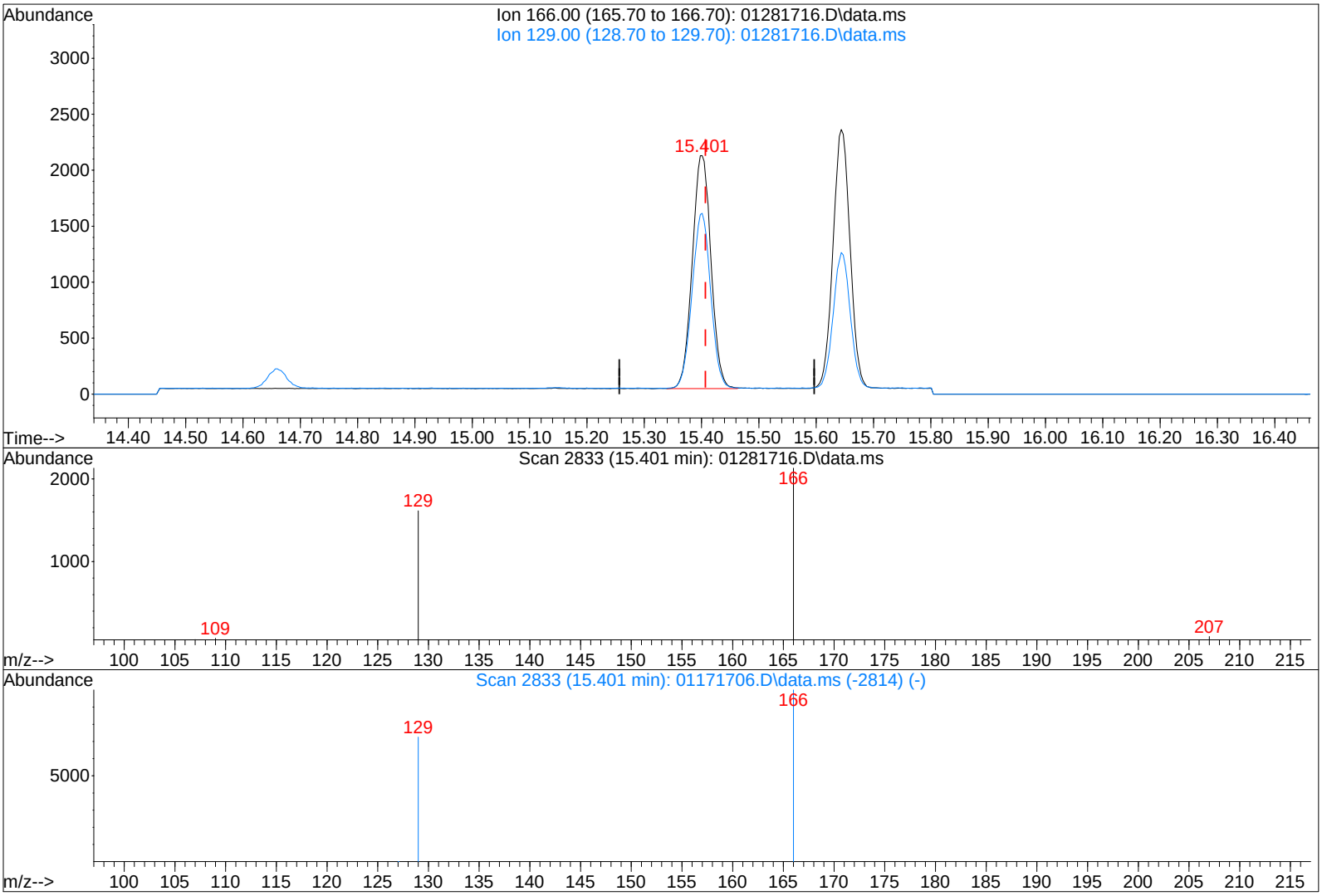
response 3094

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.90
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281716.D Vial: 7
Acq On : 28 Jan 2017 12:09 Operator: CL
Sample : P1700259-013 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281716.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 71.14pg

response 4722

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.84
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:41:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	52667	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	258287	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	46016	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	84211	923.245	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.32%			
33) Toluene-d8 (SS2)	14.14	98	289557	1128.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.86%			
45) Bromofluorobenzene (SS3)	17.55	174	88336	1049.344	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.93%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	183598	1379.895	pg	100
3) Chloromethane	4.64	52	8846	223.161	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8134	62.137	pg	100
5) Vinyl Chloride	4.96	62	211	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.47	94	1154	22.553	pg	94
8) Chloroethane	5.69	64	282	7.206	pg	97
9) Acrolein	6.27	56	5738	206.402	pg	98
10) Acetone	6.40	58	125789	3499.605	pg	99
11) Trichlorofluoromethane	6.60	101	68068	747.977	pg	100
12) 1,1-Dichloroethene	7.35	96	279	N.D.		
13) Methylene Chloride	7.48	84	15947	257.753	pg	99
14) Trichlorotrifluoroethane	7.80	151	16339	287.254	pg	100
15) trans-1,2-Dichloroethene	8.52	96	1487	24.193	pg	93
16) 1,1-Dichloroethane	8.72	63	1144	10.491	pg	99
17) Methyl tert-Butyl Ether	8.81	73	818	5.027	pg	87
18) cis-1,2-Dichloroethene	9.59	96	2407	37.319	pg	98
19) Chloroform	9.89	83	9684	84.451	pg	99
21) 1,2-Dichloroethane	10.64	62	3399	38.506	pg	100
22) 1,1,1-Trichloroethane	10.91	97	1014	9.526	pg	99
23) Benzene	11.36	78	108457	429.287	pg	100
24) Carbon Tetrachloride	11.52	117	23653	276.732	pg	100
26) 1,2-Dichloropropane	12.18	63	2015	30.628	pg	98
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.41	130	47063	700.844	pg	100
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	13.25	75	276	N.D.		
31) trans-1,3-Dichloropropene	13.77	75	646	8.971	pg	89
32) 1,1,2-Trichloroethane	13.95	83	228	N.D.		
34) Toluene	14.24	91	245093	1022.773	pg	99
35) Dibromochloromethane	14.66	129	535	8.062	pg	100
36) 1,2-Dibromoethane	14.92	107	277	N.D.		
37) Tetrachloroethene	15.40	166	4215	60.537	pg	99
39) Chlorobenzene	0.00	112	0	N.D.	d	
40) Ethylbenzene	16.48	91	131078	501.087	pg	99
41) m,p-Xylene	16.65	91	360029	1834.960	pg	99
42) Styrene	17.01	104	8133	59.166	pg	98
43) o-Xylene	17.12	106	72168	715.988	pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.38	105	6702	32.268	pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	30156	147.925	pg	88
48) 1,3-Dichlorobenzene	18.92	146	454	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	6271	48.072	pg	99
50) 1,2-Dichlorobenzene	19.30	146	483	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.95	182	397	5.253	pg	92
53) Naphthalene	21.06	128	80618	335.916	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:41:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

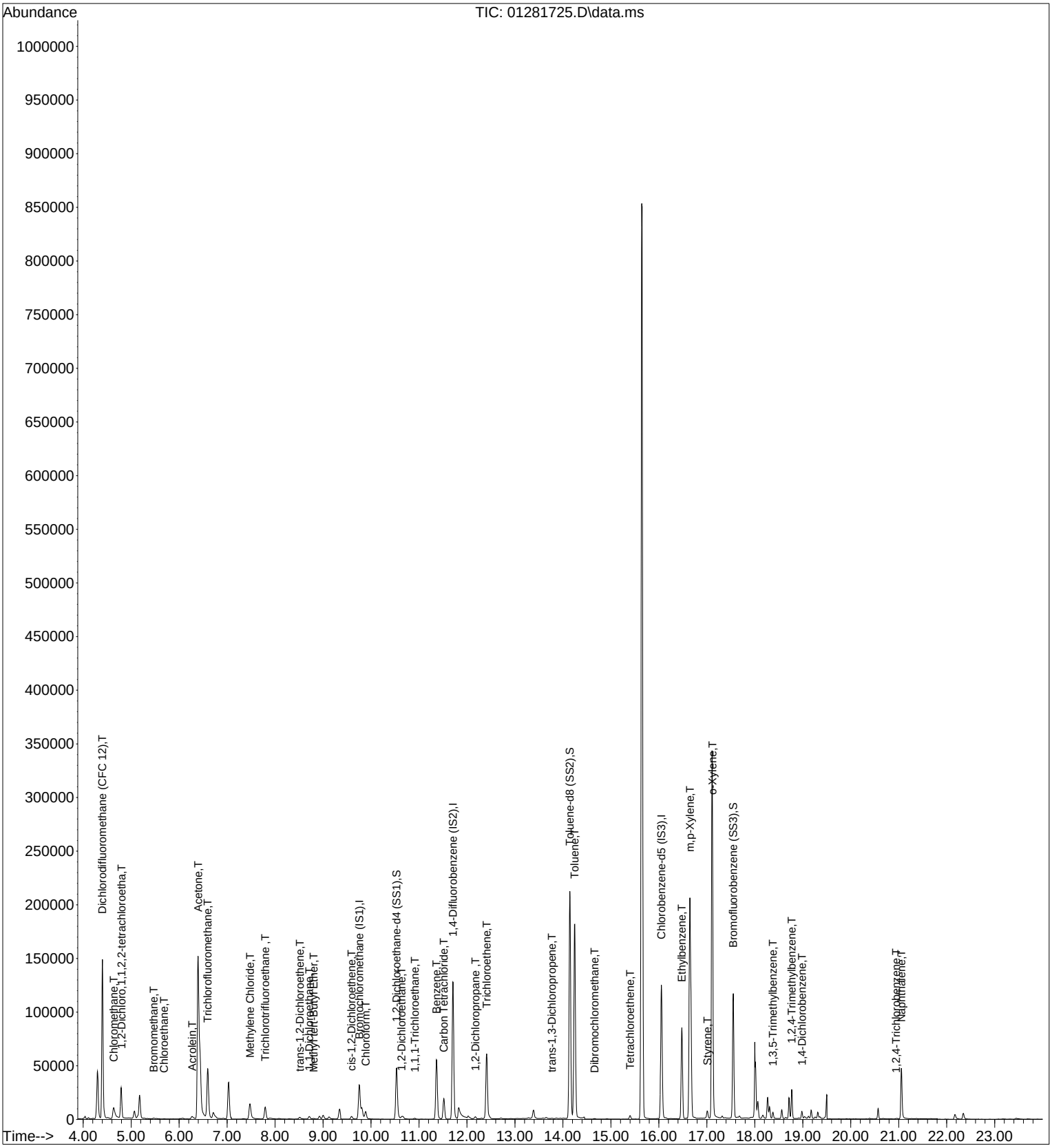
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.37	225	255	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

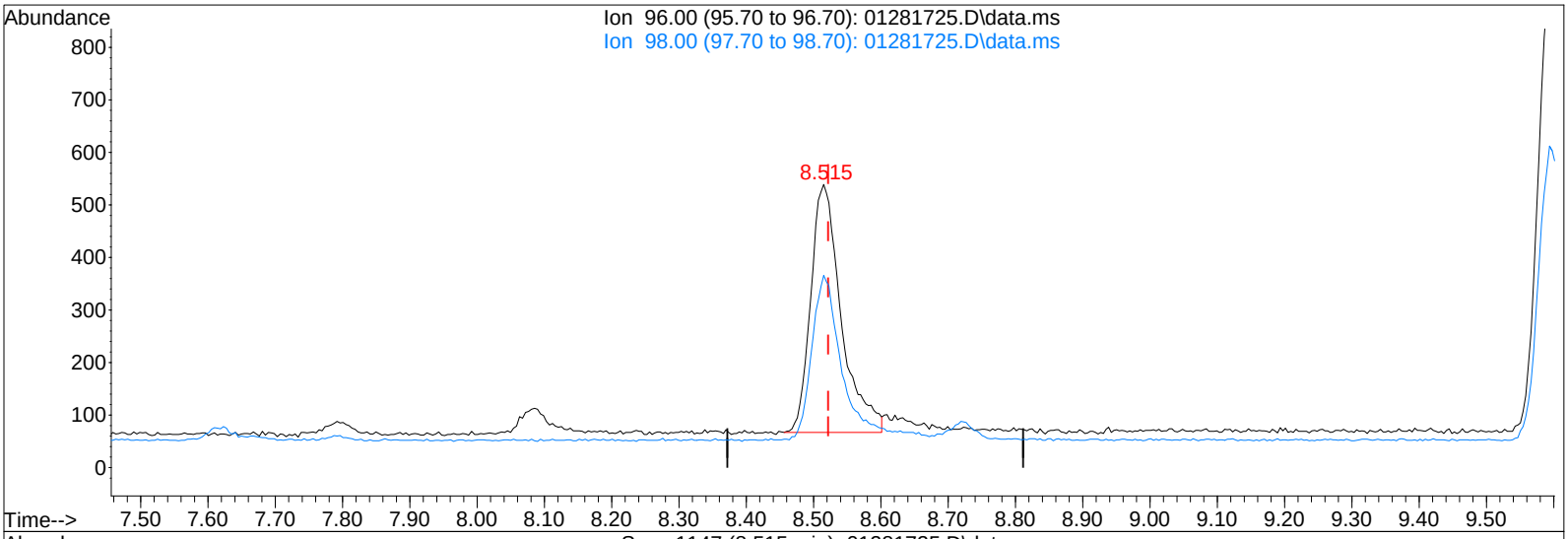
Quant Time: Feb 01 14:41:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

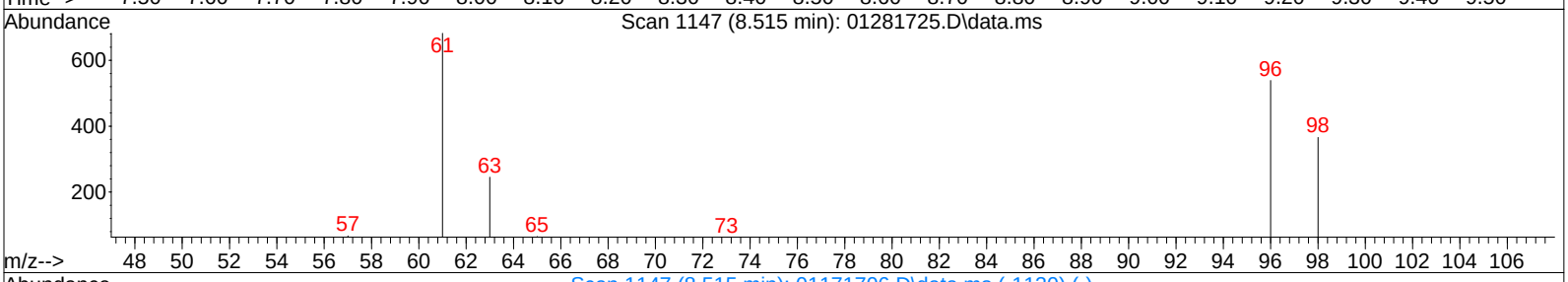


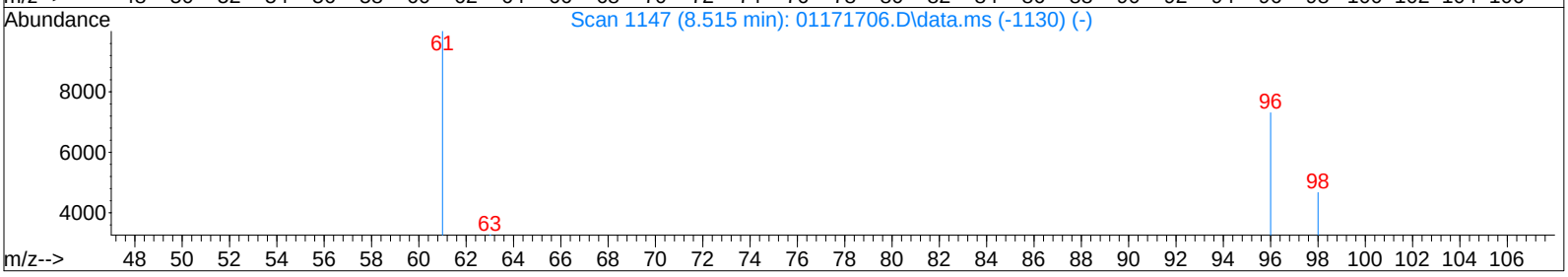
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281725.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.515min (-0.007) 24.19pg

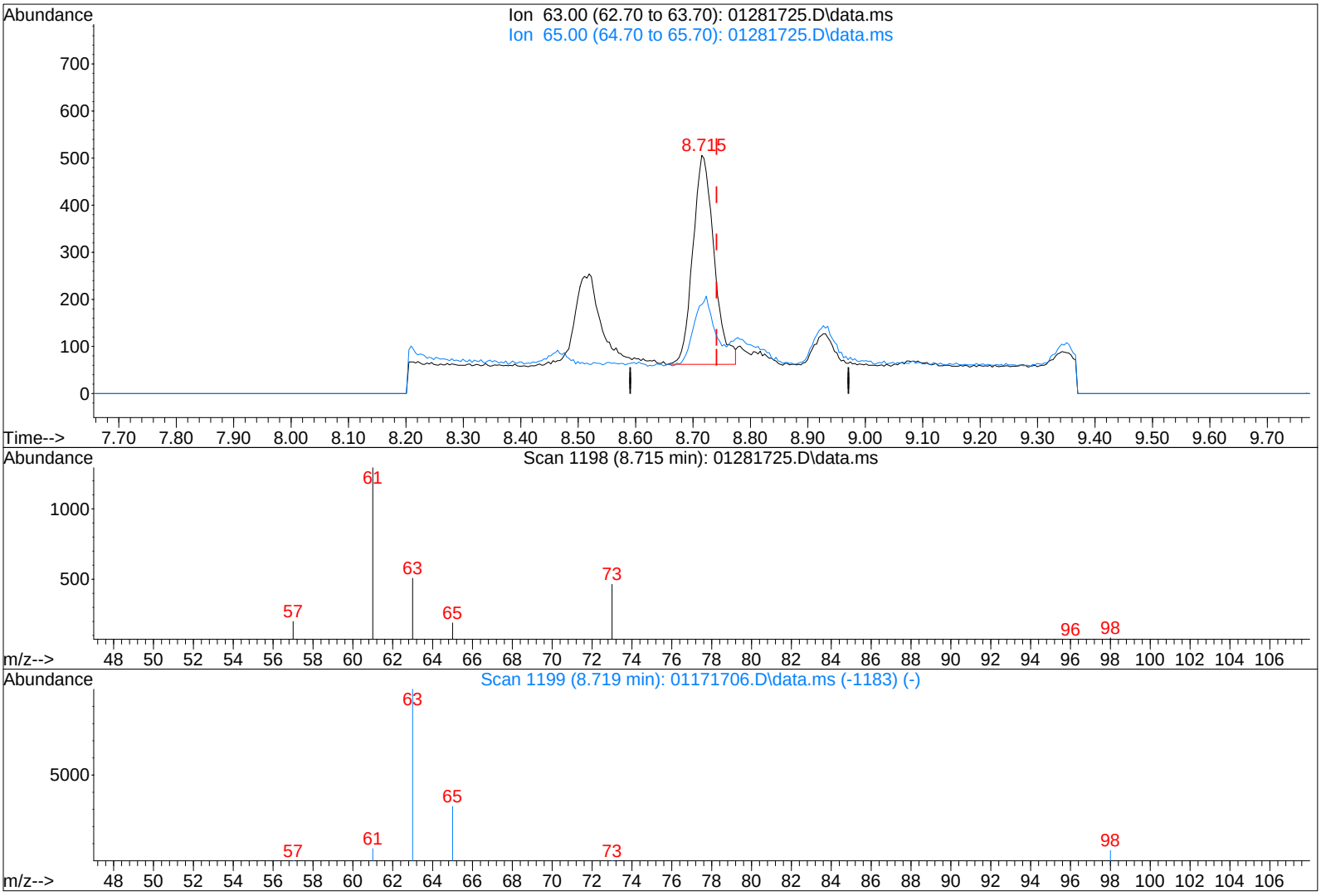
response 1487

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	67.52
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281725.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 10.49pg

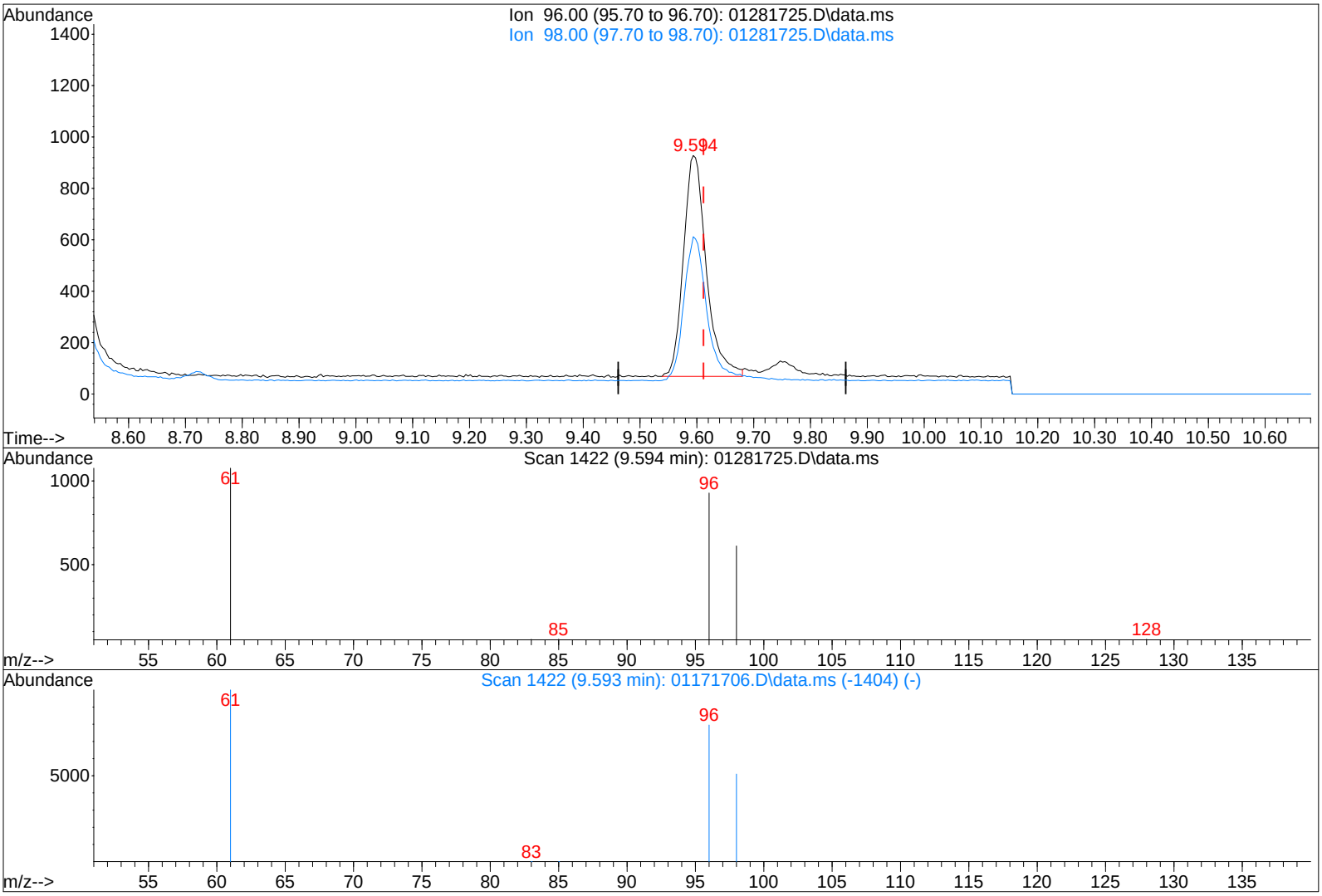
response 1144

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.12
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281725.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 37.32pg

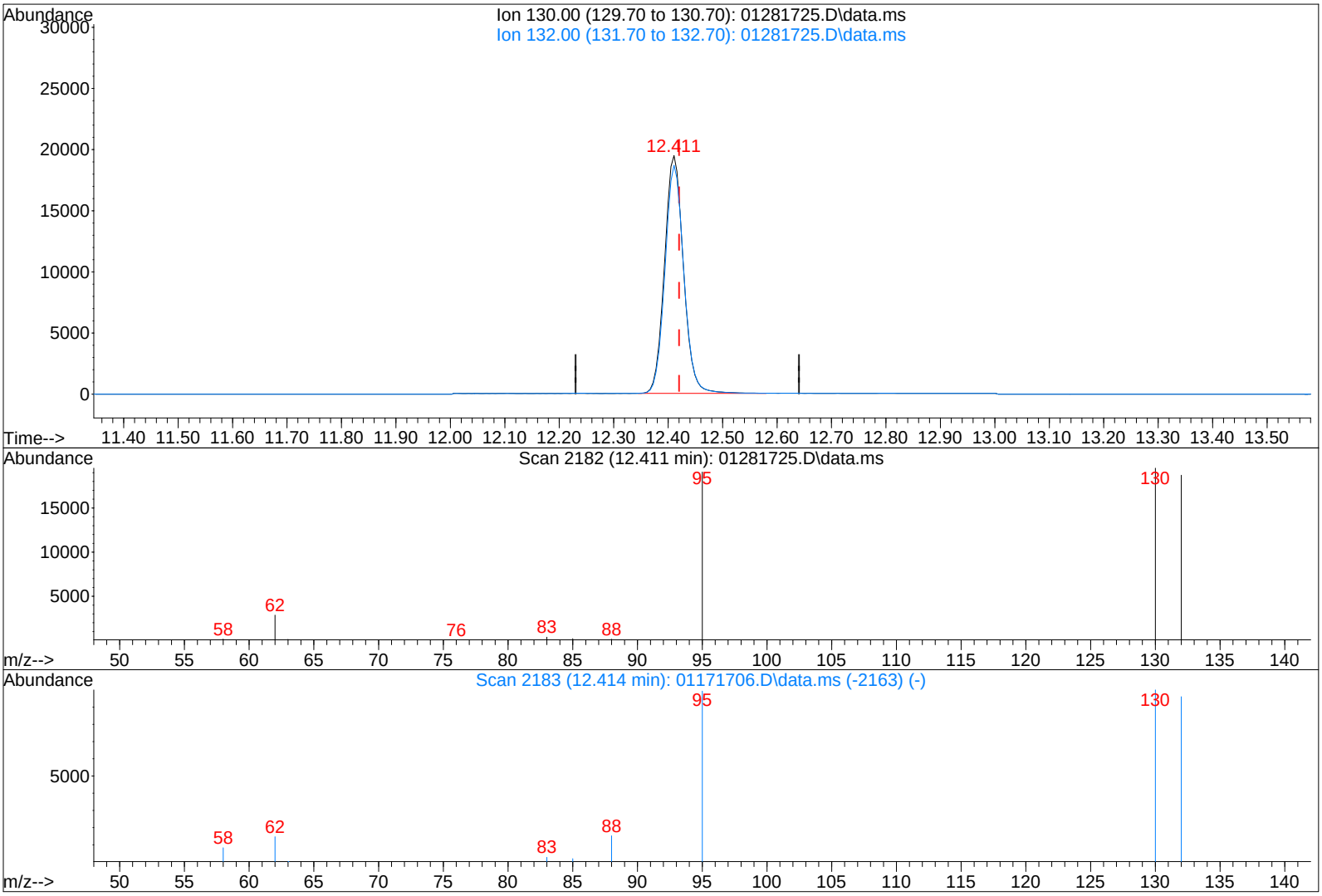
response 2407

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.98
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281725.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 700.84pg

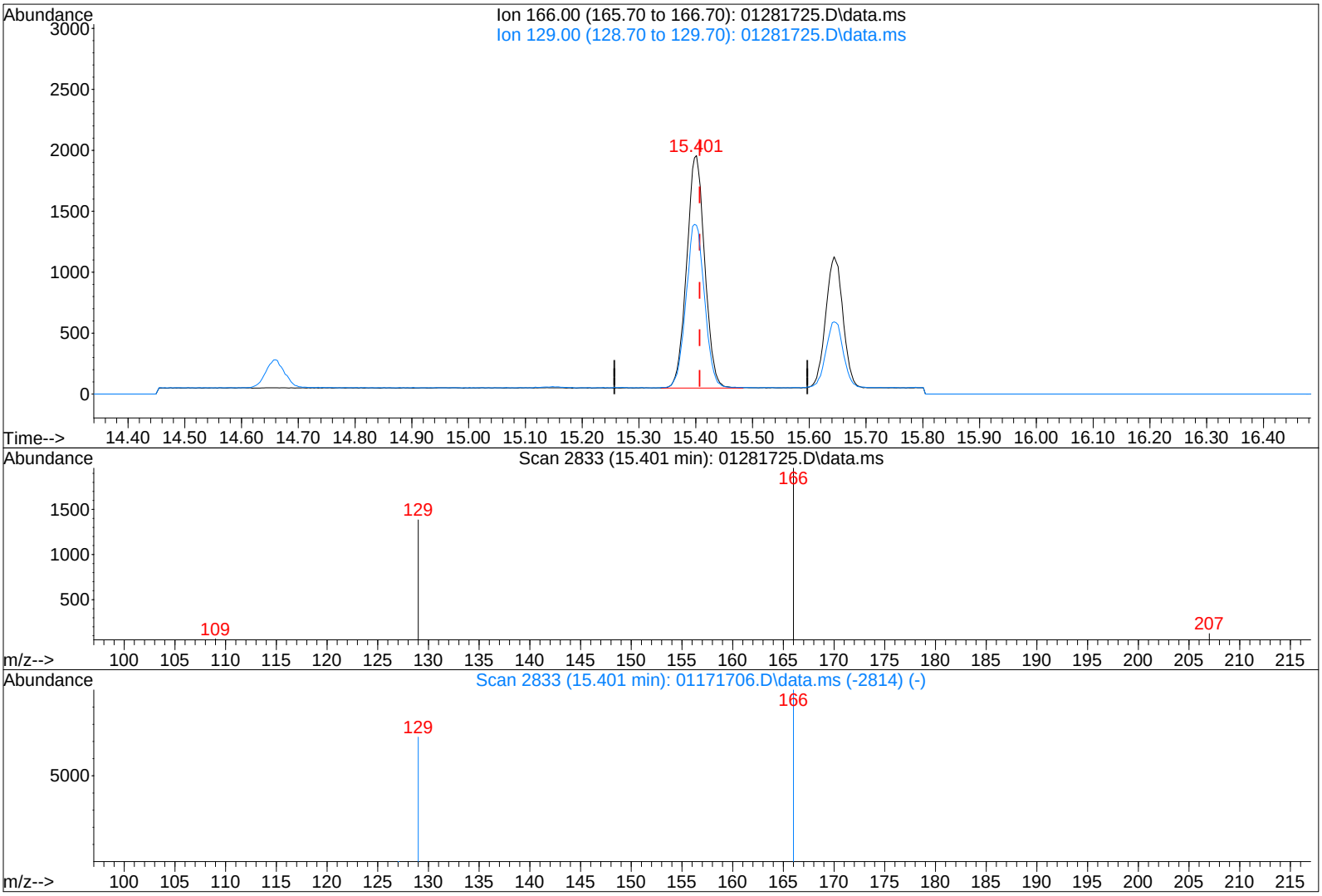
response 47063

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.63
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281725.D Vial: 15
Acq On : 28 Jan 2017 16:54 Operator: CL
Sample : P1700259-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 17:33:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281725.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 60.54pg

response 4215

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	71.60
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:52:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46867	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	227438	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	37139	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	72871	991.711 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.17%		
33) Toluene-d8 (SS2)	14.14	98	230612	1008.636 pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.86%		
45) Bromofluorobenzene (SS3)	17.55	174	80539	1014.777 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.48%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	151871	1372.492 pg	100
3) Chloromethane	4.65	52	4636	187.312 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	6300	60.308 pg	100
5) Vinyl Chloride	4.97	62	243	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	662	17.099 pg	100
8) Chloroethane	5.70	64	259	8.409 pg	97
9) Acrolein	6.28	56	6278	247.929 pg	89
10) Acetone	6.40	58	140280	4463.322 pg	# 71
11) Trichlorofluoromethane	6.60	101	67773	795.854 pg	100
12) 1,1-Dichloroethene	7.34	96	225	N.D.	
13) Methylene Chloride	7.48	84	11896	231.102 pg	96
14) Trichlorotrifluoroethane	7.80	151	13969	272.399 pg	99
15) trans-1,2-Dichloroethene	8.52	96	1795	35.562 pg	94
16) 1,1-Dichloroethane	8.73	63	767	8.758 pg	96
17) Methyl tert-Butyl Ether	8.80	73	1047	6.507 pg	97
18) cis-1,2-Dichloroethene	9.60	96	1750	32.183 pg	99
19) Chloroform	9.89	83	15381	162.475 pg	98
21) 1,2-Dichloroethane	10.64	62	5399	77.501 pg	99
22) 1,1,1-Trichloroethane	10.92	97	1016	11.392 pg	99
23) Benzene	11.37	78	147097	715.132 pg	100
24) Carbon Tetrachloride	11.52	117	22693	273.190 pg	100
26) 1,2-Dichloropropane	12.18	63	875	17.285 pg	93
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	31311	538.675 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.26	75	384	N.D.	
31) trans-1,3-Dichloropropene	13.78	75	503	7.069 pg	91
32) 1,1,2-Trichloroethane	13.95	83	79	N.D.	
34) Toluene	14.25	91	295513	1356.352 pg	100
35) Dibromochloromethane	14.66	129	361	5.708 pg	99
36) 1,2-Dibromoethane	14.92	107	293	5.148 pg	91
37) Tetrachloroethene	15.40	166	2541	40.911 pg	99
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	50219	214.023 pg	100
41) m,p-Xylene	16.65	91	122226	668.062 pg	100
42) Styrene	17.01	104	11781	84.047 pg	99
43) o-Xylene	17.12	106	22474	247.096 pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	12967	65.709 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	41807	210.438 pg	88
48) 1,3-Dichlorobenzene	18.92	146	437	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	3845	33.392 pg	99
50) 1,2-Dichlorobenzene	19.31	146	425	N.D.	
51) 1,2-Dibromo-3-chloropr...	19.72	157	94	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	572	7.321 pg	97
53) Naphthalene	21.07	128	7730	30.923 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:52:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

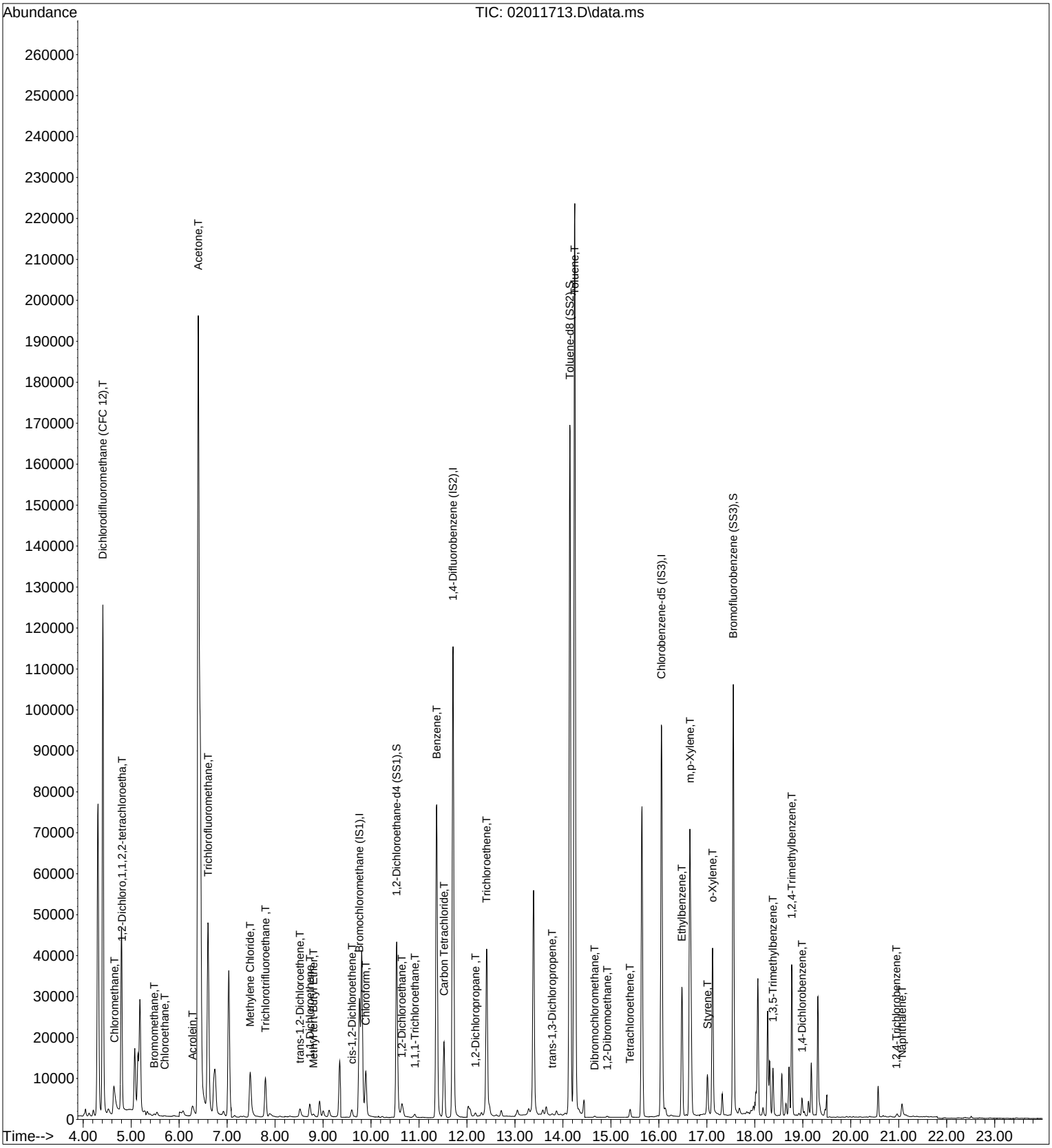
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	50	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

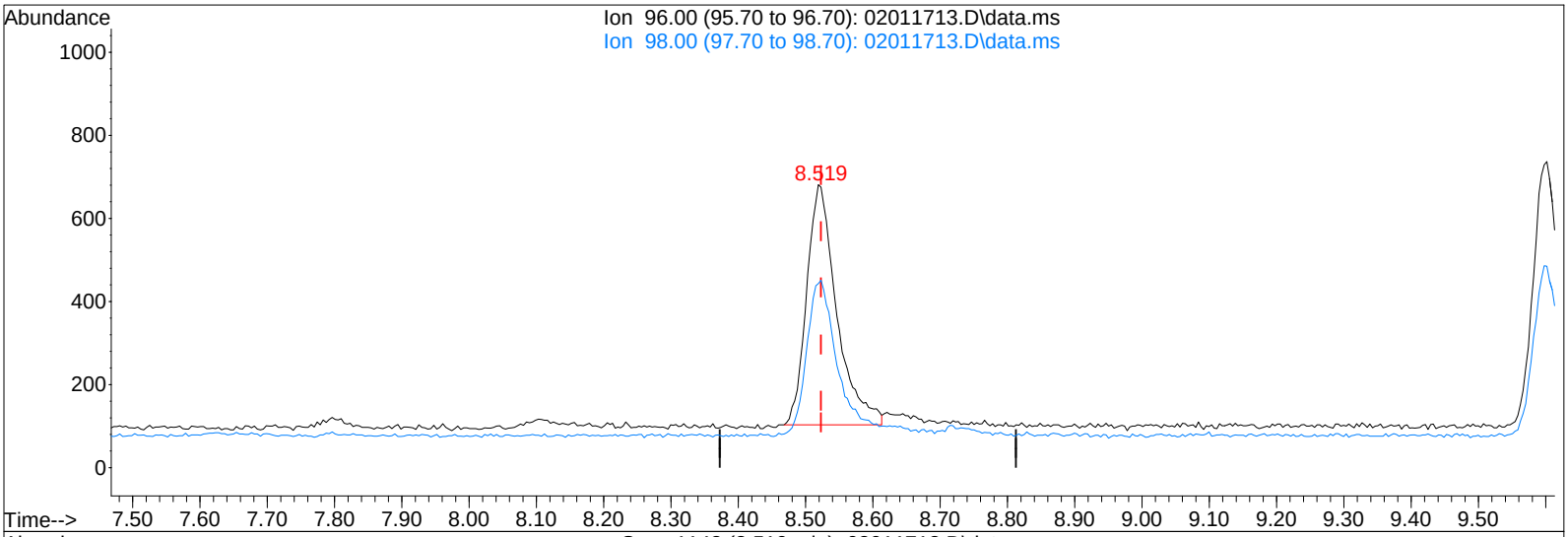
Quant Time: Feb 01 14:52:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

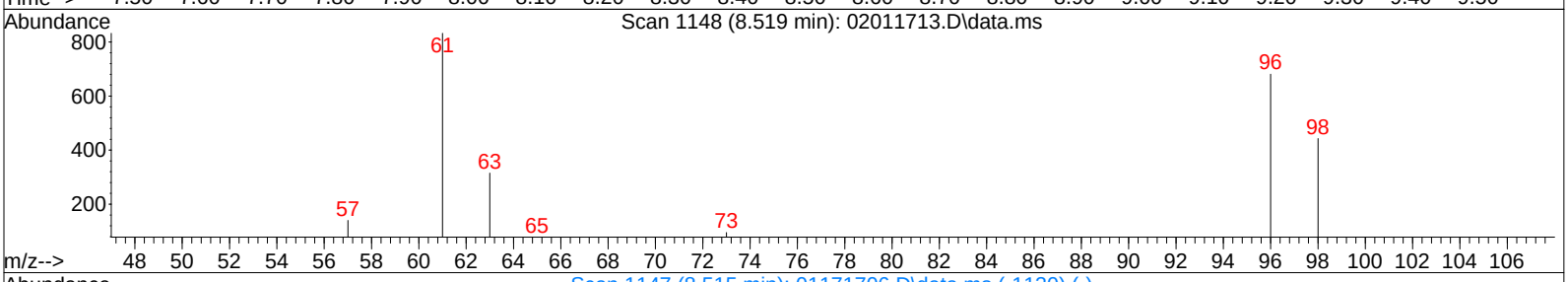


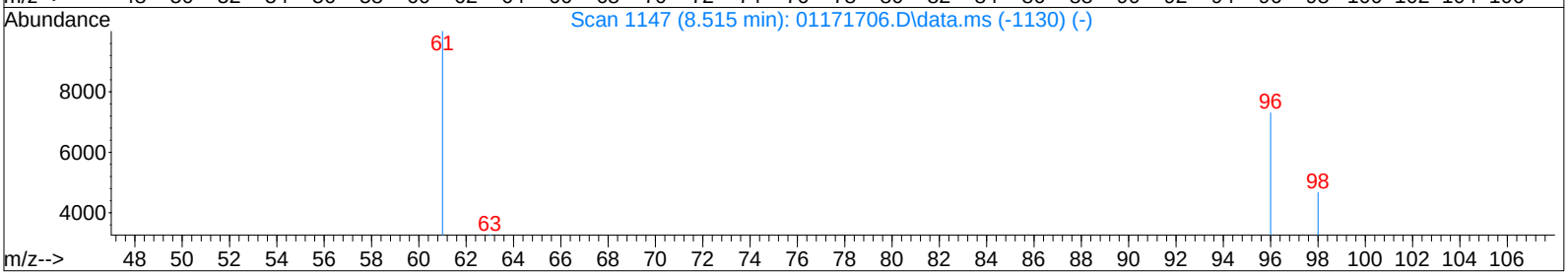
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:49:18 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02011713.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.004) 35.56pg

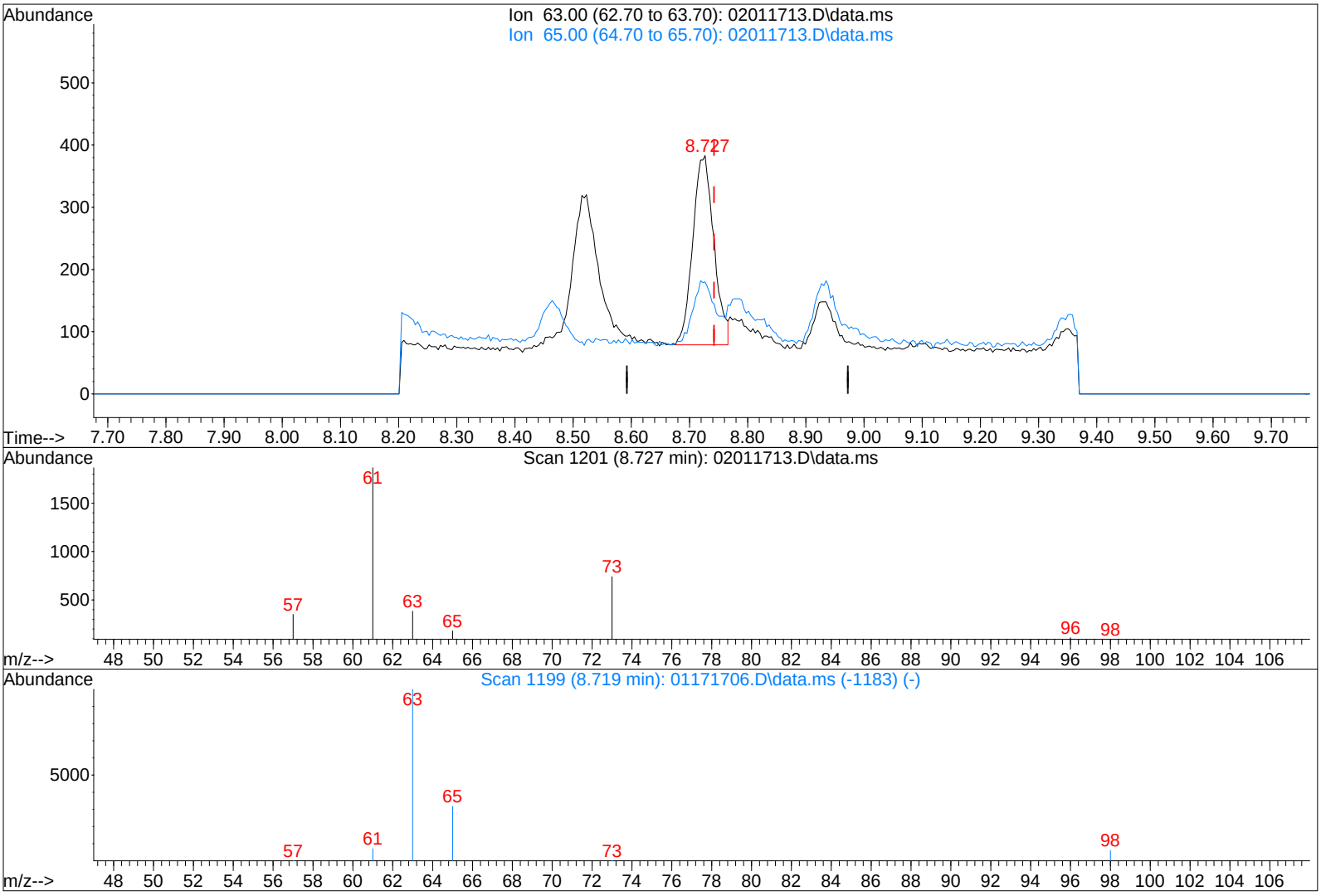
response 1795

Ion	Exp%	Act%
96.00	100	100
98.00	62.90	67.19
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:51:40 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02011713.D\data.ms

(16) 1,1-Dichloroethane (T)

8.727min (-0.016) 8.76pg

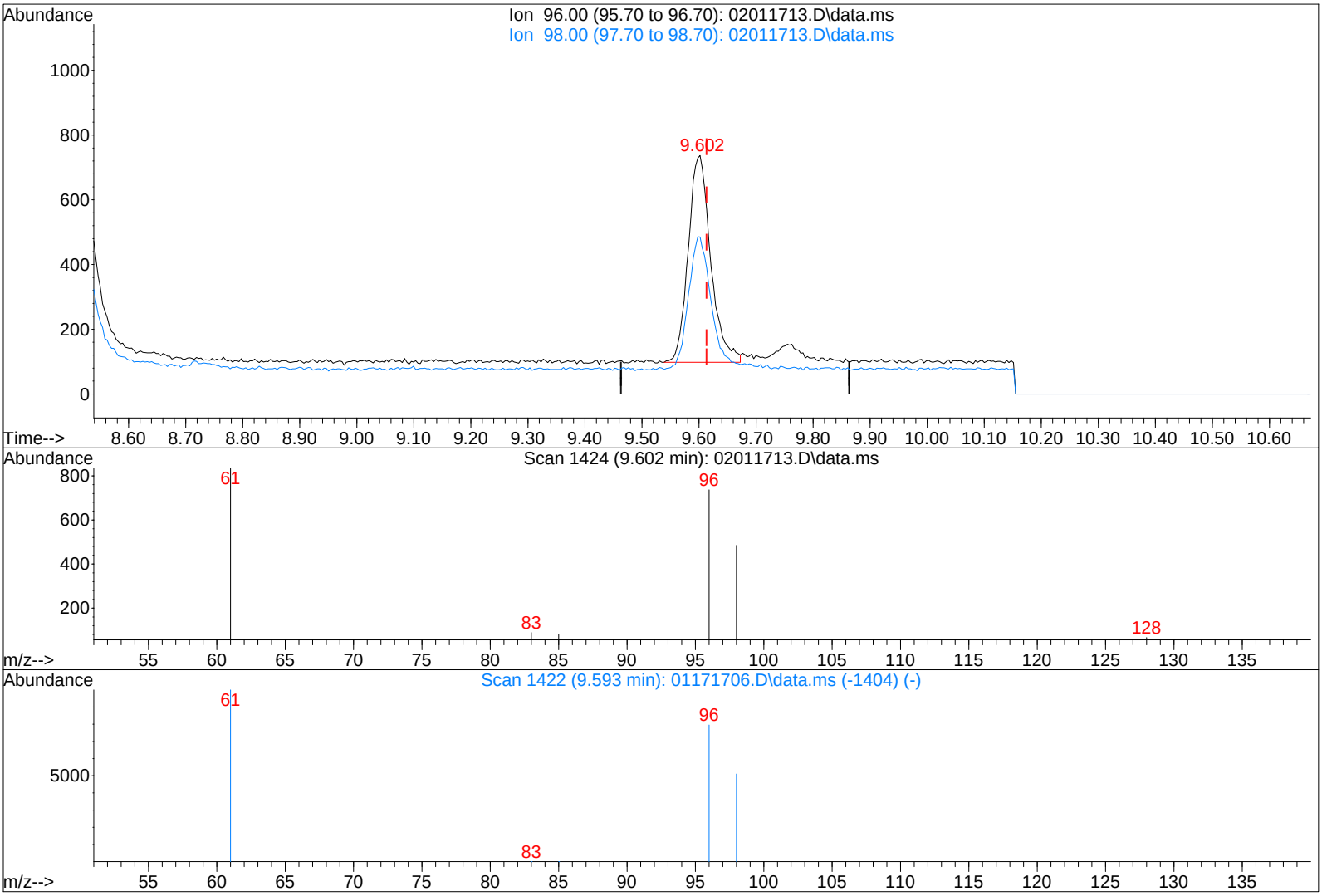
response 767

Ion	Exp%	Act%
63.00	100	100
65.00	31.60	33.64
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:51:40 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02011713.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.602min (-0.012) 32.18pg

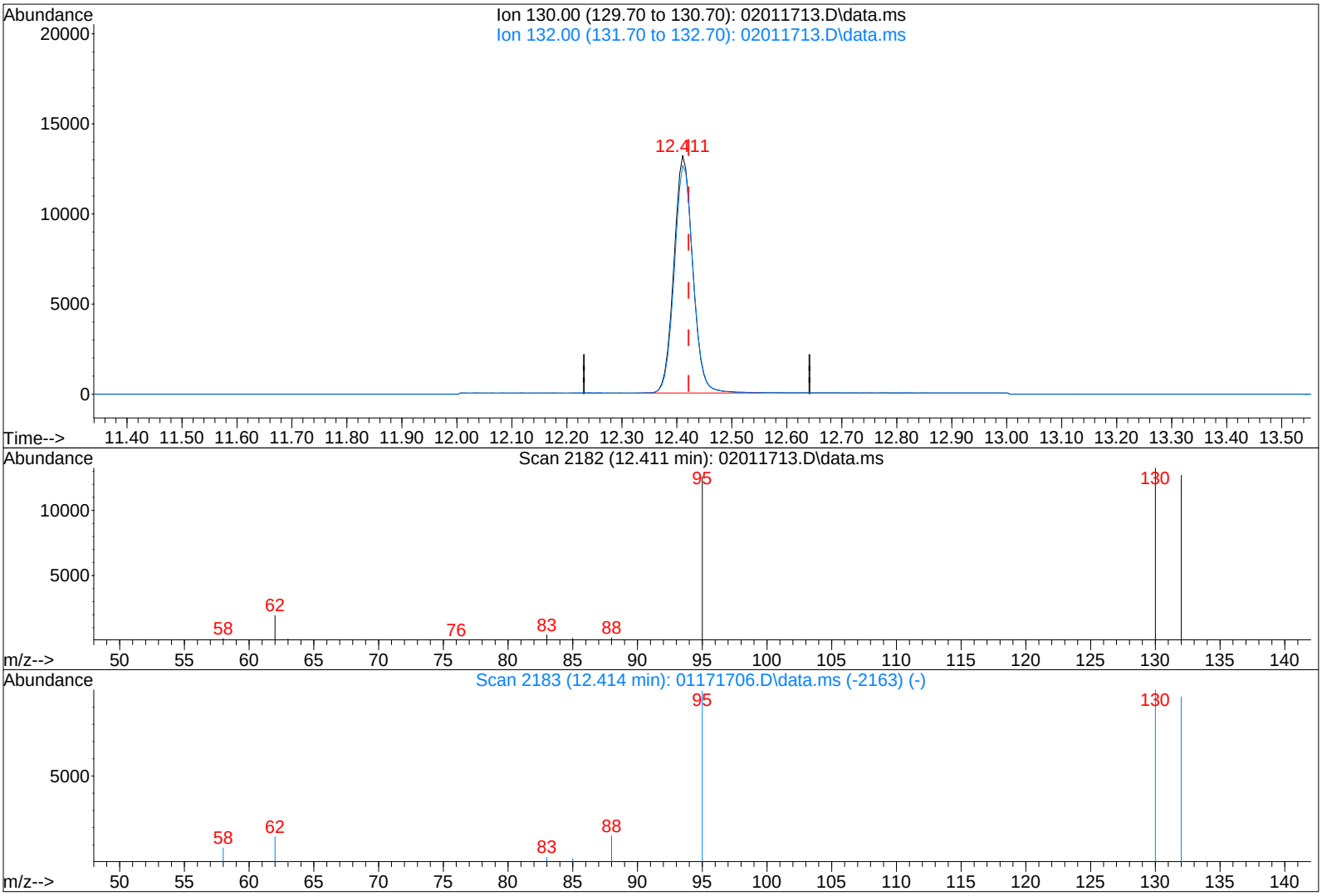
response 1750

Ion	Exp%	Act%
96.00	100	100
98.00	64.10	64.74
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:51:40 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02011713.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.011) 538.67pg

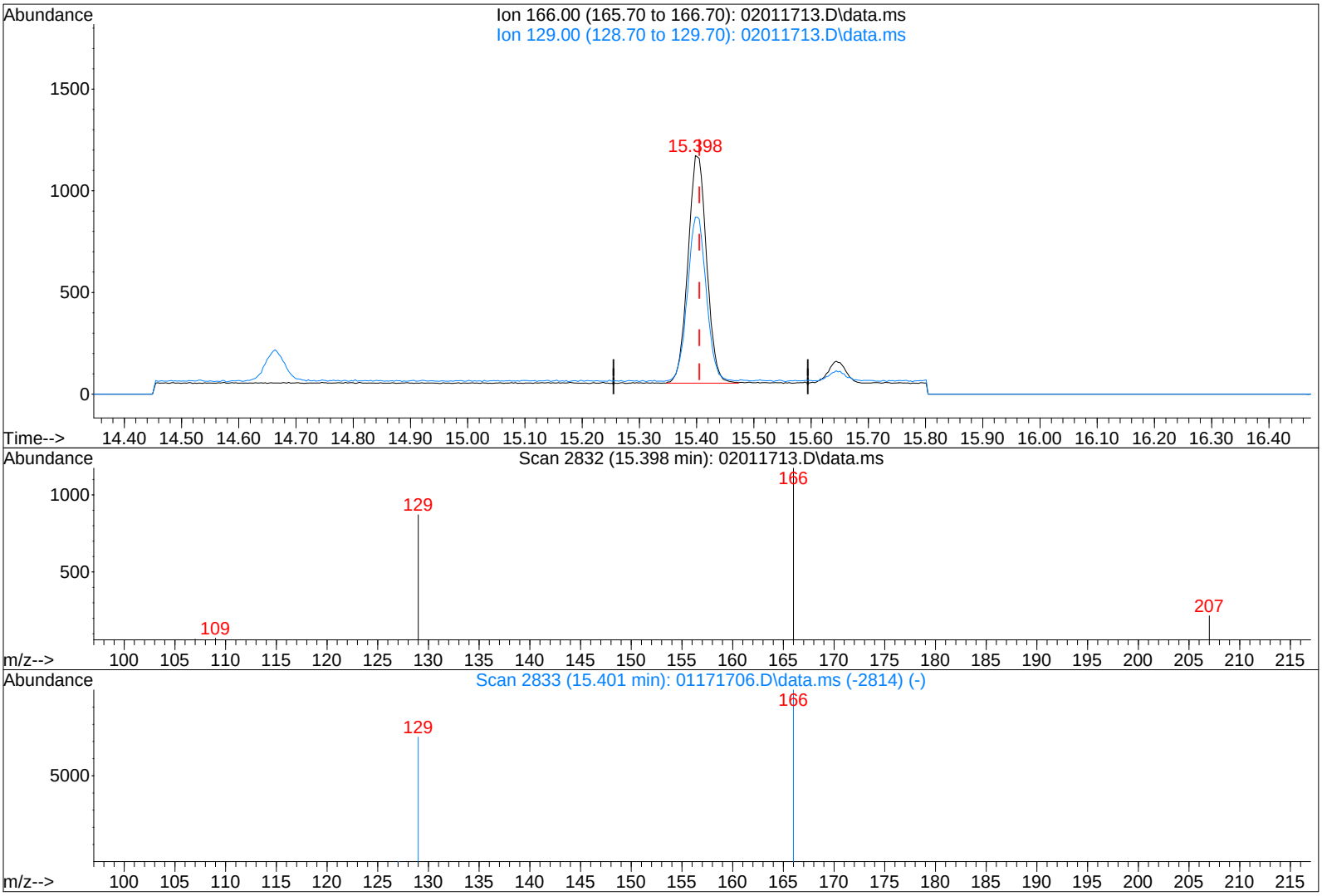
response 31311

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.16
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\01\02011713.D Vial: 9
Acq On : 1 Feb 2017 14:25 Operator: CL
Sample : P1700259-024 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Feb 01 14:51:40 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02011713.D\data.ms

(37) Tetrachloroethene (T)

15.398min (-0.007) 40.91pg

response 2541

Ion	Exp%	Act%
166.00	100	100
129.00	72.30	72.92
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	49310	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	214885	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	31834	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	76785	899.141	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.91%				
33) Toluene-d8 (SS2)	14.15	98	210865	987.873	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.79%				
45) Bromofluorobenzene (SS3)	17.56	174	57006	978.855	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.89%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.46	85	136	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.11	54	146	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	4640	137.879	pg	#	82
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.53	84	326	N.D.			
14) Trichlorotrifluoroethane	7.83	151	60	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.75	73	103	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	821	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3425	N.D.			
24) Carbon Tetrachloride	11.54	117	50	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	12.43	130	65	N.D.			
29) 1,4-Dioxane	12.43	88	51	N.D.			
30) cis-1,3-Dichloropropene	13.29	75	51	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	657	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	14.93	107	52	N.D.			
37) Tetrachloroethene	15.40	166	51	N.D.			
39) Chlorobenzene	16.10	112	171	N.D.			
40) Ethylbenzene	16.49	91	103	N.D.			
41) m,p-Xylene	16.67	91	181	N.D.			
42) Styrene	17.04	104	134	N.D.			
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.12	83	136	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.81	105	70	N.D.			
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.			
49) 1,4-Dichlorobenzene	19.01	146	144	N.D.			
50) 1,2-Dichlorobenzene	19.33	146	55	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	21.01	182	234	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

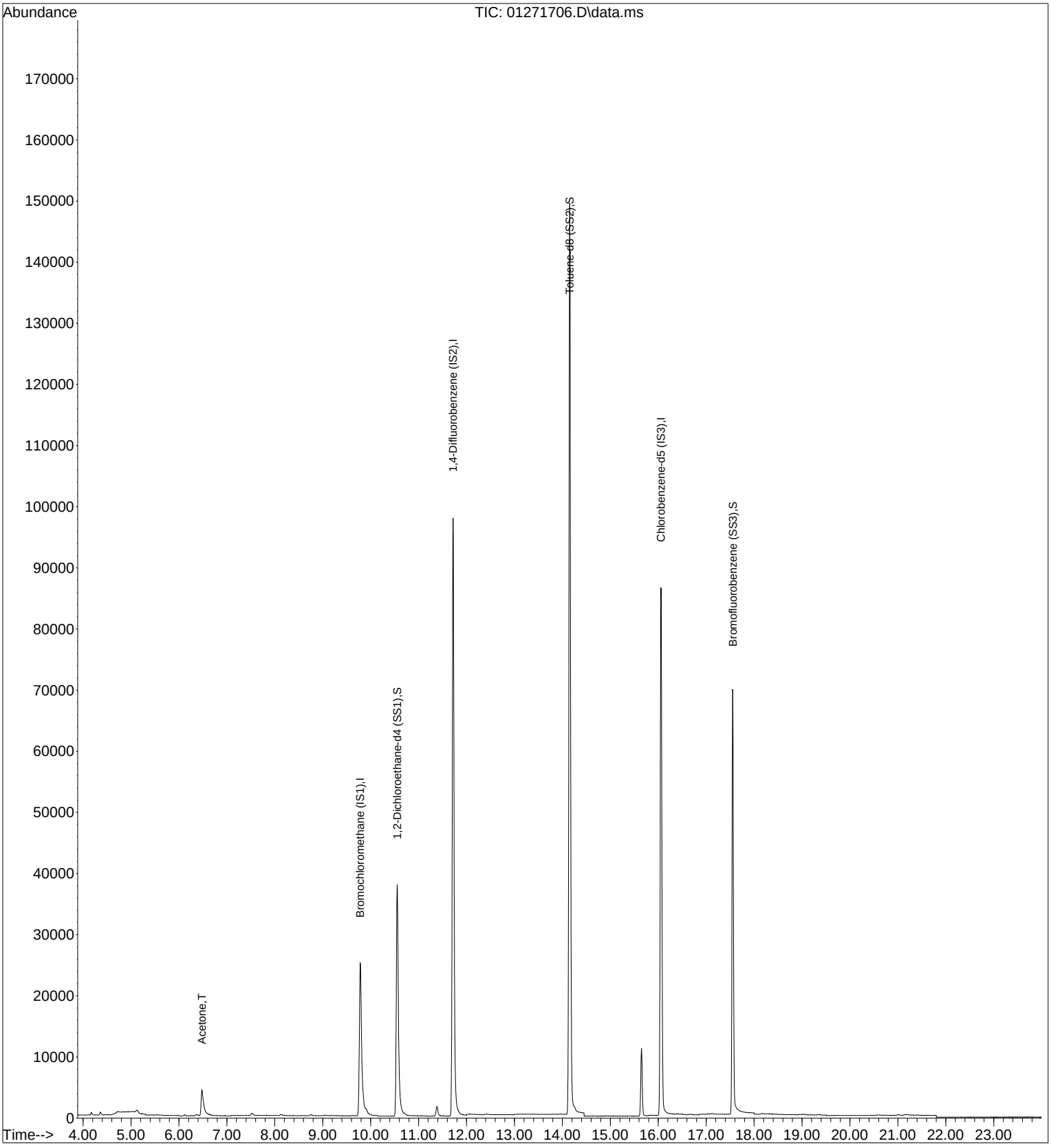
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	59	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281703.D Vial: 2
Acq On : 28 Jan 2017 4:25 Operator: CL
Sample : MB S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 28 08:04:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	46053	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	200327	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34621	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	73324	919.337	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.93%			
33) Toluene-d8 (SS2)	14.15	98	199863	1004.374	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.44%			
45) Bromofluorobenzene (SS3)	17.56	174	52523	829.276	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.93%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	186	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.03	54	69	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	5397	171.715	pg #	73
11) Trichlorofluoromethane	6.66	101	55	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	343	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	79	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	817	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	3189	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.43	130	99	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	620	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.10	112	155	N.D.		
40) Ethylbenzene	16.49	91	137	N.D.		
41) m,p-Xylene	16.68	91	172	N.D.		
42) Styrene	17.05	104	94	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.11	83	119	N.D.		
46) 1,3,5-Trimethylbenzene	18.33	105	68	N.D.		
47) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
49) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	21.01	182	89	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281703.D Vial: 2
Acq On : 28 Jan 2017 4:25 Operator: CL
Sample : MB S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 28 08:04:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

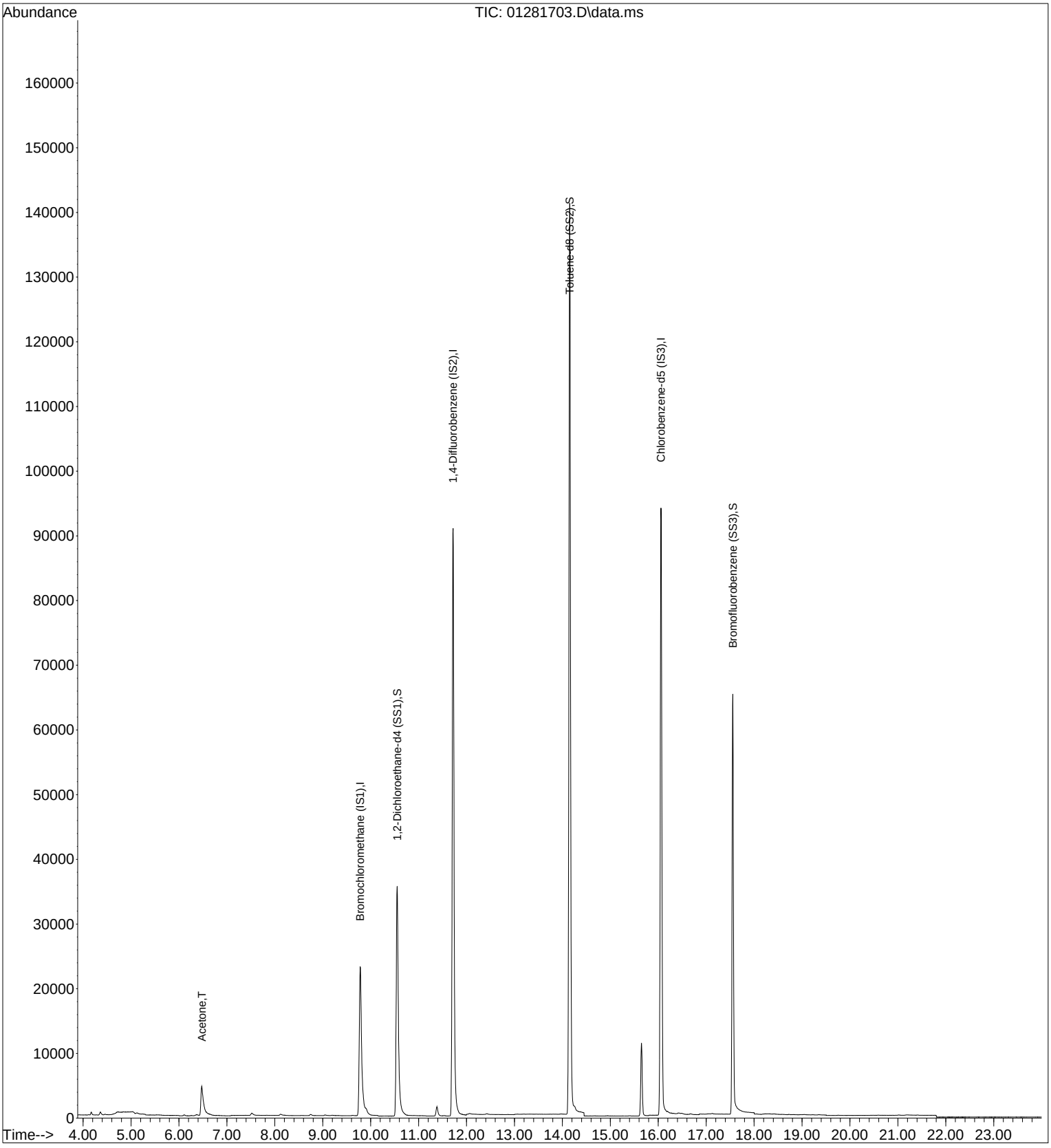
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	53	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281703.D Vial: 2
Acq On : 28 Jan 2017 4:25 Operator: CL
Sample : MB S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 28 08:04:15 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011703.D Vial: 2
Acq On : 1 Feb 2017 8:50 Operator: CL
Sample : MB S19020117 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 01 09:32:06 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	46969	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	232268	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	37388	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	74460	1011.135	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.11%			
33) Toluene-d8 (SS2)	14.15	98	231939	993.345	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.33%			
45) Bromofluorobenzene (SS3)	17.56	174	78529	982.862	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.29%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	132	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.49	58	2686	85.276	pg	95
11) Trichlorofluoromethane	6.65	101	76	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.53	84	298	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	52	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	1022	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	2309	N.D.		
24) Carbon Tetrachloride	11.53	117	50	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	12.43	88	68	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	1525	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.11	112	133	N.D.		
40) Ethylbenzene	16.49	91	218	N.D.		
41) m,p-Xylene	16.67	91	572	N.D.		
42) Styrene	17.03	104	230	N.D.		
43) o-Xylene	17.13	106	107	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	194	N.D.		
46) 1,3,5-Trimethylbenzene	18.39	105	134	N.D.		
47) 1,2,4-Trimethylbenzene	18.79	105	171	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	130	N.D.		
49) 1,4-Dichlorobenzene	19.00	146	204	N.D.		
50) 1,2-Dichlorobenzene	19.33	146	142	N.D.		
51) 1,2-Dibromo-3-chloropr...	19.73	157	60	N.D.		
52) 1,2,4-Trichlorobenzene	20.99	182	222	N.D.		
53) Naphthalene	21.14	128	1052	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011703.D Vial: 2
Acq On : 1 Feb 2017 8:50 Operator: CL
Sample : MB S19020117 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 01 09:32:06 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

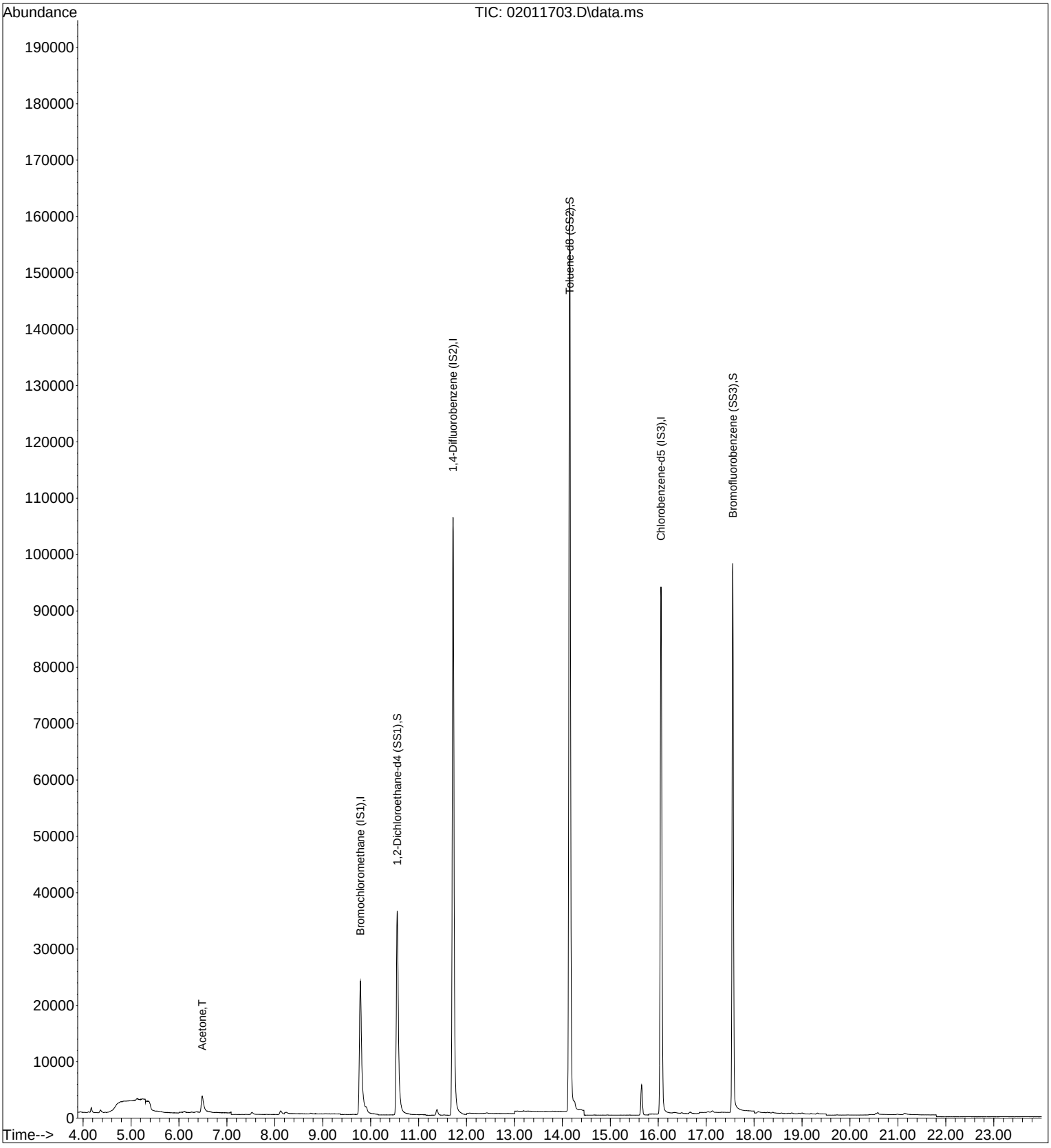
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011703.D Vial: 2
Acq On : 1 Feb 2017 8:50 Operator: CL
Sample : MB S19020117 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 01 09:32:06 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	48731	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	241793	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	33444	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	78415	929.139	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.91%			
33) Toluene-d8 (SS2)	14.14	98	224607	935.152	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.51%			
45) Bromofluorobenzene (SS3)	17.55	174	67784	1107.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.79%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	65519	532.204	pg	100
3) Chloromethane	4.65	52	15984	435.802	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	62673	517.443	pg	100
5) Vinyl Chloride	4.96	62	57212	486.120	pg	100
6) 1,3-Butadiene	5.15	54	24178	345.535	pg	96
7) Bromomethane	5.48	94	23979	506.485	pg	100
8) Chloroethane	5.70	64	16631	459.301	pg	99
9) Acrolein	6.27	56	10109	393.002	pg	99
10) Acetone	6.40	58	83883	2522.224	pg	# 89
11) Trichlorofluoromethane	6.62	101	46872	556.663	pg	100
12) 1,1-Dichloroethene	7.35	96	26944	510.768	pg	93
13) Methylene Chloride	7.48	84	30772	537.544	pg	89
14) Trichlorotrifluoroethane	7.80	151	27492	522.373	pg	99
15) trans-1,2-Dichloroethene	8.51	96	29158	512.715	pg	100
16) 1,1-Dichloroethane	8.72	63	48403	479.734	pg	100
17) Methyl tert-Butyl Ether	8.79	73	72146	479.194	pg	97
18) cis-1,2-Dichloroethene	9.59	96	30703	514.475	pg	100
19) Chloroform	9.89	83	54216	510.989	pg	100
21) 1,2-Dichloroethane	10.64	62	38994	477.434	pg	100
22) 1,1,1-Trichloroethane	10.91	97	47674	484.047	pg	100
23) Benzene	11.36	78	120753	516.560	pg	100
24) Carbon Tetrachloride	11.52	117	42048	531.682	pg	100
26) 1,2-Dichloropropane	12.18	63	26641	432.567	pg	99
27) Bromodichloromethane	12.36	83	40061	471.042	pg	99
28) Trichloroethene	12.41	130	31777	505.491	pg	100
29) 1,4-Dioxane	12.38	88	21545	466.744	pg	92
30) cis-1,3-Dichloropropene	13.25	75	39162	472.752	pg	100
31) trans-1,3-Dichloropropene	13.77	75	33264	493.430	pg	99
32) 1,1,2-Trichloroethane	13.95	83	24564	471.525	pg	97
34) Toluene	14.25	91	111162	495.523	pg	100
35) Dibromochloromethane	14.66	129	30690	494.036	pg	100
36) 1,2-Dibromoethane	14.92	107	30024	511.020	pg	100
37) Tetrachloroethene	15.40	166	31881	489.117	pg	98
39) Chlorobenzene	16.10	112	78171	606.329	pg	100
40) Ethylbenzene	16.48	91	110026	578.721	pg	99
41) m,p-Xylene	16.66	91	177340	1243.617	pg	99
42) Styrene	17.01	104	60236	602.928	pg	100
43) o-Xylene	17.12	106	46468	634.316	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	48286	573.651	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	94213	624.128	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	93051	628.027	pg	99
48) 1,3-Dichlorobenzene	18.92	146	58476	642.138	pg	99
49) 1,4-Dichlorobenzene	18.98	146	57597	607.497	pg	99
50) 1,2-Dichlorobenzene	19.31	146	56561	609.481	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	14811	527.959	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	19213	349.767	pg	97
53) Naphthalene	21.07	128	53064	304.221	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

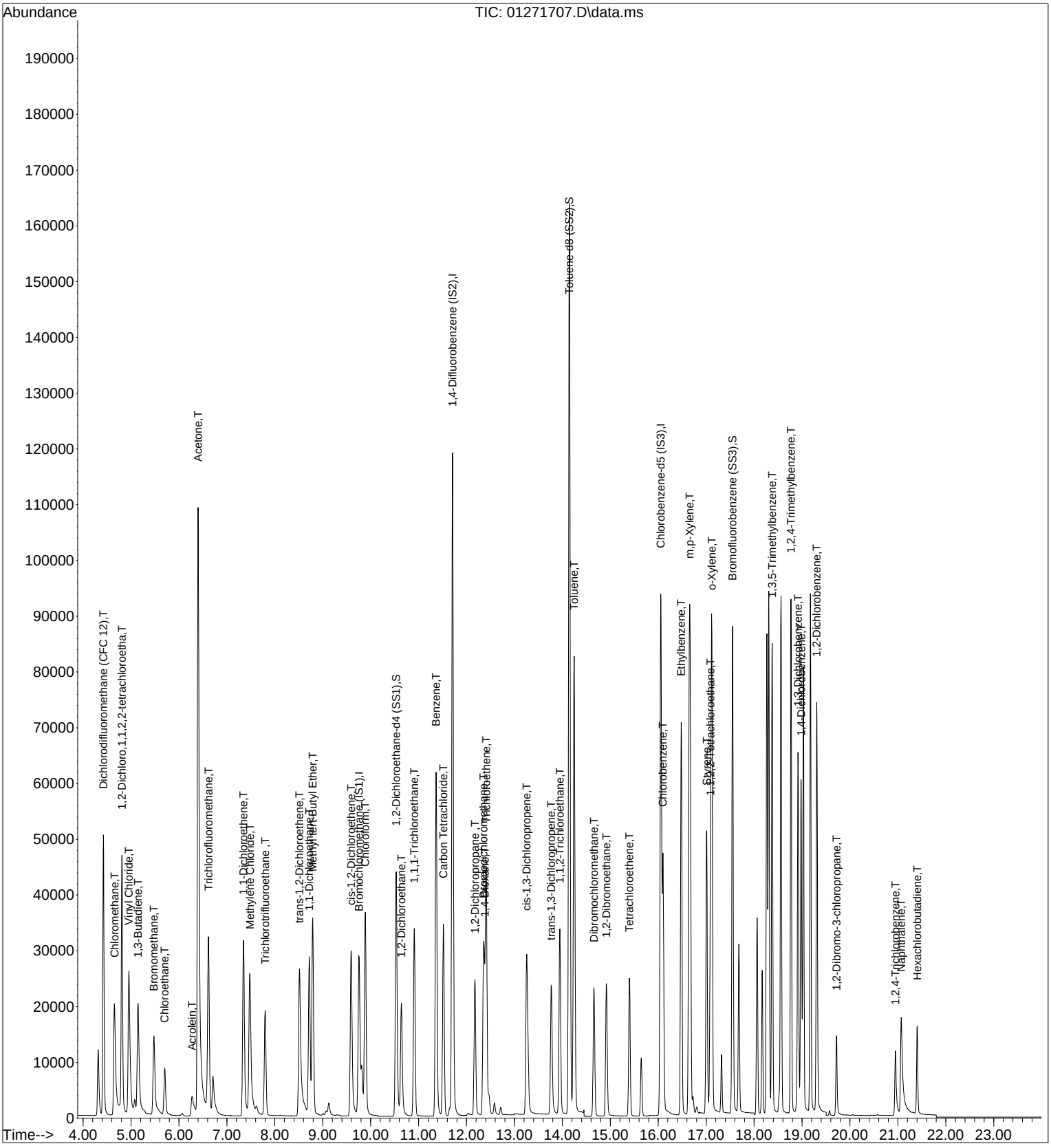
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	15679	360.786	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281704.D Vial: 2
Acq On : 28 Jan 2017 4:57 Operator: CL
Sample : LCS S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 28 08:04:16 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	47639	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	236483	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	33815	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	75981	920.935	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.09%				
33) Toluene-d8 (SS2)	14.14	98	306557	1305.011	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 130.50%#				
45) Bromofluorobenzene (SS3)	17.55	174	66887	1081.239	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	61674	512.455	pg		100
3) Chloromethane	4.65	52	15383	429.030	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	59348	501.223	pg		100
5) Vinyl Chloride	4.96	62	53871	468.224	pg		100
6) 1,3-Butadiene	5.15	54	22573	329.992	pg		95
7) Bromomethane	5.48	94	22407	484.130	pg		100
8) Chloroethane	5.70	64	15582	440.194	pg		99
9) Acrolein	6.27	56	9339	371.389	pg		100
10) Acetone	6.40	58	79512	2445.598	pg	#	90
11) Trichlorofluoromethane	6.62	101	44342	538.687	pg		100
12) 1,1-Dichloroethene	7.35	96	25389	492.322	pg		94
13) Methylene Chloride	7.48	84	29107	520.114	pg		90
14) Trichlorotrifluoroethane	7.80	151	25459	494.832	pg		100
15) trans-1,2-Dichloroethene	8.51	96	27703	498.296	pg		100
16) 1,1-Dichloroethane	8.72	63	46462	471.052	pg		100
17) Methyl tert-Butyl Ether	8.79	73	68804	467.472	pg		97
18) cis-1,2-Dichloroethene	9.59	96	28618	490.529	pg		98
19) Chloroform	9.89	83	51667	498.127	pg		100
21) 1,2-Dichloroethane	10.64	62	37131	465.045	pg		99
22) 1,1,1-Trichloroethane	10.91	97	45282	470.299	pg		100
23) Benzene	11.36	78	121090	529.876	pg		100
24) Carbon Tetrachloride	11.52	117	39966	516.940	pg		100
26) 1,2-Dichloropropane	12.18	63	25363	421.063	pg		98
27) Bromodichloromethane	12.36	83	38738	465.713	pg		100
28) Trichloroethene	12.41	130	29687	482.848	pg		100
29) 1,4-Dioxane	12.38	88	20358	450.932	pg		93
30) cis-1,3-Dichloropropene	13.25	75	41578	513.188	pg		100
31) trans-1,3-Dichloropropene	13.77	75	41645	631.623	pg		99
32) 1,1,2-Trichloroethane	13.95	83	26853	527.039	pg		98
34) Toluene	14.25	91	139231	634.581	pg		99
35) Dibromochloromethane	14.66	129	29014	477.543	pg		100
36) 1,2-Dibromoethane	14.92	107	28396	494.164	pg		100
37) Tetrachloroethene	15.40	166	29420	461.496	pg		97
39) Chlorobenzene	16.10	112	74002	567.695	pg		100
40) Ethylbenzene	16.48	91	104975	546.095	pg		99
41) m,p-Xylene	16.66	91	168331	1167.489	pg		100
42) Styrene	17.01	104	56914	563.426	pg		100
43) o-Xylene	17.12	106	43935	593.159	pg		98
44) 1,1,2,2-Tetrachloroethane	17.09	83	46393	545.114	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	88575	580.340	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	87847	586.399	pg		100
48) 1,3-Dichlorobenzene	18.92	146	54399	590.814	pg		99
49) 1,4-Dichlorobenzene	18.98	146	53481	557.895	pg		99
50) 1,2-Dichlorobenzene	19.31	146	52605	560.633	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13798	486.453	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	17009	306.247	pg		97
53) Naphthalene	21.07	128	47086	266.987	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281704.D Vial: 2
Acq On : 28 Jan 2017 4:57 Operator: CL
Sample : LCS S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 28 08:04:16 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

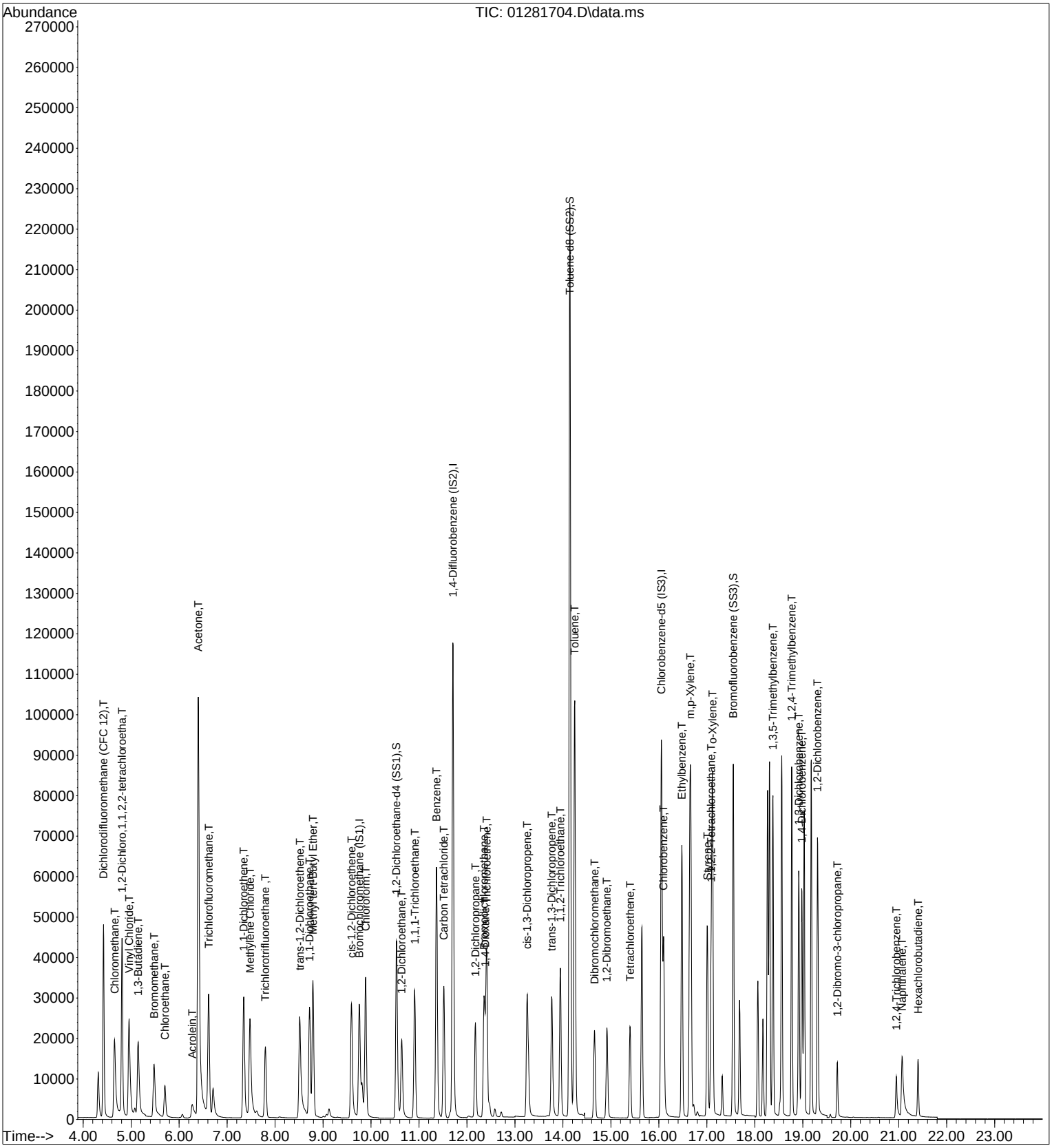
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	14031	319.322	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281704.D Vial: 2
Acq On : 28 Jan 2017 4:57 Operator: CL
Sample : LCS S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 28 08:04:16 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011704.D Vial: 2
Acq On : 1 Feb 2017 9:21 Operator: CL
Sample : LCS S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 09:47:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	48161	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	231933	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	37706	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	73916	978.904	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.89%			
33) Toluene-d8 (SS2)	14.14	98	233890	1003.147	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.32%			
45) Bromofluorobenzene (SS3)	17.55	174	81644	1013.231	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.32%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	58910	518.079	pg	100
3) Chloromethane	4.65	52	15407	605.776	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	51264	477.547	pg	100
5) Vinyl Chloride	4.95	62	50629	504.538	pg	99
6) 1,3-Butadiene	5.14	54	35482	580.401	pg	95
7) Bromomethane	5.48	94	20908	525.544	pg	99
8) Chloroethane	5.70	64	16195	511.660	pg	99
9) Acrolein	6.27	56	11378	437.264	pg	88
10) Acetone	6.40	58	102176	3163.611	pg	95
11) Trichlorofluoromethane	6.61	101	44877	512.829	pg	100
12) 1,1-Dichloroethene	7.35	96	26322	512.902	pg	100
13) Methylene Chloride	7.48	84	26746	505.630	pg	100
14) Trichlorotrifluoroethane	7.80	151	26797	508.508	pg	100
15) trans-1,2-Dichloroethene	8.52	96	28145	542.623	pg	99
16) 1,1-Dichloroethane	8.72	63	47032	522.581	pg	100
17) Methyl tert-Butyl Ether	8.79	73	86062	520.485	pg	100
18) cis-1,2-Dichloroethene	9.59	96	29698	531.479	pg	100
19) Chloroform	9.89	83	49855	512.486	pg	100
21) 1,2-Dichloroethane	10.64	62	37027	517.228	pg	100
22) 1,1,1-Trichloroethane	10.91	97	47513	518.414	pg	100
23) Benzene	11.37	78	113727	538.044	pg	100
24) Carbon Tetrachloride	11.52	117	43614	510.940	pg	100
26) 1,2-Dichloropropane	12.18	63	26265	508.779	pg	100
27) Bromodichloromethane	12.36	83	39211	521.106	pg	100
28) Trichloroethene	12.41	130	31161	525.704	pg	100
29) 1,4-Dioxane	12.38	88	23202	513.342	pg	99
30) cis-1,3-Dichloropropene	13.25	75	43338	516.495	pg	99
31) trans-1,3-Dichloropropene	13.77	75	38629	532.356	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22712	519.647	pg	100
34) Toluene	14.25	91	111070	499.911	pg	100
35) Dibromochloromethane	14.66	129	32990	511.483	pg	100
36) 1,2-Dibromoethane	14.92	107	30439	524.440	pg	100
37) Tetrachloroethene	15.40	166	33056	521.900	pg	100
39) Chlorobenzene	16.10	112	76155	534.838	pg	100
40) Ethylbenzene	16.48	91	129045	541.693	pg	100
41) m,p-Xylene	16.66	91	198089	1066.432	pg	100
42) Styrene	17.01	104	75961	533.763	pg	100
43) o-Xylene	17.12	106	48890	529.451	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45523	516.101	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	106411	531.118	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	107010	530.541	pg	100
48) 1,3-Dichlorobenzene	18.92	146	61115	551.716	pg	100
49) 1,4-Dichlorobenzene	18.98	146	61110	522.737	pg	100
50) 1,2-Dichlorobenzene	19.31	146	58934	527.481	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20531	510.706	pg	99
52) 1,2,4-Trichlorobenzene	20.95	182	37063	467.251	pg	100
53) Naphthalene	21.06	128	127262	501.435	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011704.D Vial: 2
Acq On : 1 Feb 2017 9:21 Operator: CL
Sample : LCS S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 09:47:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

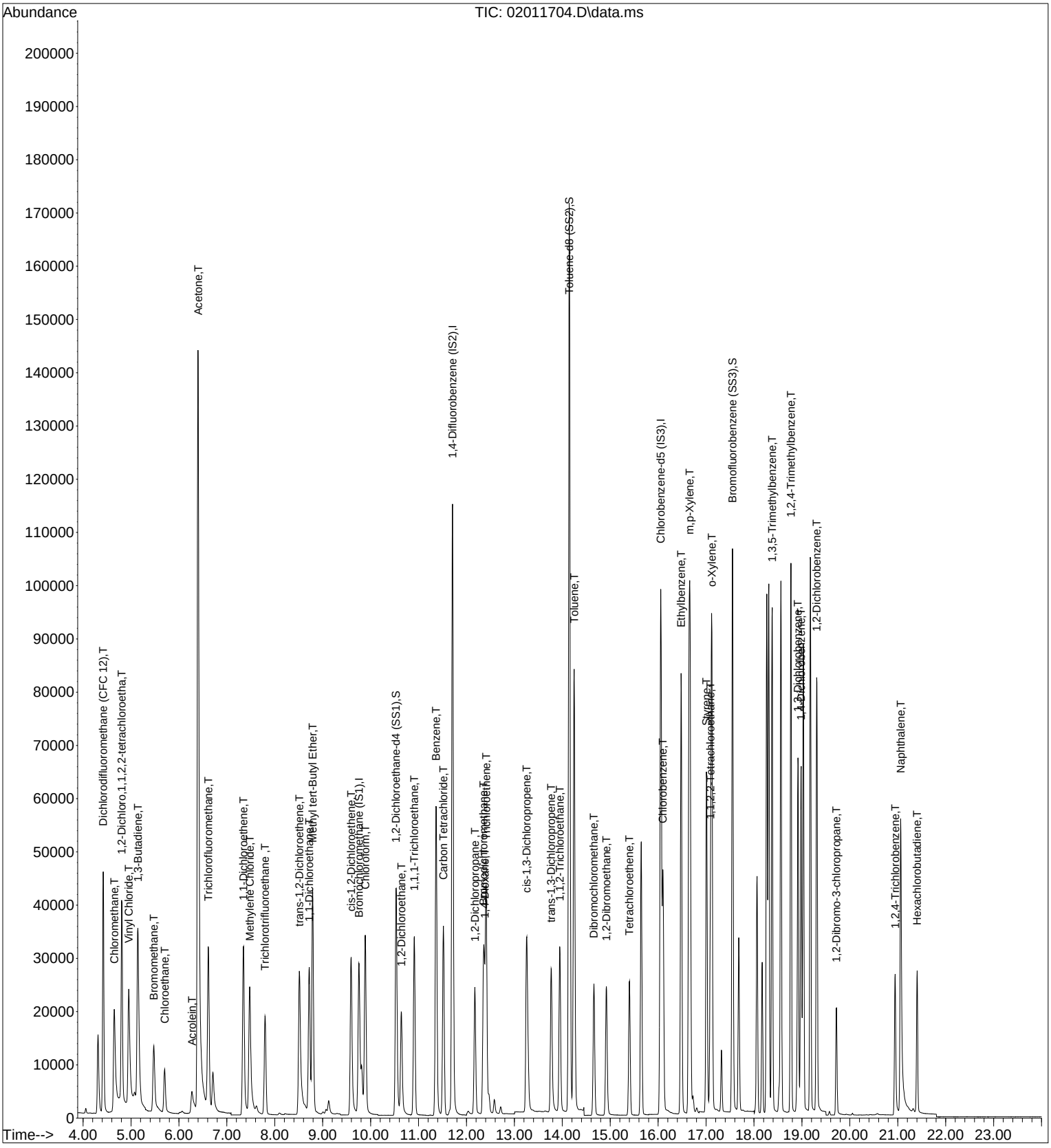
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26126	505.463	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011704.D Vial: 2
Acq On : 1 Feb 2017 9:21 Operator: CL
Sample : LCS S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 09:47:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane		1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771		25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride		2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488		11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors: 5 | 50 | 250 | 1000 | 5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704		
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703		
4ng/L Std. ID:	S29-01171706					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

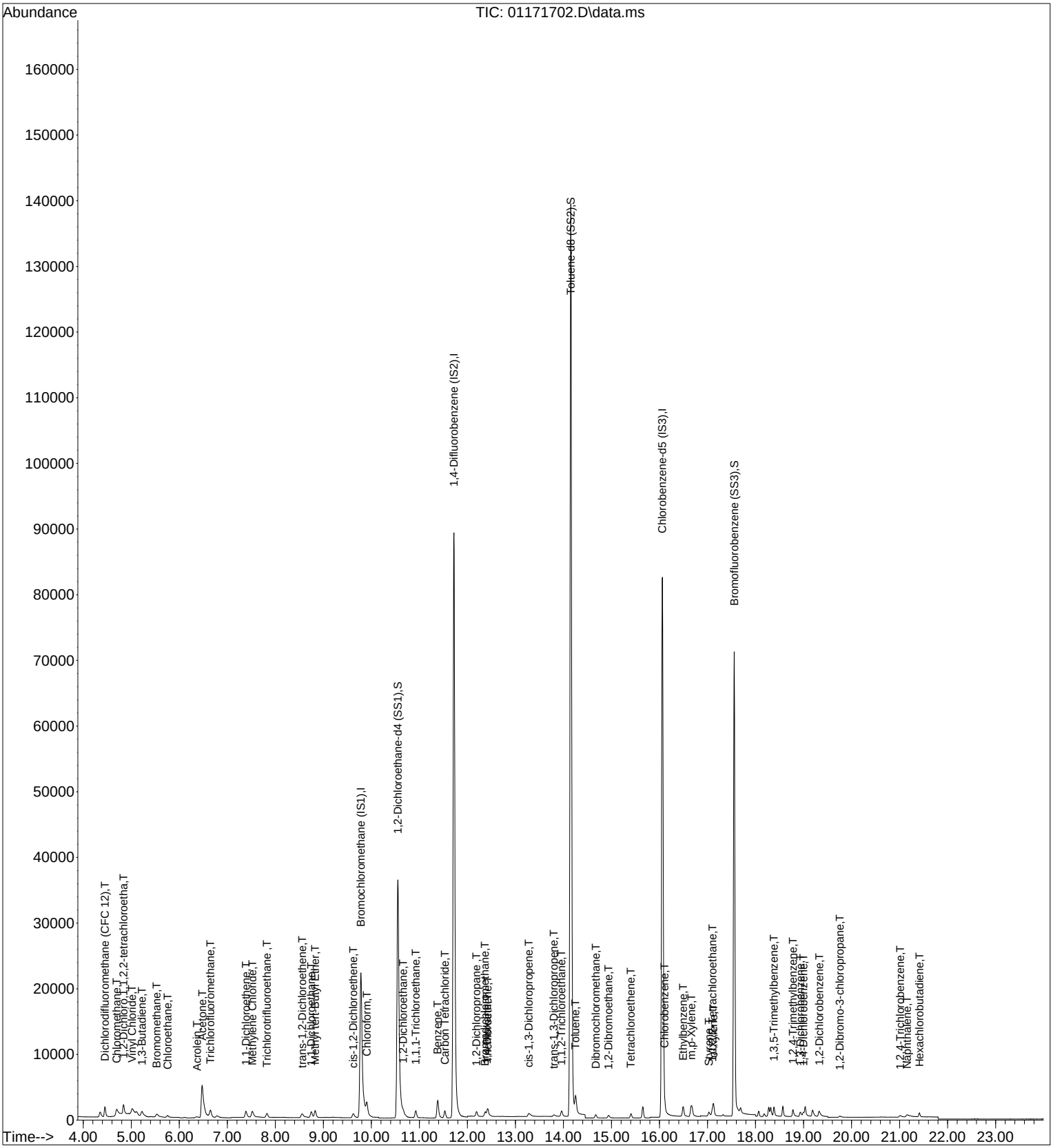
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

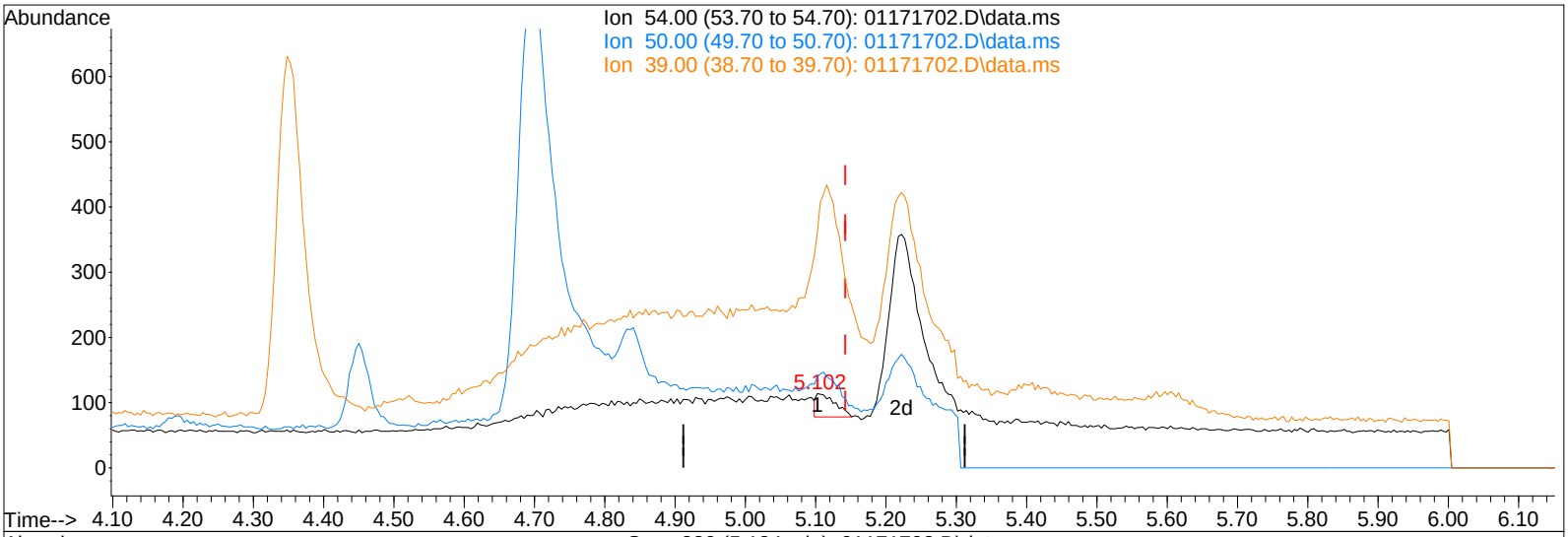
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

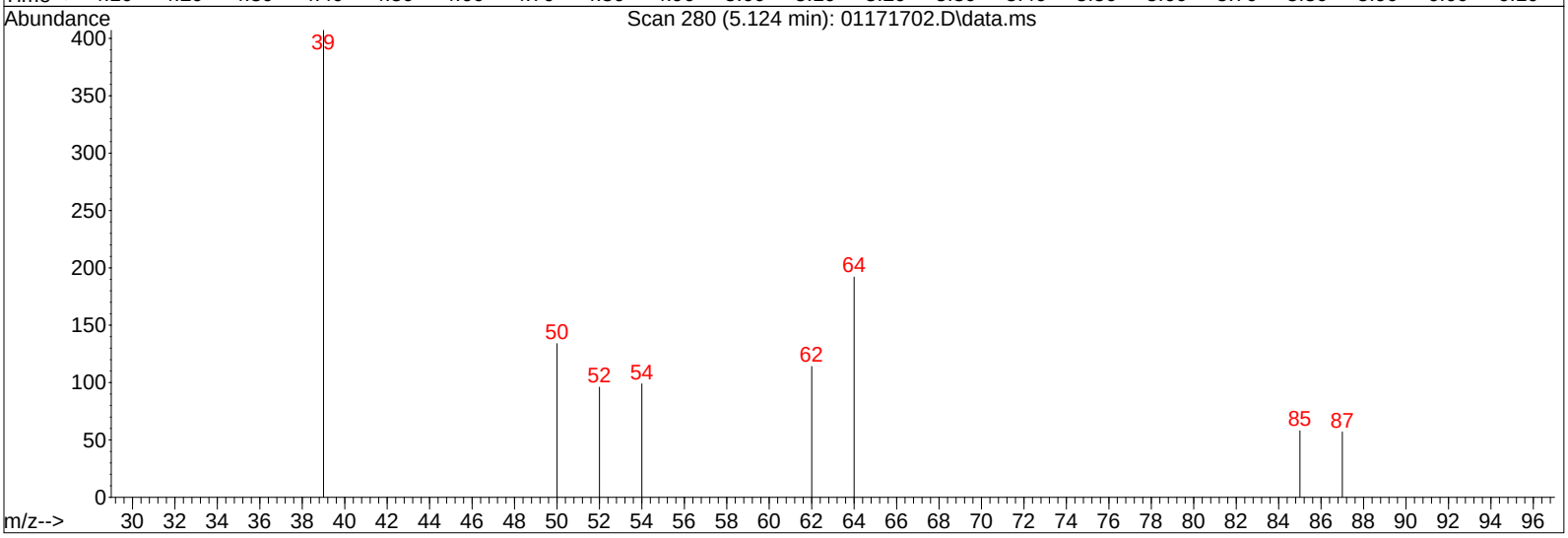


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

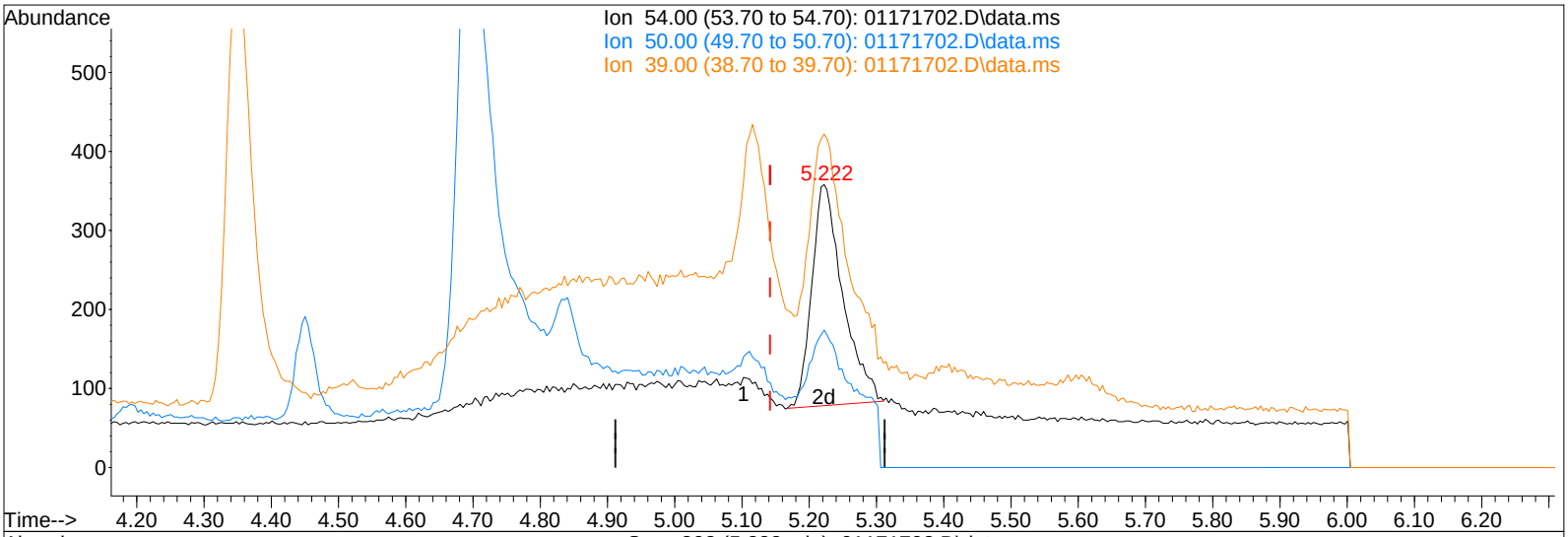
response 67

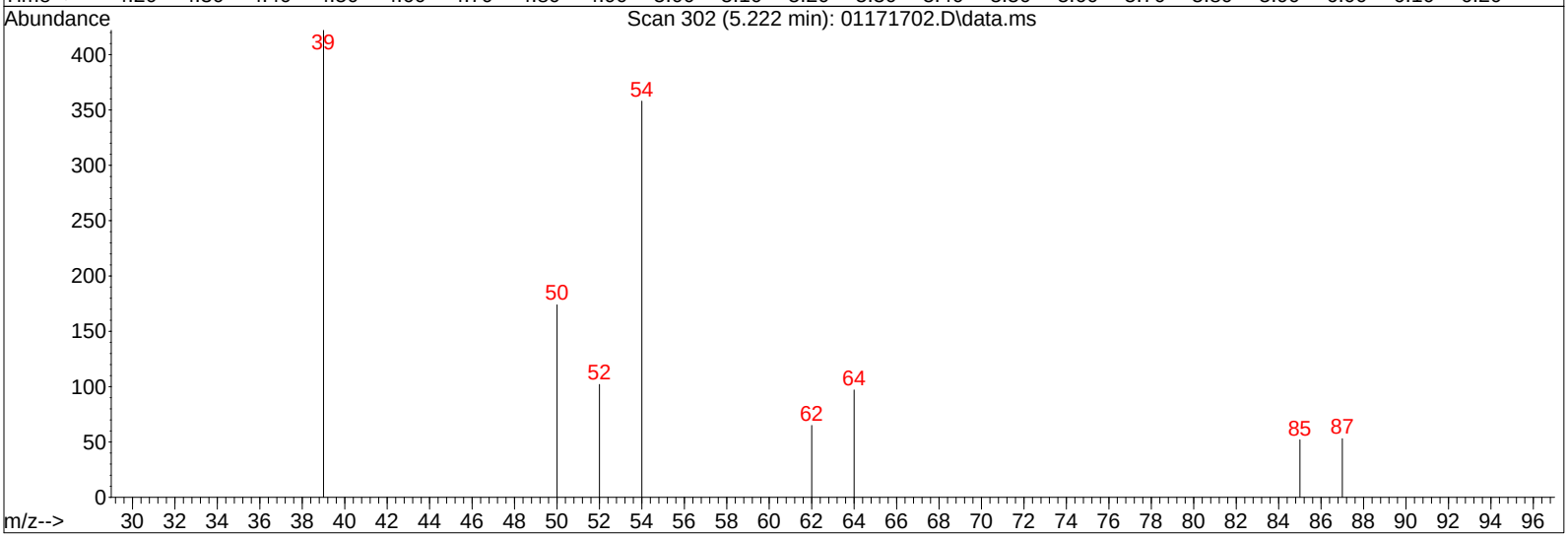
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

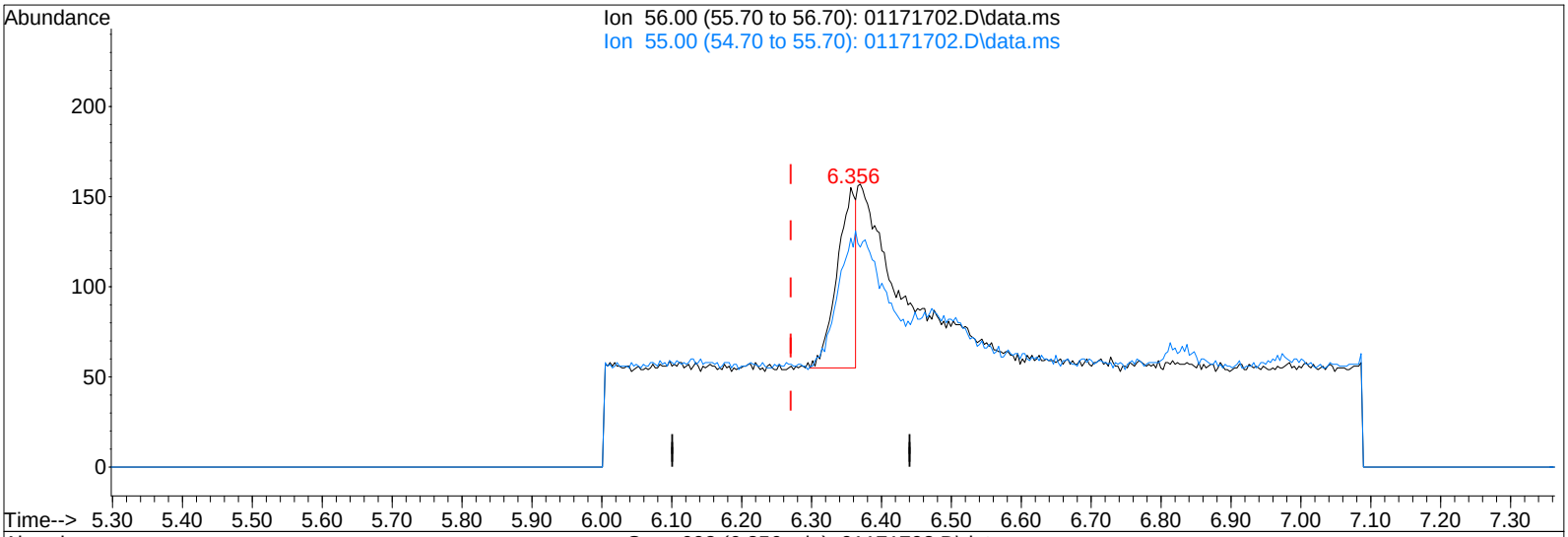
CL 1/18/17

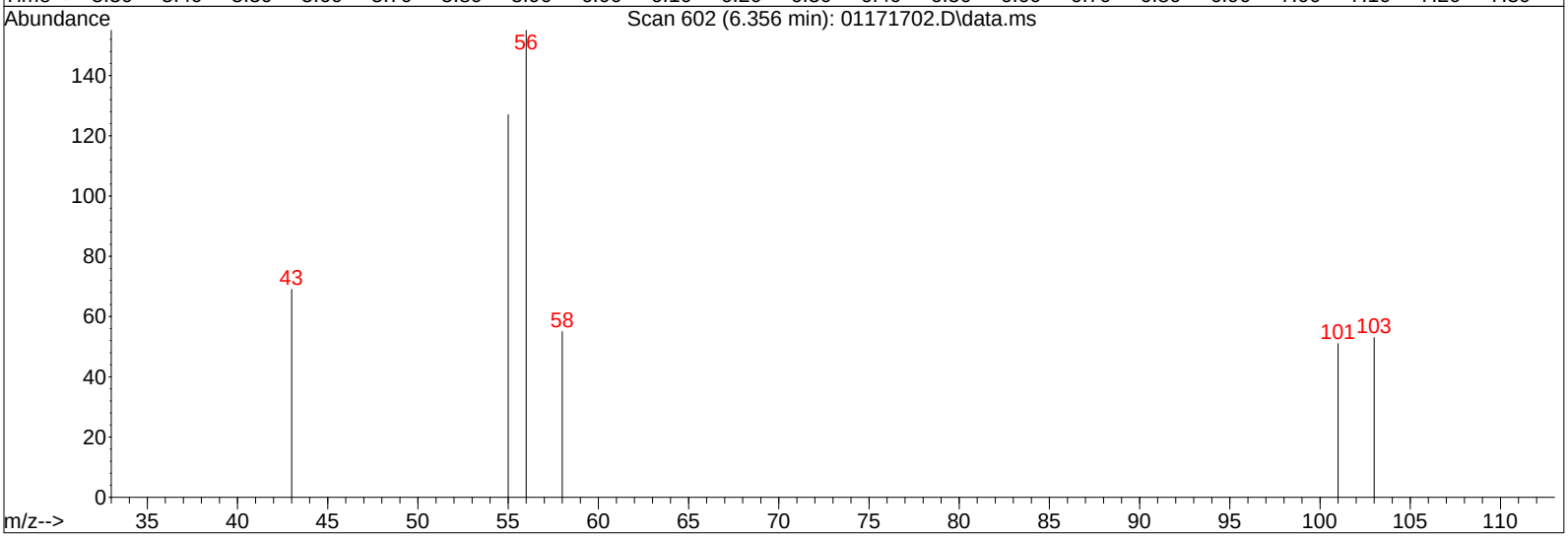
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

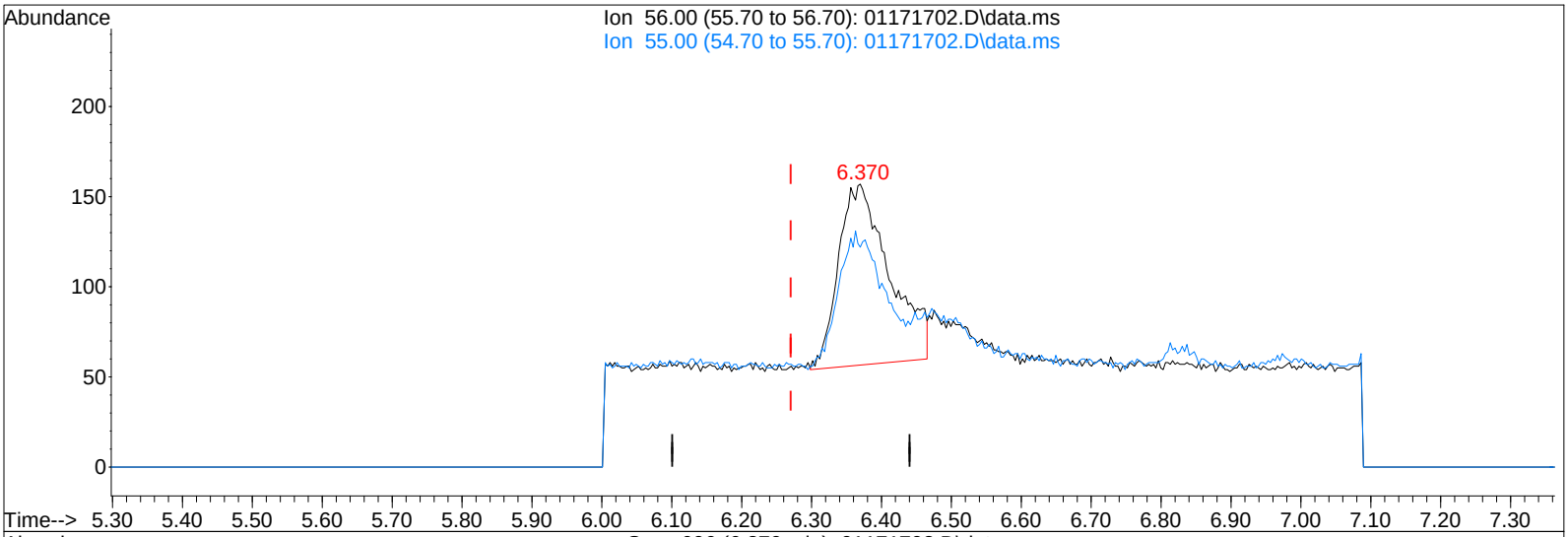
response 183

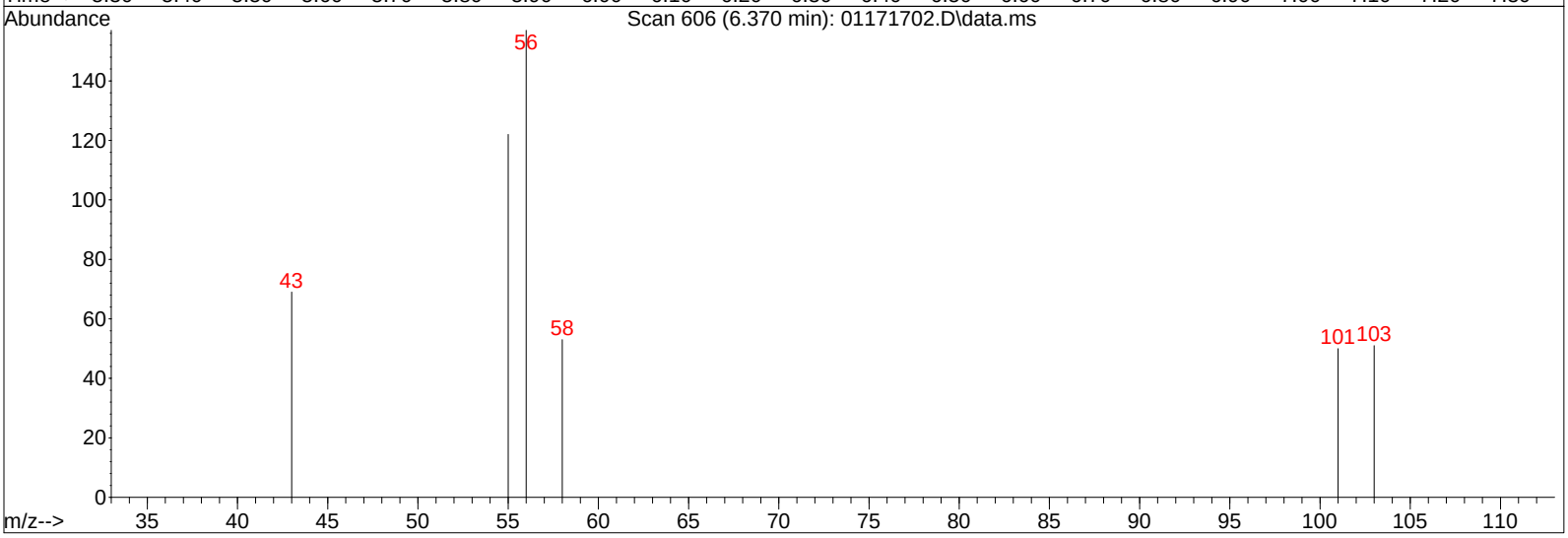
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

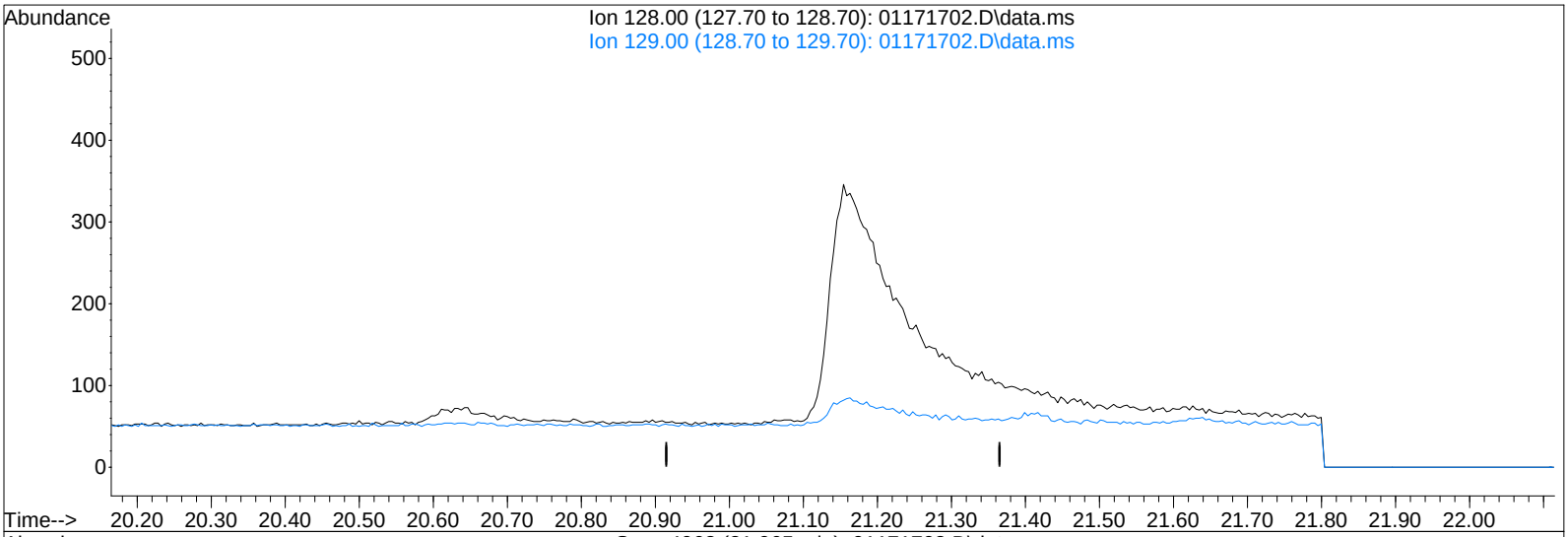
CL 1/18/17

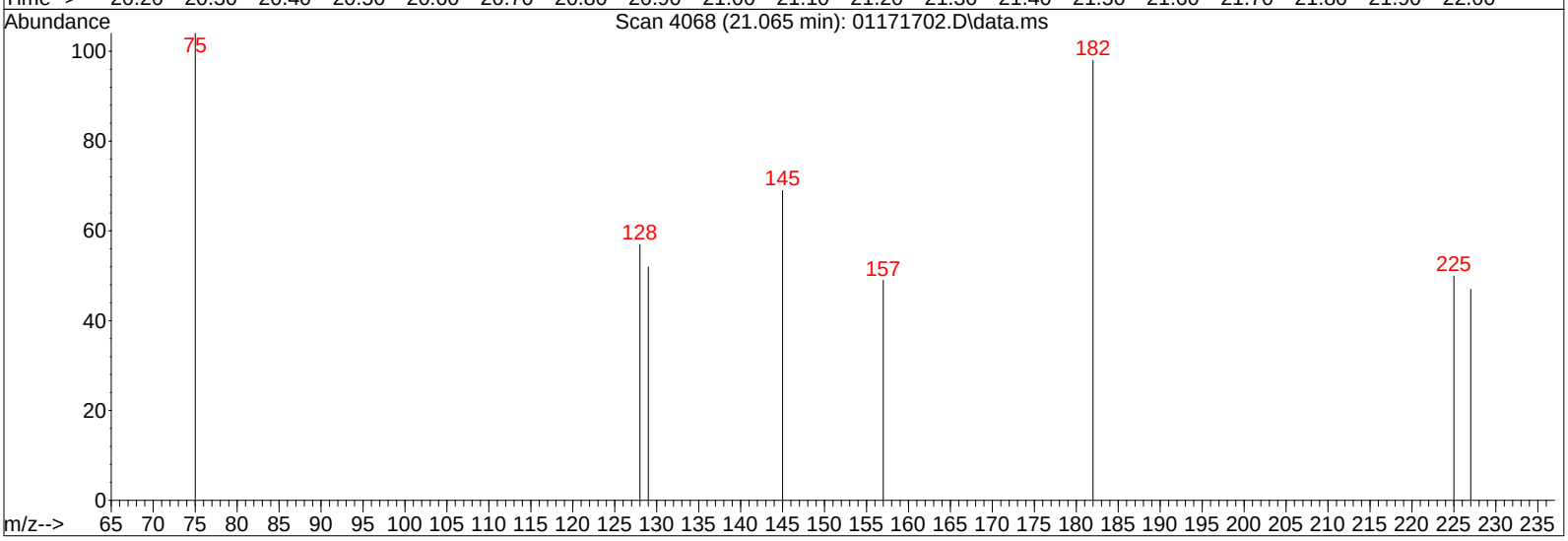
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

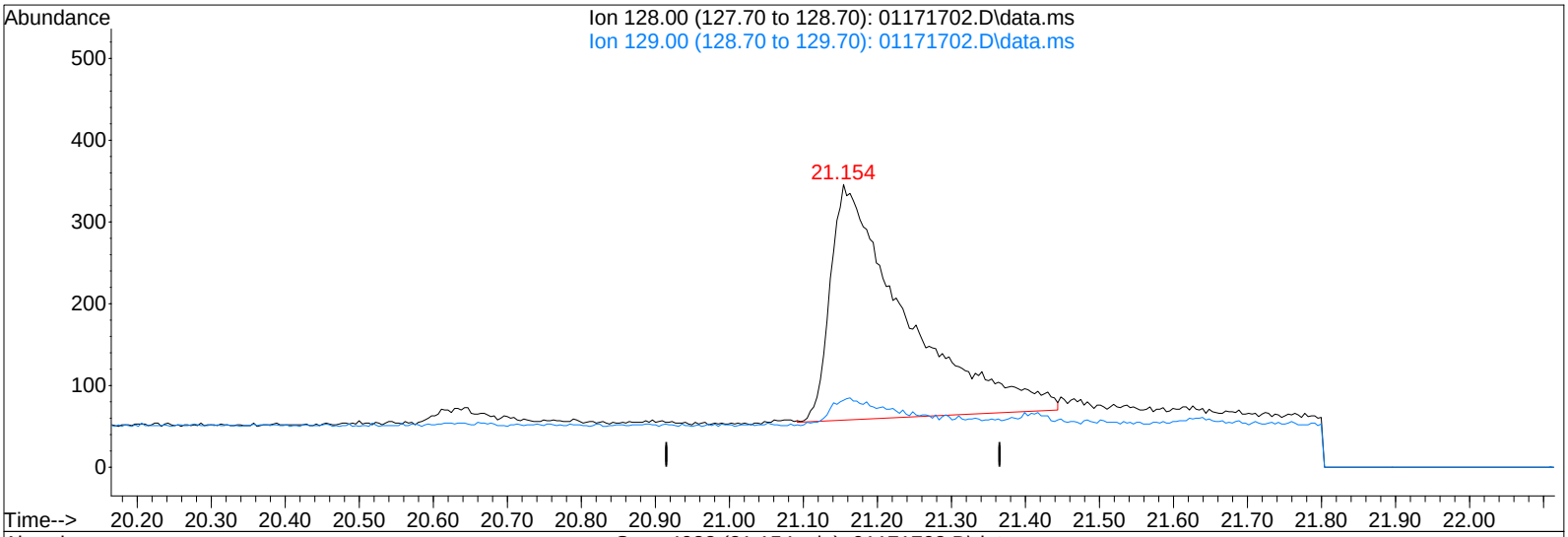
response 0

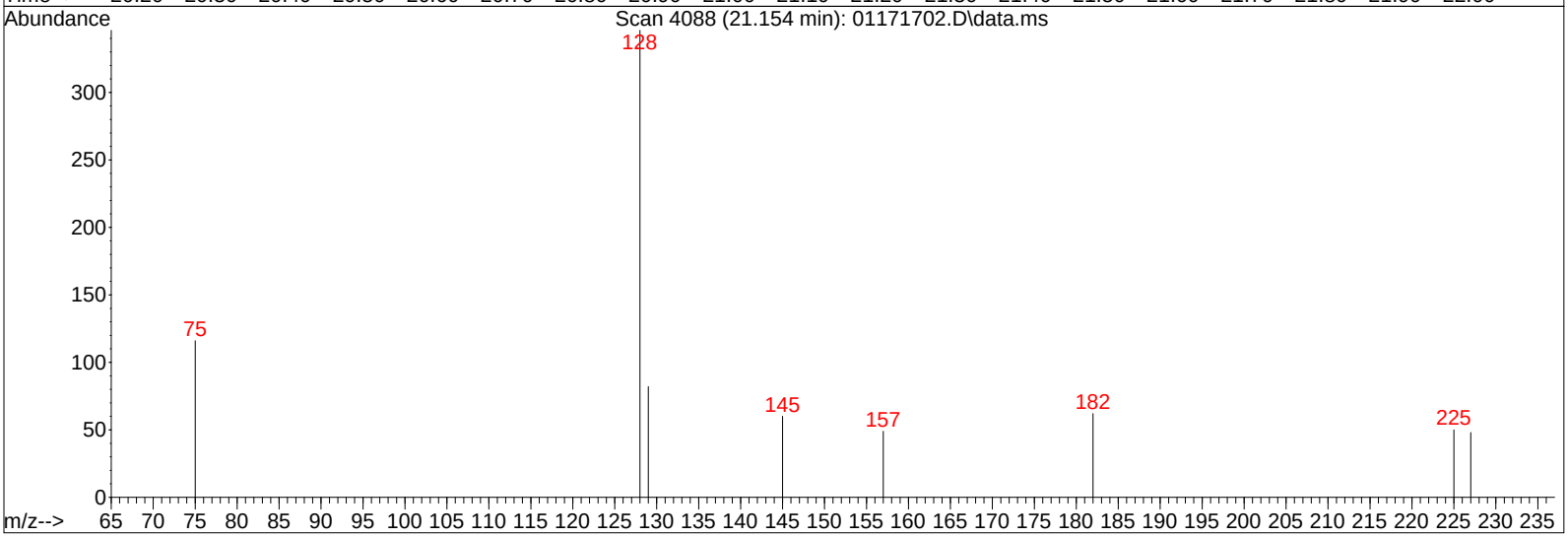
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

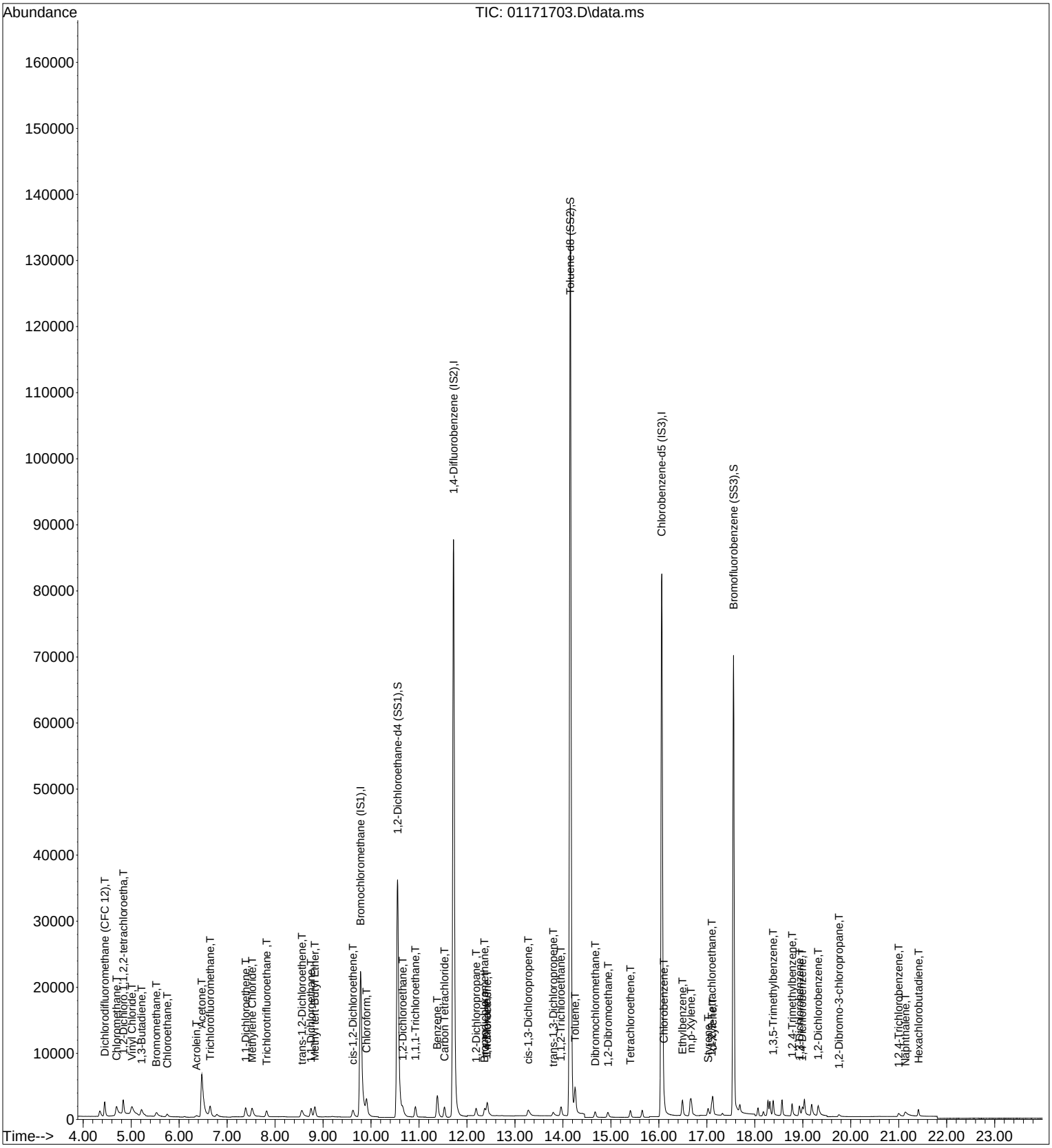
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

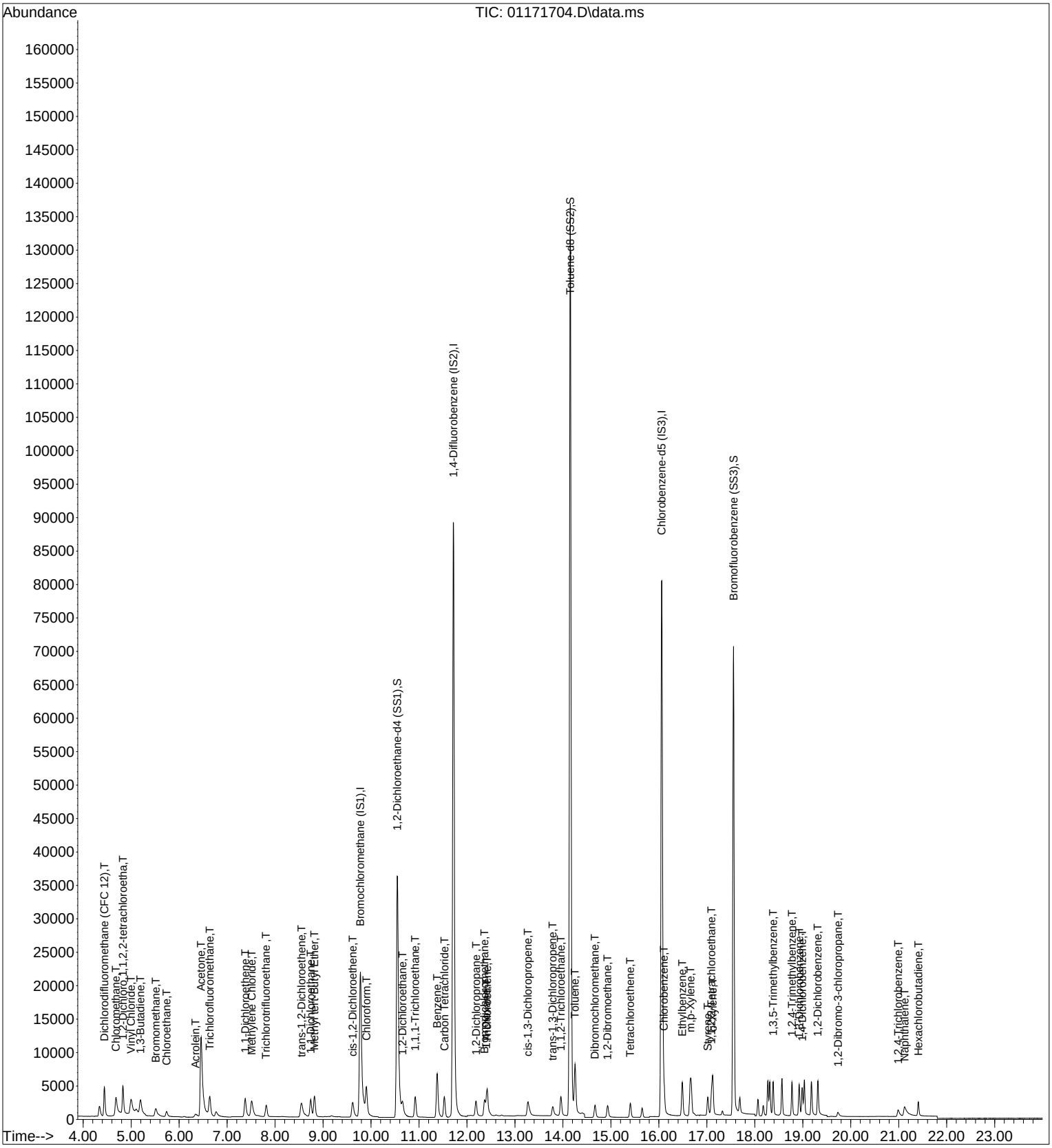
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

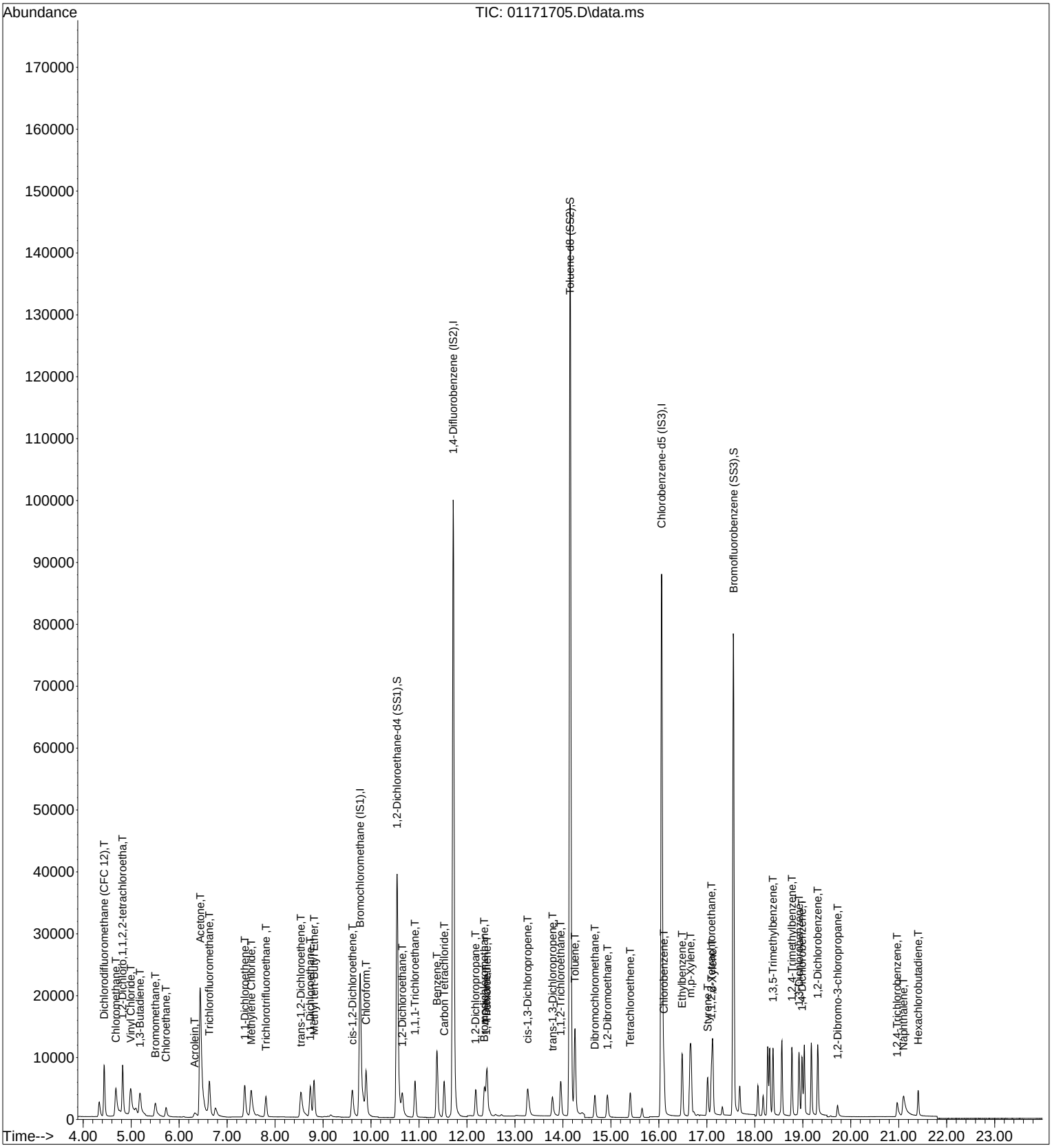
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

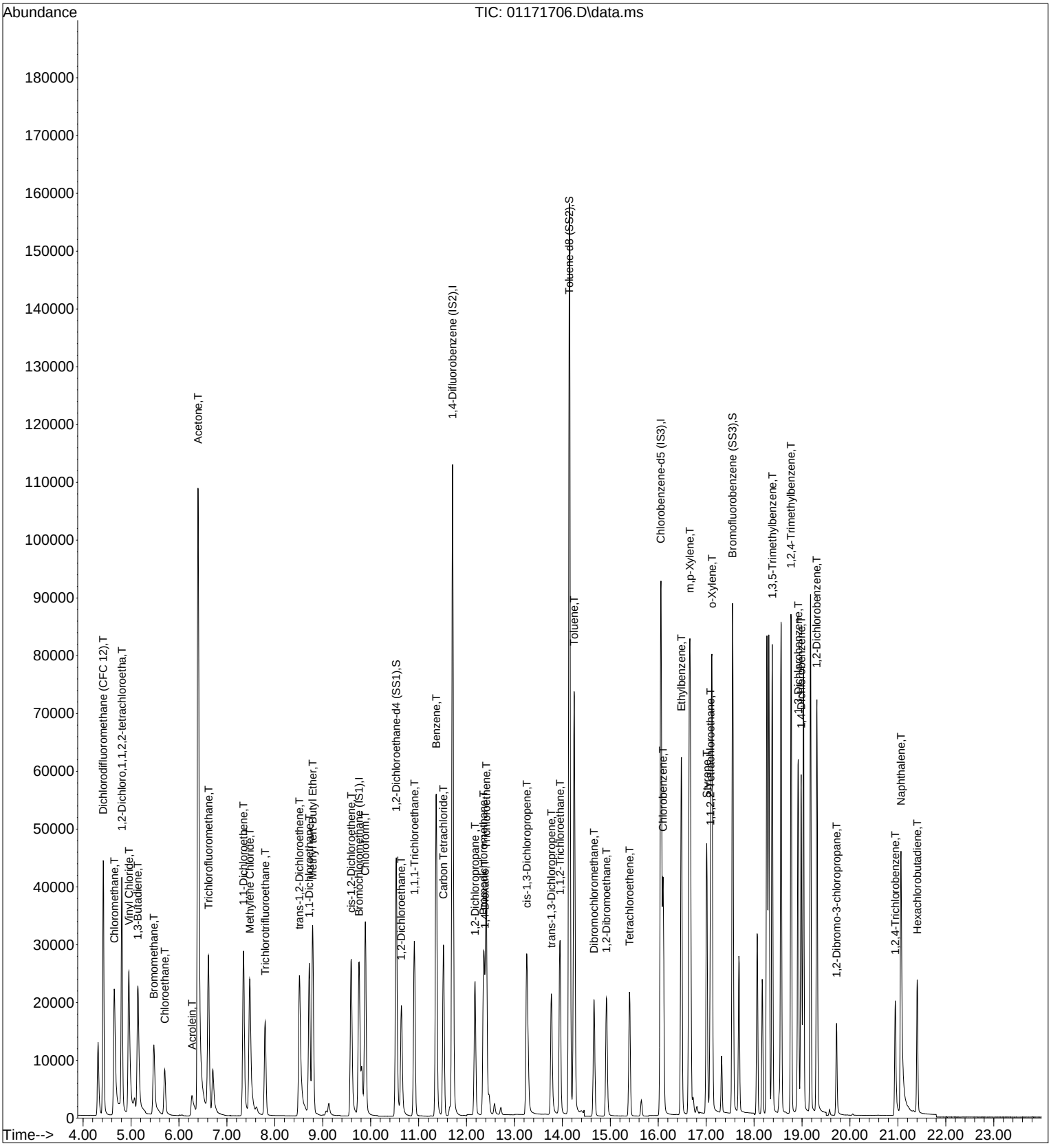
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

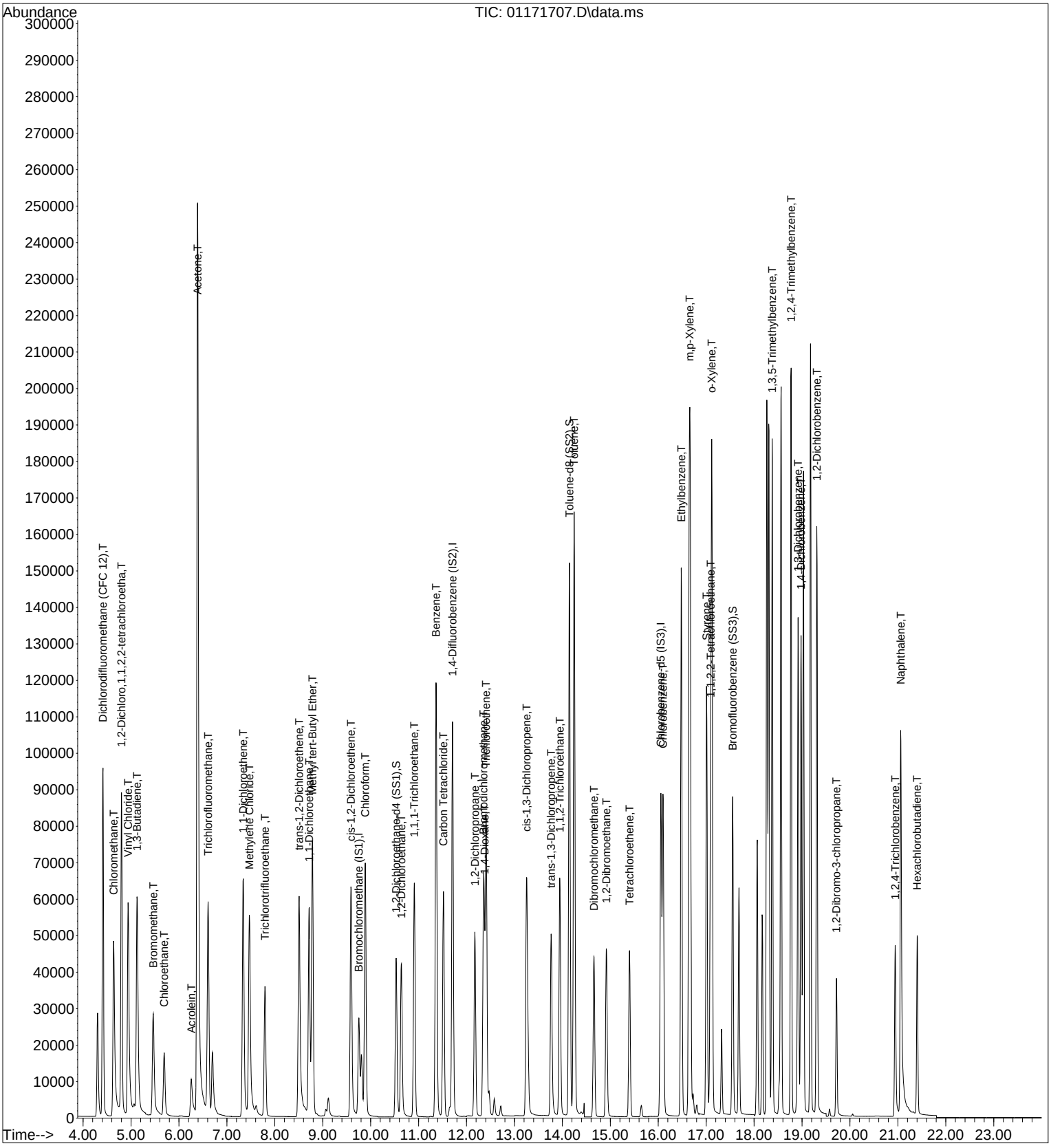
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

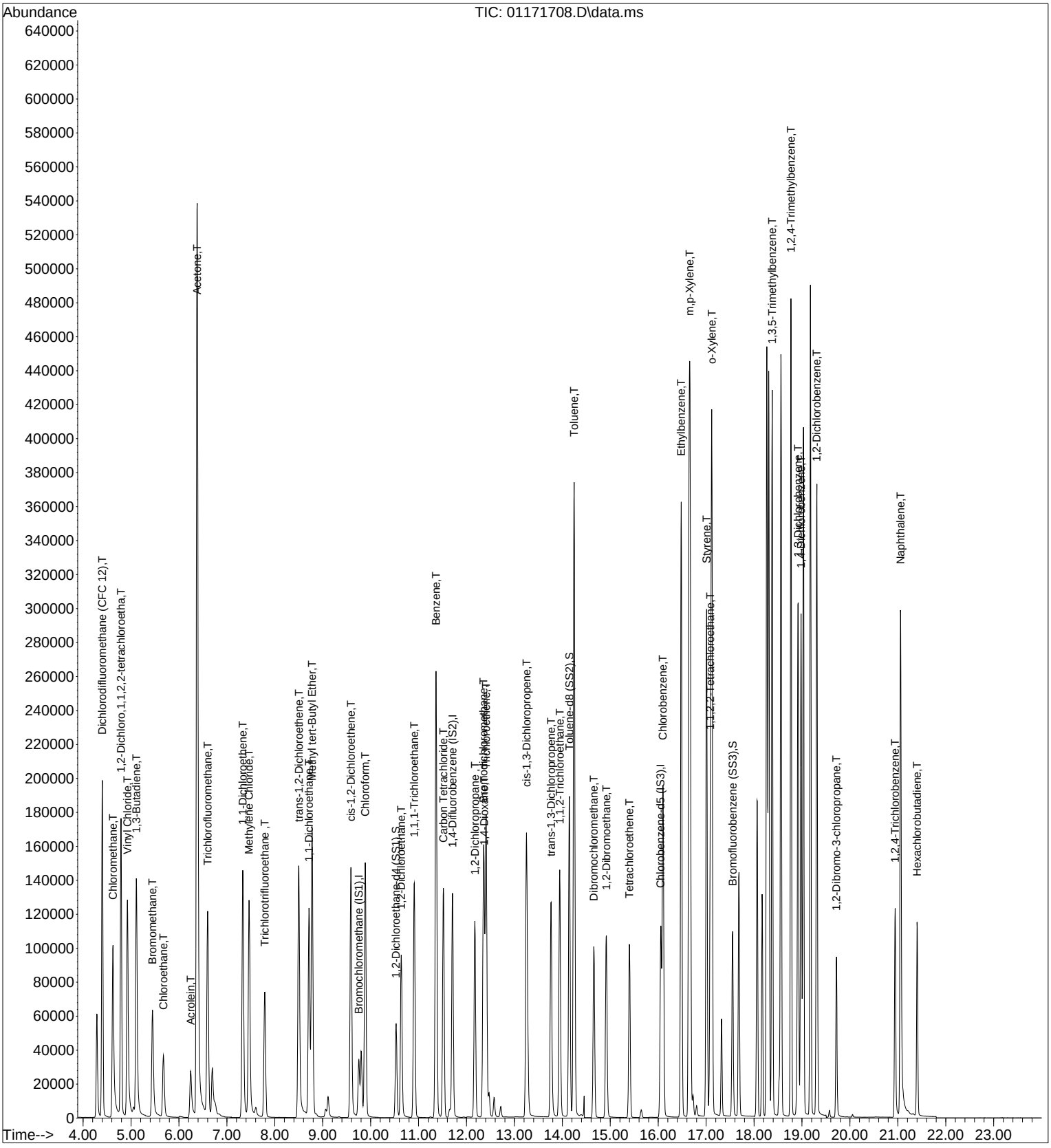
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%		
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%		
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944 pg	100
3) Chloromethane	4.61	52	162688	4785.564 pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926 pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389 pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564 pg	99
7) Bromomethane	5.44	94	222851	4643.991 pg	100
8) Chloroethane	5.66	64	179461	5258.665 pg	100
9) Acrolein	6.24	56	140240	5967.932 pg	99
10) Acetone	6.38	58	838814	25814.022 pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282 pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913 pg	99
13) Methylene Chloride	7.47	84	297672	4889.177 pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498 pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436 pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227 pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907 pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430 pg	100
19) Chloroform	9.89	83	522733	4780.247 pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905 pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873 pg	100
23) Benzene	11.36	78	1167900	4536.841 pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159 pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114 pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606 pg	100
28) Trichloroethene	12.41	130	299094	4425.611 pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520 pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385 pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769 pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991 pg	99
34) Toluene	14.25	91	1167322	4708.699 pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519 pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632 pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535 pg	100
39) Chlorobenzene	16.10	112	788966	3880.853 pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214 pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622 pg	100
42) Styrene	17.01	104	851189	4927.183 pg	99
43) o-Xylene	17.12	106	518661	4234.000 pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849 pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868 pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829 pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246 pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465 pg	100
53) Naphthalene	21.06	128	1434819	5185.458 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

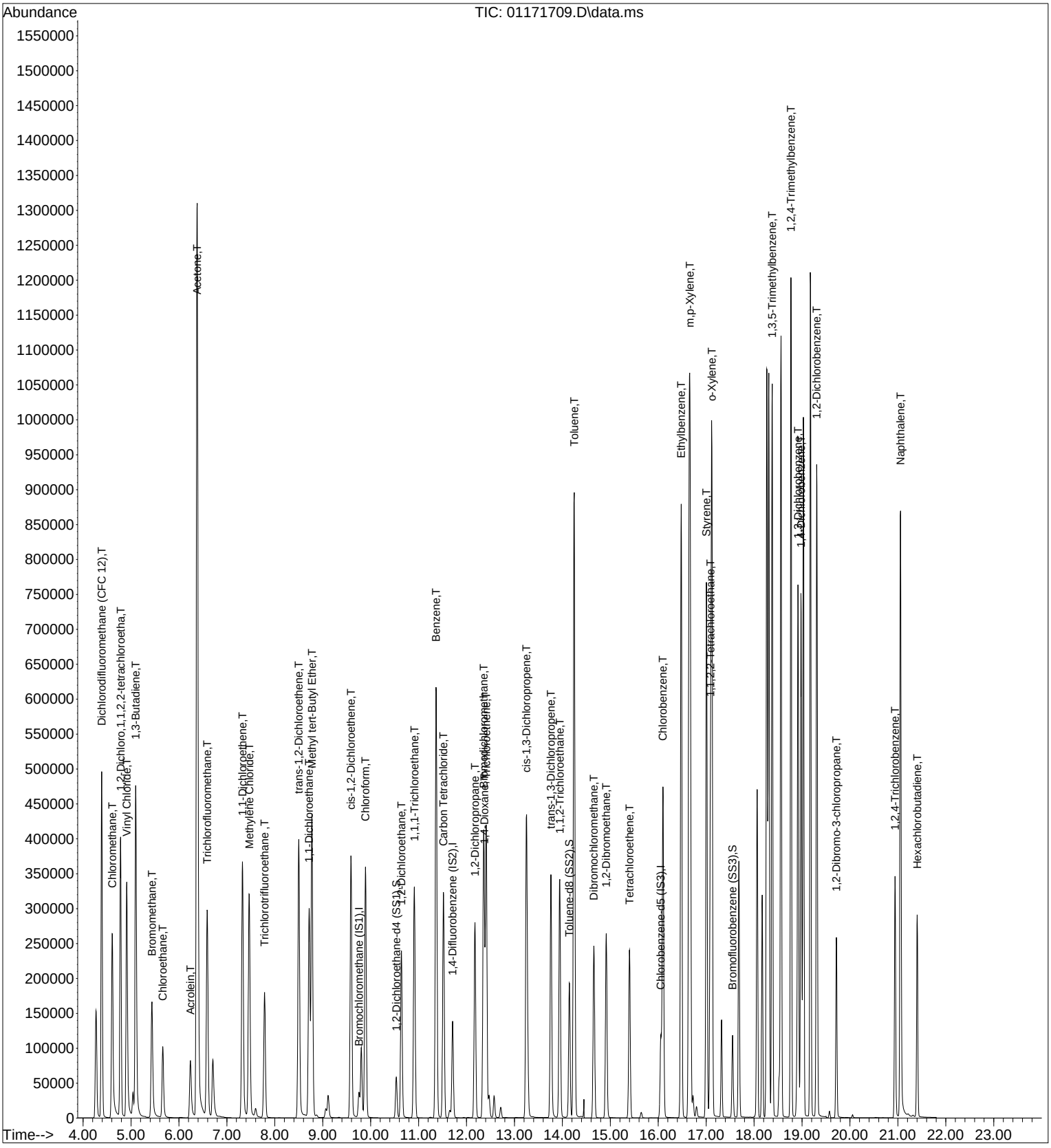
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

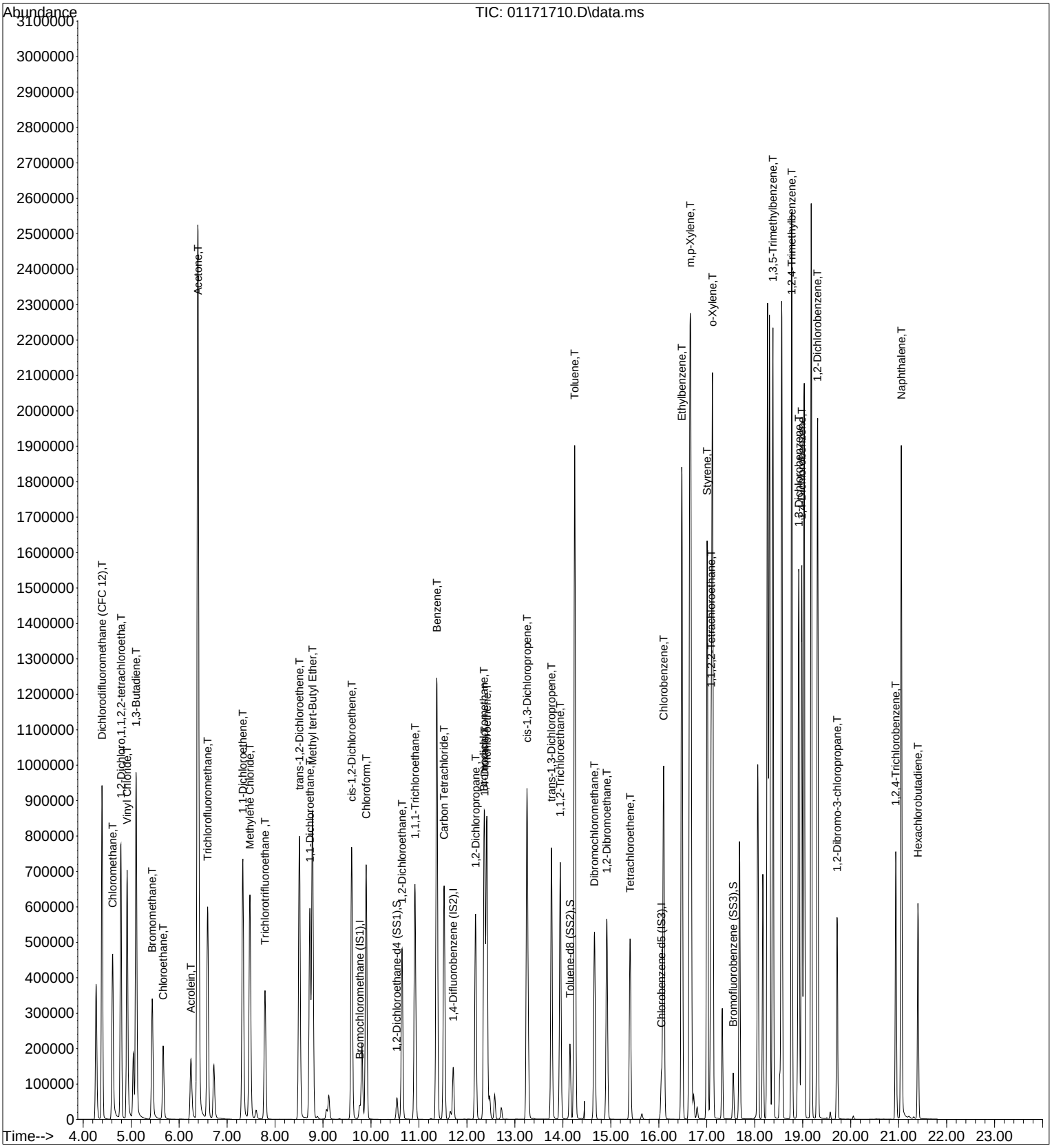
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

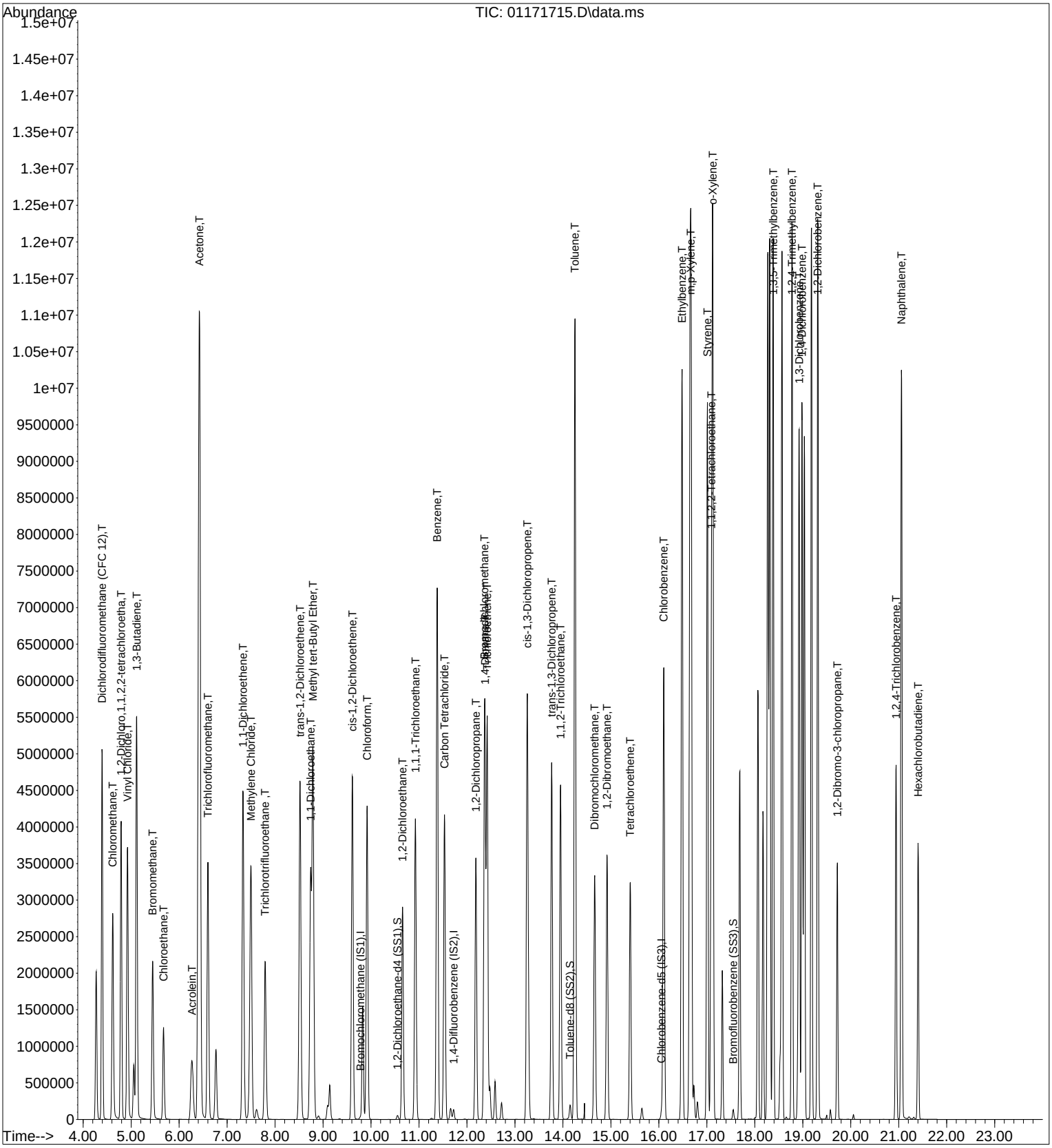
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

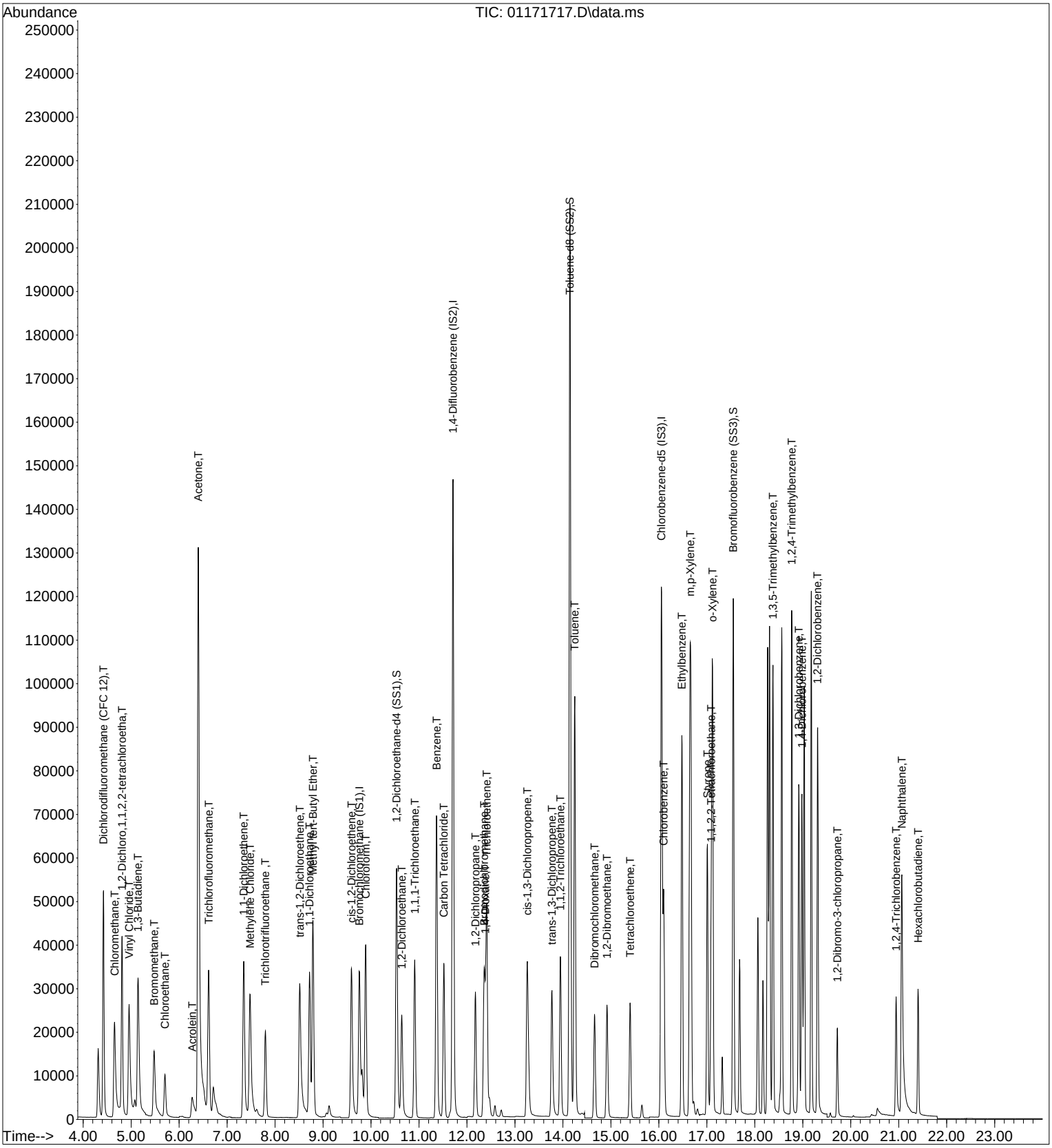
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23 CL 1/18/17
Acq. Method File: TO15SIM.M

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response Via : Initial Calibration

CL 2/1/17

Calibration Files
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5000=01311722.D 10K =01311723.D 50K =01311725.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	2.608	2.820	2.639	2.389	2.332	2.624	2.277	2.121	1.991	1.810	2.361	13.58
3)	T	Chloromethane			0.722	0.582	0.495	0.720	0.567	0.439	0.268	0.433	0.528	29.04
4)	T	1,2-Dichloro,1...	2.506	2.728	2.524	2.214	2.212	2.453	2.105	1.960	1.845	1.743	2.229	14.46
5)	T	Vinyl Chloride	2.663	2.164	2.406	2.063	2.012	2.274	1.955	1.854	1.767	1.677	2.084	14.51
6)	T	1,3-Butadiene		1.373	0.773	1.008	1.147	1.606	1.340	1.428	1.357	1.393	1.269	19.82
7)	T	Bromomethane	0.848	0.944	0.863	0.807	0.819	0.917	0.815	0.767	0.735	0.745	0.826	8.38
8)	T	Chloroethane	0.639	0.757	0.678	0.658	0.651	0.730	0.640	0.620	0.602	0.596	0.657	7.96
9)	T	Acrolein			0.641	0.565	0.484	0.567	0.514	0.516	0.509	0.528	0.540	9.11
10)	T	Acetone				0.927	0.642	0.710	0.613	0.580	0.565	0.657	0.671	18.39
11)	T	Trichlorofluor...	1.889	2.169	2.029	1.820	1.775	1.978	1.713	1.642	1.571	1.583	1.817	10.99
12)	T	1,1-Dichloroet...	1.063	1.220	1.141	1.044	1.040	1.179	1.038	1.000	0.964	0.967	1.066	8.22
13)	T	Methylene Chlo...		1.370	1.220	1.075	1.059	1.181	1.034	0.993	0.964	0.989	1.098	12.17
14)	T	Trichlorotrifl...	1.138	1.282	1.192	1.063	1.060	1.208	1.049	1.008	0.944	0.999	1.094	9.77
15)	T	trans-1,2-Dich...	1.075	1.096	1.026	1.058	1.085	1.246	1.103	1.060	1.012	1.009	1.077	6.31
16)	T	1,1-Dichloroet...	1.843	2.111	1.994	1.821	1.872	2.104	1.837	1.744	1.677	1.683	1.869	8.37
17)	T	Methyl tert-Bu...	3.545	4.009	3.704	3.377	3.408	3.797	3.293	3.114	2.997	3.088	3.433	9.63
18)	T	cis-1,2-Dichlo...	1.158	1.080	1.249	1.134	1.174	1.327	1.174	1.131	1.089	1.088	1.160	6.70
19)	T	Chloroform			2.631	2.164	1.969	2.189	1.899	1.809	1.738	1.760	2.020	14.87
20)	S	1,2-Dichloroet...	1.545	1.552	1.558	1.566	1.600	1.551	1.560	1.577	1.604	1.567	1.568	1.28
21)	T	1,2-Dichloroet...	1.442	1.617	1.548	1.425	1.455	1.671	1.477	1.433	1.389	1.406	1.486	6.36
22)	T	1,1,1-Trichlor...	1.944	2.218	2.057	1.856	1.876	2.111	1.845	1.755	1.679	1.688	1.903	9.47
23)	T	Benzene			5.575	4.588	4.295	4.800	4.160	3.970	3.819	3.904	4.389	13.37
24)	T	Carbon Tetrach...	2.006	2.025	1.906	1.717	1.714	1.922	1.679	1.609	1.555	1.590	1.772	9.97
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.256	0.234	0.231	0.210	0.213	0.244	0.216	0.209	0.202	0.212	0.223	7.87
27)	T	Bromodichlorom...	0.314	0.380	0.346	0.312	0.311	0.355	0.315	0.303	0.291	0.318	0.324	8.39
28)	T	Trichloroethene	0.268	0.294	0.272	0.248	0.249	0.283	0.247	0.234	0.223	0.238	0.256	8.90
29)	T	1,4-Dioxane	0.197	0.220	0.202	0.186	0.191	0.215	0.190	0.182	0.173	0.192	0.195	7.42
30)	T	cis-1,3-Dichlo...	0.354	0.361	0.359	0.336	0.349	0.406	0.366	0.358	0.347	0.383	0.362	5.51
31)	T	trans-1,3-Dich...	0.276	0.284	0.293	0.287	0.304	0.360	0.331	0.330	0.322	0.342	0.313	8.98
32)	T	1,1,2-Trichlor...	0.199	0.210	0.196	0.177	0.182	0.209	0.184	0.177	0.169	0.181	0.188	7.48
33)	S	Toluene-d8 (SS2)	1.002	1.004	1.005	1.006	1.012	1.015	1.013	1.006	1.000	0.991	1.005	0.70
34)	T	Toluene	1.177	1.131	1.031	0.915	0.903	1.024	0.899	0.856	0.814	0.830	0.958	13.18
35)	T	Dibromochlorom...	0.256	0.310	0.296	0.270	0.265	0.305	0.274	0.269	0.261	0.275	0.278	6.78
36)	T	1,2-Dibromoethane	0.243	0.258	0.256	0.239	0.243	0.283	0.253	0.246	0.237	0.244	0.250	5.39
37)	T	Tetrachloroethene	0.276	0.304	0.285	0.259	0.264	0.302	0.269	0.261	0.250	0.261	0.273	6.77
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	4.147	4.403	4.142	3.703	3.717	4.228	3.718	3.529	3.298	2.878	3.776	12.41
40)	T	Ethylbenzene	6.758	7.267	6.938	6.280	6.372	7.205	6.271	5.889	5.468	4.732	6.318	12.59
41)	T	m,p-Xylene	5.487	5.879	5.505	4.783	4.870	5.477	4.740	4.490	4.271	3.761	4.926	13.36

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	3.409	3.984	3.895	3.642	3.755	4.367	3.917	3.831	3.661	3.283	3.774	8.09
43)	T	o-Xylene	2.601	2.846	2.666	2.400	2.404	2.709	2.365	2.258	2.153	2.089	2.449	10.19
44)	T	1,1,2,2-Tetrac...	2.558	2.718	2.475	2.246	2.274	2.580	2.277	2.198	2.097	1.971	2.339	10.06
45)	S	Bromofluoroben...	2.101	2.135	2.143	2.135	2.150	2.173	2.208	2.245	2.217	1.863	2.137	4.95
46)	T	1,3,5-Trimethy...	5.354	6.071	5.706	5.192	5.320	6.016	5.271	5.108	4.886	4.211	5.314	10.27
47)	T	1,2,4-Trimethy...	4.773	5.865	5.673	5.206	5.357	6.143	5.444	5.330	5.135	4.566	5.349	8.86
48)	T	1,3-Dichlorobe...	2.261	2.915	3.101	2.893	2.965	3.499	3.117	3.073	2.910	2.645	2.938	11.00
49)	T	1,4-Dichlorobe...	2.987	3.454	3.363	3.076	3.006	3.456	3.111	3.056	2.909	2.586	3.100	8.63
50)	T	1,2-Dichlorobe...	2.752	3.125	3.134	2.878	2.894	3.368	3.014	2.963	2.817	2.687	2.963	6.90
51)	T	1,2-Dibromo-3-...	1.023	0.919	1.026	0.972	1.032	1.236	1.155	1.176	1.136	0.986	1.066	9.65
52)	T	1,2,4-Trichlor...	2.244	2.238	2.104	1.943	1.957	2.364	2.177	2.153	2.045	1.811	2.104	7.91
53)	T	Naphthalene	7.624	6.628	7.035	6.524	6.421	7.586	6.914	6.734	6.395	5.449	6.731	9.34
54)	T	Hexachlorobuta...	1.522	1.509	1.440	1.296	1.319	1.522	1.366	1.329	1.247	1.157	1.371	9.13

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 2/1/17

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301703		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01301701		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301703		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01301701		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:	5	50	250	1000	5000	

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19013117.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration

CL 2/1/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\31\01311715.D
2	20	21	1000	I:\MS19\DATA\2017_01\31\01311716.D
3	50	52	1000	I:\MS19\DATA\2017_01\31\01311717.D
4	100	105	1000	I:\MS19\DATA\2017_01\31\01311718.D
5	500	524	1000	I:\MS19\DATA\2017_01\31\01311719.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\31\01311720.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\31\01311721.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\31\01311722.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\31\01311723.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\31\01311725.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Feb 01 07:43 2017	Feb 01 07:15 2017	31 Jan 2017 15:23
2	20	Feb 01 07:43 2017	Feb 01 07:38 2017	31 Jan 2017 15:54
3	50	Feb 01 07:43 2017	Feb 01 07:39 2017	31 Jan 2017 16:25
4	100	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 16:57
5	500	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 17:28
6	1000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:00
7	2000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:31
8	5000	Feb 01 07:43 2017	Feb 01 07:13 2017	31 Jan 2017 19:02
9	10K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 19:34
10	50K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 20:37

S19013117.M Wed Feb 01 08:33:20 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43243	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	212631	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34615	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66797	891.924	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.19%				
33) Toluene-d8 (SS2)	14.15	98	213056	1008.718	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.87%				
45) Bromofluorobenzene (SS3)	17.56	174	72725	1148.441	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.84%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	1181	10.811	pg		99
3) Chloromethane	4.70	52	341m	10.477	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	1089	10.132	pg		96
5) Vinyl Chloride	5.01	62	1178	11.280	pg	#	58
6) 1,3-Butadiene	5.22	54	815	13.126	pg	#	76
7) Bromomethane	5.53	94	364	8.664	pg		99
8) Chloroethane	5.75	64	279	8.683	pg		94
9) Acrolein	6.37	56	545m	23.877	pg		
10) Acetone	6.47	58	8870	300.554	pg	#	67
11) Trichlorofluoromethane	6.64	101	857	11.470	pg		97
12) 1,1-Dichloroethene	7.38	96	487	10.404	pg		94
13) Methylene Chloride	7.52	84	736	14.489	pg		96
14) Trichlorotrifluoroethane	7.82	151	516	11.049	pg		99
15) trans-1,2-Dichloroethene	8.55	96	496	9.829	pg		93
16) 1,1-Dichloroethane	8.75	63	813	9.080	pg		97
17) Methyl tert-Butyl Ether	8.83	73	1634	12.230	pg		89
18) cis-1,2-Dichloroethene	9.62	96	533	10.065	pg		90
19) Chloroform	9.90	83	2277	24.184	pg		98
21) 1,2-Dichloroethane	10.66	62	656	9.051	pg		96
22) 1,1,1-Trichloroethane	10.92	97	903	10.332	pg		98
23) Benzene	11.38	78	3668	17.682	pg		99
24) Carbon Tetrachloride	11.53	117	915	13.038	pg		98
26) 1,2-Dichloropropane	12.19	63	577	10.654	pg		87
27) Bromodichloromethane	12.37	83	711	9.507	pg		99
28) Trichloroethene	12.42	130	603	10.908	pg		99
29) 1,4-Dioxane	12.42	88	445	10.962	pg		99
30) cis-1,3-Dichloropropene	13.28	75	840	11.531	pg		91
31) trans-1,3-Dichloropropene	13.80	75	624	10.526	pg	#	82
32) 1,1,2-Trichloroethane	13.96	83	449	9.801	pg		96
34) Toluene	14.25	91	2635	13.357	pg		100
35) Dibromochloromethane	14.67	129	577	10.562	pg		94
36) 1,2-Dibromoethane	14.94	107	546	10.568	pg		95
37) Tetrachloroethene	15.41	166	622	10.851	pg		96
39) Chlorobenzene	16.11	112	1523	11.413	pg		99
40) Ethylbenzene	16.49	91	2468	12.542	pg		98
41) m,p-Xylene	16.67	91	4032	27.318	pg		98
42) Styrene	17.03	104	1252	12.108	pg		99
43) o-Xylene	17.13	106	949	12.516	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	935	10.732	pg		93
46) 1,3,5-Trimethylbenzene	18.39	105	1944	12.443	pg		96
47) 1,2,4-Trimethylbenzene	18.79	105	1738	11.333	pg		96
48) 1,3-Dichlorobenzene	18.94	146	828	8.785	pg		96
49) 1,4-Dichlorobenzene	19.00	146	1094	11.148	pg		97
50) 1,2-Dichlorobenzene	19.34	146	1008	10.494	pg		96
51) 1,2-Dibromo-3-chloropr...	19.75	157	373	12.846	pg		90
52) 1,2,4-Trichlorobenzene	21.00	182	810	14.247	pg		99
53) Naphthalene	21.14	128	2858	15.831	pg		90

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

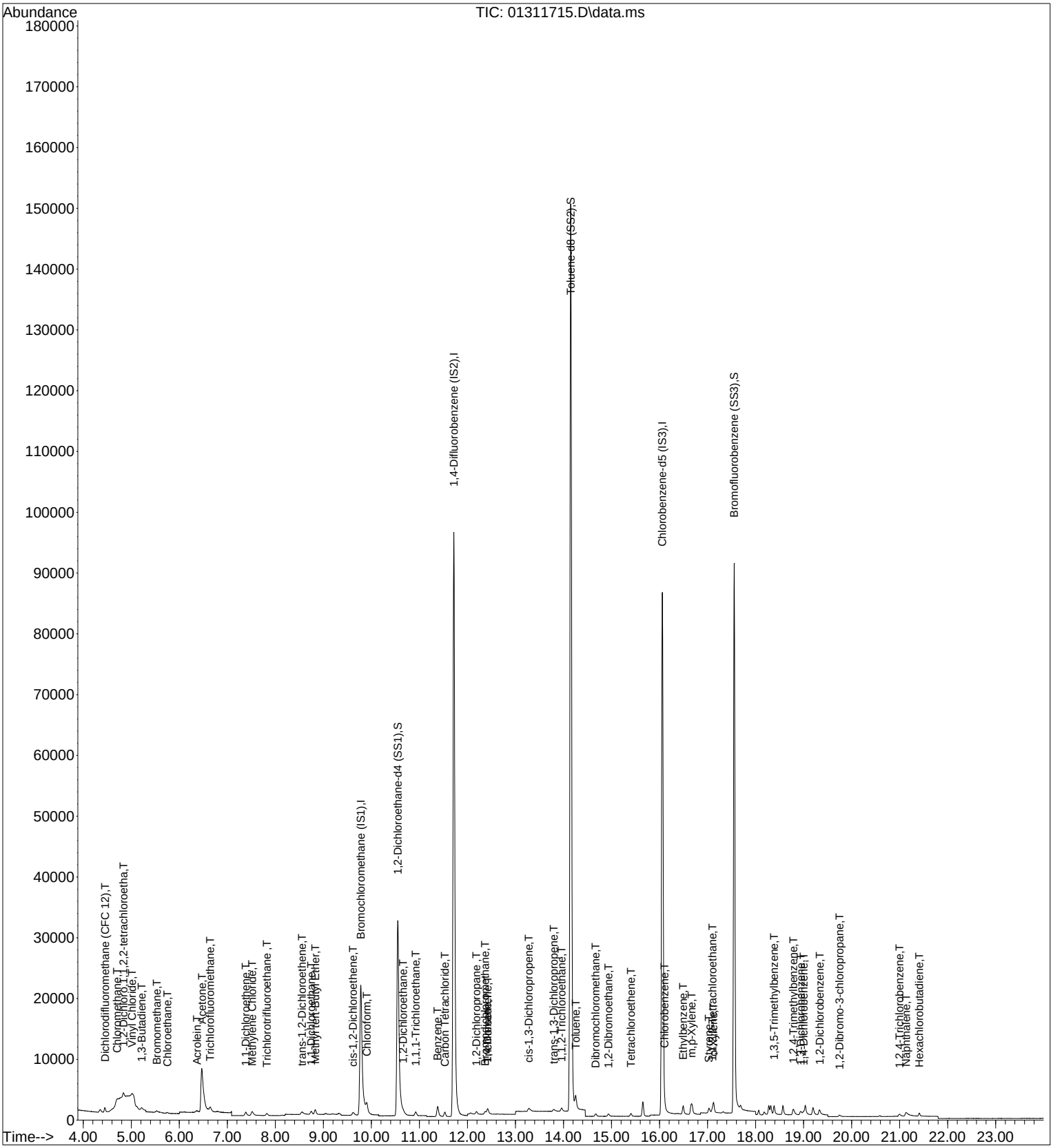
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	558	12.406	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

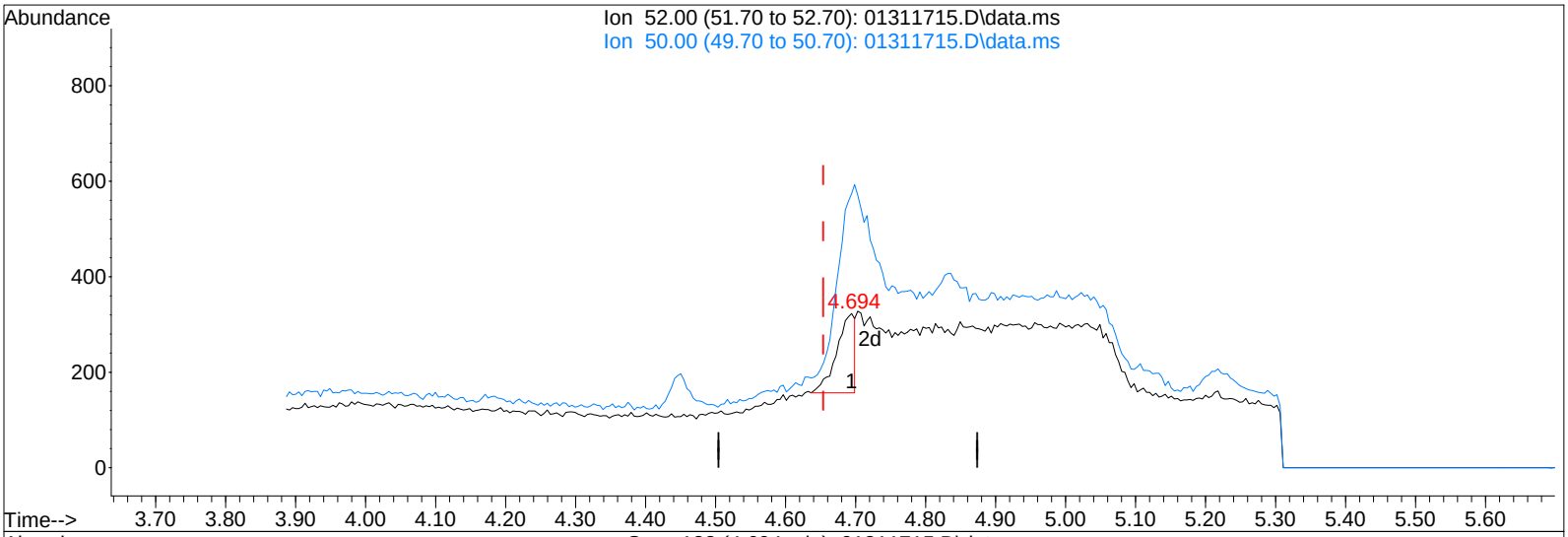
Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

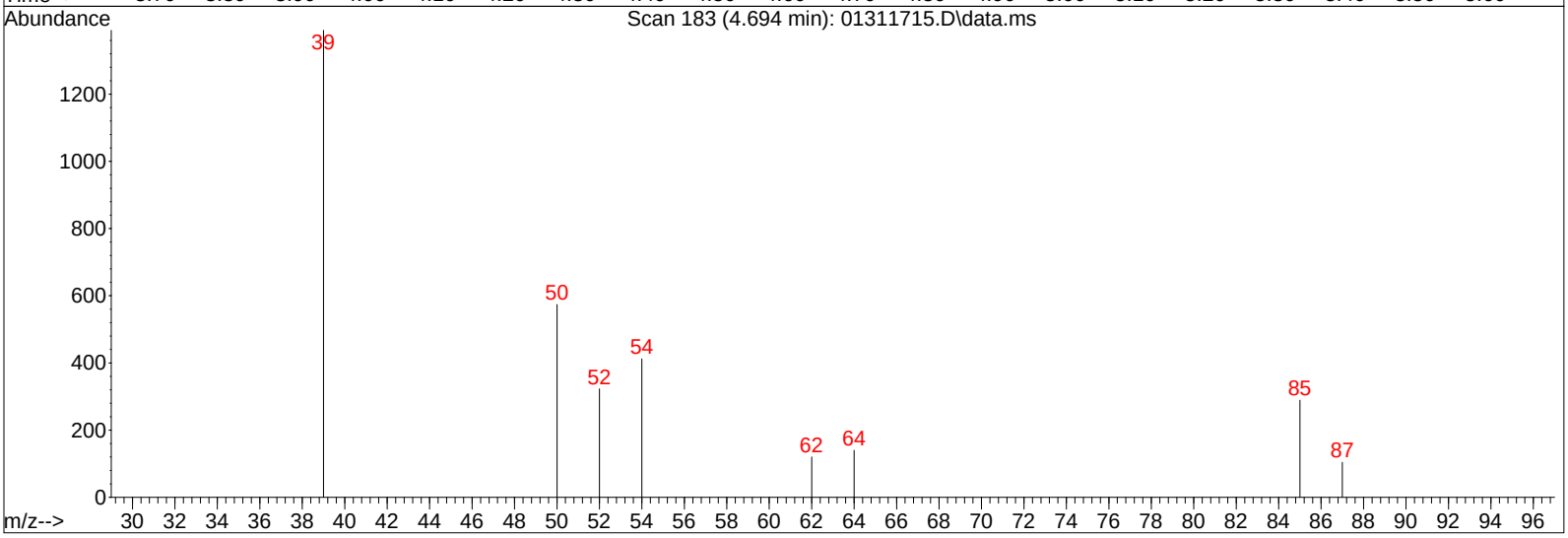


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 9.25pg

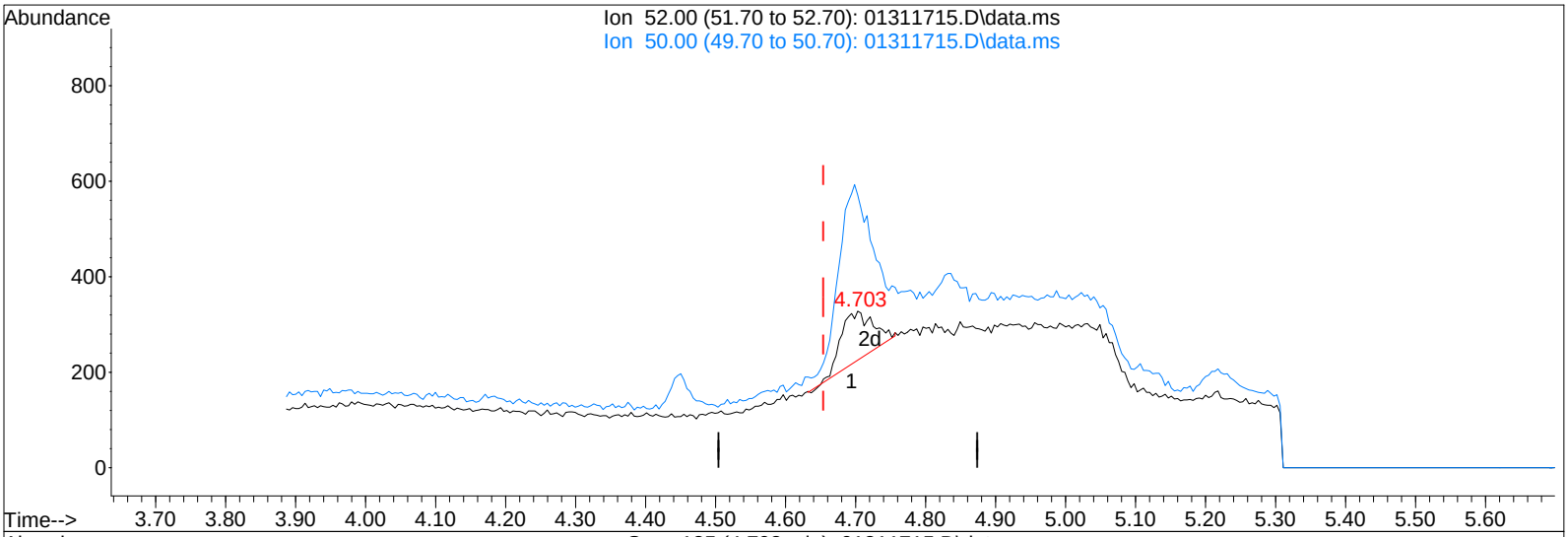
response 301

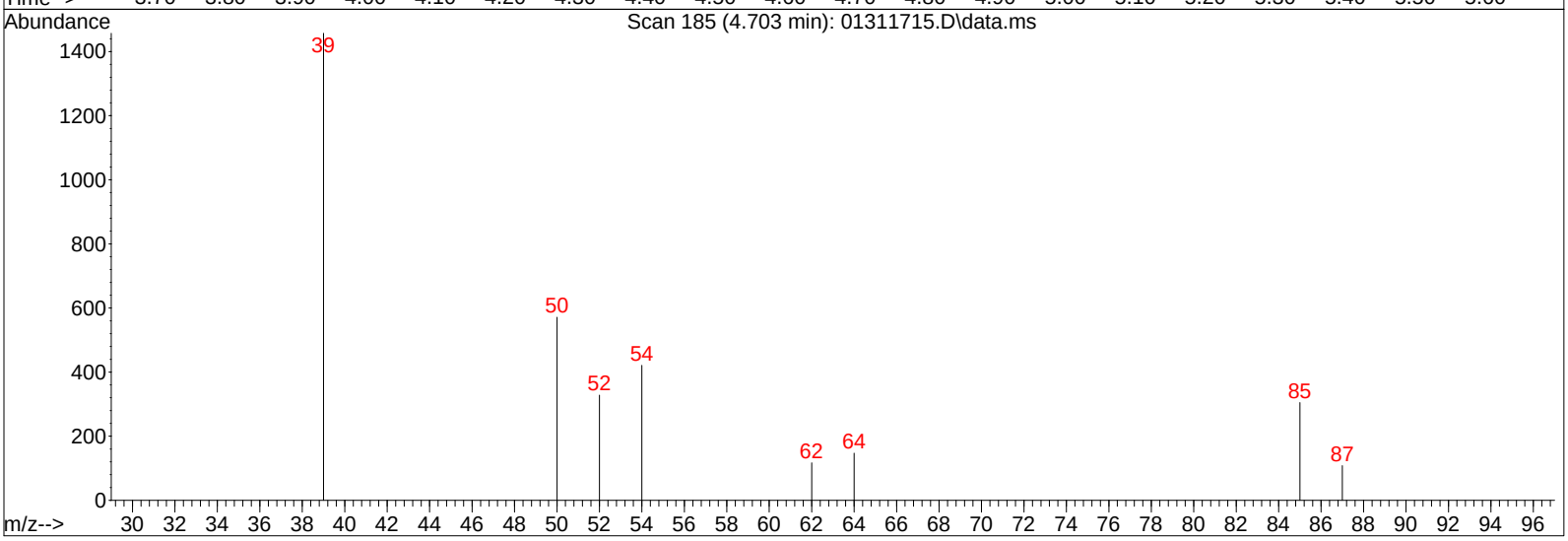
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	749.50#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 10.48pg m

response 341

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	661.58#
0.00	0.00	0.00
0.00	0.00	0.00

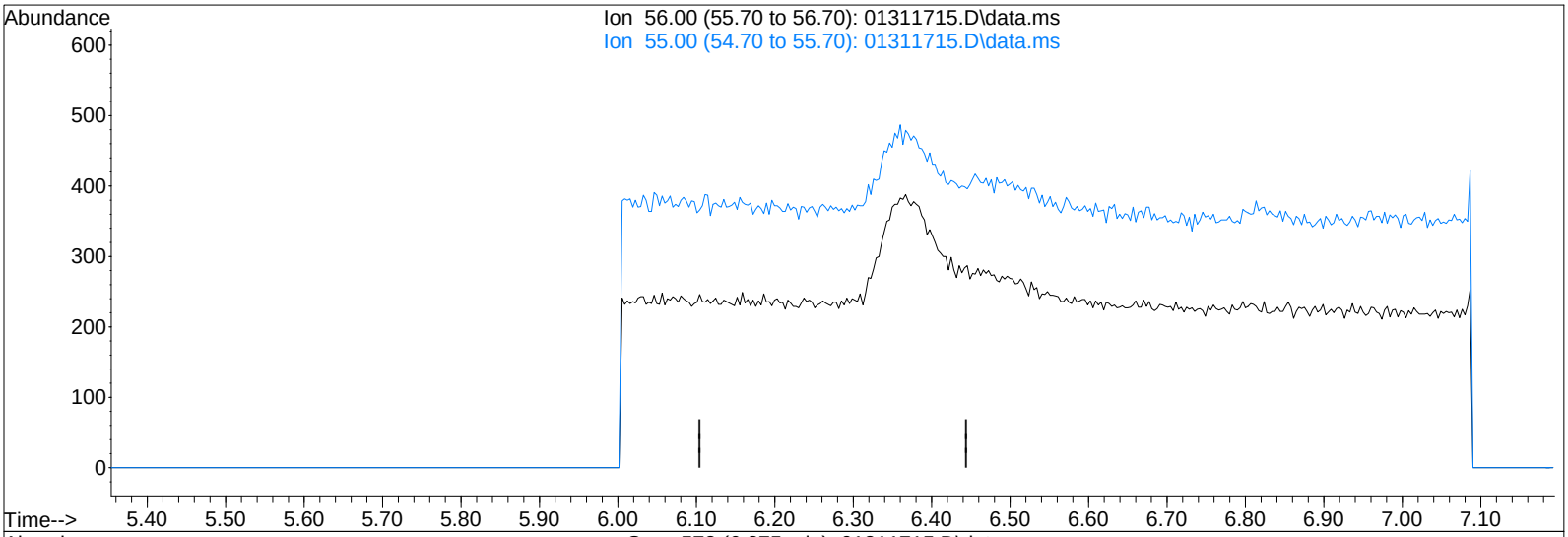
BLC

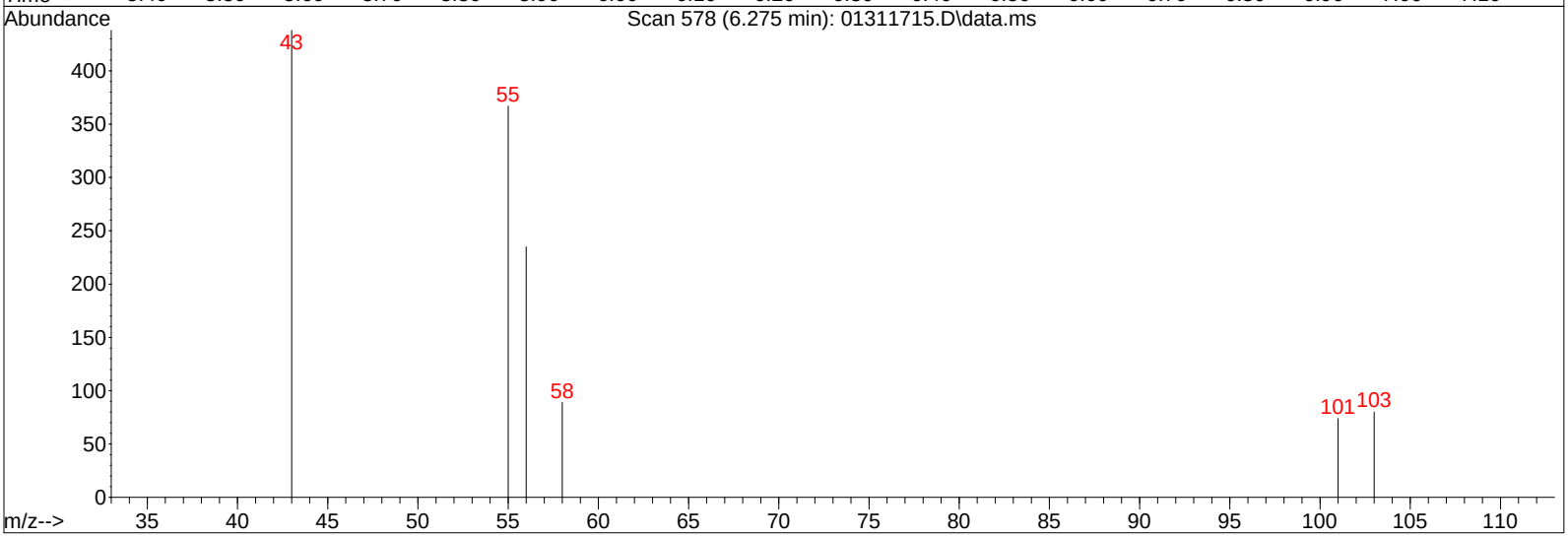
CL 2/1/17 VOA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.274min (-6.274) 0.00pg

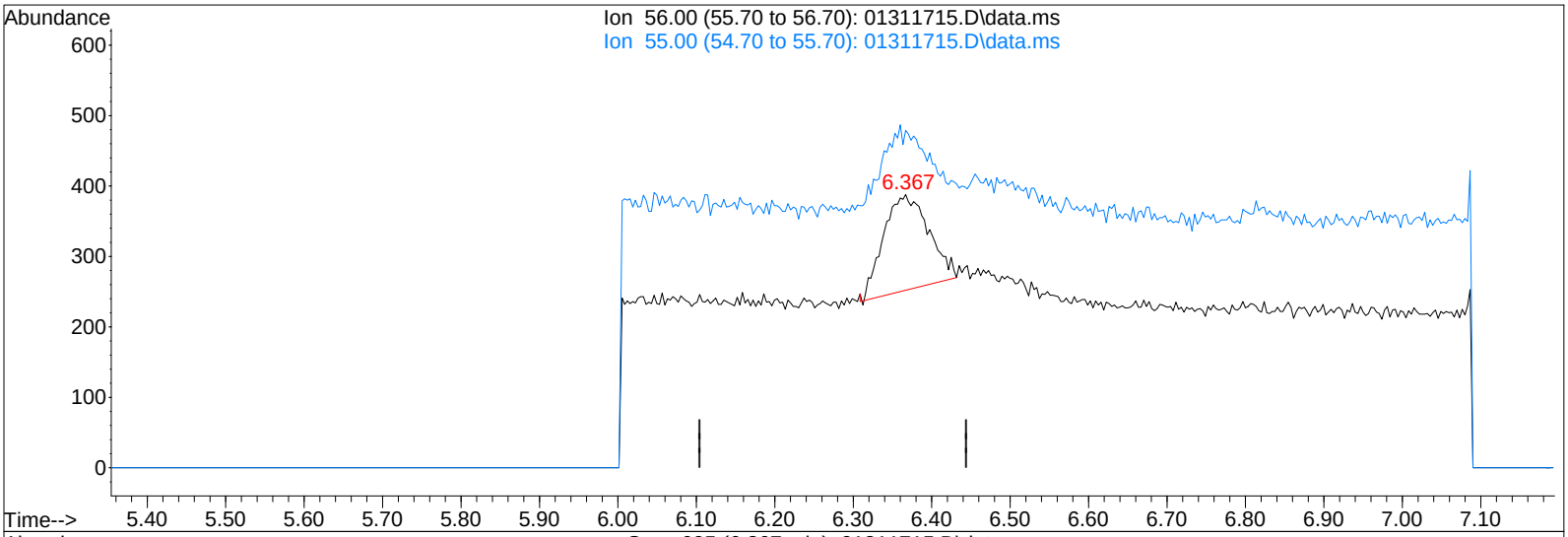
response 0

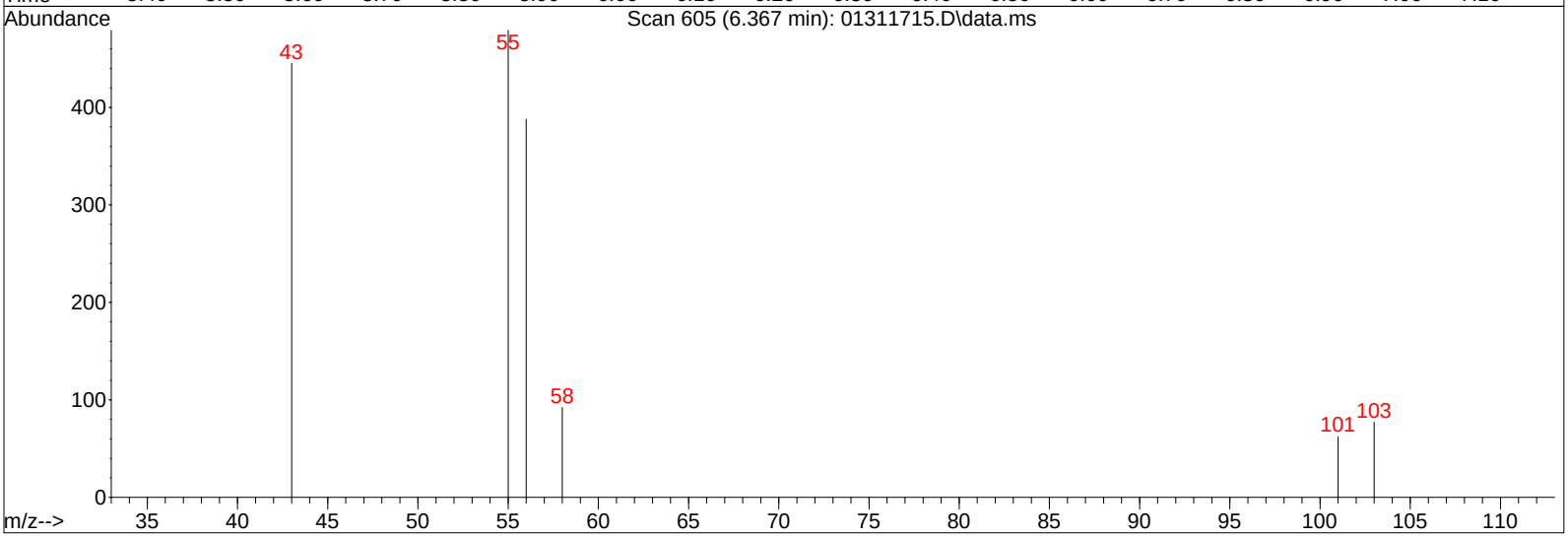
Ion	Exp%	Act%
56.00	100	0.00
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.367min (+0.093) 23.88pg m

response 545

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

PIM

CL 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	43136	1000.000	pg		0.03
25) 1,4-Difluorobenzene (IS2)	11.72	114	212326	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	34375	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66952	896.211	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.62%				
33) Toluene-d8 (SS2)	14.15	98	213118	1010.461	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.05%				
45) Bromofluorobenzene (SS3)	17.56	174	73387	1166.986	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2547	23.373	pg		98
3) Chloromethane	4.70	52	642m	19.774	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2365	22.059	pg		100
5) Vinyl Chloride	5.02	62	1910	18.334	pg	#	62
6) 1,3-Butadiene	5.22	54	1252	20.213	pg	#	50
7) Bromomethane	5.53	94	809	19.304	pg		99
8) Chloroethane	5.76	64	659	20.560	pg		95
9) Acrolein	6.37	56	700m	30.743	pg		
10) Acetone	6.48	58	5971	202.825	pg		100
11) Trichlorofluoromethane	6.65	101	1963	26.337	pg		99
12) 1,1-Dichloroethene	7.39	96	1115	23.878	pg		99
13) Methylene Chloride	7.53	84	1249	24.648	pg		92
14) Trichlorotrifluoroethane	7.83	151	1160	24.900	pg		100
15) trans-1,2-Dichloroethene	8.57	96	1009	20.044	pg		99
16) 1,1-Dichloroethane	8.75	63	1858	20.804	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3687	27.665	pg		94
18) cis-1,2-Dichloroethene	9.62	96	991	18.760	pg		88
19) Chloroform	9.91	83	3149	33.529	pg		100
21) 1,2-Dichloroethane	10.67	62	1468	20.305	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2055	23.571	pg		98
23) Benzene	11.39	78	6687	32.316	pg		99
24) Carbon Tetrachloride	11.53	117	1843	26.327	pg		96
26) 1,2-Dichloropropane	12.19	63	1057	19.544	pg		96
27) Bromodichloromethane	12.37	83	1721	23.044	pg		99
28) Trichloroethene	12.43	130	1324	23.984	pg		95
29) 1,4-Dioxane	12.41	88	994	24.522	pg		94
30) cis-1,3-Dichloropropene	13.28	75	1711	23.521	pg		95
31) trans-1,3-Dichloropropene	13.80	75	1283	21.673	pg	#	88
32) 1,1,2-Trichloroethane	13.96	83	947	20.701	pg		98
34) Toluene	14.26	91	5057	25.671	pg		100
35) Dibromochloromethane	14.67	129	1397	25.609	pg		99
36) 1,2-Dibromoethane	14.94	107	1158	22.445	pg		98
37) Tetrachloroethene	15.40	166	1368	23.901	pg		99
39) Chlorobenzene	16.11	112	3212	24.239	pg		98
40) Ethylbenzene	16.49	91	5271	26.974	pg		100
41) m,p-Xylene	16.67	91	8581	58.545	pg		98
42) Styrene	17.02	104	2906	28.300	pg		100
43) o-Xylene	17.13	106	2062	27.385	pg		99
44) 1,1,2,2-Tetrachloroethane	17.10	83	1973	22.805	pg		92
46) 1,3,5-Trimethylbenzene	18.38	105	4378	28.217	pg		98
47) 1,2,4-Trimethylbenzene	18.78	105	4242	27.855	pg		100
48) 1,3-Dichlorobenzene	18.93	146	2120	22.650	pg		99
49) 1,4-Dichlorobenzene	18.99	146	2512	25.777	pg		98
50) 1,2-Dichlorobenzene	19.32	146	2273	23.830	pg		99
51) 1,2-Dibromo-3-chloropr...	19.74	157	665	23.063	pg		85
52) 1,2,4-Trichlorobenzene	20.98	182	1605	28.427	pg		99
53) Naphthalene	21.11	128	4935	27.527	pg		93

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

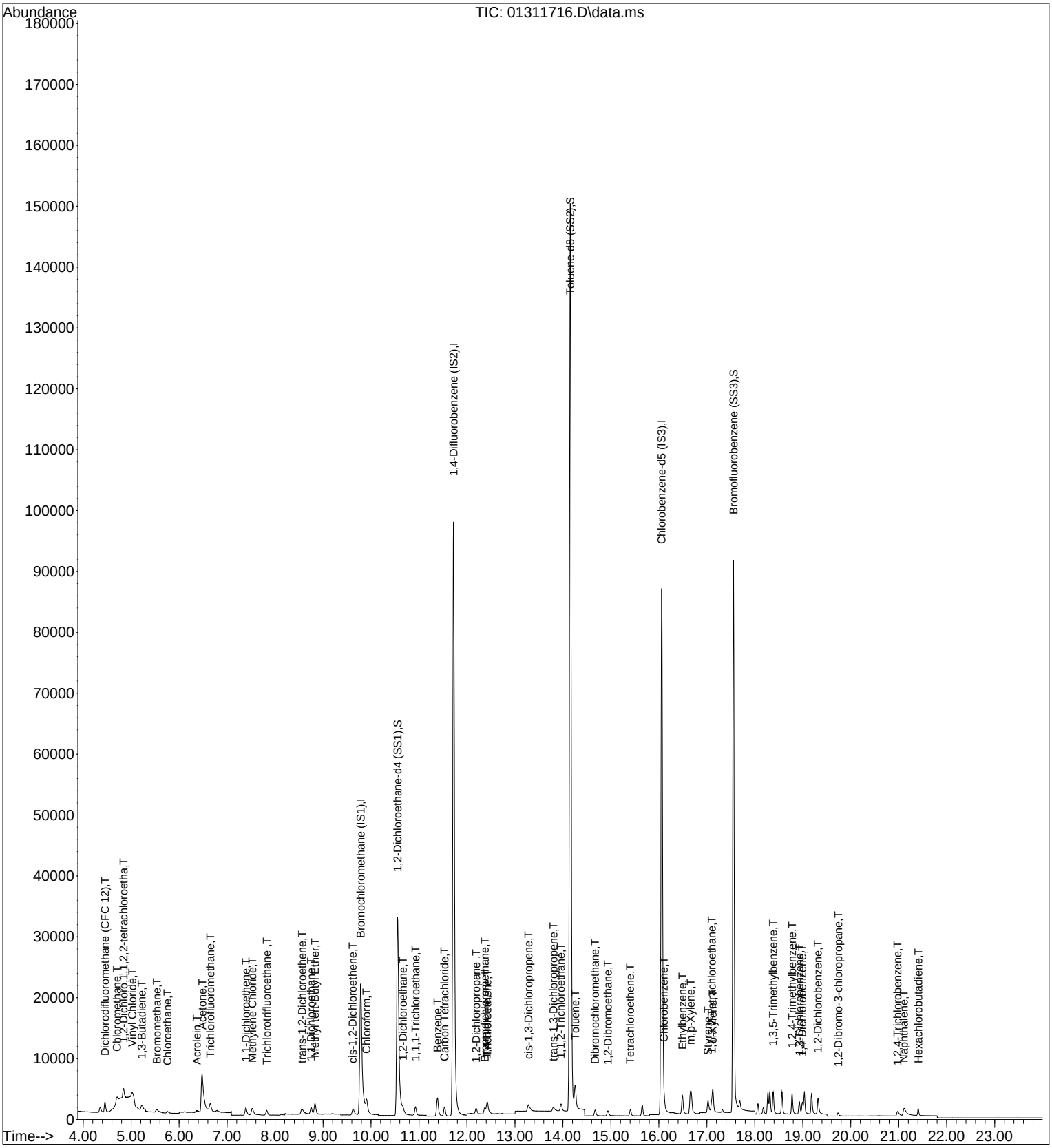
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1099	24.604	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

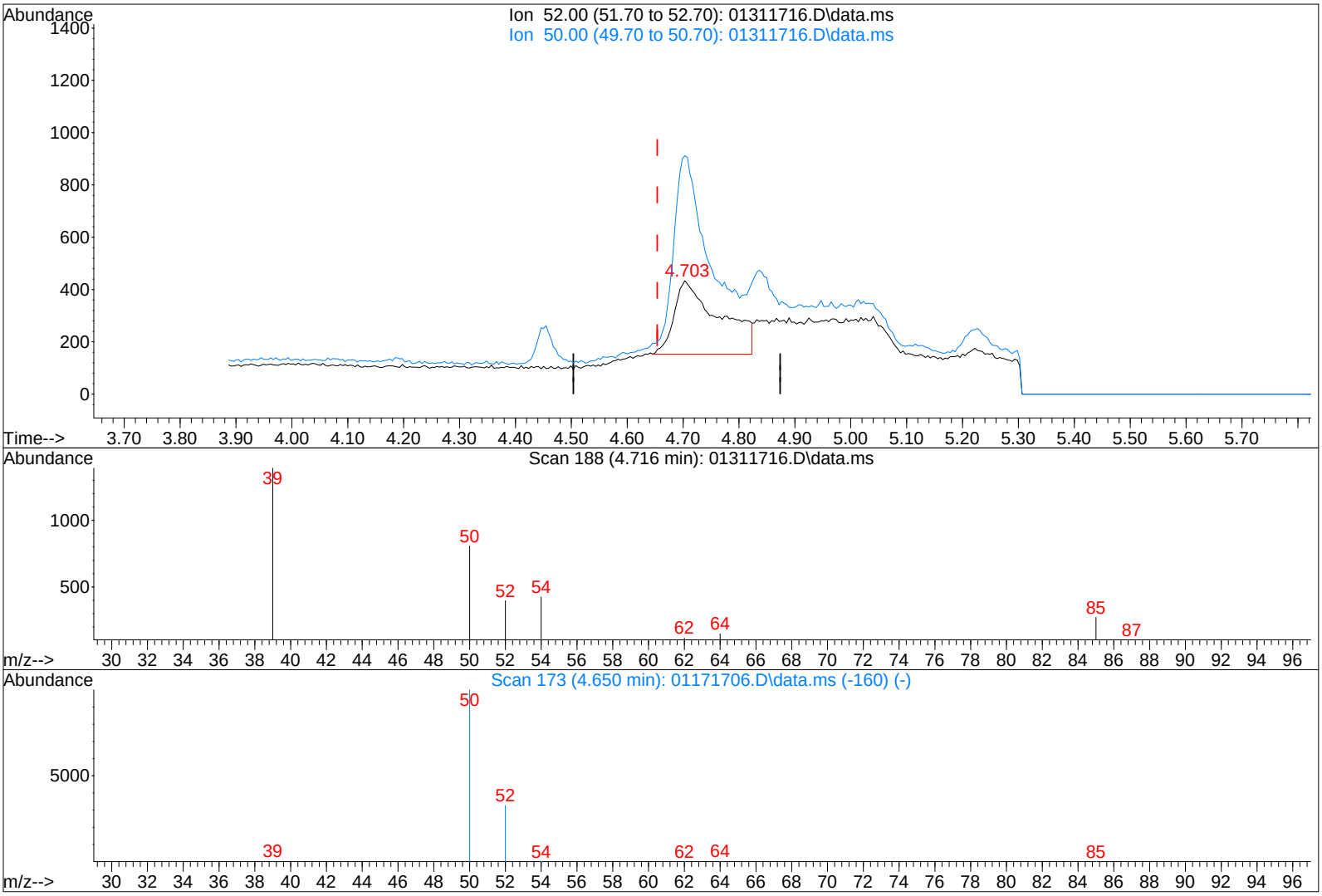
Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 48.79pg

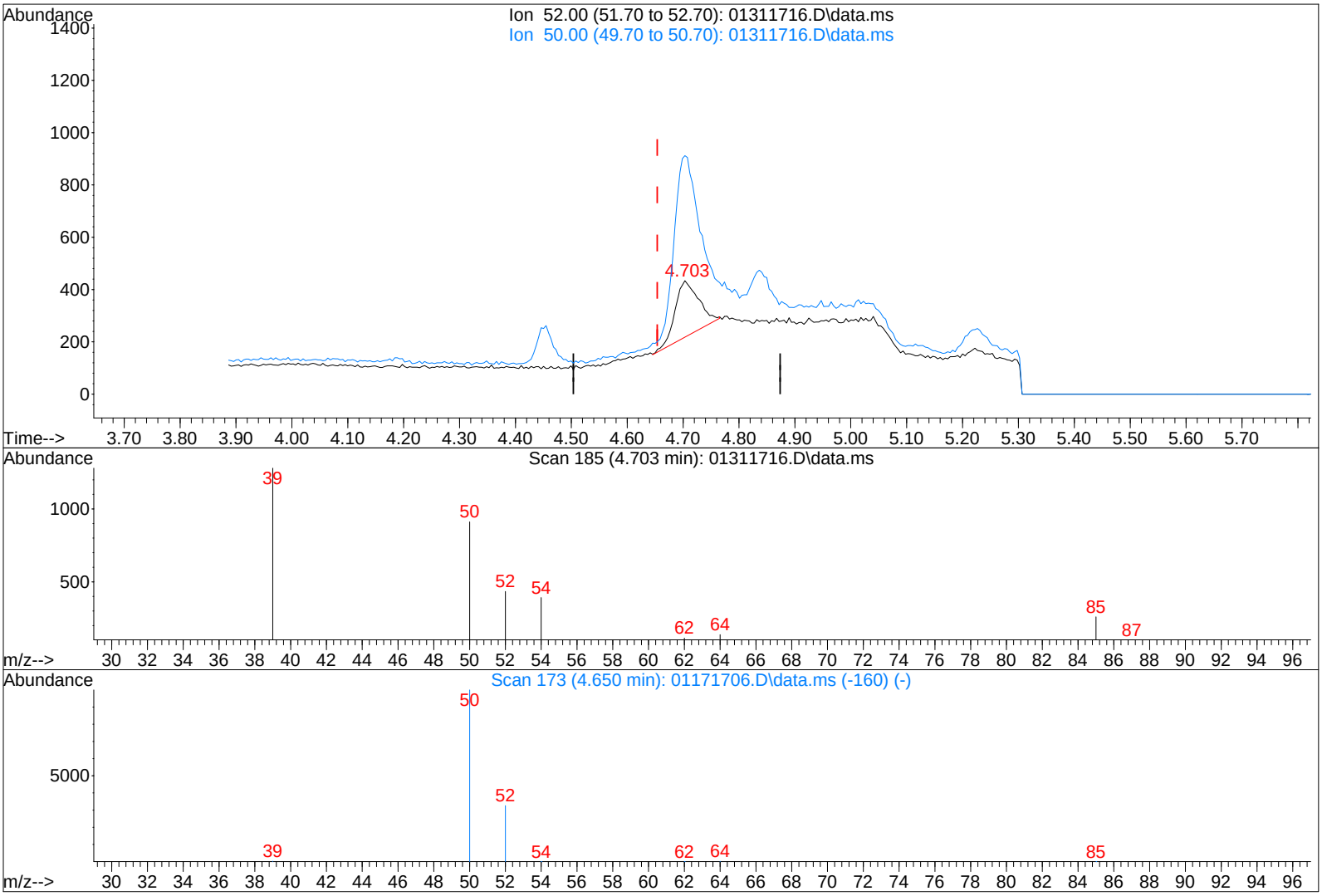
response 1584

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.55#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 19.77pg m

response 642

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	566.36#
0.00	0.00	0.00
0.00	0.00	0.00

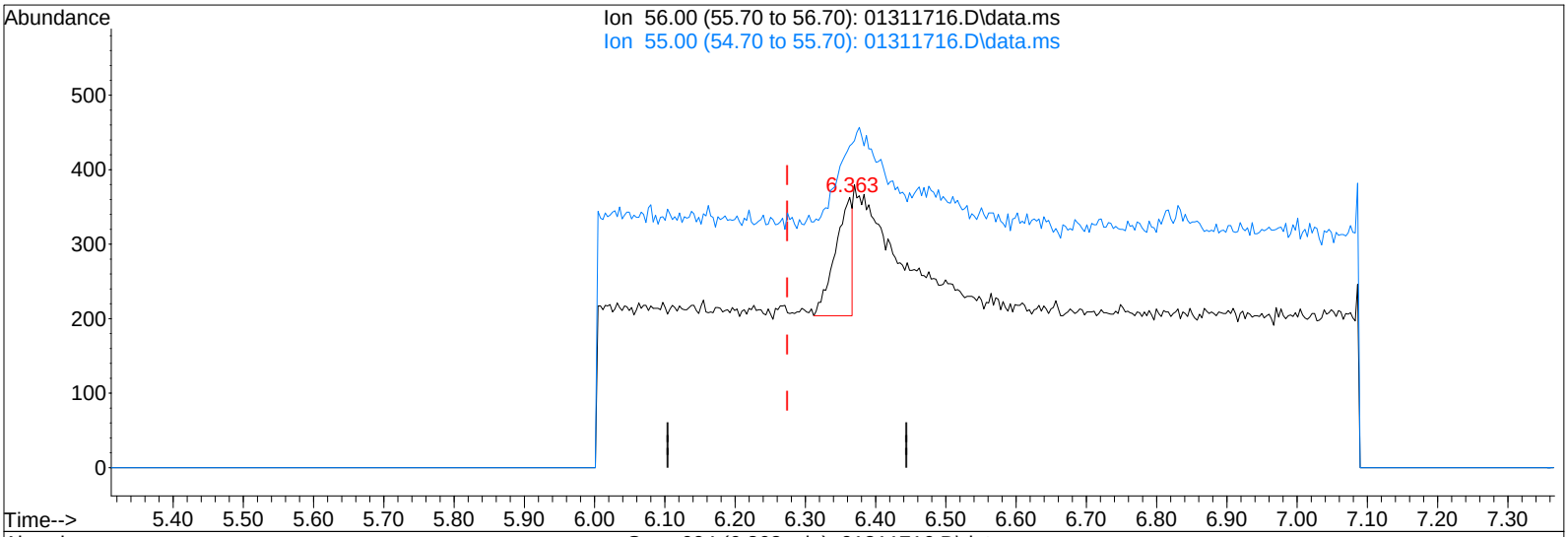
BLC

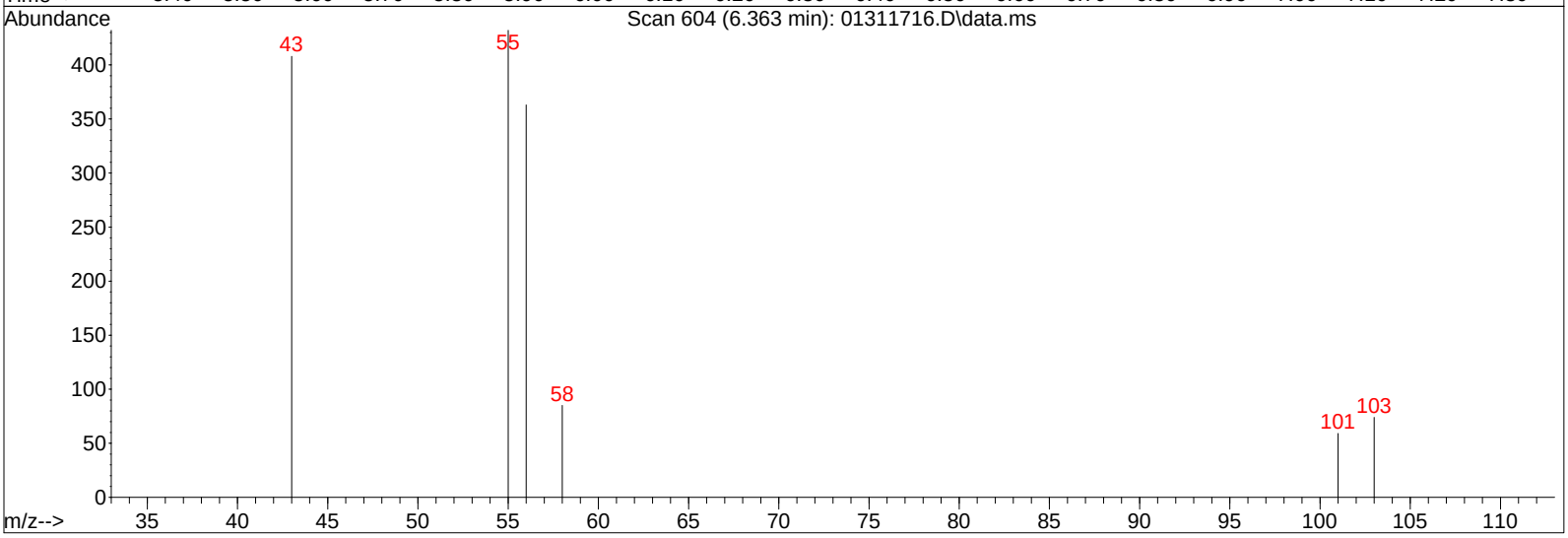
CL 2/1/17 WA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.363min (+0.089) 11.81pg

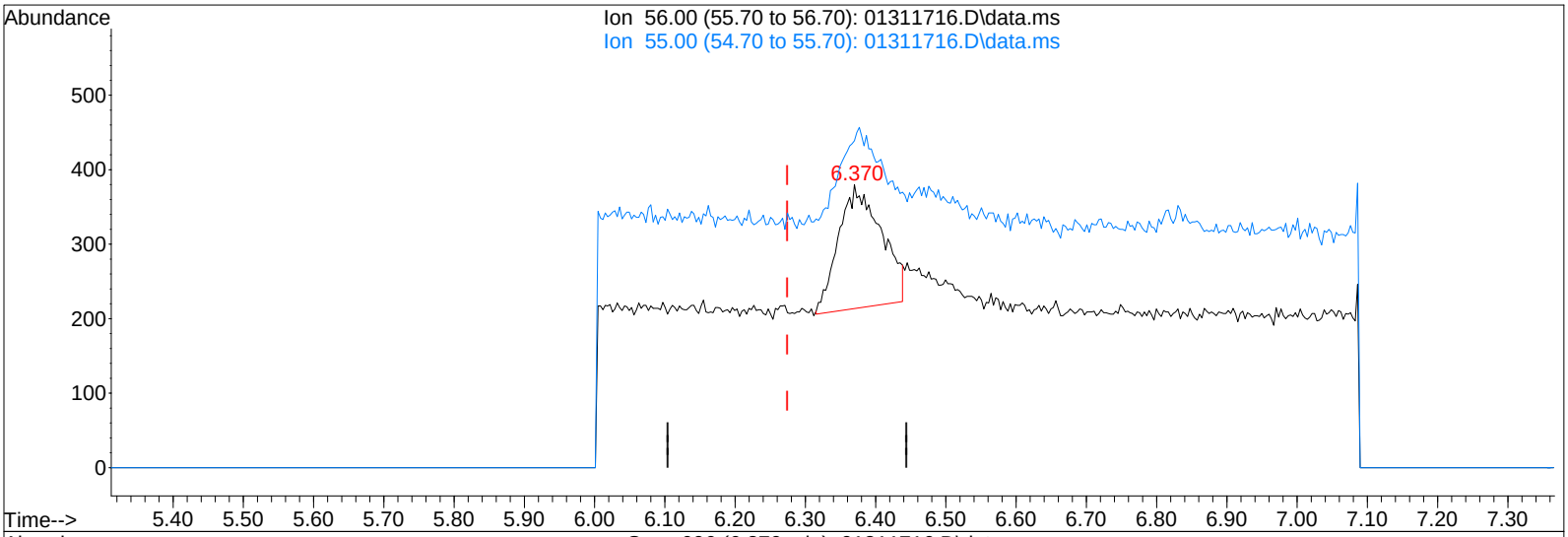
response 269

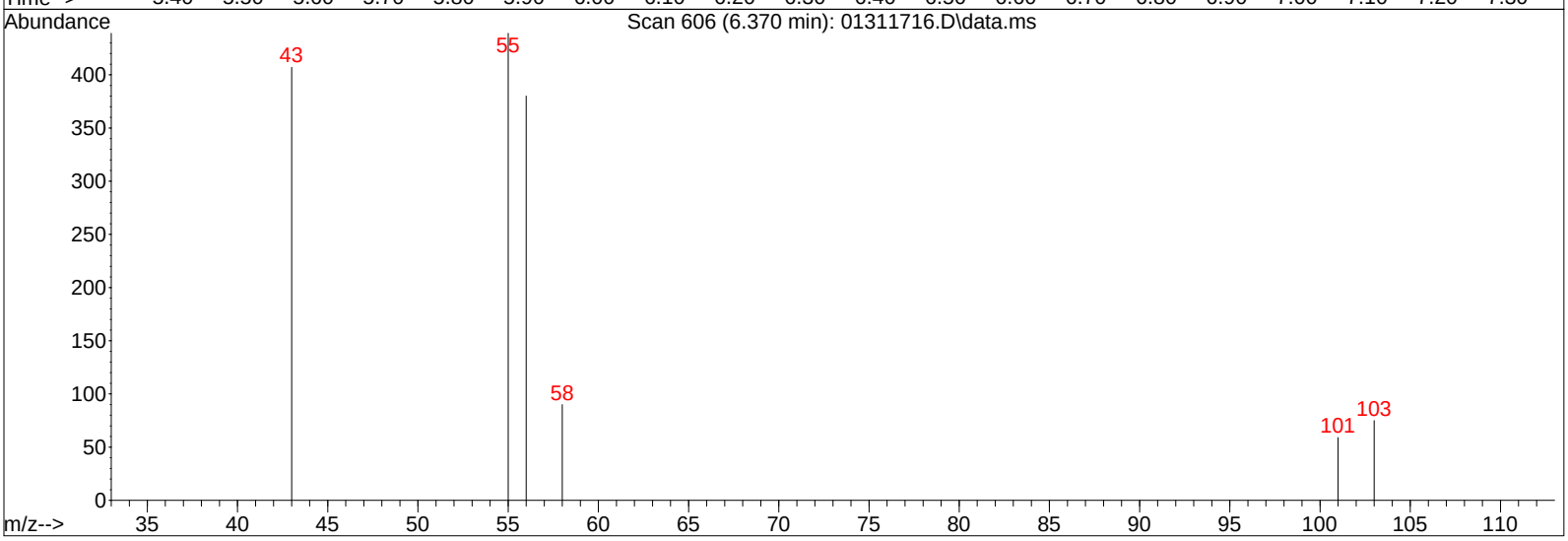
Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.370min (+0.096) 30.74pg m

response 700

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WDA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41753	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	205331	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33355	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	65059	899.718	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.97%			
33) Toluene-d8 (SS2)	14.15	98	206339	1011.648	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.16%			
45) Bromofluorobenzene (SS3)	17.55	174	71476	1171.355	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	5768	54.683	pg	100
3) Chloromethane	4.69	52	1515m	48.210	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	5296	51.033	pg	98
5) Vinyl Chloride	5.00	62	5139	50.963	pg	85
6) 1,3-Butadiene	5.20	54	1706m	28.456	pg	
7) Bromomethane	5.53	94	1789	44.102	pg	99
8) Chloroethane	5.74	64	1428	46.028	pg	97
9) Acrolein	6.35	56	1392	63.160	pg	98
10) Acetone	6.47	58	12155	426.562	pg	93
11) Trichlorofluoromethane	6.64	101	4444	61.599	pg	100
12) 1,1-Dichloroethene	7.38	96	2523	55.821	pg	99
13) Methylene Chloride	7.52	84	2693	54.905	pg	93
14) Trichlorotrifluoroethane	7.82	151	2611	57.903	pg	99
15) trans-1,2-Dichloroethene	8.55	96	2286	46.915	pg	92
16) 1,1-Dichloroethane	8.74	63	4247	49.128	pg	100
17) Methyl tert-Butyl Ether	8.82	73	8243	63.900	pg	100
18) cis-1,2-Dichloroethene	9.62	96	2774	54.251	pg	98
19) Chloroform	9.90	83	5811	63.922	pg	99
21) 1,2-Dichloroethane	10.66	62	3400	48.586	pg	98
22) 1,1,1-Trichloroethane	10.92	97	4612	54.653	pg	99
23) Benzene	11.38	78	12243	61.126	pg	98
24) Carbon Tetrachloride	11.53	117	4199	61.968	pg	100
26) 1,2-Dichloropropane	12.19	63	2514	48.068	pg	99
27) Bromodichloromethane	12.37	83	3783	52.380	pg	98
28) Trichloroethene	12.42	130	2963	55.504	pg	99
29) 1,4-Dioxane	12.40	88	2201	56.149	pg	99
30) cis-1,3-Dichloropropene	13.27	75	4118	58.539	pg	99
31) trans-1,3-Dichloropropene	13.79	75	3202	55.932	pg	97
32) 1,1,2-Trichloroethane	13.96	83	2132	48.193	pg	99
34) Toluene	14.25	91	11143	58.492	pg	99
35) Dibromochloromethane	14.67	129	3231	61.247	pg	98
36) 1,2-Dibromoethane	14.93	107	2770	55.519	pg	99
37) Tetrachloroethene	15.40	166	3108	56.150	pg	99
39) Chlorobenzene	16.10	112	7329	56.999	pg	99
40) Ethylbenzene	16.49	91	12207	64.378	pg	100
41) m,p-Xylene	16.66	91	19492	137.055	pg	98
42) Styrene	17.02	104	6892	69.169	pg	99
43) o-Xylene	17.12	106	4686	64.137	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	4359	51.924	pg	98
46) 1,3,5-Trimethylbenzene	18.38	105	9983	66.310	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	9954	67.362	pg	100
48) 1,3-Dichlorobenzene	18.92	146	5471	60.239	pg	100
49) 1,4-Dichlorobenzene	18.99	146	5934	62.755	pg	98
50) 1,2-Dichlorobenzene	19.31	146	5529	59.737	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	1802	64.406	pg	99
52) 1,2,4-Trichlorobenzene	20.96	182	3660	66.807	pg	99
53) Naphthalene	21.09	128	12706	73.039	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

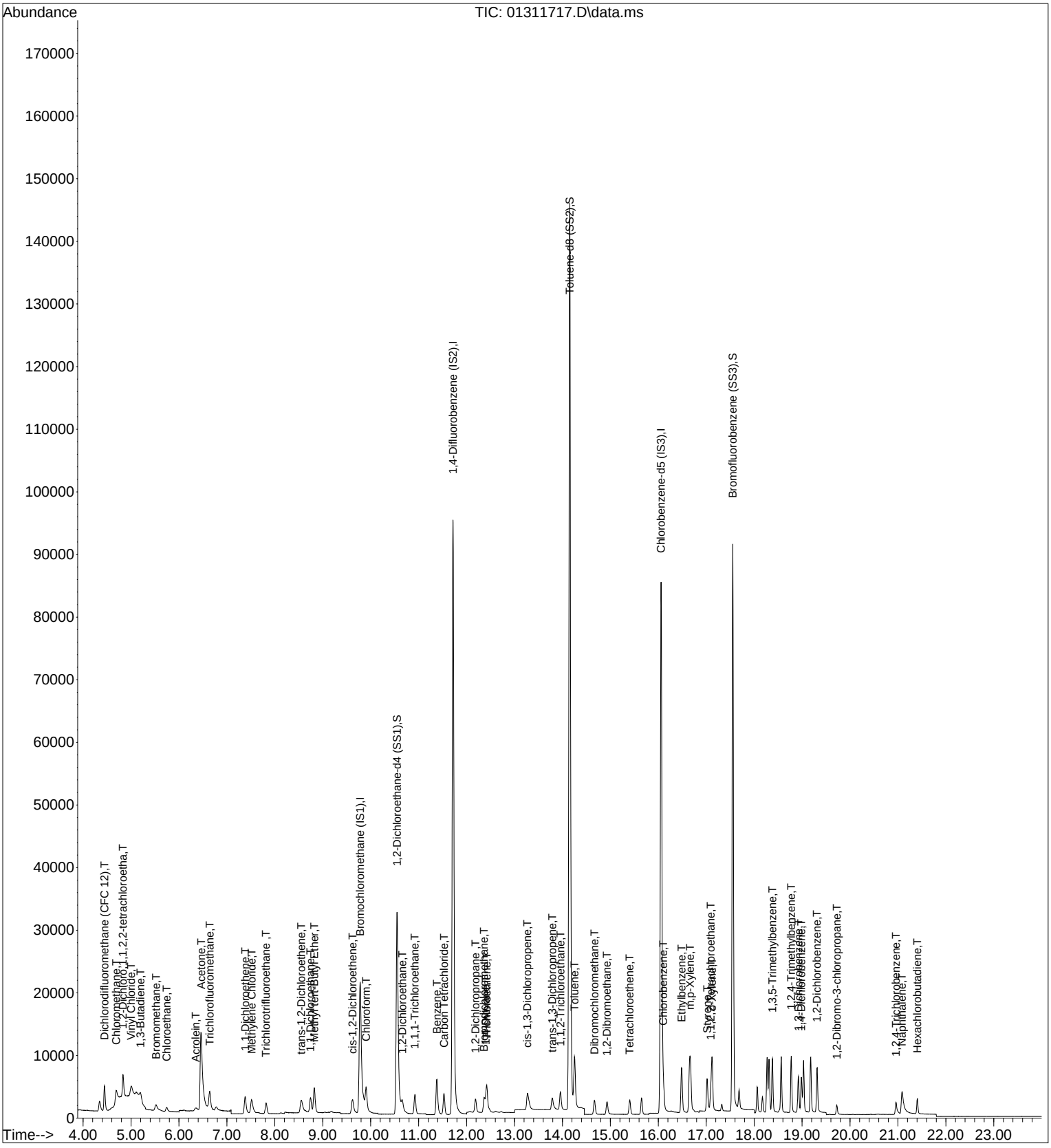
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	2543	58.673	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

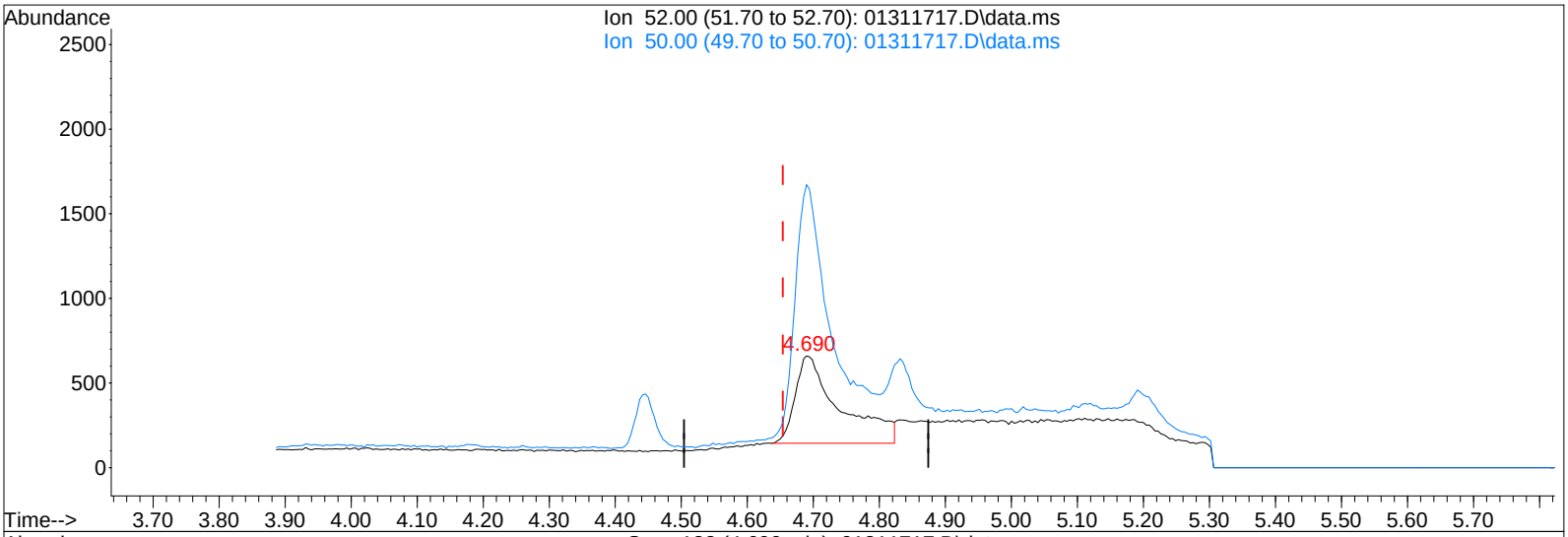
Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

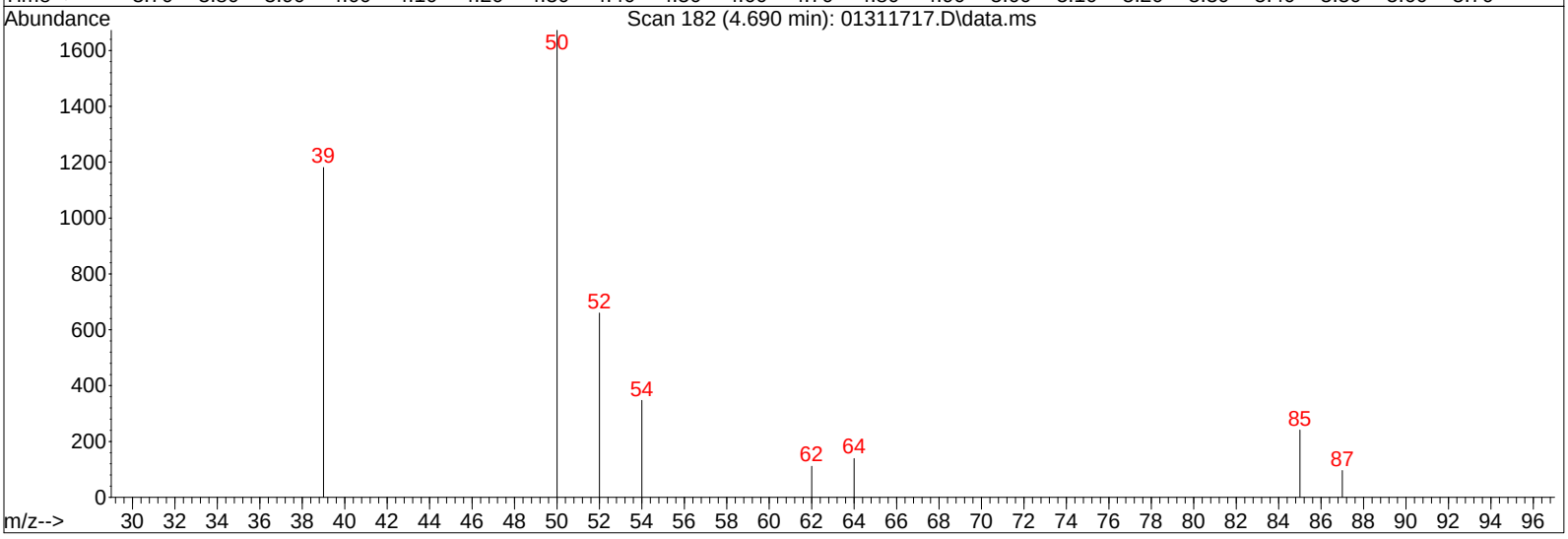


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 77.39pg

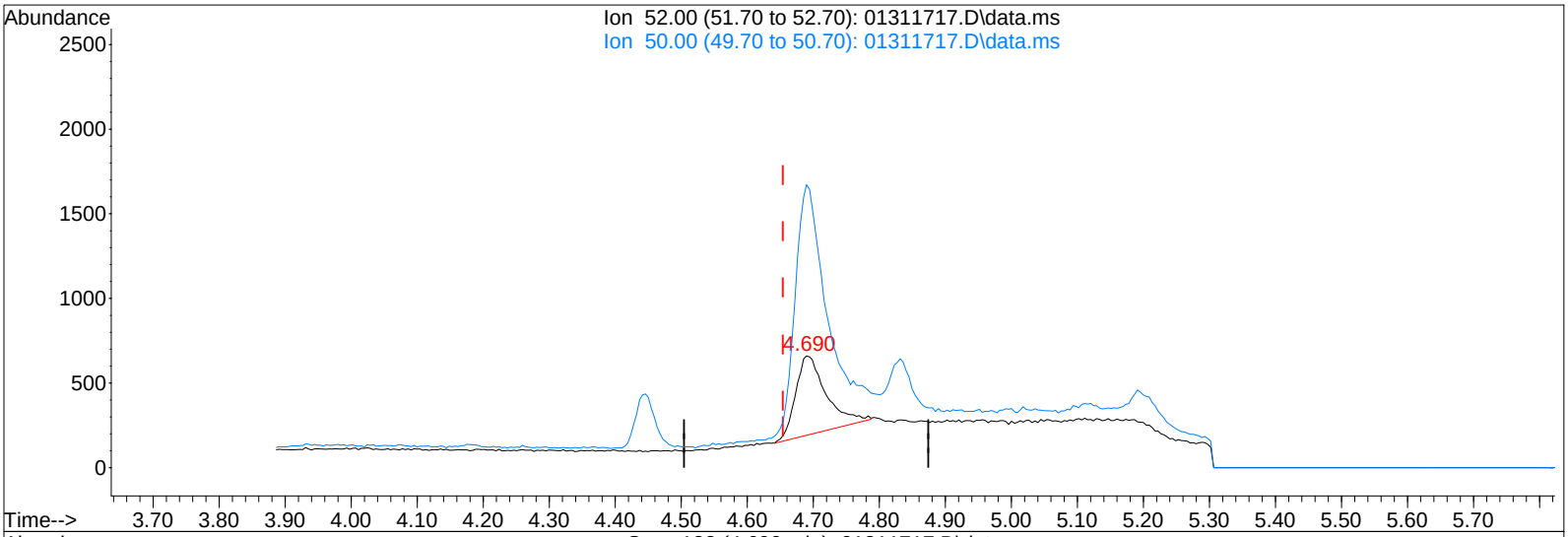
response 2432

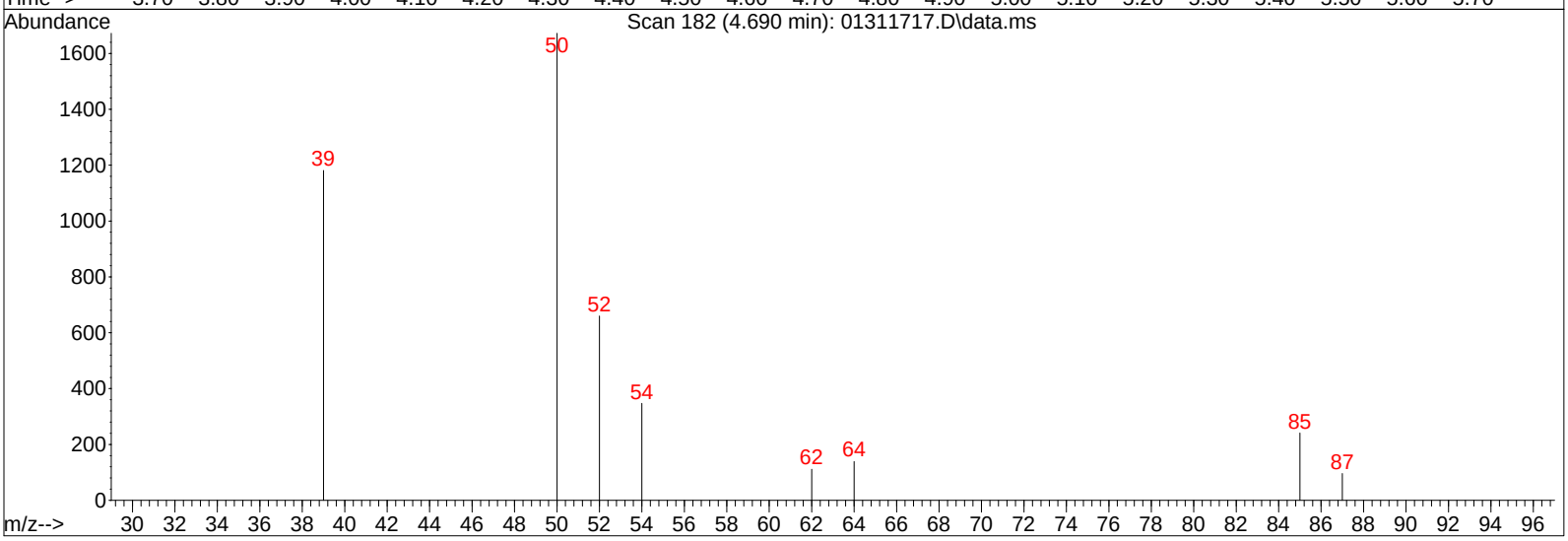
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	243.30#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 48.21pg m

response 1515

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	390.56#
0.00	0.00	0.00
0.00	0.00	0.00

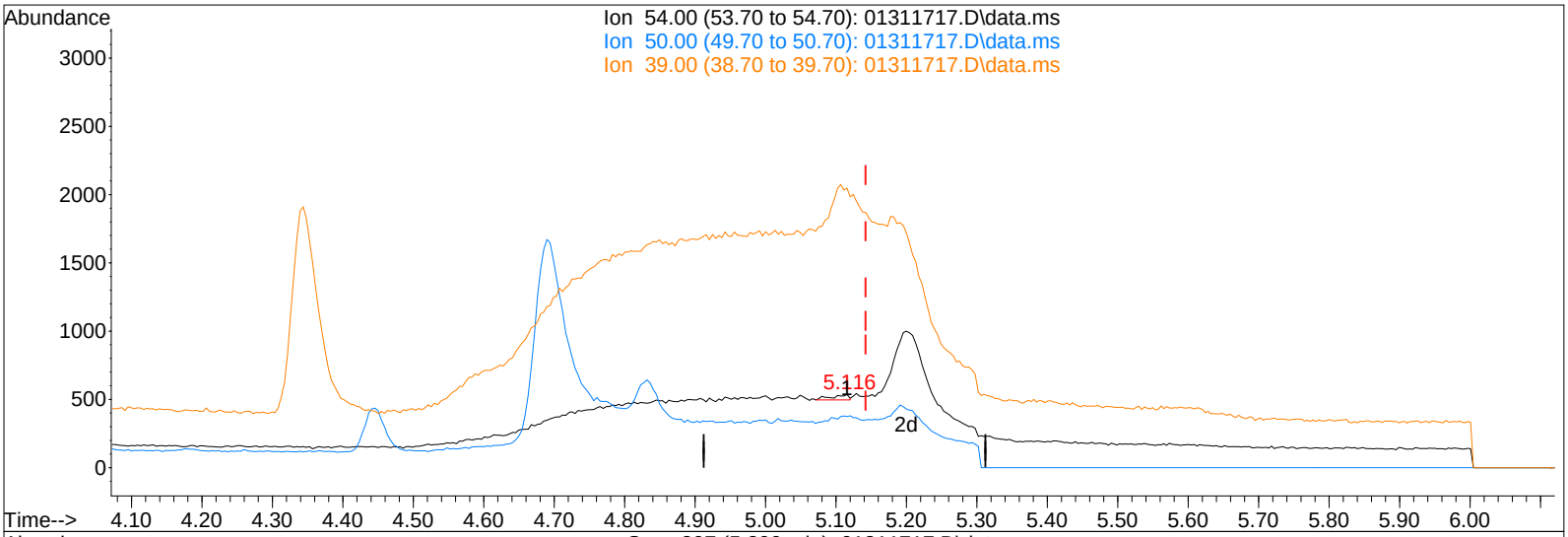
BLC

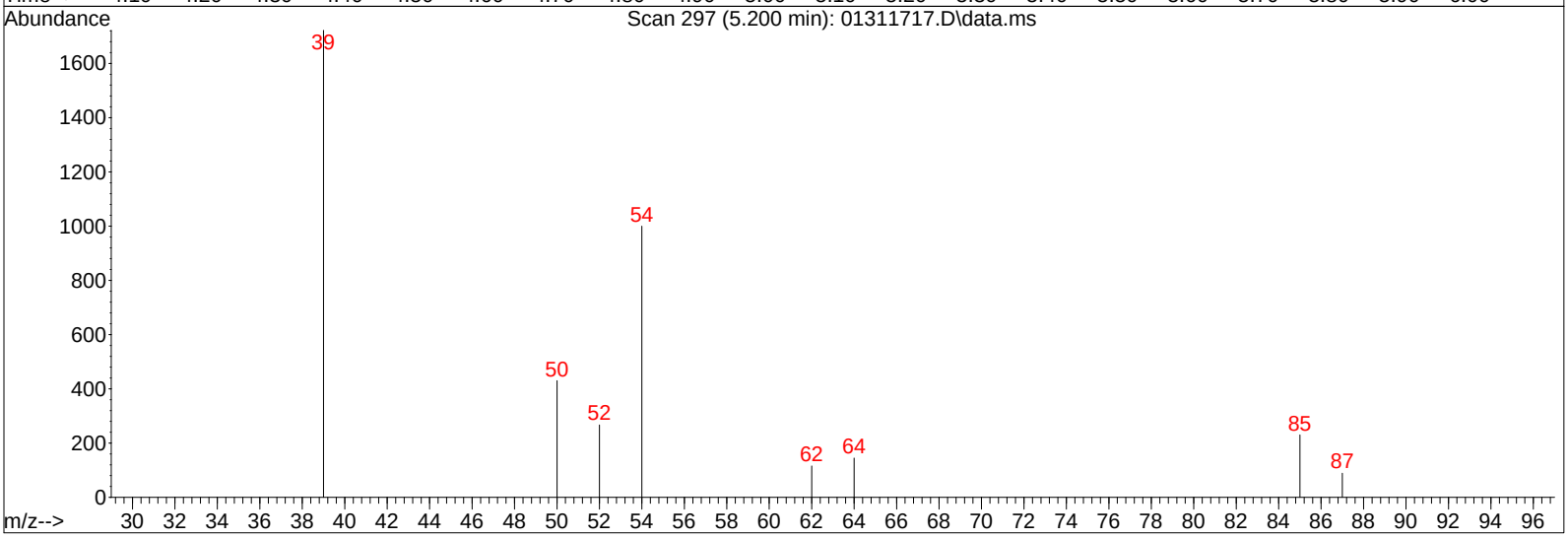
CL 2/1/17

2/1/17

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.116min (-0.027) 1.10pg

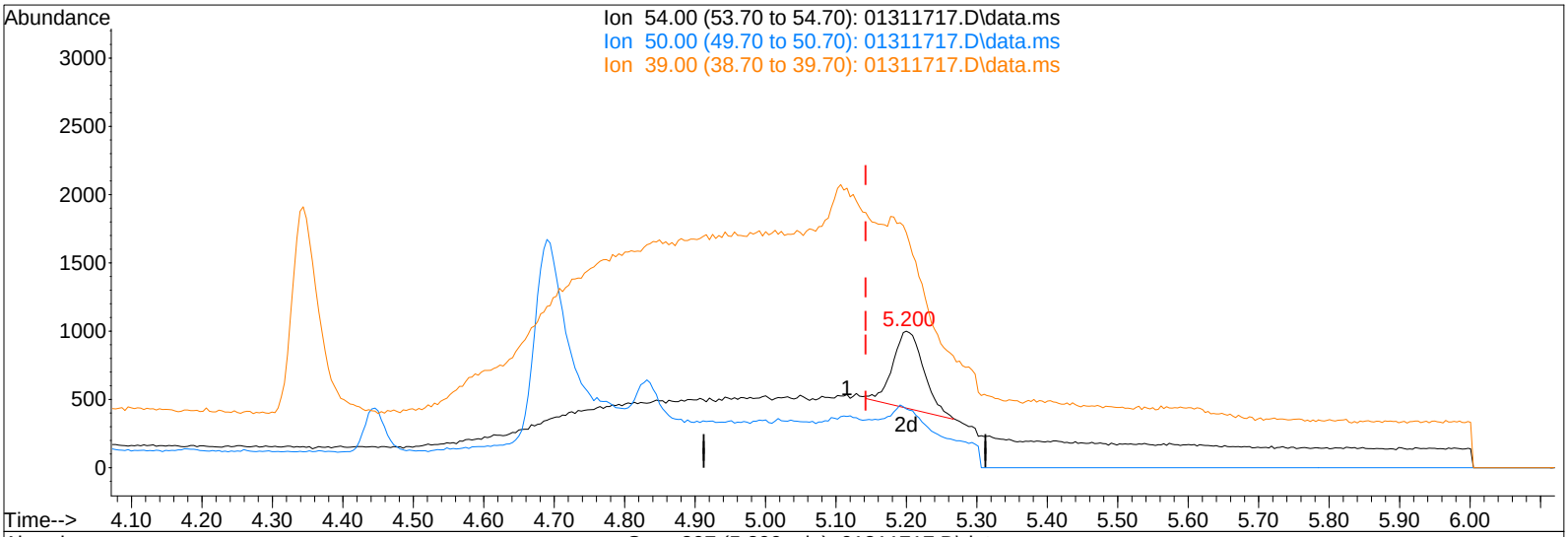
response 66

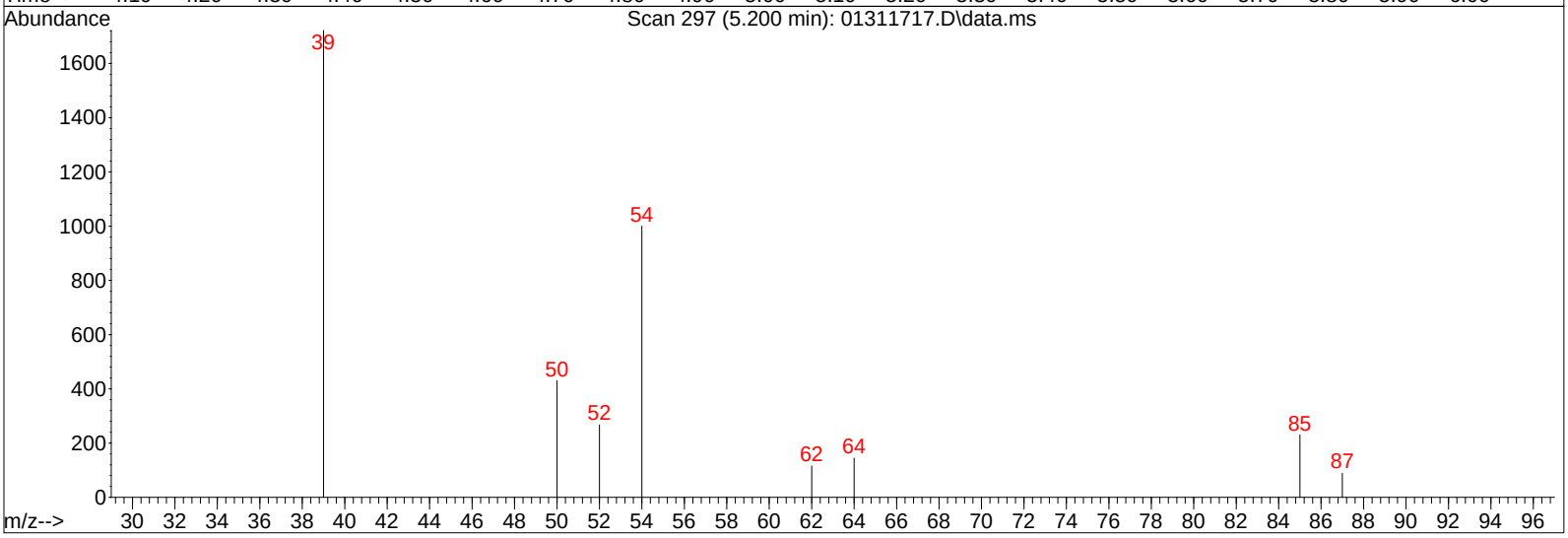
Ion	Exp%	Act%
54.00	100	100
50.00	33.40	1819.70#
39.00	114.60	17968.18#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.058) 28.46pg m

response 1706

BLC

Ion	Exp%	Act%
54.00	100	100
50.00	33.40	70.40#
39.00	114.60	695.13#
0.00	0.00	0.00

CL 2/1/17 VOA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45285	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	222412	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	36515	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	70924	904.327	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.43%				
33) Toluene-d8 (SS2)	14.15	98	223732	1012.681	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.27%				
45) Bromofluorobenzene (SS3)	17.55	174	77950	1166.901	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.69%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11328	99.018	pg		100
3) Chloromethane	4.69	52	2647m	77.662	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	10078	89.538	pg		100
5) Vinyl Chloride	4.99	62	9555	87.365	pg		86
6) 1,3-Butadiene	5.19	54	4827	74.233	pg	#	83
7) Bromomethane	5.51	94	3629	82.485	pg		95
8) Chloroethane	5.73	64	3008	89.394	pg		96
9) Acrolein	6.33	56	2662	111.364	pg		92
10) Acetone	6.44	58	22310	721.872	pg	#	89
11) Trichlorofluoromethane	6.63	101	8644	110.470	pg		99
12) 1,1-Dichloroethene	7.37	96	5006	102.118	pg		99
13) Methylene Chloride	7.51	84	5144	96.696	pg		94
14) Trichlorotrifluoroethane	7.81	151	5048	103.215	pg		99
15) trans-1,2-Dichloroethene	8.54	96	5113	96.749	pg		98
16) 1,1-Dichloroethane	8.74	63	8410	89.697	pg		98
17) Methyl tert-Butyl Ether	8.81	73	16302	116.517	pg		99
18) cis-1,2-Dichloroethene	9.61	96	5464	98.525	pg		98
19) Chloroform	9.90	83	10370	105.175	pg		100
21) 1,2-Dichloroethane	10.66	62	6787	89.422	pg		96
22) 1,1,1-Trichloroethane	10.92	97	9029	98.650	pg		100
23) Benzene	11.38	78	21857	100.615	pg		100
24) Carbon Tetrachloride	11.53	117	8203	111.617	pg		100
26) 1,2-Dichloropropane	12.19	63	4956	87.482	pg		100
27) Bromodichloromethane	12.36	83	7398	94.566	pg		99
28) Trichloroethene	12.42	130	5856	101.272	pg		100
29) 1,4-Dioxane	12.40	88	4393	103.462	pg		100
30) cis-1,3-Dichloropropene	13.26	75	8329	109.307	pg		99
31) trans-1,3-Dichloropropene	13.78	75	6788	109.466	pg		99
32) 1,1,2-Trichloroethane	13.96	83	4185	87.335	pg		98
34) Toluene	14.25	91	21436	103.881	pg		100
35) Dibromochloromethane	14.67	129	6389	111.810	pg		100
36) 1,2-Dibromoethane	14.93	107	5612	103.842	pg		98
37) Tetrachloroethene	15.40	166	6110	101.908	pg		100
39) Chlorobenzene	16.10	112	14346	101.916	pg		99
40) Ethylbenzene	16.48	91	24193	116.549	pg		100
41) m,p-Xylene	16.66	91	37076	238.133	pg		100
42) Styrene	17.01	104	14110	129.355	pg		100
43) o-Xylene	17.12	106	9237	115.486	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8659	94.220	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	19888	120.670	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	19999	123.627	pg		100
48) 1,3-Dichlorobenzene	18.92	146	11178	112.425	pg		99
49) 1,4-Dichlorobenzene	18.98	146	11885	114.813	pg		100
50) 1,2-Dichlorobenzene	19.31	146	11117	109.718	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	3739	122.073	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	7401	123.402	pg		99
53) Naphthalene	21.07	128	25799	135.469	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

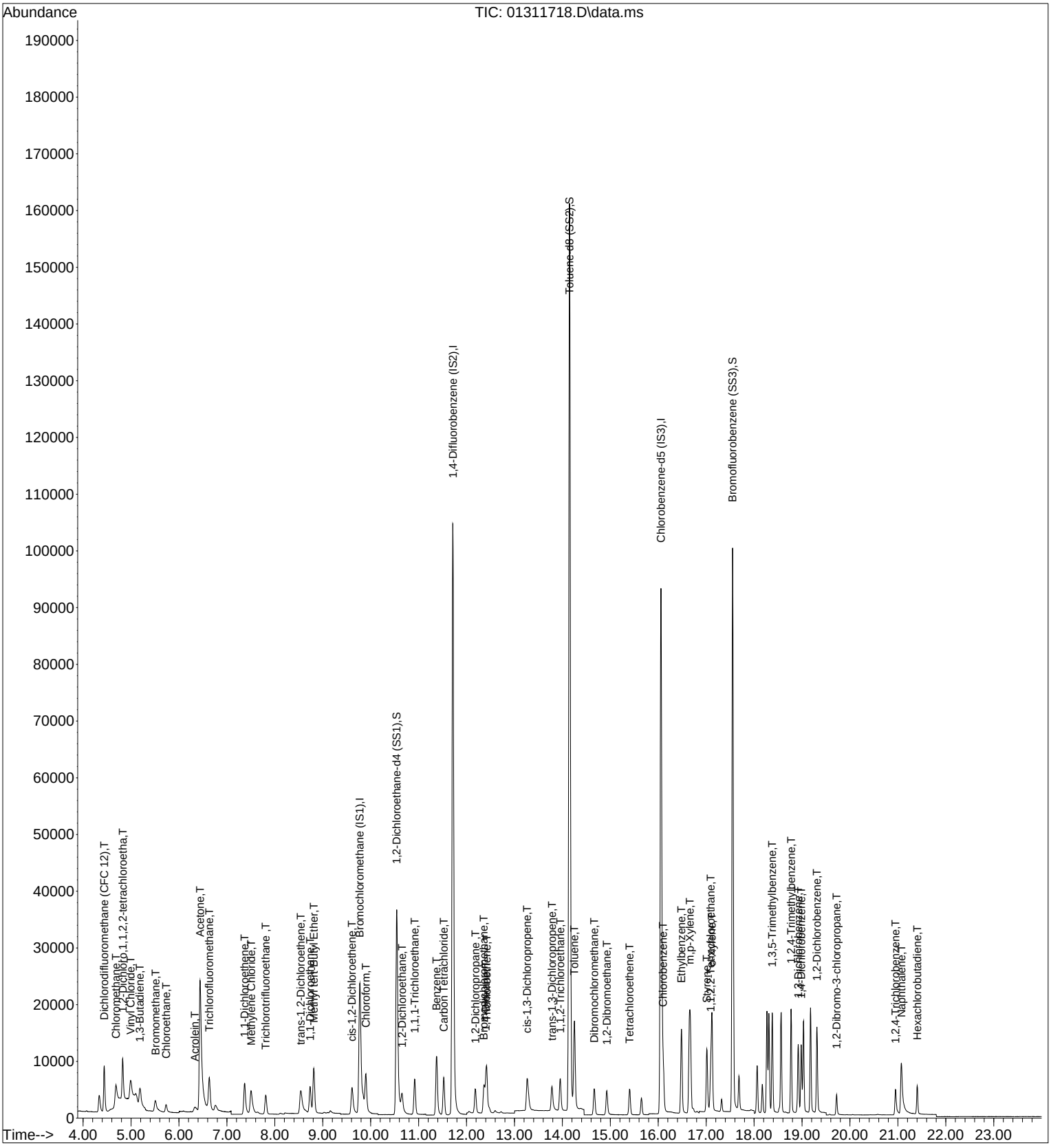
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	5012	105.631	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

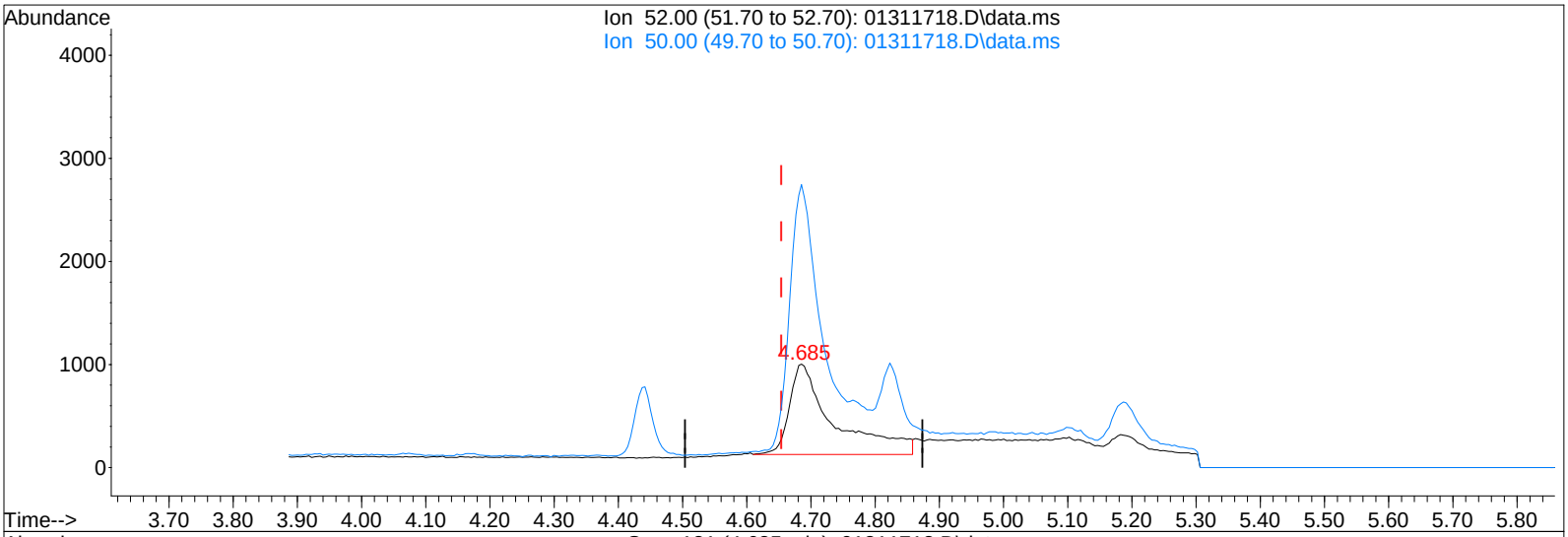
Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

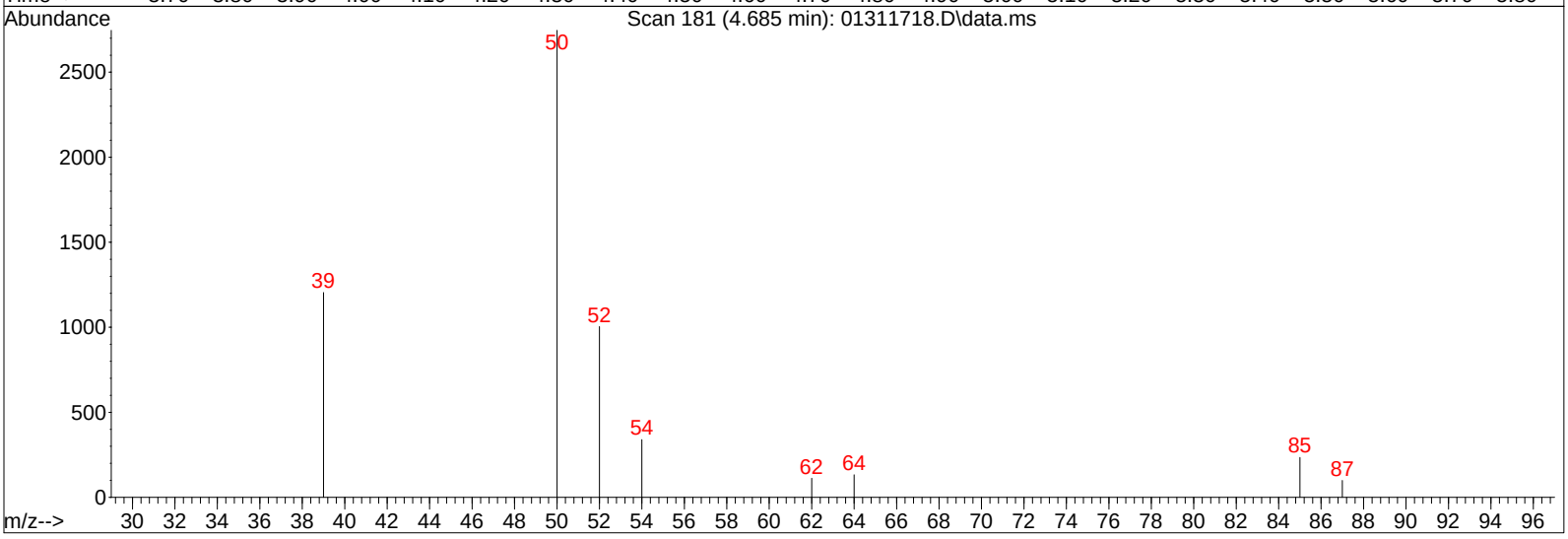


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 123.73pg

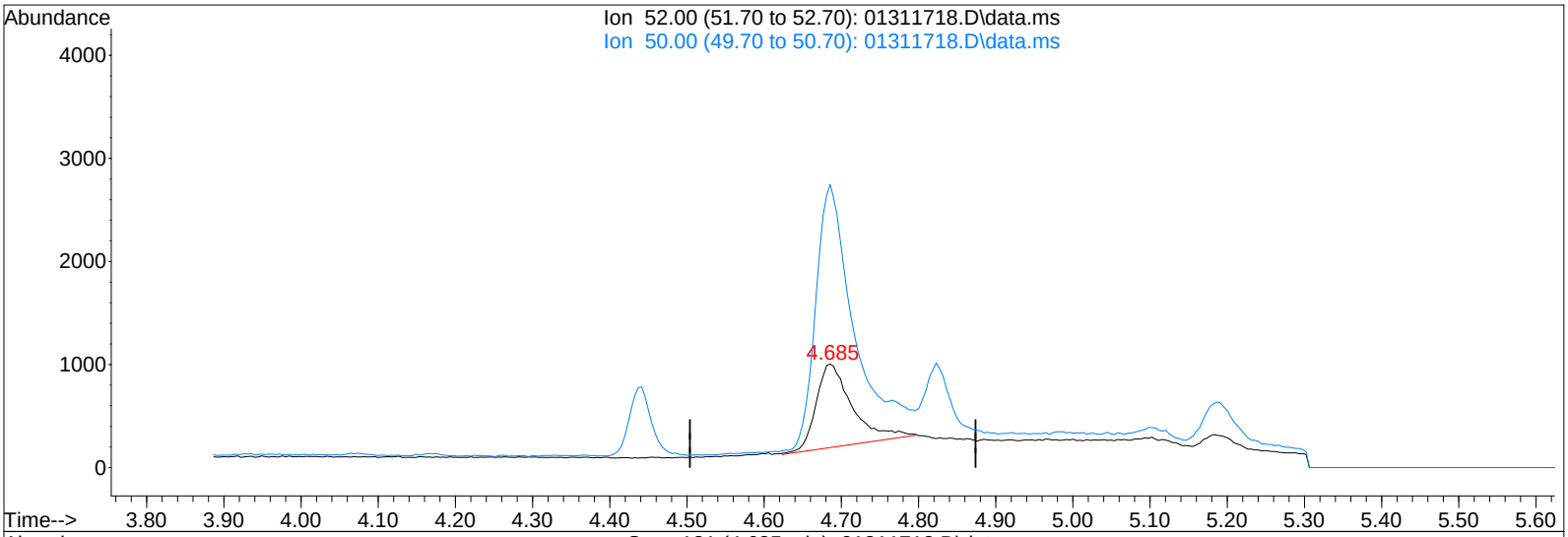
response 4217

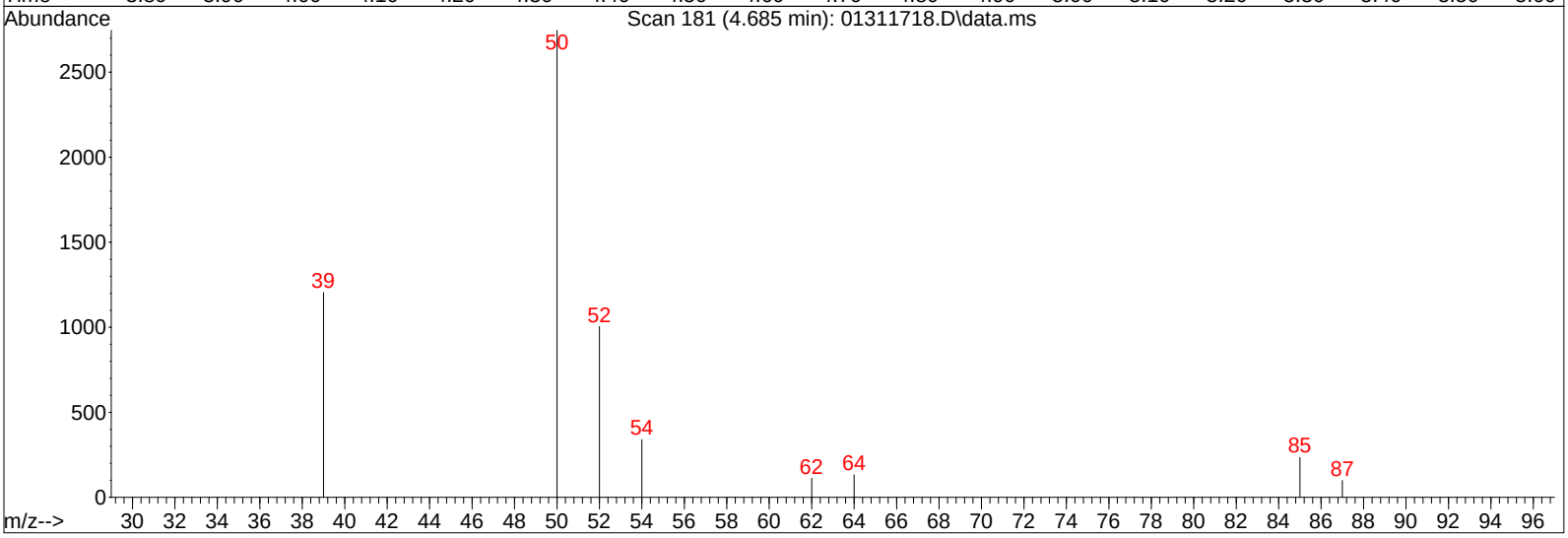
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.83#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 77.66pg m

response 2647

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44789	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	219635	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	36216	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71641	923.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.36%			
33) Toluene-d8 (SS2)	14.15	98	222183	1018.385	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.84%			
45) Bromofluorobenzene (SS3)	17.55	174	77862	1175.207	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54680	483.252	pg	100
3) Chloromethane	4.65	52	11134m	330.285	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	49784	447.204	pg	100
5) Vinyl Chloride	4.96	62	46092	426.104	pg	100
6) 1,3-Butadiene	5.14	54	27149	422.143	pg	97
7) Bromomethane	5.48	94	18208	418.438	pg	100
8) Chloroethane	5.70	64	14708	441.943	pg	100
9) Acrolein	6.27	56	11290	477.545	pg	99
10) Acetone	6.40	58	76435	2500.552	pg	100
11) Trichlorofluoromethane	6.62	101	41690	538.697	pg	100
12) 1,1-Dichloroethene	7.35	96	24654	508.490	pg	100
13) Methylene Chloride	7.48	84	25077	476.615	pg	100
14) Trichlorotrifluoroethane	7.80	151	24901	514.784	pg	100
15) trans-1,2-Dichloroethene	8.52	96	25919	495.873	pg	100
16) 1,1-Dichloroethane	8.72	63	42758	461.084	pg	100
17) Methyl tert-Butyl Ether	8.79	73	81366	587.998	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27973	509.983	pg	100
19) Chloroform	9.89	83	46651	478.387	pg	100
21) 1,2-Dichloroethane	10.64	62	34289	456.777	pg	100
22) 1,1,1-Trichloroethane	10.91	97	45127	498.513	pg	100
23) Benzene	11.37	78	101187	470.958	pg	100
24) Carbon Tetrachloride	11.52	117	40496	557.125	pg	100
26) 1,2-Dichloropropane	12.18	63	24877	444.675	pg	100
27) Bromodichloromethane	12.36	83	36381	470.928	pg	100
28) Trichloroethene	12.41	130	29035	508.469	pg	100
29) 1,4-Dioxane	12.38	88	22240	530.407	pg	100
30) cis-1,3-Dichloropropene	13.26	75	42729	567.850	pg	100
31) trans-1,3-Dichloropropene	13.77	75	35546	580.476	pg	100
32) 1,1,2-Trichloroethane	13.95	83	21252	449.105	pg	100
34) Toluene	14.25	91	104379	512.227	pg	100
35) Dibromochloromethane	14.66	129	30904	547.669	pg	100
36) 1,2-Dibromoethane	14.92	107	28232	528.997	pg	100
37) Tetrachloroethene	15.40	166	30762	519.562	pg	100
39) Chlorobenzene	16.10	112	71422	511.579	pg	100
40) Ethylbenzene	16.48	91	121724	591.245	pg	100
41) m,p-Xylene	16.65	91	187213	1212.365	pg	100
42) Styrene	17.01	104	72134	666.756	pg	100
43) o-Xylene	17.12	106	45881	578.366	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	43481	477.028	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	101046	618.158	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	102046	636.021	pg	100
48) 1,3-Dichlorobenzene	18.92	146	56800	575.993	pg	100
49) 1,4-Dichlorobenzene	18.98	146	57596	560.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	55446	551.735	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19674	647.629	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	36959	621.329	pg	100
53) Naphthalene	21.06	128	125927	666.692	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

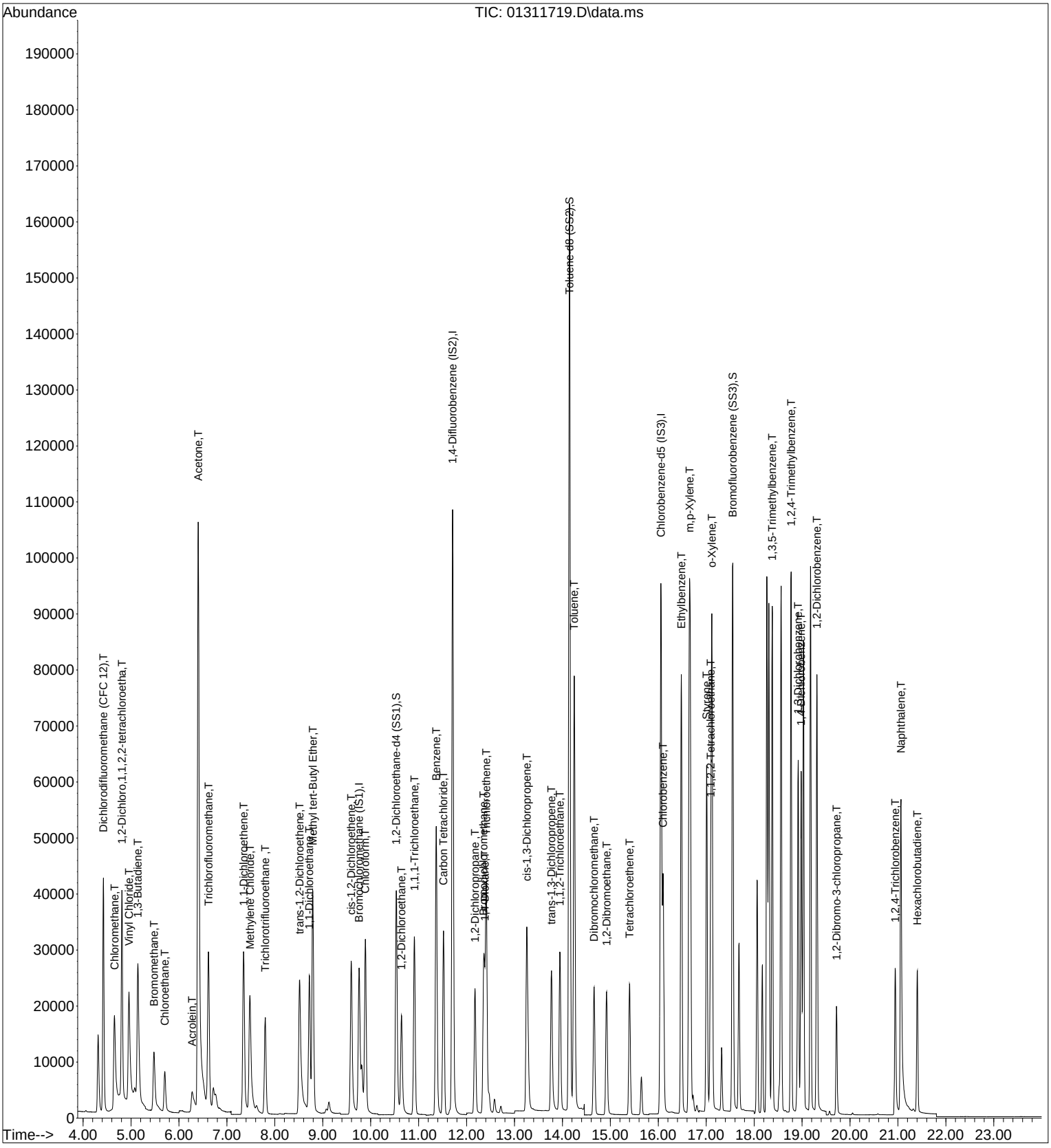
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	25291	537.422	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

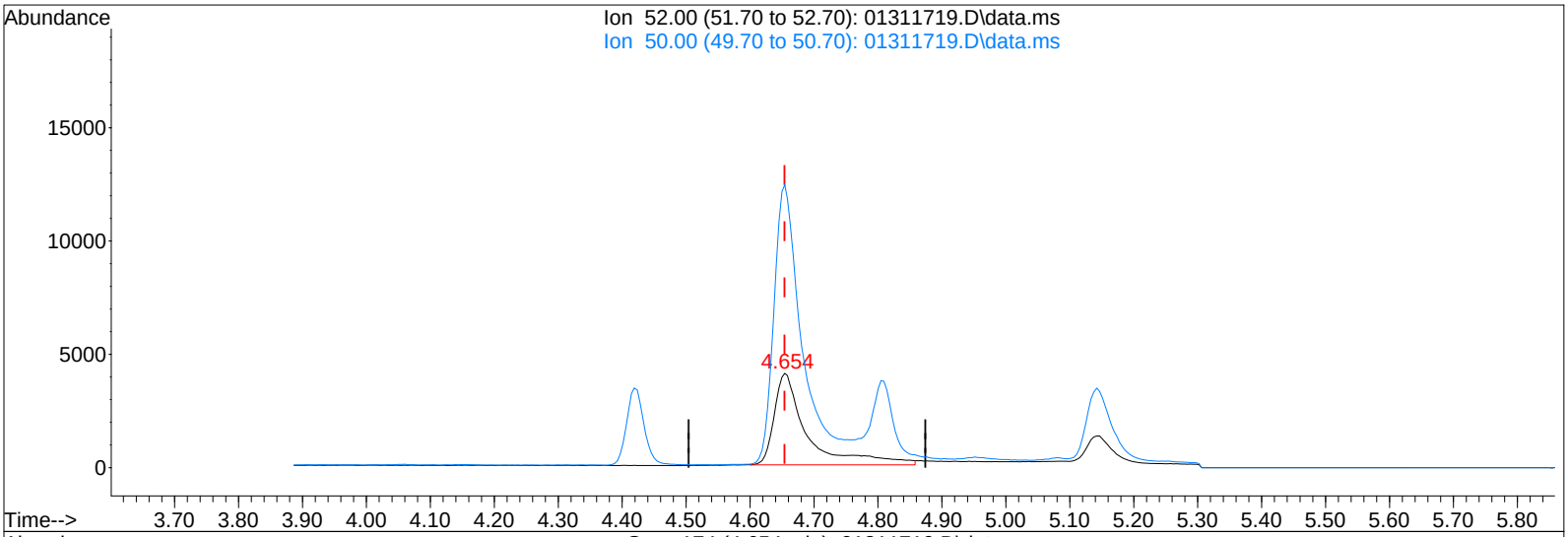
Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

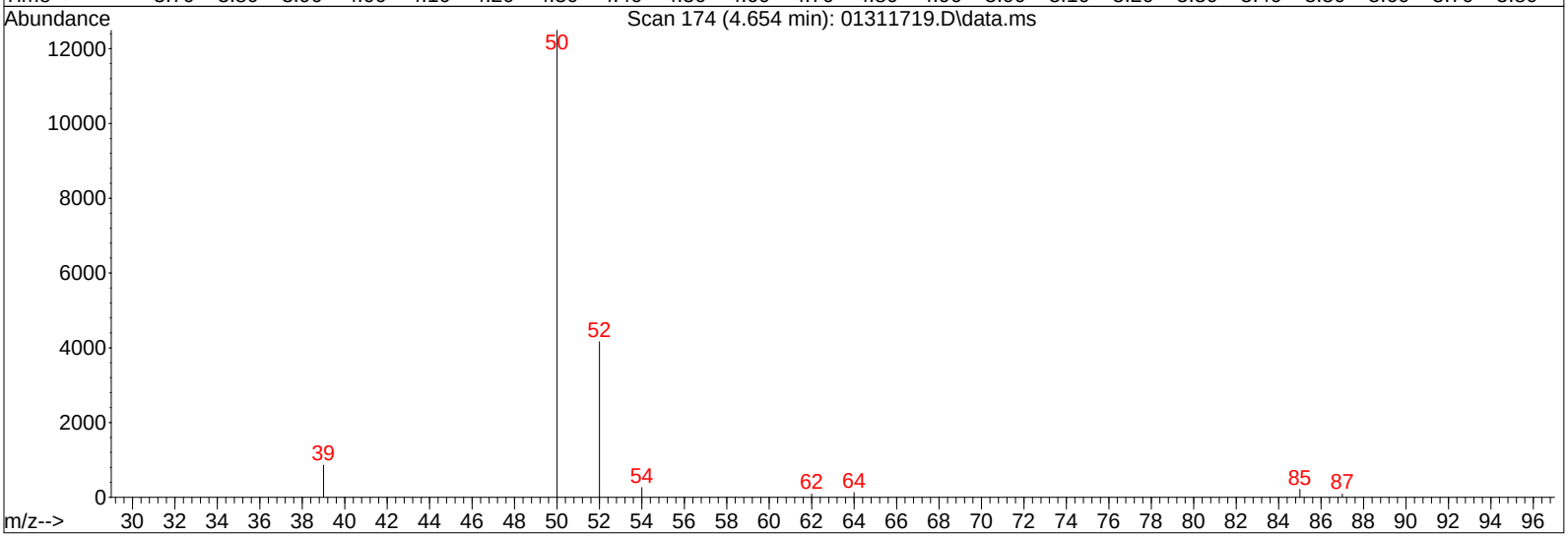


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 425.98pg

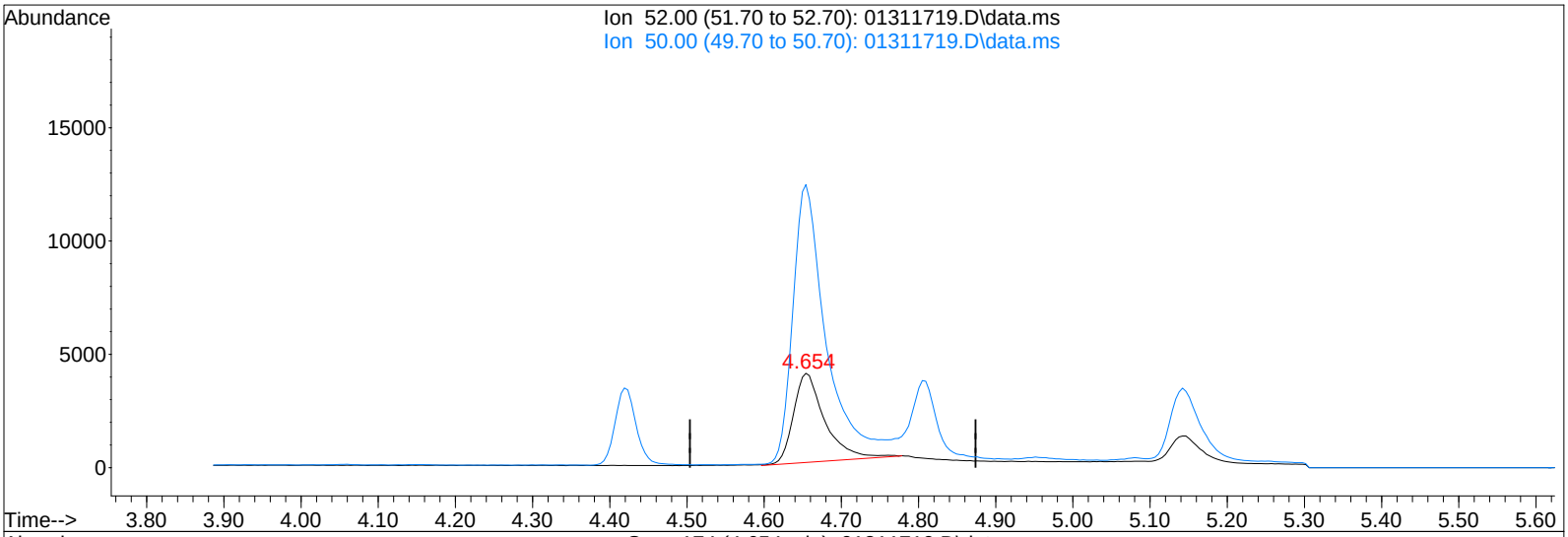
response 14360

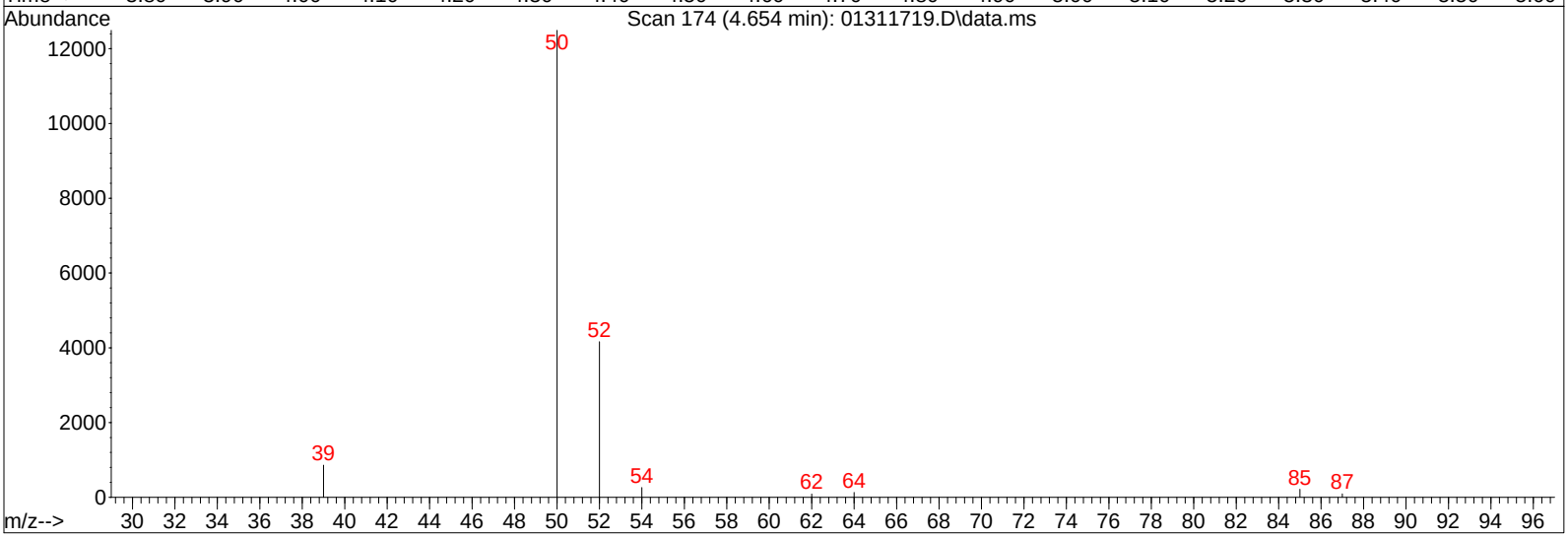
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	273.80
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 330.29pg m

response 11134

BLC

CL 2/1/17 VOA 2/1/17

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41256	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	201950	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33722	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	63980	895.455	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.55%			
33) Toluene-d8 (SS2)	14.14	98	205034	1022.080	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.21%			
45) Bromofluorobenzene (SS3)	17.55	174	73290	1188.011	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	113332	1087.382	pg	100
3) Chloromethane	4.64	52	26928m	867.214	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	101721	991.998	pg	100
5) Vinyl Chloride	4.94	62	95990	963.386	pg	100
6) 1,3-Butadiene	5.12	54	70019	1181.968	pg	96
7) Bromomethane	5.46	94	37586	937.734	pg	100
8) Chloroethane	5.69	64	30402	991.743	pg	99
9) Acrolein	6.26	56	24355	1118.389	pg	87
10) Acetone	6.39	58	155710	5530.245	pg	100
11) Trichlorofluoromethane	6.60	101	85620	1201.080	pg	100
12) 1,1-Dichloroethene	7.34	96	51528	1153.780	pg	100
13) Methylene Chloride	7.47	84	51520	1063.046	pg	99
14) Trichlorotrifluoroethane	7.79	151	52266	1173.037	pg	100
15) trans-1,2-Dichloroethene	8.51	96	54829	1138.798	pg	99
16) 1,1-Dichloroethane	8.71	63	88528	1036.400	pg	100
17) Methyl tert-Butyl Ether	8.78	73	166983	1310.054	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58245	1152.816	pg	100
19) Chloroform	9.89	83	95528	1063.489	pg	100
21) 1,2-Dichloroethane	10.64	62	72512	1048.681	pg	99
22) 1,1,1-Trichloroethane	10.91	97	93518	1121.552	pg	100
23) Benzene	11.36	78	208308	1052.561	pg	100
24) Carbon Tetrachloride	11.52	117	83663	1249.564	pg	100
26) 1,2-Dichloropropane	12.18	63	52269	1016.124	pg	100
27) Bromodichloromethane	12.36	83	76414	1075.747	pg	100
28) Trichloroethene	12.41	130	60477	1151.837	pg	100
29) 1,4-Dioxane	12.38	88	46199	1198.297	pg	99
30) cis-1,3-Dichloropropene	13.25	75	91457	1321.861	pg	100
31) trans-1,3-Dichloropropene	13.77	75	77319	1373.212	pg	100
32) 1,1,2-Trichloroethane	13.95	83	44749	1028.464	pg	100
34) Toluene	14.25	91	217850	1162.691	pg	100
35) Dibromochloromethane	14.66	129	65423	1260.932	pg	100
36) 1,2-Dibromoethane	14.92	107	60364	1230.120	pg	100
37) Tetrachloroethene	15.40	166	64784	1190.005	pg	99
39) Chlorobenzene	16.10	112	151267	1163.622	pg	100
40) Ethylbenzene	16.48	91	256326	1337.123	pg	100
41) m,p-Xylene	16.66	91	392109	2727.040	pg	100
42) Styrene	17.01	104	156256	1551.139	pg	100
43) o-Xylene	17.12	106	96286	1303.527	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	91871	1082.455	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	212828	1398.287	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	217940	1458.812	pg	100
48) 1,3-Dichlorobenzene	18.92	146	124843	1359.628	pg	100
49) 1,4-Dichlorobenzene	18.98	146	123287	1289.634	pg	100
50) 1,2-Dichlorobenzene	19.31	146	120177	1284.308	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	43897	1551.872	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	83154	1501.315	pg	100
53) Naphthalene	21.06	128	277042	1575.213	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

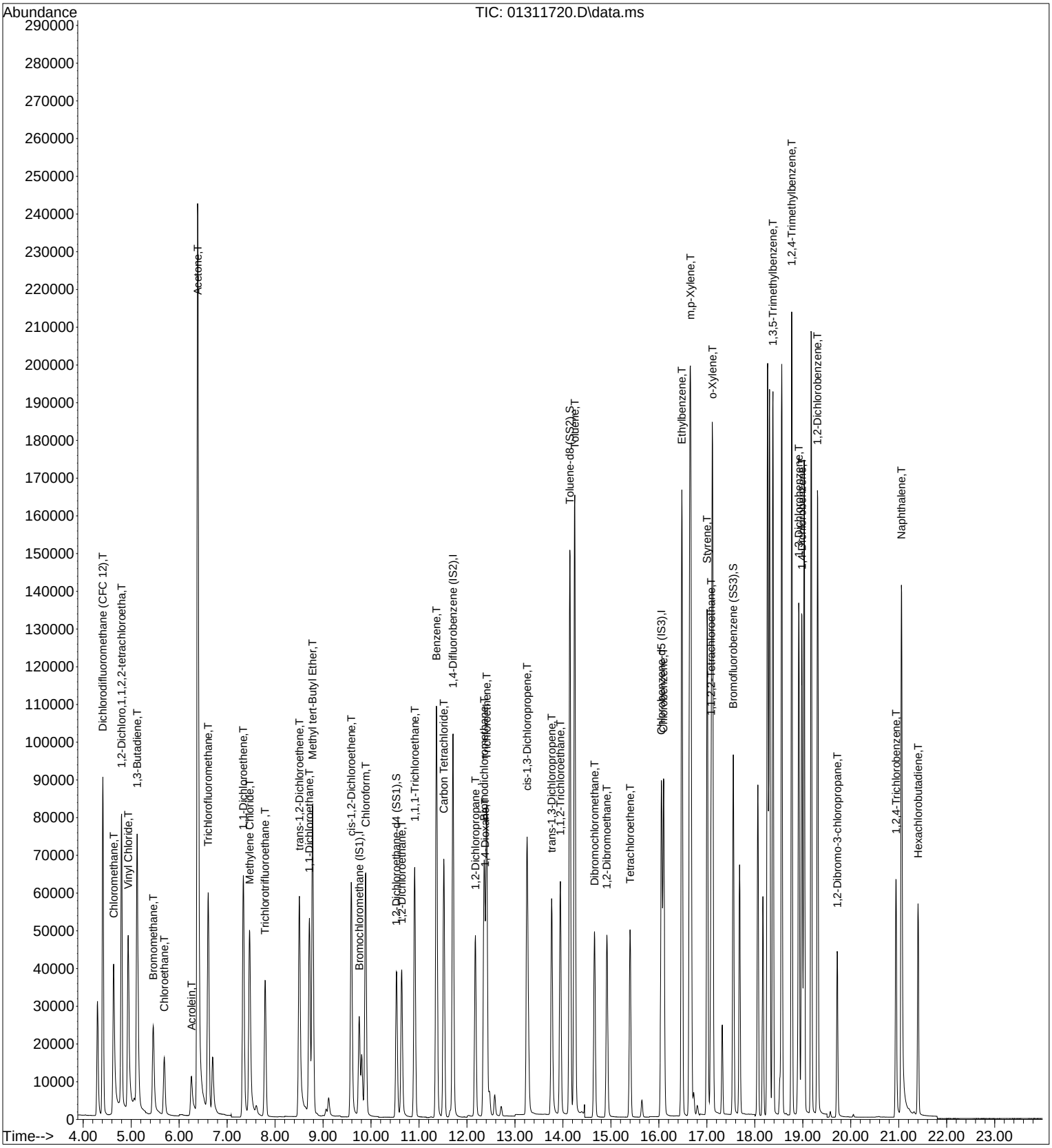
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	54368	1240.737	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

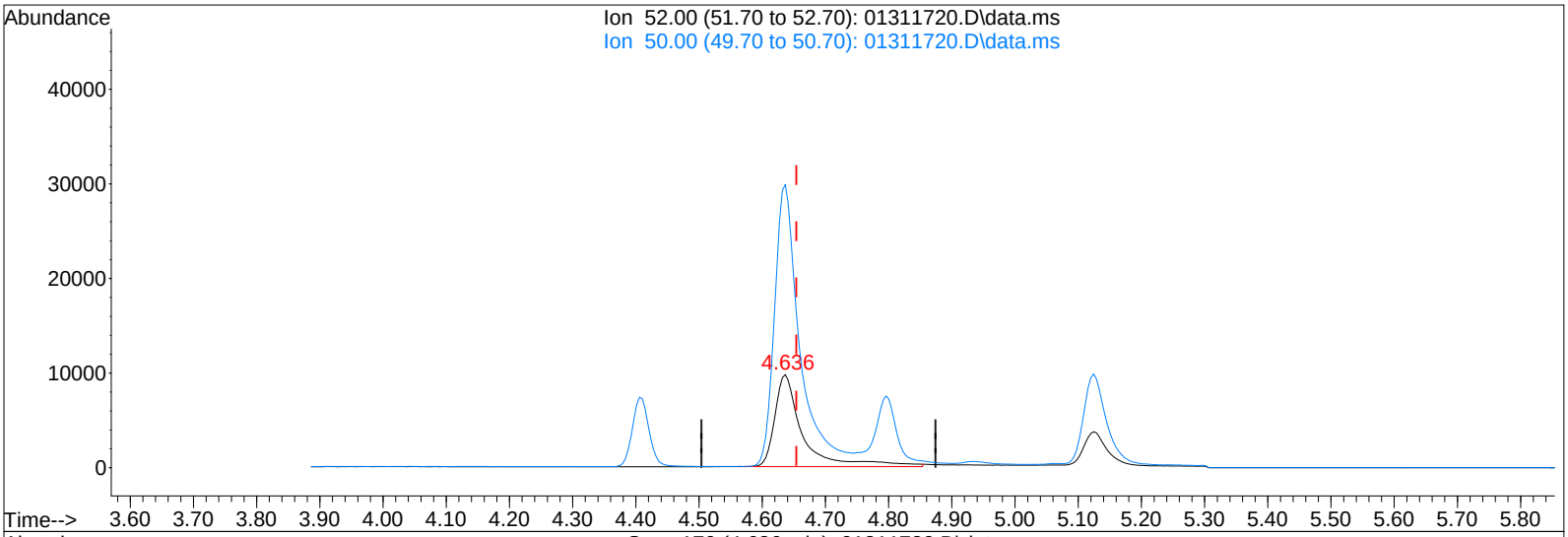
Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

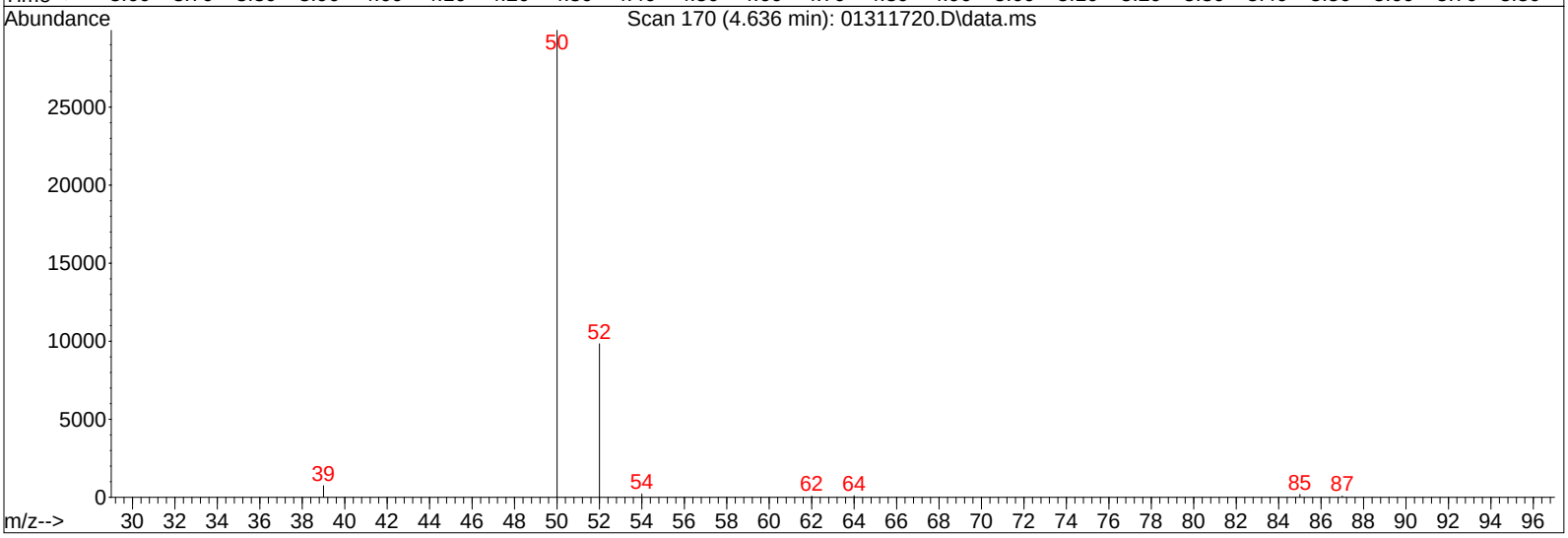


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 960.90pg

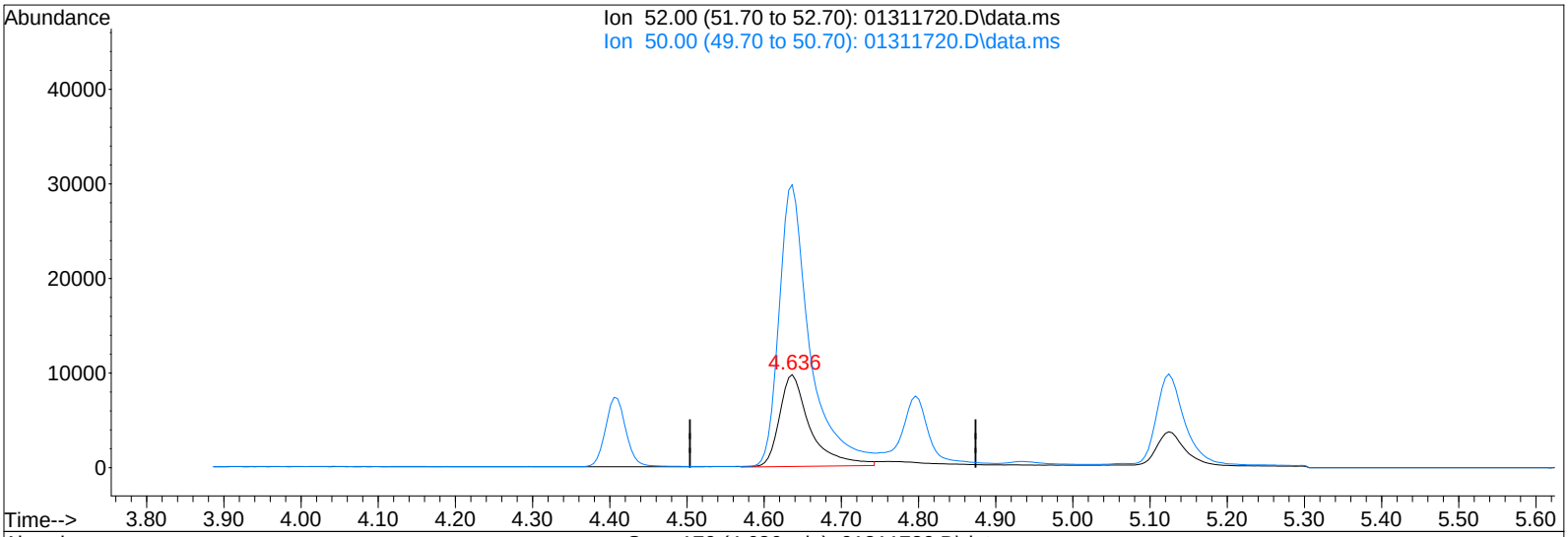
response 29837

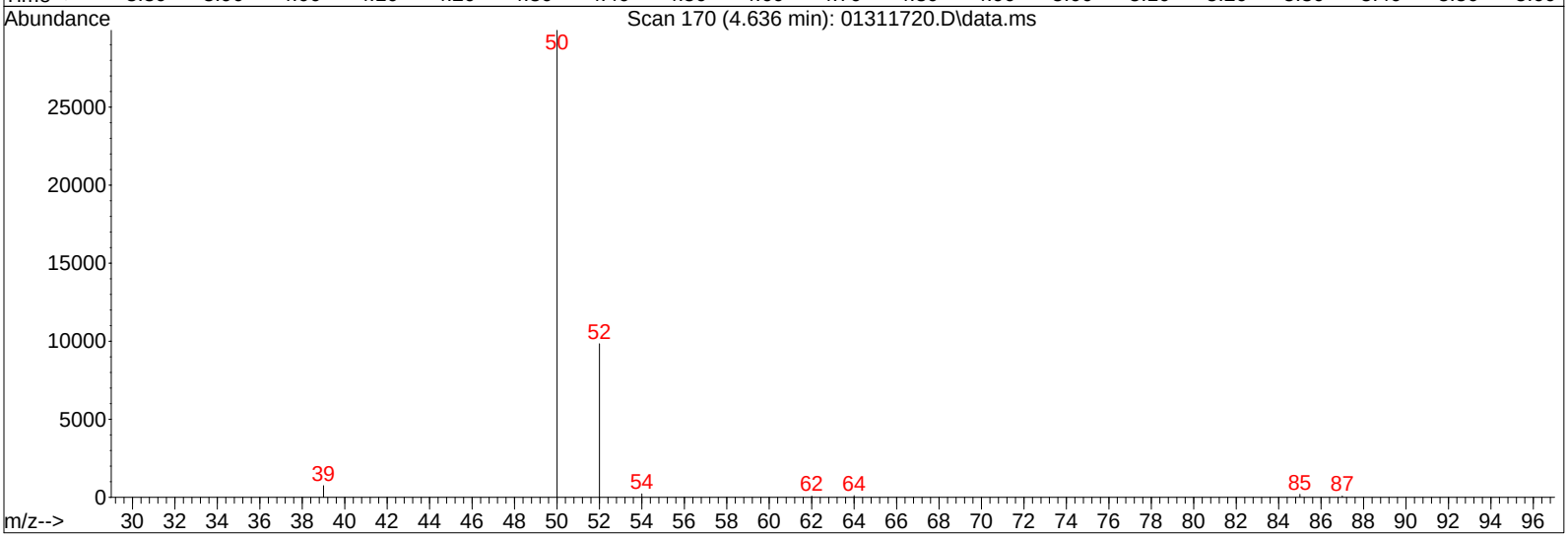
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	282.21
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 867.21pg m

response 26928

BLC

CL 2/1/17 VOA 2/1/17

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46260	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	226658	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38224	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	72163	900.732	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.07%			
33) Toluene-d8 (SS2)	14.14	98	229595	1019.751	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%			
45) Bromofluorobenzene (SS3)	17.55	174	84385	1206.753	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 120.68%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	220557	1887.260	pg	100
3) Chloromethane	4.63	52	52734	1514.587	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	195750	1702.486	pg	100
5) Vinyl Chloride	4.93	62	185043	1656.260	pg	100
6) 1,3-Butadiene	5.12	54	131000	1972.162	pg	99
7) Bromomethane	5.46	94	74906	1666.677	pg	99
8) Chloroethane	5.68	64	59772	1738.906	pg	100
9) Acrolein	6.25	56	49479	2026.316	pg	89
10) Acetone	6.39	58	301398	9546.622	pg	100
11) Trichlorofluoromethane	6.60	101	166282	2080.289	pg	100
12) 1,1-Dichloroethene	7.34	96	101668	2030.230	pg	100
13) Methylene Chloride	7.47	84	101112	1860.632	pg	97
14) Trichlorotrifluoroethane	7.80	151	101840	2038.413	pg	100
15) trans-1,2-Dichloroethene	8.51	96	108910	2017.370	pg	100
16) 1,1-Dichloroethane	8.72	63	173363	1810.026	pg	100
17) Methyl tert-Butyl Ether	8.78	73	324803	2272.577	pg	100
18) cis-1,2-Dichloroethene	9.59	96	115529	2039.266	pg	100
19) Chloroform	9.89	83	185900	1845.709	pg	100
21) 1,2-Dichloroethane	10.64	62	143714	1853.592	pg	100
22) 1,1,1-Trichloroethane	10.91	97	183355	1961.094	pg	100
23) Benzene	11.36	78	404925	1824.725	pg	100
24) Carbon Tetrachloride	11.52	117	163921	2183.439	pg	100
26) 1,2-Dichloropropane	12.18	63	103854	1798.865	pg	100
27) Bromodichloromethane	12.36	83	152005	1906.637	pg	100
28) Trichloroethene	12.41	130	118710	2014.470	pg	100
29) 1,4-Dioxane	12.37	88	91438	2113.156	pg	98
30) cis-1,3-Dichloropropene	13.25	75	184937	2381.581	pg	100
31) trans-1,3-Dichloropropene	13.77	75	159452	2523.214	pg	100
32) 1,1,2-Trichloroethane	13.95	83	88554	1813.371	pg	100
34) Toluene	14.25	91	428948	2039.785	pg	100
35) Dibromochloromethane	14.66	129	131890	2264.884	pg	100
36) 1,2-Dibromoethane	14.92	107	121296	2202.363	pg	100
37) Tetrachloroethene	15.40	166	129617	2121.366	pg	99
39) Chlorobenzene	16.10	112	301544	2046.425	pg	100
40) Ethylbenzene	16.48	91	505745	2327.488	pg	100
41) m,p-Xylene	16.65	91	769225	4719.710	pg	100
42) Styrene	17.01	104	317729	2782.583	pg	100
43) o-Xylene	17.12	106	190542	2275.751	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	183818	1910.717	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	422729	2450.230	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	437807	2585.368	pg	100
48) 1,3-Dichlorobenzene	18.92	146	252089	2422.071	pg	99
49) 1,4-Dichlorobenzene	18.98	146	251599	2321.857	pg	100
50) 1,2-Dichlorobenzene	19.31	146	243739	2297.999	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	93012	2900.929	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	173590	2764.971	pg	99
53) Naphthalene	21.06	128	572431	2871.402	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

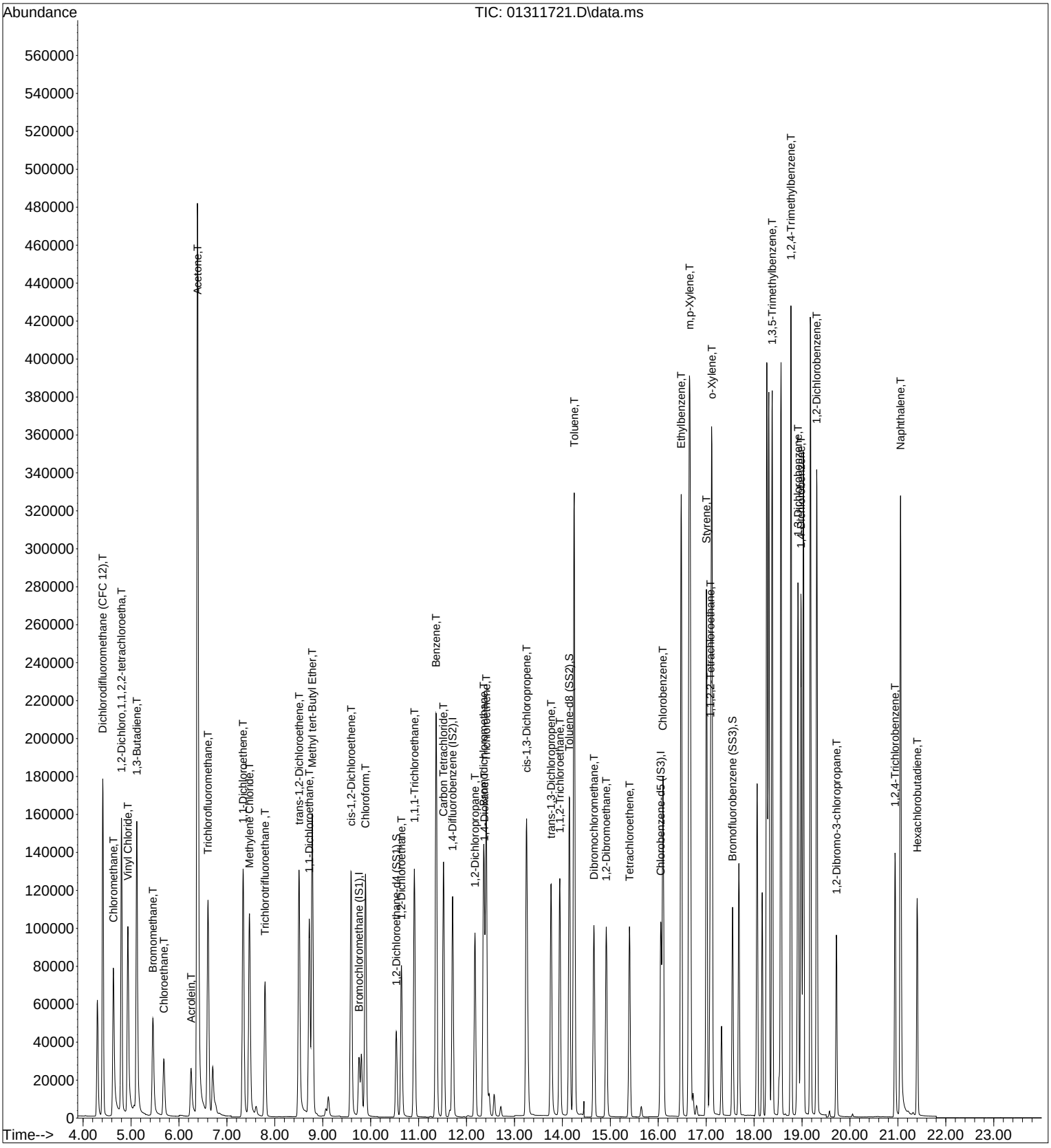
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	110571	2226.153	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46202	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	228263	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38988	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	72838	910.299 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.03%		
33) Toluene-d8 (SS2)	14.15	98	229599	1012.598 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.26%		
45) Bromofluorobenzene (SS3)	17.55	174	87524	1227.115 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 122.71%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	512896	4394.253 pg	100
3) Chloromethane	4.62	52	101977	2932.585 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	454932	3961.623 pg	100
5) Vinyl Chloride	4.92	62	438115	3926.349 pg	100
6) 1,3-Butadiene	5.11	54	348673	5255.748 pg	99
7) Bromomethane	5.44	94	175953	3919.913 pg	99
8) Chloroethane	5.67	64	144617	4212.525 pg	100
9) Acrolein	6.25	56	124001	5084.593 pg	91
10) Acetone	6.39	58	711848	22575.713 pg	99
11) Trichlorofluoromethane	6.60	101	397999	4985.460 pg	100
12) 1,1-Dichloroethene	7.33	96	244670	4892.002 pg	100
13) Methylene Chloride	7.47	84	242354	4465.323 pg	96
14) Trichlorotrifluoroethane	7.79	151	244226	4894.525 pg	100
15) trans-1,2-Dichloroethene	8.51	96	261214	4844.613 pg	100
16) 1,1-Dichloroethane	8.72	63	410941	4295.885 pg	100
17) Methyl tert-Butyl Ether	8.78	73	766770	5371.660 pg	99
18) cis-1,2-Dichloroethene	9.59	96	277890	4911.346 pg	100
19) Chloroform	9.90	83	442175	4395.649 pg	100
21) 1,2-Dichloroethane	10.65	62	348344	4498.505 pg	99
22) 1,1,1-Trichloroethane	10.91	97	435529	4664.096 pg	100
23) Benzene	11.37	78	964790	4353.119 pg	100
24) Carbon Tetrachloride	11.52	117	392094	5229.275 pg	100
26) 1,2-Dichloropropane	12.18	63	253346	4357.376 pg	100
27) Bromodichloromethane	12.36	83	368912	4594.819 pg	100
28) Trichloroethene	12.41	130	283057	4769.610 pg	100
29) 1,4-Dioxane	12.37	88	220451	5058.858 pg	98
30) cis-1,3-Dichloropropene	13.25	75	456001	5830.998 pg	100
31) trans-1,3-Dichloropropene	13.76	75	400676	6295.829 pg	100
32) 1,1,2-Trichloroethane	13.95	83	213984	4351.062 pg	100
34) Toluene	14.25	91	1028667	4857.246 pg	99
35) Dibromochloromethane	14.66	129	325836	5556.082 pg	100
36) 1,2-Dibromoethane	14.92	107	296590	5347.298 pg	100
37) Tetrachloroethene	15.40	166	315696	5130.483 pg	98
39) Chlorobenzene	16.10	112	729817	4855.838 pg	99
40) Ethylbenzene	16.48	91	1211043	5464.123 pg	99
41) m,p-Xylene	16.66	91	1858111	11177.347 pg	99
42) Styrene	17.01	104	792274	6802.551 pg	100
43) o-Xylene	17.12	106	463877	5431.779 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	452508	4611.475 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1044605	5936.113 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	1092958	6327.736 pg	99
48) 1,3-Dichlorobenzene	18.92	146	633841	5970.608 pg	99
49) 1,4-Dichlorobenzene	18.98	146	630188	5701.667 pg	100
50) 1,2-Dichlorobenzene	19.31	146	611111	5648.722 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	241334	7379.414 pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	437718	6835.425 pg	99
53) Naphthalene	21.06	128	1421593	6991.193 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

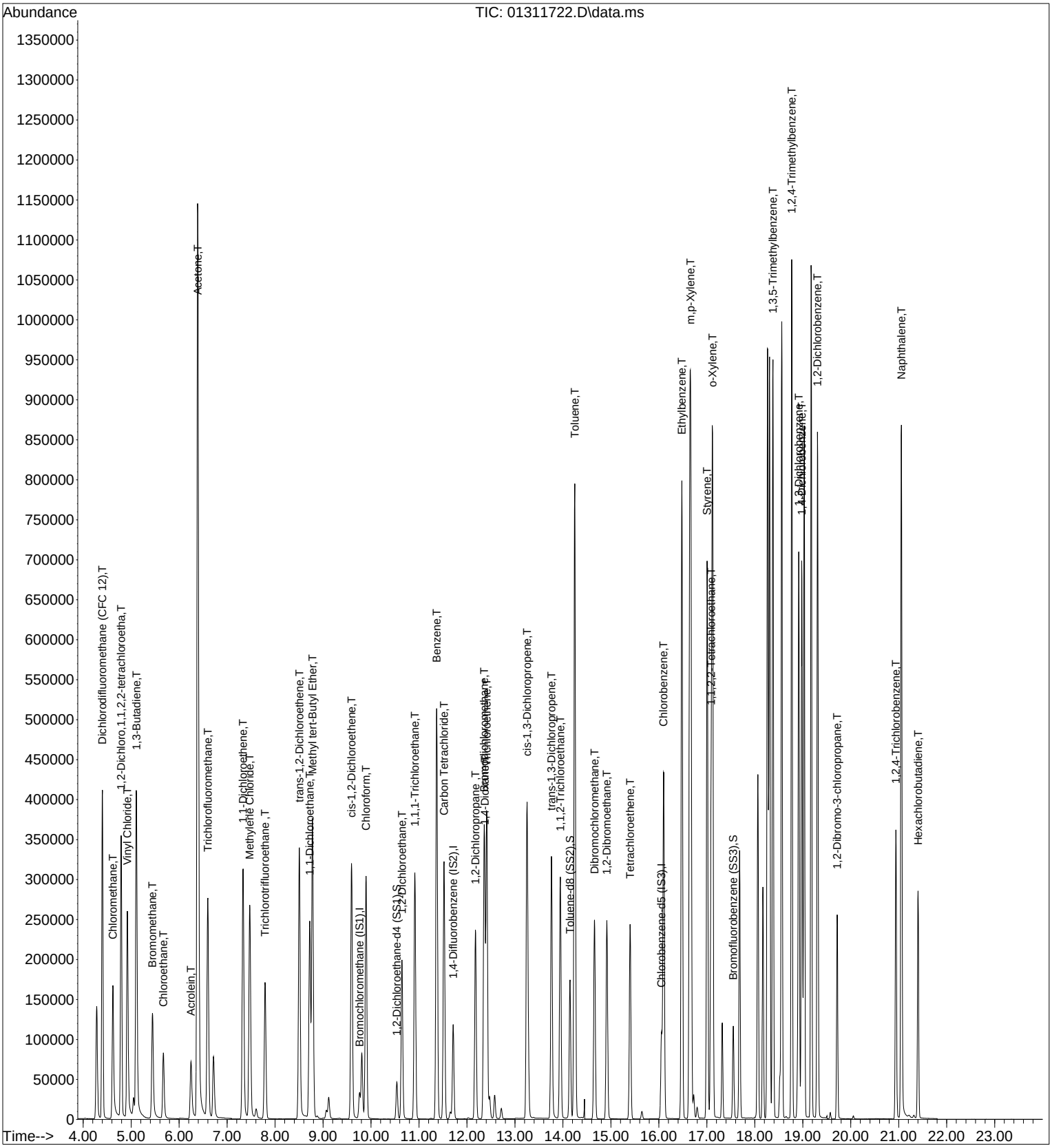
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	274391	5416.126	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	47579	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	237335	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	41485	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	76306	926.041	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.60%			
33) Toluene-d8 (SS2)	14.15	98	237217	1006.206	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%			
45) Bromofluorobenzene (SS3)	17.55	174	91990	1212.101	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 121.21%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	991839	8251.680	pg	99
3) Chloromethane	4.62	52	127941	3572.758	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	882023	7458.509	pg	99
5) Vinyl Chloride	4.92	62	860171	7485.676	pg	100
6) 1,3-Butadiene	5.11	54	682216	9985.816	pg	98
7) Bromomethane	5.44	94	347157	7510.193	pg	99
8) Chloroethane	5.67	64	288891	8171.516	pg	100
9) Acrolein	6.25	56	251909	10030.444	pg	93
10) Acetone	6.40	58	1427049	43947.944	pg	98
11) Trichlorofluoromethane	6.60	101	783993	9536.321	pg	100
12) 1,1-Dichloroethene	7.33	96	485554	9427.334	pg	100
13) Methylene Chloride	7.48	84	484801	8673.844	pg	94
14) Trichlorotrifluoroethane	7.79	151	470953	9165.195	pg	100
15) trans-1,2-Dichloroethene	8.51	96	513980	9256.661	pg	99
16) 1,1-Dichloroethane	8.73	63	814059	8263.700	pg	99
17) Methyl tert-Butyl Ether	8.78	73	1520229	10341.841	pg	99
18) cis-1,2-Dichloroethene	9.60	96	551238	9460.460	pg	99
19) Chloroform	9.90	83	875033	8446.926	pg	99
21) 1,2-Dichloroethane	10.65	62	695439	8720.961	pg	99
22) 1,1,1-Trichloroethane	10.92	97	857745	8919.779	pg	99
23) Benzene	11.37	78	1911739	8376.099	pg	100
24) Carbon Tetrachloride	11.53	117	780654	10110.098	pg	100
26) 1,2-Dichloropropane	12.18	63	508782	8416.208	pg	100
27) Bromodichloromethane	12.36	83	735652	8812.352	pg	100
28) Trichloroethene	12.42	130	560675	9086.442	pg	100
29) 1,4-Dioxane	12.37	88	437282	9651.075	pg	97
30) cis-1,3-Dichloropropene	13.25	75	918356	11294.367	pg	100
31) trans-1,3-Dichloropropene	13.76	75	813807	12298.574	pg	99
32) 1,1,2-Trichloroethane	13.95	83	426818	8347.000	pg	100
34) Toluene	14.25	91	2034557	9239.721	pg	98
35) Dibromochloromethane	14.66	129	658702	10802.700	pg	100
36) 1,2-Dibromoethane	14.92	107	594139	10302.431	pg	100
37) Tetrachloroethene	15.40	166	629830	9844.333	pg	98
39) Chlorobenzene	16.10	112	1451673	9077.347	pg	99
40) Ethylbenzene	16.48	91	2393354	10148.638	pg	98
41) m,p-Xylene	16.66	91	3762008	21268.000	pg	98
42) Styrene	17.01	104	1611198	13001.252	pg	99
43) o-Xylene	17.12	106	941259	10358.294	pg	97
44) 1,1,2,2-Tetrachloroethane	17.09	83	918804	8799.871	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2126238	11355.384	pg	97
47) 1,2,4-Trimethylbenzene	18.77	105	2241162	12194.331	pg	99
48) 1,3-Dichlorobenzene	18.92	146	1277210	11306.817	pg	99
49) 1,4-Dichlorobenzene	18.98	146	1276991	10858.239	pg	100
50) 1,2-Dichlorobenzene	19.31	146	1236325	10739.958	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	496260	14261.083	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	884931	12987.345	pg	99
53) Naphthalene	21.06	128	2873218	13279.584	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

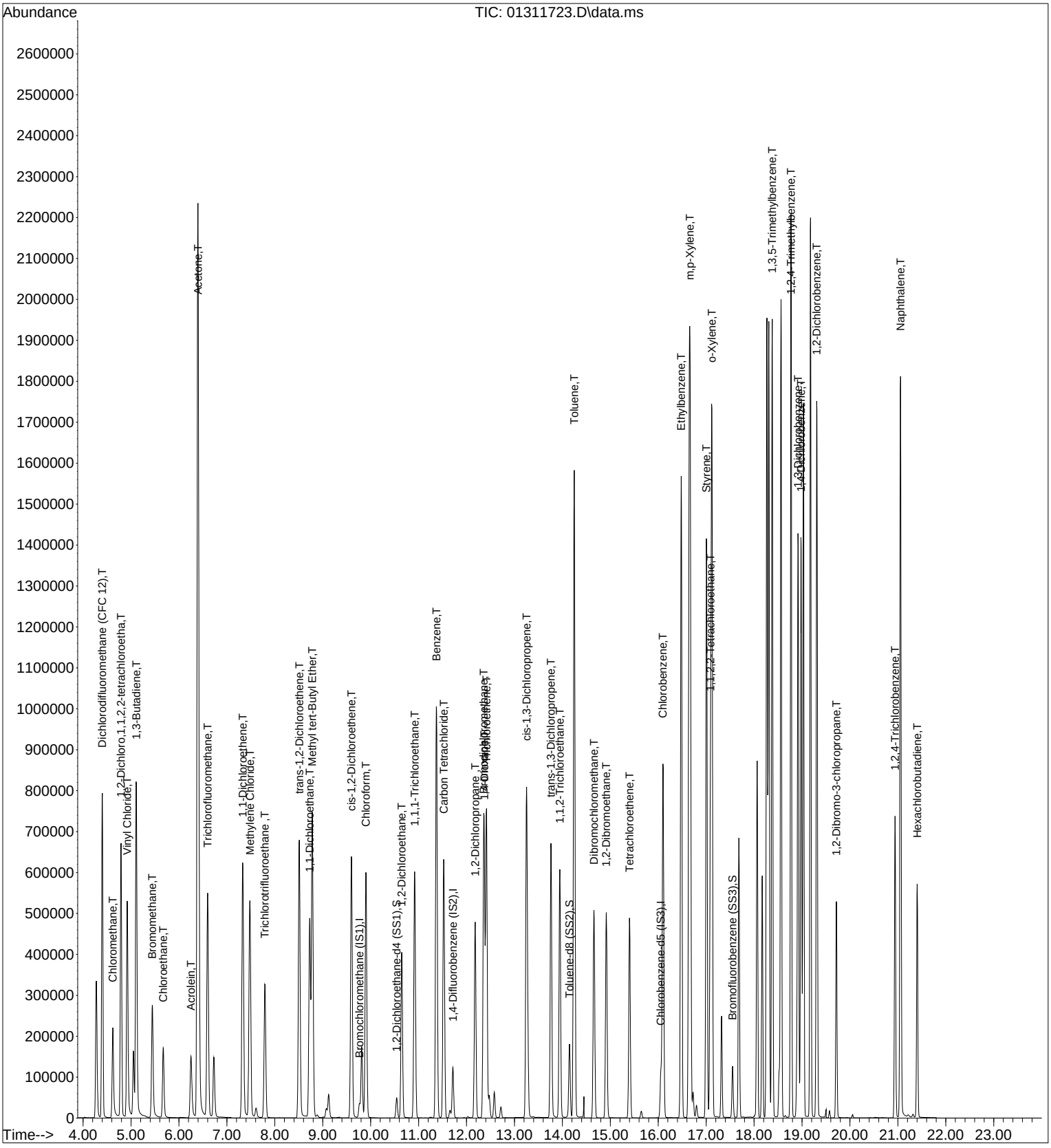
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	547888	10163.670	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	51008	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	248382	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	50853	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	79915	904.642	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.46%			
33) Toluene-d8 (SS2)	14.15	98	246142	997.627	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.76%			
45) Bromofluorobenzene (SS3)	17.55	174	94754	1018.521	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.85%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	4831857	37496.636	pg	97
3) Chloromethane	4.62	52	1109290	28894.555	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	4467055	35234.690	pg	97
5) Vinyl Chloride	4.93	62	4376577	35526.941	pg	98
6) 1,3-Butadiene	5.12	54	3755422	51274.027	pg	94
7) Bromomethane	5.45	94	1886990	38077.796	pg	98
8) Chloroethane	5.68	64	1532792	40441.649	pg	99
9) Acrolein	6.27	56	1401244	52043.591	pg	94
10) Acetone	6.42	58	8896584	255564.177	pg	# 80
11) Trichlorofluoromethane	6.61	101	4235811	48059.834	pg	98
12) 1,1-Dichloroethene	7.34	96	2610496	47277.161	pg	100
13) Methylene Chloride	7.50	84	2665787	44488.788	pg	90
14) Trichlorotrifluoroethane	7.80	151	2673416	48529.712	pg	99
15) trans-1,2-Dichloroethene	8.52	96	2744721	46108.752	pg	98
16) 1,1-Dichloroethane	8.74	63	4379006	41464.002	pg	98
17) Methyl tert-Butyl Ether	8.79	73	8396415	53279.453	pg	96
18) cis-1,2-Dichloroethene	9.61	96	2951308	47245.957	pg	98
19) Chloroform	9.92	83	4748565	42757.634	pg	98
21) 1,2-Dichloroethane	10.66	62	3773335	44137.496	pg	98
22) 1,1,1-Trichloroethane	10.93	97	4624723	44859.935	pg	98
23) Benzene	11.38	78	10474309	42807.079	pg	98
24) Carbon Tetrachloride	11.54	117	4279022	51691.403	pg	99
26) 1,2-Dichloropropane	12.19	63	2794563	44171.312	pg	99
27) Bromodichloromethane	12.37	83	4215899	48255.994	pg	98
28) Trichloroethene	12.42	130	3126783	48419.700	pg	99
29) 1,4-Dioxane	12.38	88	2532494	53407.740	pg	93
30) cis-1,3-Dichloropropene	13.26	75	5308516	62382.910	pg	98
31) trans-1,3-Dichloropropene	13.77	75	4519148	65257.673	pg	97
32) 1,1,2-Trichloroethane	13.95	83	2379757	44469.470	pg	98
34) Toluene	14.25	91	10853205	47096.505	pg	92
35) Dibromochloromethane	14.66	129	3622438	56765.697	pg	99
36) 1,2-Dibromoethane	14.92	107	3194806	52934.377	pg	98
37) Tetrachloroethene	15.40	166	3433974	51286.329	pg	99
39) Chlorobenzene	16.10	112	7764894	39609.574	pg	95
40) Ethylbenzene	16.48	91	12694196	43911.727	pg	92
41) m,p-Xylene	16.67	91	20303130	93636.342	pg	90
42) Styrene	17.01	104	8856150	58298.282	pg	100
43) o-Xylene	17.13	106	5598686	50261.993	pg	90
44) 1,1,2,2-Tetrachloroethane	17.10	83	5290996	41339.517	pg	97
46) 1,3,5-Trimethylbenzene	18.38	105	11232735	48938.422	pg	90
47) 1,2,4-Trimethylbenzene	18.77	105	12214167	54215.455	pg	91
48) 1,3-Dichlorobenzene	18.92	146	7114347	51379.234	pg	96
49) 1,4-Dichlorobenzene	18.98	146	6957694	48262.676	pg	97
50) 1,2-Dichlorobenzene	19.31	146	7228086	51223.324	pg	97
51) 1,2-Dibromo-3-chloropr...	19.72	157	2640311	61897.459	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	4803773	57513.257	pg	100
53) Naphthalene	21.06	128	15004633	56573.857	pg	91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

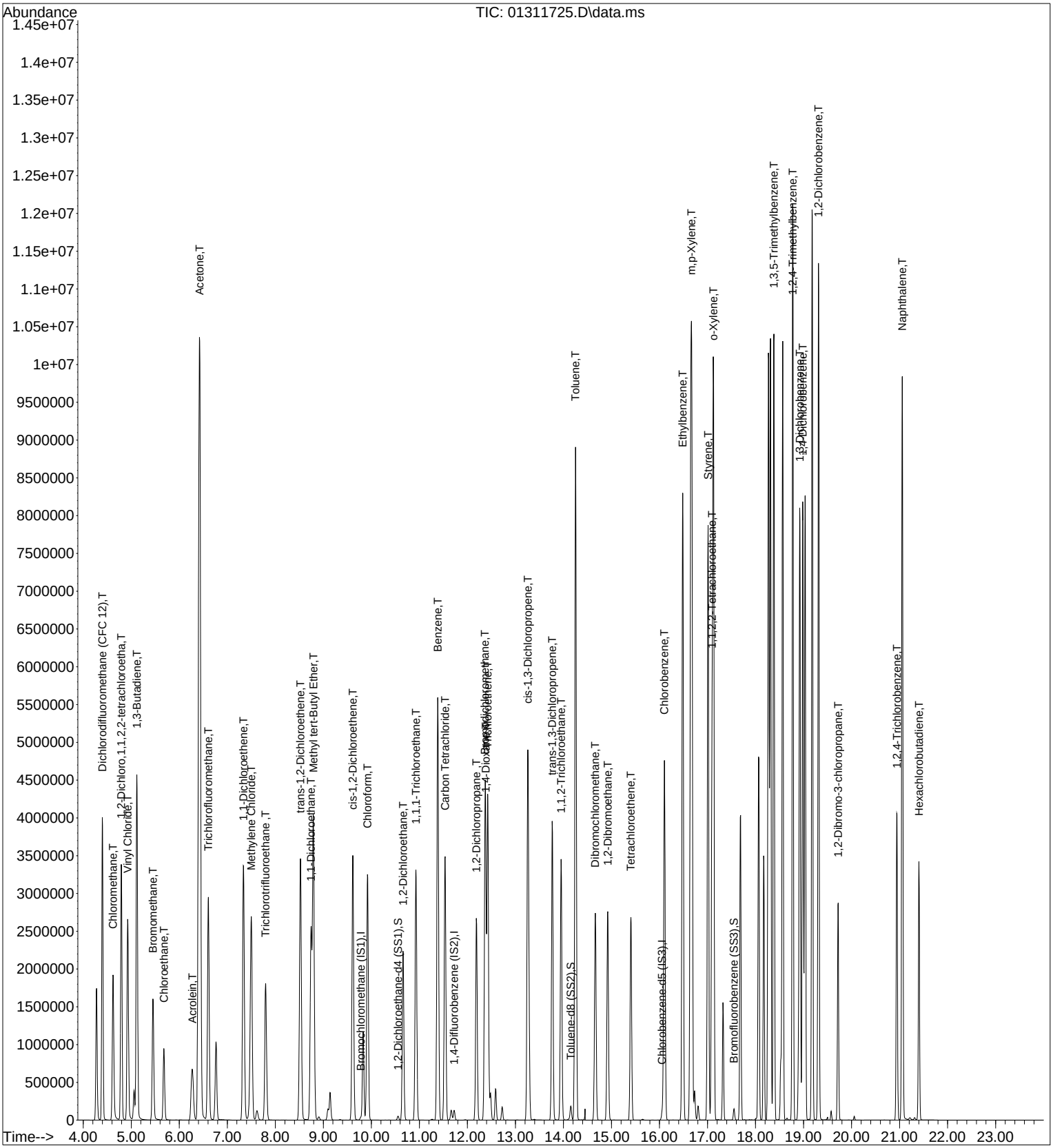
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3115382	47145.970	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46682	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228748	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	38008	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	72991	997.280	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.73%				
33) Toluene-d8 (SS2)	14.15	98	231302	1005.860	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%				
45) Bromofluorobenzene (SS3)	17.55	174	81360	1001.684	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	58726	532.823	pg		100
3) Chloromethane	4.65	52	14130	573.168	pg	#	85
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	50904	489.217	pg		100
5) Vinyl Chloride	4.96	62	51432	528.779	pg		100
6) 1,3-Butadiene	5.14	54	34533	582.774	pg		97
7) Bromomethane	5.47	94	21404	555.057	pg		100
8) Chloroethane	5.70	64	16647	542.604	pg		99
9) Acrolein	6.27	56	11906	472.051	pg		90
10) Acetone	6.40	58	104742	3345.808	pg		97
11) Trichlorofluoromethane	6.61	101	44194	521.024	pg		100
12) 1,1-Dichloroethene	7.35	96	26342	529.554	pg		99
13) Methylene Chloride	7.48	84	27288	532.221	pg		99
14) Trichlorotrifluoroethane	7.80	151	26905	526.733	pg		100
15) trans-1,2-Dichloroethene	8.51	96	28574	568.347	pg		99
16) 1,1-Dichloroethane	8.72	63	48276	553.398	pg		100
17) Methyl tert-Butyl Ether	8.79	73	87461	545.704	pg		100
18) cis-1,2-Dichloroethene	9.59	96	29745	549.185	pg		100
19) Chloroform	9.89	83	49973	529.974	pg		100
21) 1,2-Dichloroethane	10.64	62	37714	543.516	pg		99
22) 1,1,1-Trichloroethane	10.91	97	47679	536.707	pg		100
23) Benzene	11.37	78	114333	558.048	pg		100
24) Carbon Tetrachloride	11.52	117	43270	522.970	pg		100
26) 1,2-Dichloropropane	12.18	63	26842	527.196	pg		100
27) Bromodichloromethane	12.36	83	39146	527.486	pg		100
28) Trichloroethene	12.41	130	31218	533.999	pg		100
29) 1,4-Dioxane	12.38	88	23487	526.883	pg		99
30) cis-1,3-Dichloropropene	13.25	75	43826	529.584	pg		100
31) trans-1,3-Dichloropropene	13.77	75	39227	548.125	pg		99
32) 1,1,2-Trichloroethane	13.95	83	22792	528.739	pg		99
34) Toluene	14.25	91	113003	515.693	pg		100
35) Dibromochloromethane	14.66	129	32624	512.851	pg		100
36) 1,2-Dibromoethane	14.92	107	30738	536.966	pg		99
37) Tetrachloroethene	15.40	166	33006	528.366	pg		100
39) Chlorobenzene	16.10	112	76762	534.818	pg		100
40) Ethylbenzene	16.48	91	130496	543.431	pg		100
41) m,p-Xylene	16.65	91	200762	1072.234	pg		100
42) Styrene	17.01	104	77423	539.713	pg		100
43) o-Xylene	17.12	106	49008	526.512	pg		99
44) 1,1,2,2-Tetrachloroethane	17.09	83	46005	517.421	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	107056	530.091	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	107677	529.606	pg		100
48) 1,3-Dichlorobenzene	18.92	146	61807	553.529	pg		100
49) 1,4-Dichlorobenzene	18.98	146	62298	528.665	pg		100
50) 1,2-Dichlorobenzene	19.31	146	59538	528.653	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20699	510.794	pg		99
52) 1,2,4-Trichlorobenzene	20.94	182	38372	479.910	pg		100
53) Naphthalene	21.06	128	134865	527.170	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

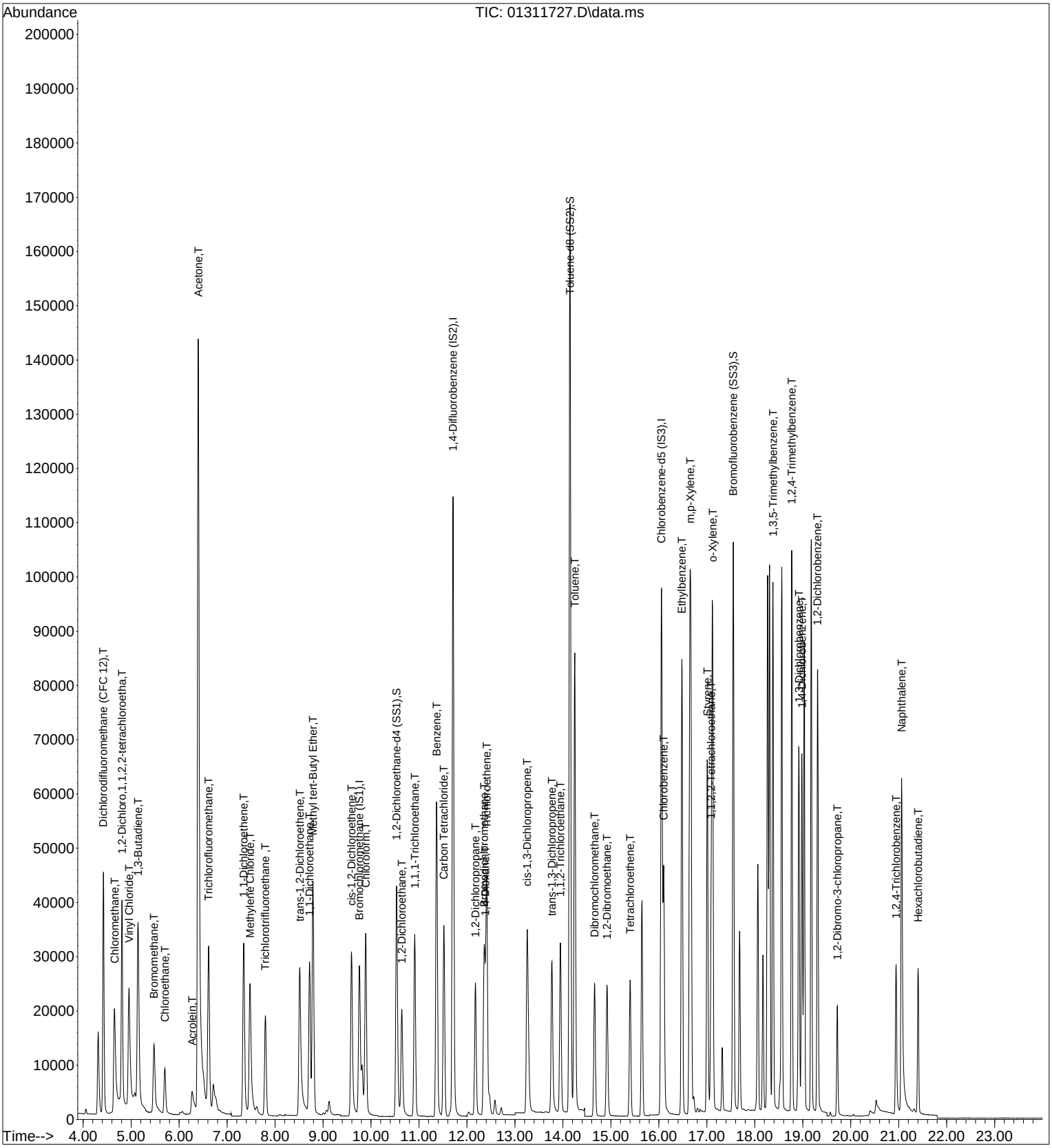
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26076	500.487	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 01311727.D
Data File Path: I:\MS19\DATA\2017_01\31\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-01241701/S29-01271703 (2/25)
Date Acquired: 1/31/17 21:39
Acq. Method File: TO15SIM.M

CL 2/1/17

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.42	525.0	532.8	101.5	68.0	108.0	*	*
3)	Chloromethane		4.65	524.5	573.2	109.3	53.0	121.0	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	*	4.81	527.5	489.2	92.7	53.0	102.0	*	*
5)	Vinyl Chloride		4.96	525.0	528.8	100.7	58.0	117.0	*	*
6)	*1,3-Butadiene*	*	5.14	525.0	582.8	111.0	47.0	129.0	*	*
7)	Bromomethane		5.47	525.0	555.1	105.7	63.0	110.0	*	*
8)	Chloroethane		5.70	524.5	542.6	103.5	67.0	112.0	*	*
9)	*Acrolein*	*	6.27	530.5	472.1	89.0	56.0	114.0	*	*
10)	Acetone		6.40	2661.0	3345.8	125.7	57.0	130.0	*	*
11)	Trichlorofluoromethane		6.61	525.5	521.0	99.1	63.0	97.0	Fail	*
12)	1,1-Dichloroethene		7.35	531.5	529.6	99.6	74.0	107.0	*	*
13)	Methylene Chloride		7.48	531.0	532.2	100.2	70.0	107.0	*	*
14)	Trichlorotrifluoroethane		7.80	529.0	526.7	99.6	71.0	105.0	*	*
15)	trans-1,2-Dichloroethene		8.51	533.5	568.3	106.5	72.0	107.0	*	*
16)	1,1-Dichloroethane		8.72	531.0	553.4	104.2	70.0	110.0	*	*
17)	Methyl tert-Butyl Ether		8.79	532.0	545.7	102.6	59.0	118.0	*	*
18)	cis-1,2-Dichloroethene		9.59	529.5	549.2	103.7	73.0	108.0	*	*
19)	Chloroform		9.89	529.5	530.0	100.1	68.0	105.0	*	*
21)	1,2-Dichloroethane		10.64	530.0	543.5	102.6	67.0	111.0	*	*
22)	1,1,1-Trichloroethane		10.91	529.5	536.7	101.4	70.0	108.0	*	*
25)	Benzene		11.37	530.5	558.0	105.2	70.0	112.0	*	*
24)	Carbon Tetrachloride		11.52	532.0	523.0	98.3	65.0	99.0	*	*
26)	1,2-Dichloropropane		12.18	530.5	527.2	99.4	66.0	108.0	*	*
27)	Bromodichloromethane		12.36	534.0	527.5	98.8	63.0	106.0	*	*
28)	Trichloroethene		12.41	531.0	534.0	100.6	66.0	101.0	*	*
29)	1,4-Dioxane		12.38	532.0	526.9	99.0	73.0	113.0	*	*
30)	cis-1,3-Dichloropropene		13.25	525.5	529.6	100.8	64.0	103.0	*	*
31)	trans-1,3-Dichloropropene		13.77	533.5	548.1	102.7	61.0	104.0	*	*
32)	1,1,2-Trichloroethane		13.95	530.5	528.7	99.7	64.0	108.0	*	*
34)	Toluene		14.15	529.0	515.7	97.5	62.0	105.0	*	*
35)	*Dibromochloromethane*	*	14.66	532.0	512.9	96.4	62.0	108.0	*	*
36)	1,2-Dibromoethane		14.92	529.0	537.0	101.5	66.0	103.0	*	*
37)	Tetrachloroethene		15.40	531.5	528.4	99.4	66.0	105.0	*	*
39)	Chlorobenzene		16.10	530.0	534.8	100.9	60.0	122.0	*	*
40)	Ethylbenzene		16.48	529.0	543.4	102.7	62.0	117.0	*	*
41)	m,p-Xylene		16.65	1060.5	1072.2	101.1	64.0	120.0	*	*
42)	*Styrene*	*	17.01	529.5	539.7	101.9	56.0	123.0	*	*
43)	o-Xylene		17.12	529.0	526.5	99.5	65.0	125.0	*	*
44)	1,1,2,2-Tetrachloroethane		17.09	530.0	517.4	97.6	56.0	124.0	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.38	530.5	530.1	99.9	61.0	129.0	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.77	530.5	529.6	99.8	57.0	127.0	*	*
48)	1,3-Dichlorobenzene		18.92	529.5	553.5	104.5	54.0	126.0	*	*
49)	1,4-Dichlorobenzene		18.98	533.0	528.7	99.2	57.0	131.0	*	*
50)	1,2-Dichlorobenzene		19.31	531.0	528.7	99.6	53.0	129.0	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.72	529.5	510.8	96.5	49.0	126.0	*	*
52)	1,2,4-Trichlorobenzene		20.94	530.0	479.9	90.5	36.0	126.0	*	*
53)	Naphthalene		19.31	534.0	527.2	98.7	25.0	141.0	*	*
54)	Hexachlorobutadiene		21.40	531.5	500.5	94.2	43.0	125.0	*	*

* ***Compounds with 70 - 130 as advisory limits***

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	115	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.603	-3.0	122	0.03
3	T	Chloromethane	0.753	0.641	14.9	94	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.724	-9.6	126	0.02
5	T	Vinyl Chloride	2.415	2.292	5.1	106	0.04
6	T	1,3-Butadiene	1.436	1.003	30.2#	102	0.04
7	T	Bromomethane	0.972	0.959	1.3	119	0.03
8	T	Chloroethane	0.743	0.660	11.2	108	0.03
9	T	Acrolein	0.528	0.353	33.1#	91	0.01
10	T	Acetone	0.682	0.677	0.7	118	-0.02
11	T	Trichlorofluoromethane	1.728	1.861	-7.7	124	0.01
12	T	1,1-Dichloroethene	1.083	1.066	1.6	123	0.01
13	T	Methylene Chloride	1.175	1.194	-1.6	118	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.114	-3.1	128	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.139	2.4	122	0.00
16	T	1,1-Dichloroethane	2.070	1.891	8.6	110	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.878	6.9	119	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.211	1.1	123	-0.02
19	T	Chloroform	2.177	2.112	3.0	116	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.535	11.4	104	-0.02
21	T	1,2-Dichloroethane	1.676	1.508	10.0	111	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.884	6.8	122	-0.02
23	T	Benzene	4.797	4.636	3.4	115	-0.02
24	T	Carbon Tetrachloride	1.623	1.642	-1.2	123	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	114	-0.02
26	T	1,2-Dichloropropane	0.255	0.209	18.0	110	0.00
27	T	Bromodichloromethane	0.352	0.310	11.9	116	0.00
28	T	Trichloroethene	0.260	0.256	1.5	126	0.00
29	T	1,4-Dioxane	0.191	0.165	13.6	116	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.304	11.4	116	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.251	10.0	114	0.00
32	T	1,1,2-Trichloroethane	0.215	0.190	11.6	116	0.00
33	S	Toluene-d8 (SS2)	0.993	0.928	6.5	110	0.00
34	T	Toluene	0.928	0.883	4.8	119	0.00
35	T	Dibromochloromethane	0.257	0.239	7.0	121	0.00
36	T	1,2-Dibromoethane	0.243	0.229	5.8	118	0.00
37	T	Tetrachloroethene	0.270	0.254	5.9	123	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	3.855	4.332	-12.4	117	0.00
40	T	Ethylbenzene	5.685	6.326	-11.3	119	0.00
41	T	m,p-Xylene	4.264	5.019	-17.7	117	0.00
42	T	Styrene	2.987	3.172	-6.2	107	0.00
43	T	o-Xylene	2.190	2.655	-21.2	120	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.730	-8.5	111	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.102	-14.9	108	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.652	-25.2	117	0.00
47	T	1,2,4-Trimethylbenzene	4.430	5.413	-22.2	113	0.00
48	T	1,3-Dichlorobenzene	2.723	2.985	-9.6	99	0.00
49	T	1,4-Dichlorobenzene	2.835	2.737	3.5	93	0.00
50	T	1,2-Dichlorobenzene	2.775	2.992	-7.8	103	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.832	0.8	98	0.00
52	T	1,2,4-Trichlorobenzene	1.642	0.932	43.2#	57	0.00
53	T	Naphthalene	5.215	2.099	59.8#	36#	0.02
54	T	Hexachlorobutadiene	1.299	1.261	2.9	103	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration CL 1/28/17
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51625	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	255804	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35048	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	79249	886.381	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.64%			
33) Toluene-d8 (SS2)	14.14	98	237323	933.975	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.40%			
45) Bromofluorobenzene (SS3)	17.55	174	73660	1148.835	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	70360	539.489	pg	100
3) Chloromethane	4.65	52	16634	428.101	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	70652	550.620	pg	100
5) Vinyl Chloride	4.96	62	60512	485.337	pg	99
6) 1,3-Butadiene	5.15	54	27379	369.347	pg	95
7) Bromomethane	5.48	94	24573	489.935	pg	100
8) Chloroethane	5.70	64	17178	447.813	pg	99
9) Acrolein	6.27	56	9493	348.366	pg	100
10) Acetone	6.40	58	92897	2636.675	pg	# 88
11) Trichlorofluoromethane	6.62	101	50382	564.806	pg	100
12) 1,1-Dichloroethene	7.35	96	29135	521.341	pg	93
13) Methylene Chloride	7.48	84	32566	536.992	pg	89
14) Trichlorotrifluoroethane	7.80	151	30174	541.193	pg	100
15) trans-1,2-Dichloroethene	8.51	96	31368	520.655	pg	100
16) 1,1-Dichloroethane	8.72	63	49775	465.677	pg	99
17) Methyl tert-Butyl Ether	8.79	73	79192	496.507	pg	97
18) cis-1,2-Dichloroethene	9.59	96	33271	526.253	pg	99
19) Chloroform	9.89	83	57679	513.153	pg	100
21) 1,2-Dichloroethane	10.64	62	40952	473.299	pg	99
22) 1,1,1-Trichloroethane	10.91	97	52242	500.692	pg	100
23) Benzene	11.36	78	125883	508.318	pg	100
24) Carbon Tetrachloride	11.52	117	44713	533.686	pg	100
26) 1,2-Dichloropropane	12.18	63	28373	435.456	pg	98
27) Bromodichloromethane	12.36	83	42281	469.915	pg	100
28) Trichloroethene	12.41	130	34691	521.620	pg	99
29) 1,4-Dioxane	12.38	88	22417	459.035	pg	91
30) cis-1,3-Dichloropropene	13.25	75	43398	495.194	pg	100
31) trans-1,3-Dichloropropene	13.77	75	34131	478.560	pg	100
32) 1,1,2-Trichloroethane	13.95	83	25817	468.433	pg	97
34) Toluene	14.24	91	118921	501.074	pg	100
35) Dibromochloromethane	14.66	129	32509	494.654	pg	100
36) 1,2-Dibromoethane	14.92	107	30974	498.314	pg	100
37) Tetrachloroethene	15.40	166	34535	500.814	pg	99
39) Chlorobenzene	16.10	112	80554	596.218	pg	100
40) Ethylbenzene	16.48	91	116947	586.972	pg	99
41) m,p-Xylene	16.66	91	186719	1249.463	pg	99
42) Styrene	17.01	104	58980	563.338	pg	100
43) o-Xylene	17.12	106	49041	638.802	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	50528	572.814	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	103898	656.788	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	99787	642.668	pg	98
48) 1,3-Dichlorobenzene	18.92	146	55347	579.963	pg	100
49) 1,4-Dichlorobenzene	18.98	146	50747	510.752	pg	100
50) 1,2-Dichlorobenzene	19.31	146	55470	570.369	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15357	522.369	pg	94
52) 1,2,4-Trichlorobenzene	20.95	182	17029	295.820	pg	98
53) Naphthalene	21.08	128	39830	217.898	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

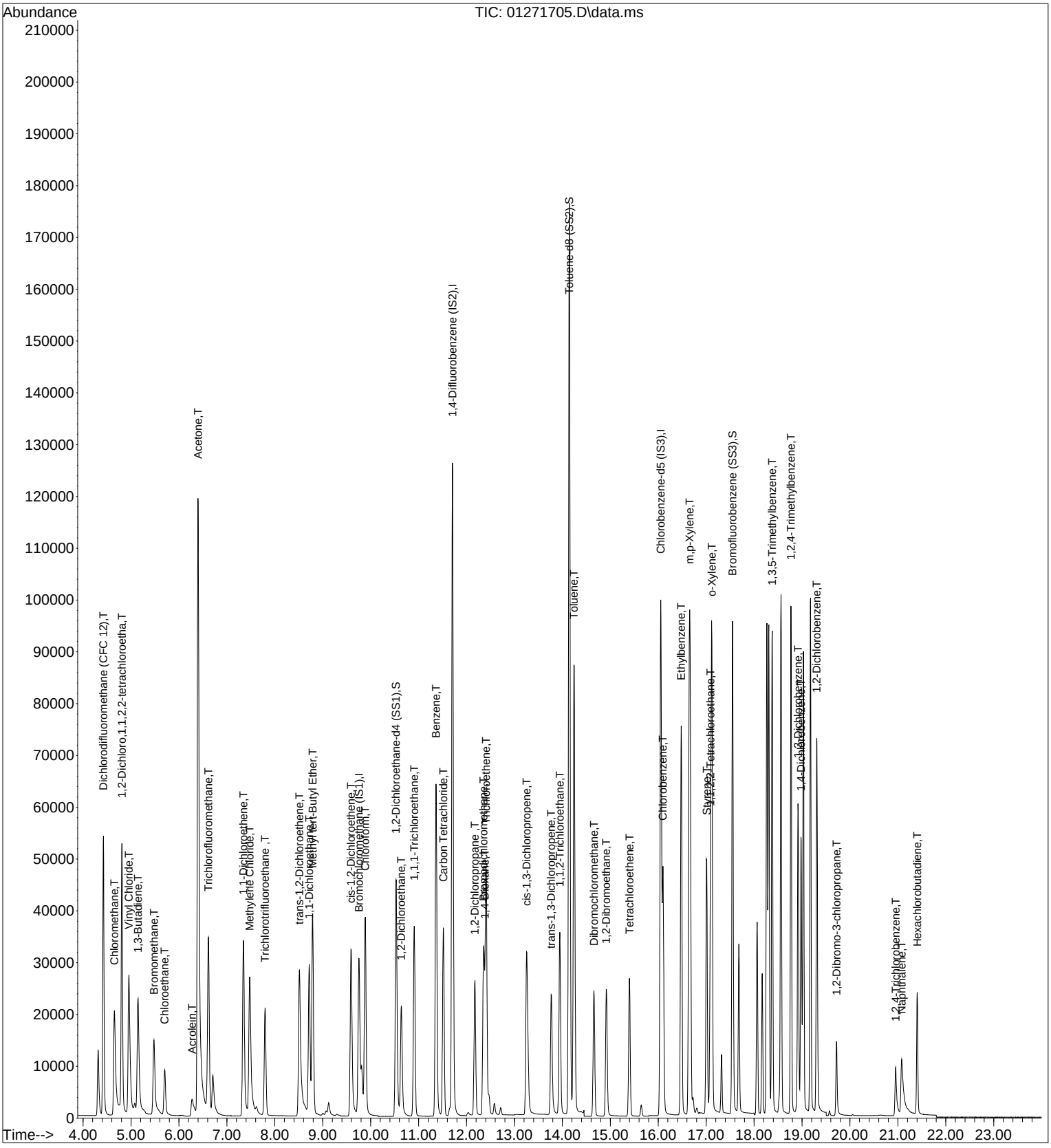
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	23395	513.700	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\28\01281702.D Vial: 16
Acq On : 28 Jan 2017 3:54 Operator: CL
Sample : CCV S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 28 08:04:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	105	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.590	-2.5	110	0.03
3	T	Chloromethane	0.753	0.644	14.5	86	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.729	-9.8	115	0.02
5	T	Vinyl Chloride	2.415	2.158	10.6	90	0.04
6	T	1,3-Butadiene	1.436	0.969	32.5#	89	0.04
7	T	Bromomethane	0.972	0.945	2.8	107	0.03
8	T	Chloroethane	0.743	0.653	12.1	97	0.03
9	T	Acrolein	0.528	0.342	35.2#	80	0.01
10	T	Acetone	0.682	0.672	1.5	107	-0.02
11	T	Trichlorofluoromethane	1.728	1.857	-7.5	113	0.01
12	T	1,1-Dichloroethene	1.083	1.058	2.3	111	0.01
13	T	Methylene Chloride	1.175	1.195	-1.7	107	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.266	-17.2	132	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.194	-2.3	116	0.00
16	T	1,1-Dichloroethane	2.070	2.143	-3.5	114	-0.02
17	T	Methyl tert-Butyl Ether	3.090	3.420	-10.7	129	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.213	1.0	112	-0.02
19	T	Chloroform	2.177	2.146	1.4	107	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.633	5.7	100	-0.02
21	T	1,2-Dichloroethane	1.676	1.524	9.1	102	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.892	6.4	112	-0.02
23	T	Benzene	4.797	4.630	3.5	105	-0.02
24	T	Carbon Tetrachloride	1.623	1.640	-1.0	112	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	104	-0.02
26	T	1,2-Dichloropropane	0.255	0.210	17.6	100	0.00
27	T	Bromodichloromethane	0.352	0.313	11.1	107	-0.01
28	T	Trichloroethene	0.260	0.251	3.5	113	-0.01
29	T	1,4-Dioxane	0.191	0.164	14.1	105	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.303	11.7	105	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.248	11.1	103	0.00
32	T	1,1,2-Trichloroethane	0.215	0.191	11.2	106	0.00
33	S	Toluene-d8 (SS2)	0.993	0.941	5.2	102	-0.01
34	T	Toluene	0.928	0.882	5.0	108	0.00
35	T	Dibromochloromethane	0.257	0.237	7.8	109	0.00
36	T	1,2-Dibromoethane	0.243	0.228	6.2	106	0.00
37	T	Tetrachloroethene	0.270	0.246	8.9	108	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	99	0.00
39	T	Chlorobenzene	3.855	4.374	-13.5	120	0.00
40	T	Ethylbenzene	5.685	6.686	-17.6	128	0.00
41	T	m,p-Xylene	4.264	4.948	-16.0	118	0.00
42	T	Styrene	2.987	3.295	-10.3	113	0.00
43	T	o-Xylene	2.190	2.665	-21.7	123	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.752	-9.3	113	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.192	-19.8	114	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.025	-11.3	106	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.799	-8.3	102	0.00
48	T	1,3-Dichlorobenzene	2.723	2.589	4.9	87	0.00
49	T	1,4-Dichlorobenzene	2.835	2.366	16.5	82	0.00
50	T	1,2-Dichlorobenzene	2.775	2.592	6.6	91	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.713	15.0	86	0.00
52	T	1,2,4-Trichlorobenzene	1.642	0.771	53.0#	48#	0.00
53	T	Naphthalene	5.215	1.742	66.6#	31#	0.02
54	T	Hexachlorobutadiene	1.299	1.071	17.6	89	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\28\01281702.D Vial: 16
Acq On : 28 Jan 2017 3:54 Operator: CL
Sample : CCV S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 28 08:04:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281702.D Vial: 16
Acq On : 28 Jan 2017 3:54 Operator: CL
Sample : CCV S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 28 08:04:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	46983	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	232872	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35690	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	76714	942.802	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.28%				
33) Toluene-d8 (SS2)	14.14	98	219072	947.049	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.70%				
45) Bromofluorobenzene (SS3)	17.55	174	78227	1198.117	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 119.81%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	63693	536.621	pg		100
3) Chloromethane	4.65	52	15208	430.071	pg		96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	64440	551.826	pg		99
5) Vinyl Chloride	4.96	62	51856	457.004	pg		99
6) 1,3-Butadiene	5.15	54	24053	356.538	pg		94
7) Bromomethane	5.48	94	22046	482.980	pg		99
8) Chloroethane	5.70	64	15481	443.447	pg		100
9) Acrolein	6.27	56	8357	336.978	pg		98
10) Acetone	6.40	58	83838	2614.660	pg	#	88
11) Trichlorofluoromethane	6.62	101	45759	563.663	pg		100
12) 1,1-Dichloroethene	7.35	96	26320	517.502	pg		94
13) Methylene Chloride	7.48	84	29677	537.703	pg		89
14) Trichlorotrifluoroethane	7.80	151	31189	614.667	pg		100
15) trans-1,2-Dichloroethene	8.51	96	29928	545.834	pg		97
16) 1,1-Dichloroethane	8.72	63	51342	527.796	pg		99
17) Methyl tert-Butyl Ether	8.79	73	85635	589.949	pg		97
18) cis-1,2-Dichloroethene	9.59	96	30328	527.098	pg		100
19) Chloroform	9.89	83	53330	521.339	pg		100
21) 1,2-Dichloroethane	10.64	62	37666	478.332	pg		99
22) 1,1,1-Trichloroethane	10.91	97	47738	502.730	pg		100
23) Benzene	11.36	78	114419	507.675	pg		100
24) Carbon Tetrachloride	11.51	117	40649	533.115	pg		100
26) 1,2-Dichloropropane	12.18	63	25965	437.741	pg		98
27) Bromodichloromethane	12.36	83	38900	474.912	pg		99
28) Trichloroethene	12.41	130	30937	510.982	pg		99
29) 1,4-Dioxane	12.38	88	20225	454.933	pg		92
30) cis-1,3-Dichloropropene	13.25	75	39381	493.608	pg		100
31) trans-1,3-Dichloropropene	13.77	75	30738	473.427	pg		100
32) 1,1,2-Trichloroethane	13.95	83	23586	470.096	pg		97
34) Toluene	14.25	91	108109	500.375	pg		100
35) Dibromochloromethane	14.66	129	29365	490.815	pg		100
36) 1,2-Dibromoethane	14.92	107	28002	494.863	pg		100
37) Tetrachloroethene	15.40	166	30381	483.960	pg		97
39) Chlorobenzene	16.10	112	82807	601.869	pg		100
40) Ethylbenzene	16.48	91	125865	620.369	pg		99
41) m,p-Xylene	16.66	91	187463	1231.876	pg		98
42) Styrene	17.01	104	62383	585.123	pg		100
43) o-Xylene	17.12	106	50124	641.164	pg		99
44) 1,1,2,2-Tetrachloroethane	17.09	83	51865	577.394	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	94074	583.988	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	90096	569.816	pg		99
48) 1,3-Dichlorobenzene	18.92	146	48886	503.045	pg		100
49) 1,4-Dichlorobenzene	18.98	146	44672	441.521	pg		100
50) 1,2-Dichlorobenzene	19.31	146	48941	494.182	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13402	447.669	pg		98
52) 1,2,4-Trichlorobenzene	20.95	182	14348	244.764	pg		98
53) Naphthalene	21.08	128	33662	180.842	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281702.D Vial: 16
Acq On : 28 Jan 2017 3:54 Operator: CL
Sample : CCV S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 28 08:04:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

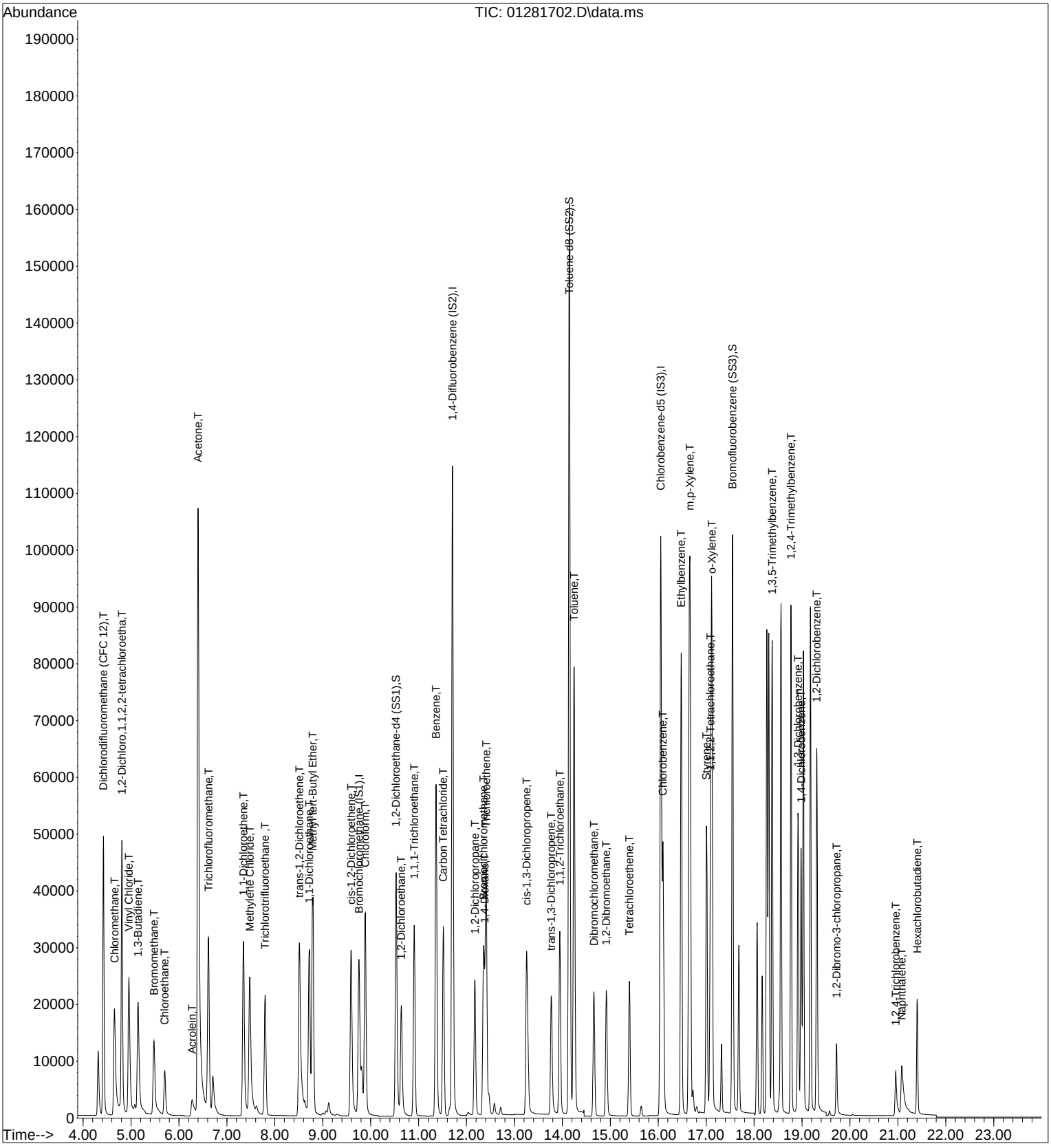
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	20238	436.386	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281702.D Vial: 16
Acq On : 28 Jan 2017 3:54 Operator: CL
Sample : CCV S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 28 08:04:14 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02011702.D Vial: 13
Acq On : 1 Feb 2017 8:19 Operator: CL
Sample : CCV S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 08:45:51 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	110	-0.02
2	T	Dichlorodifluoromethane (CF	2.361	2.273	3.7	107	0.03
3	T	Chloromethane	0.528	0.591	-11.9	131	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.229	2.161	3.1	107	0.02
5	T	Vinyl Chloride	2.084	1.937	7.1	106	0.04
6	T	1,3-Butadiene	1.269	1.420	-11.9	136	0.03
7	T	Bromomethane	0.826	0.808	2.2	108	0.03
8	T	Chloroethane	0.657	0.627	4.6	106	0.03
9	T	Acrolein	0.540	0.457	15.4	104	0.00
10	T	Acetone	0.671	0.617	8.0	105	-0.02
11	T	Trichlorofluoromethane	1.817	1.722	5.2	107	0.01
12	T	1,1-Dichloroethene	1.066	0.999	6.3	106	0.00
13	T	Methylene Chloride	1.098	1.019	7.2	106	-0.02
14	T	Trichlorotrifluoroethane	1.094	1.031	5.8	107	0.00
15	T	trans-1,2-Dichloroethene	1.077	1.074	0.3	109	0.00
16	T	1,1-Dichloroethane	1.869	1.809	3.2	106	-0.02
17	T	Methyl tert-Butyl Ether	3.433	3.289	4.2	106	0.00
18	T	cis-1,2-Dichloroethene	1.160	1.136	2.1	106	-0.02
19	T	Chloroform	2.020	1.903	5.8	106	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.568	1.525	2.7	105	-0.02
21	T	1,2-Dichloroethane	1.486	1.408	5.2	106	-0.02
22	T	1,1,1-Trichloroethane	1.903	1.819	4.4	106	-0.02
23	T	Benzene	4.389	4.129	5.9	106	-0.02
24	T	Carbon Tetrachloride	1.772	1.676	5.4	107	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	107	-0.01
26	T	1,2-Dichloropropane	0.223	0.209	6.3	105	-0.01
27	T	Bromodichloromethane	0.324	0.310	4.3	107	-0.01
28	T	Trichloroethene	0.256	0.247	3.5	107	-0.01
29	T	1,4-Dioxane	0.195	0.188	3.6	106	0.00
30	T	cis-1,3-Dichloropropene	0.362	0.347	4.1	107	0.00
31	T	trans-1,3-Dichloropropene	0.313	0.306	2.2	108	0.00
32	T	1,1,2-Trichloroethane	0.188	0.181	3.7	106	0.00
33	S	Toluene-d8 (SS2)	1.005	1.005	0.0	107	-0.01
34	T	Toluene	0.958	0.886	7.5	105	0.00
35	T	Dibromochloromethane	0.278	0.266	4.3	108	0.00
36	T	1,2-Dibromoethane	0.250	0.241	3.6	107	0.00
37	T	Tetrachloroethene	0.273	0.262	4.0	106	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	107	0.00
39	T	Chlorobenzene	3.776	3.684	2.4	106	0.00
40	T	Ethylbenzene	6.318	6.312	0.1	106	0.00
41	T	m,p-Xylene	4.926	4.831	1.9	106	0.00
42	T	Styrene	3.774	3.728	1.2	106	0.00
43	T	o-Xylene	2.449	2.389	2.4	106	0.00
44	T	1,1,2,2-Tetrachloroethane	2.339	2.277	2.7	107	0.00
45	S	Bromofluorobenzene (SS3)	2.137	2.138	-0.0	106	0.00
46	T	1,3,5-Trimethylbenzene	5.314	5.297	0.3	106	0.00
47	T	1,2,4-Trimethylbenzene	5.349	5.312	0.7	106	0.00
48	T	1,3-Dichlorobenzene	2.938	2.981	-1.5	107	0.00
49	T	1,4-Dichlorobenzene	3.100	2.967	4.3	105	0.00
50	T	1,2-Dichlorobenzene	2.963	2.887	2.6	106	0.00
51	T	1,2-Dibromo-3-chloropropane	1.066	1.044	2.1	108	0.00
52	T	1,2,4-Trichlorobenzene	2.104	1.960	6.8	107	0.00
53	T	Naphthalene	6.731	6.283	6.7	104	0.00
54	T	Hexachlorobutadiene	1.371	1.336	2.6	108	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02011702.D Vial: 13
Acq On : 1 Feb 2017 8:19 Operator: CL
Sample : CCV S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 08:45:51 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011702.D Vial: 13
Acq On : 1 Feb 2017 8:19 Operator: CL
Sample : CCV S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 08:45:51 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	49213	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	235962	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	38571	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	75060	972.806	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.28%			
33) Toluene-d8 (SS2)	14.14	98	237131	999.682	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.97%			
45) Bromofluorobenzene (SS3)	17.55	174	82455	1000.347	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.04%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	58548	503.889	pg	100
3) Chloromethane	4.66	52	14614	562.313	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	53432	487.103	pg	100
5) Vinyl Chloride	4.96	62	48760	475.526	pg	99
6) 1,3-Butadiene	5.15	54	36932	591.206	pg	97
7) Bromomethane	5.48	94	19740	485.578	pg	99
8) Chloroethane	5.71	64	15556	480.966	pg	99
9) Acrolein	6.28	56	11709	440.365	pg	91
10) Acetone	6.40	58	80602	2442.281	pg	99
11) Trichlorofluoromethane	6.62	101	44460	497.203	pg	100
12) 1,1-Dichloroethene	7.35	96	26041	496.580	pg	100
13) Methylene Chloride	7.48	84	26506	490.381	pg	99
14) Trichlorotrifluoroethane	7.80	151	26620	494.351	pg	100
15) trans-1,2-Dichloroethene	8.52	96	28185	531.778	pg	98
16) 1,1-Dichloroethane	8.72	63	45414	493.816	pg	100
17) Methyl tert-Butyl Ether	8.79	73	86262	510.542	pg	100
18) cis-1,2-Dichloroethene	9.59	96	29755	521.116	pg	99
19) Chloroform	9.89	83	49547	498.432	pg	99
21) 1,2-Dichloroethane	10.64	62	36436	498.093	pg	100
22) 1,1,1-Trichloroethane	10.91	97	48060	513.173	pg	100
23) Benzene	11.37	78	106893	494.902	pg	100
24) Carbon Tetrachloride	11.52	117	43515	498.883	pg	100
26) 1,2-Dichloropropane	12.18	63	26225	499.330	pg	100
27) Bromodichloromethane	12.36	83	39021	509.726	pg	100
28) Trichloroethene	12.41	130	30943	513.113	pg	100
29) 1,4-Dioxane	12.38	88	23584	512.884	pg	99
30) cis-1,3-Dichloropropene	13.25	75	45683	535.147	pg	99
31) trans-1,3-Dichloropropene	13.77	75	38404	520.219	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22614	508.570	pg	99
34) Toluene	14.25	91	110080	486.996	pg	100
35) Dibromochloromethane	14.66	129	33305	507.550	pg	100
36) 1,2-Dibromoethane	14.92	107	30072	509.271	pg	100
37) Tetrachloroethene	15.40	166	32756	508.333	pg	100
39) Chlorobenzene	16.10	112	75389	517.585	pg	100
40) Ethylbenzene	16.48	91	128419	526.976	pg	100
41) m,p-Xylene	16.66	91	197786	1040.921	pg	100
42) Styrene	17.01	104	76276	523.956	pg	100
43) o-Xylene	17.12	106	48569	514.179	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	46380	514.024	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	107152	522.822	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	107777	522.360	pg	100
48) 1,3-Dichlorobenzene	18.92	146	60822	536.757	pg	100
49) 1,4-Dichlorobenzene	18.98	146	60547	506.306	pg	100
50) 1,2-Dichlorobenzene	19.31	146	58897	515.328	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	21200	515.521	pg	100
52) 1,2,4-Trichlorobenzene	20.95	182	39426	485.895	pg	100
53) Naphthalene	21.06	128	131226	505.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011702.D Vial: 13
Acq On : 1 Feb 2017 8:19 Operator: CL
Sample : CCV S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 08:45:51 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

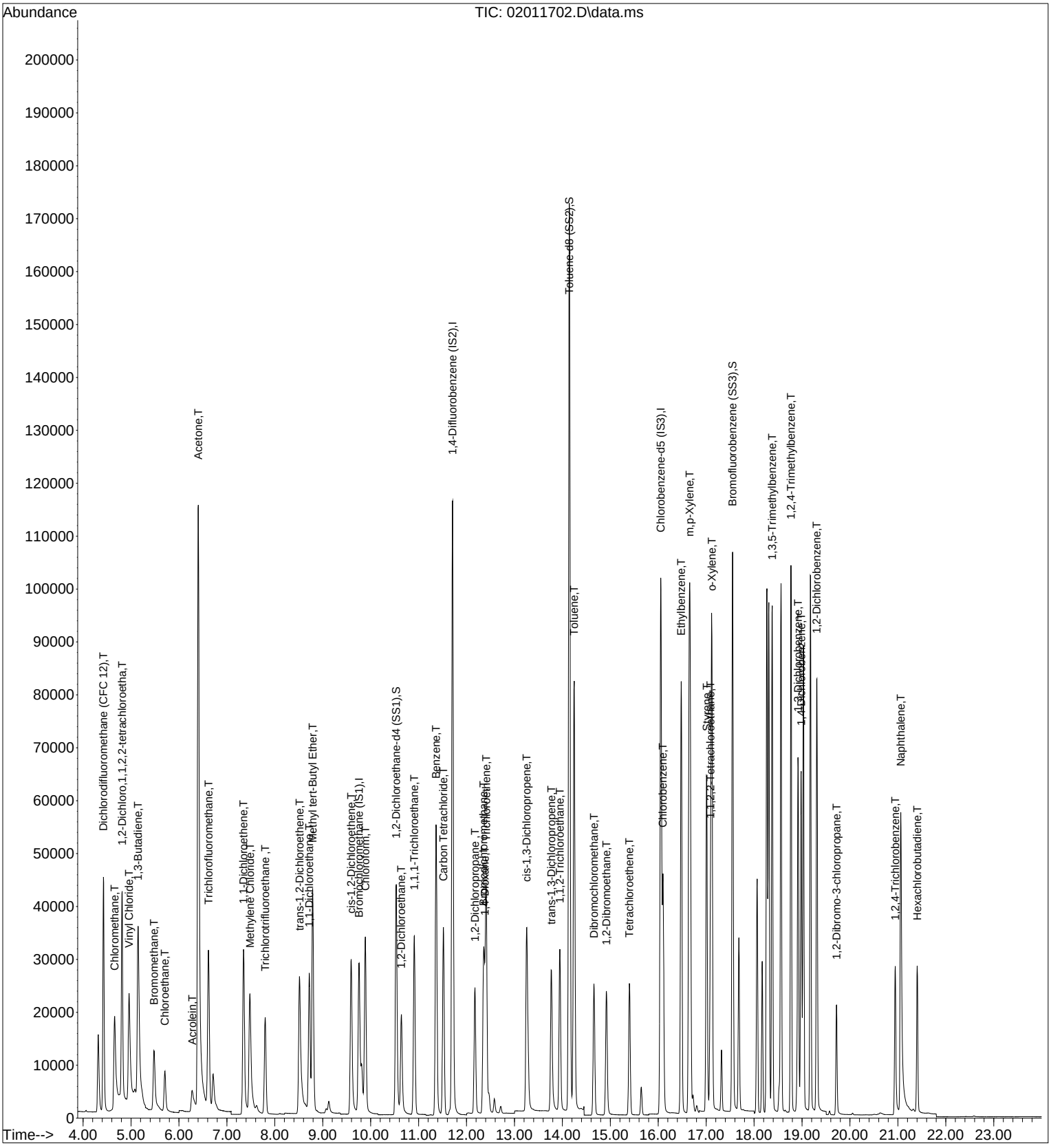
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	27288	516.105	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02011702.D Vial: 13
Acq On : 1 Feb 2017 8:19 Operator: CL
Sample : CCV S19020117 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 08:45:51 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



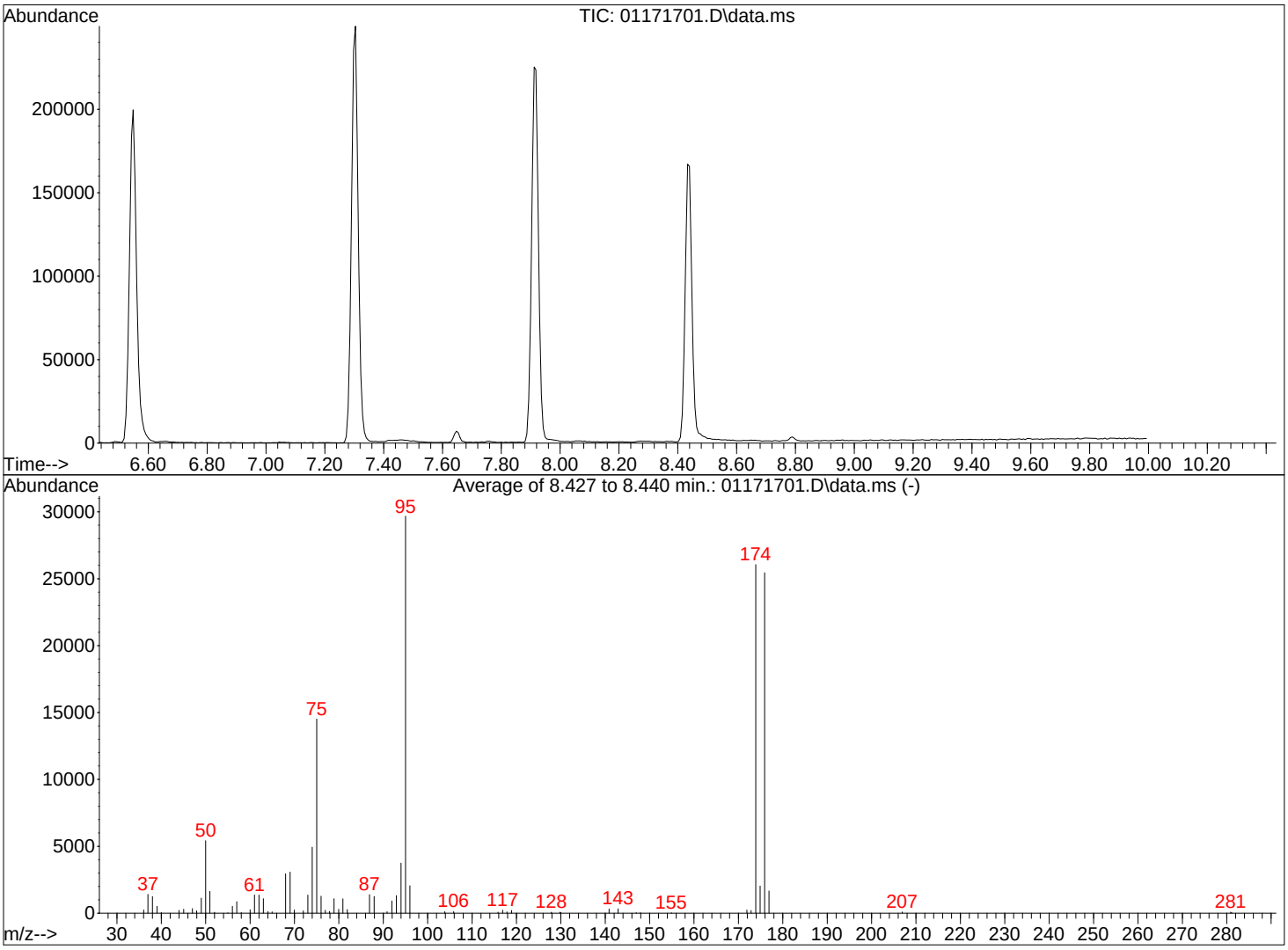
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

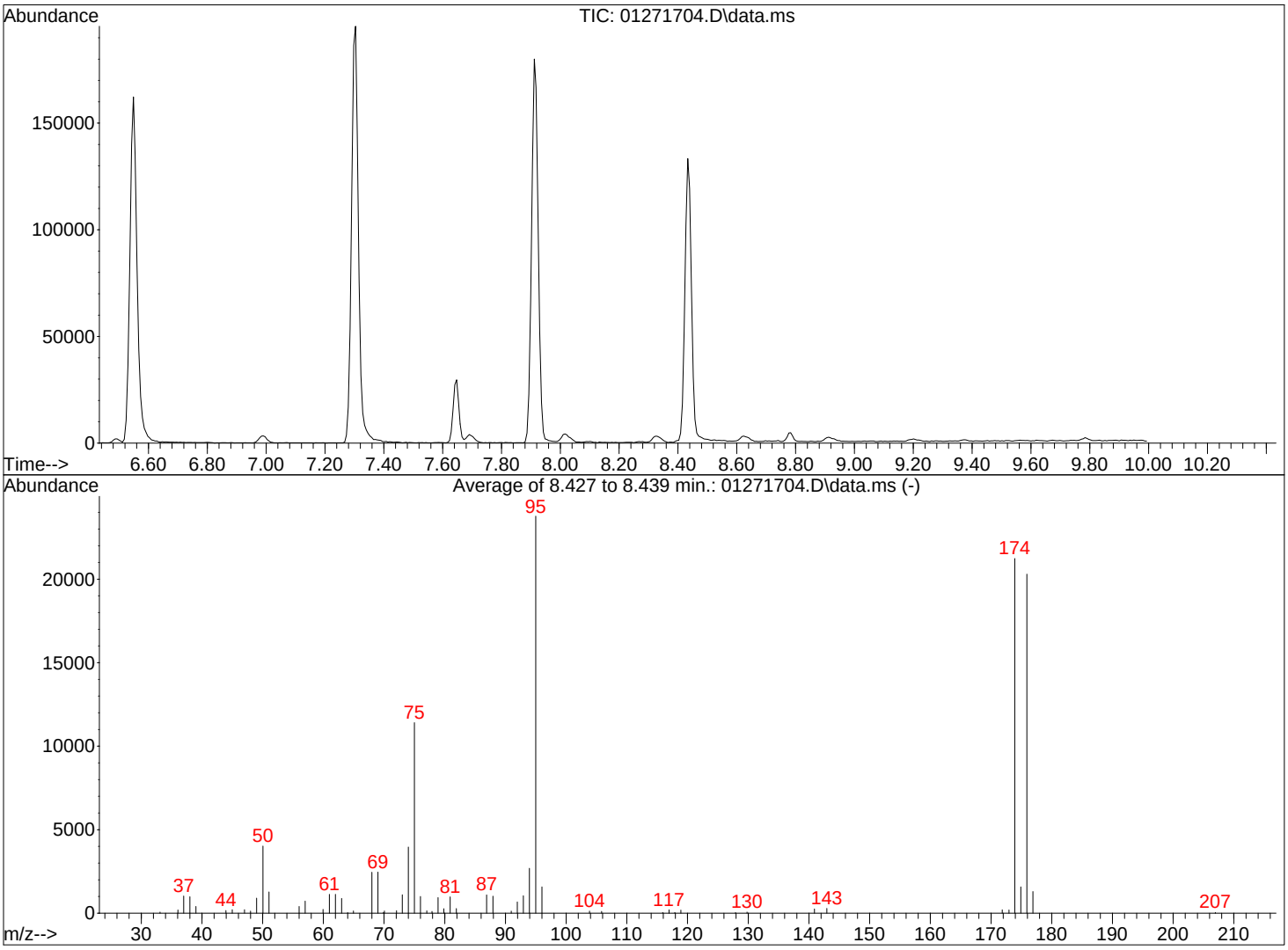
BFB

Data Path : I:\MS19\DATA\2017 01\27\
Data File : 01271704.D
Acq On : 27 Jan 2017 9:12
Operator : CL
Sample : BFB S19012717
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/28/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.9	4016	PASS
75	95	30	66	48.0	11407	PASS
95	95	100	100	100.0	23773	PASS
96	95	5	9	6.6	1578	PASS
173	174	0.00	2	0.9	192	PASS
174	95	50	120	89.3	21235	PASS
175	174	4	9	7.4	1577	PASS
176	174	93	101	95.6	20298	PASS
177	176	5	9	6.4	1299	PASS

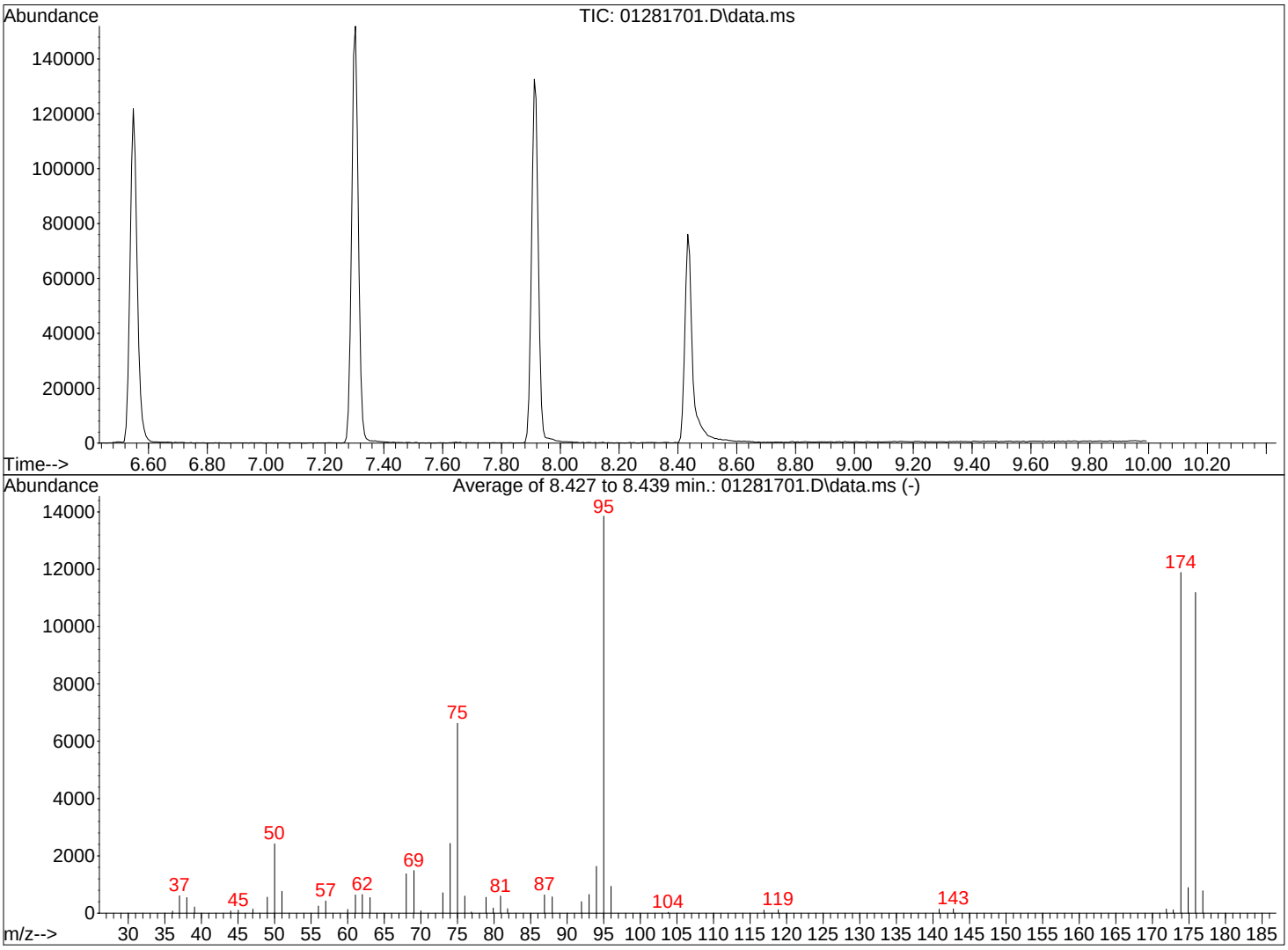
BFB

Data Path : I:\MS19\DATA\2017 01\28\
Data File : 01281701.D
Acq On : 28 Jan 2017 3:36
Operator : CL
Sample : BFB S19012817
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/28/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

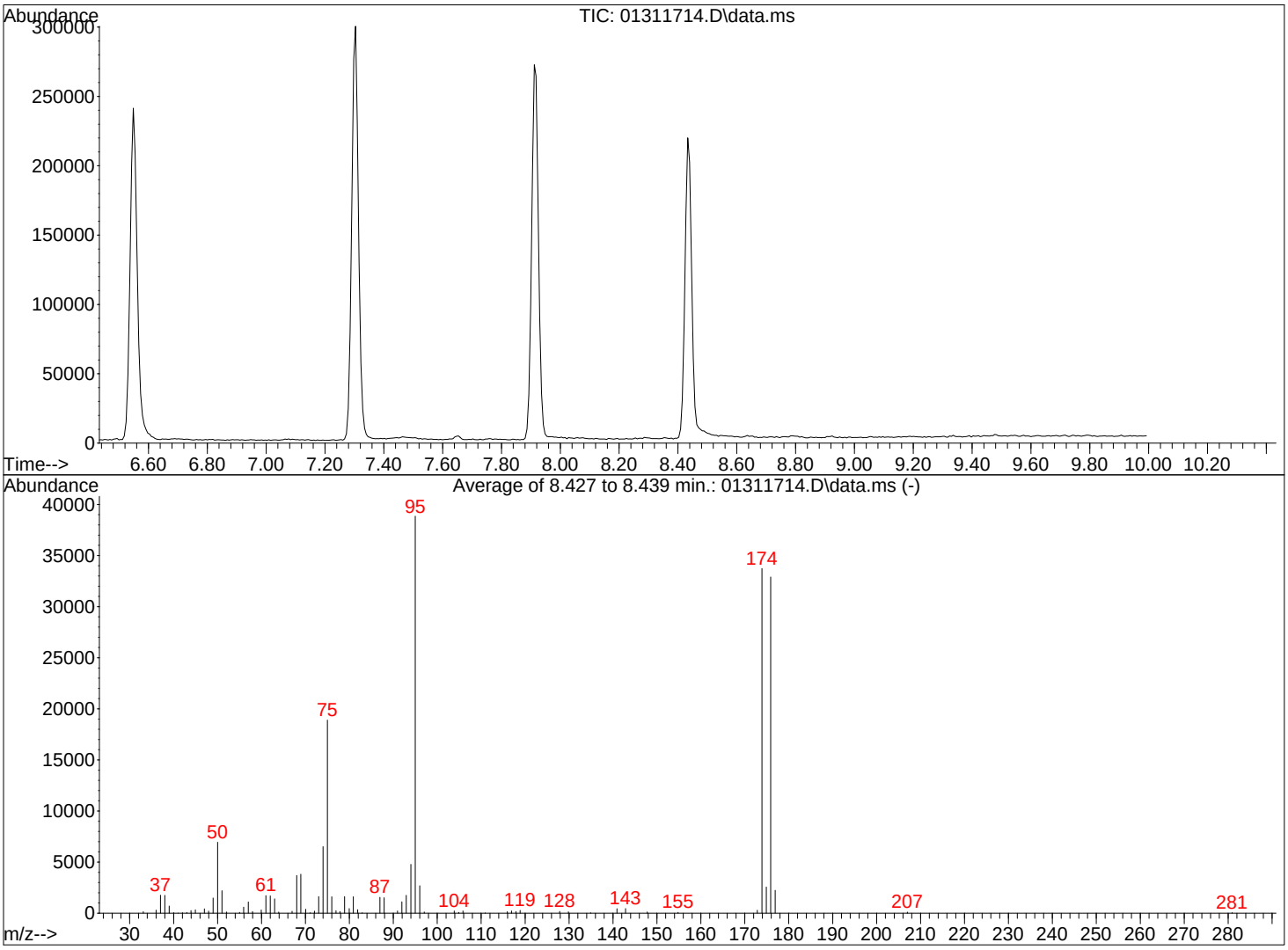
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.5	2419	PASS
75	95	30	66	47.8	6625	PASS
95	95	100	100	100.0	13853	PASS
96	95	5	9	6.8	937	PASS
173	174	0.00	2	1.0	119	PASS
174	95	50	120	85.8	11891	PASS
175	174	4	9	7.5	892	PASS
176	174	93	101	94.1	11194	PASS
177	176	5	9	7.0	779	PASS

Data Path : I:\MS19\DATA\2017 01\31\
Data File : 01311714.D
Acq On : 31 Jan 2017 14:53
Operator : CL
Sample : BFB S19013117
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/1/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

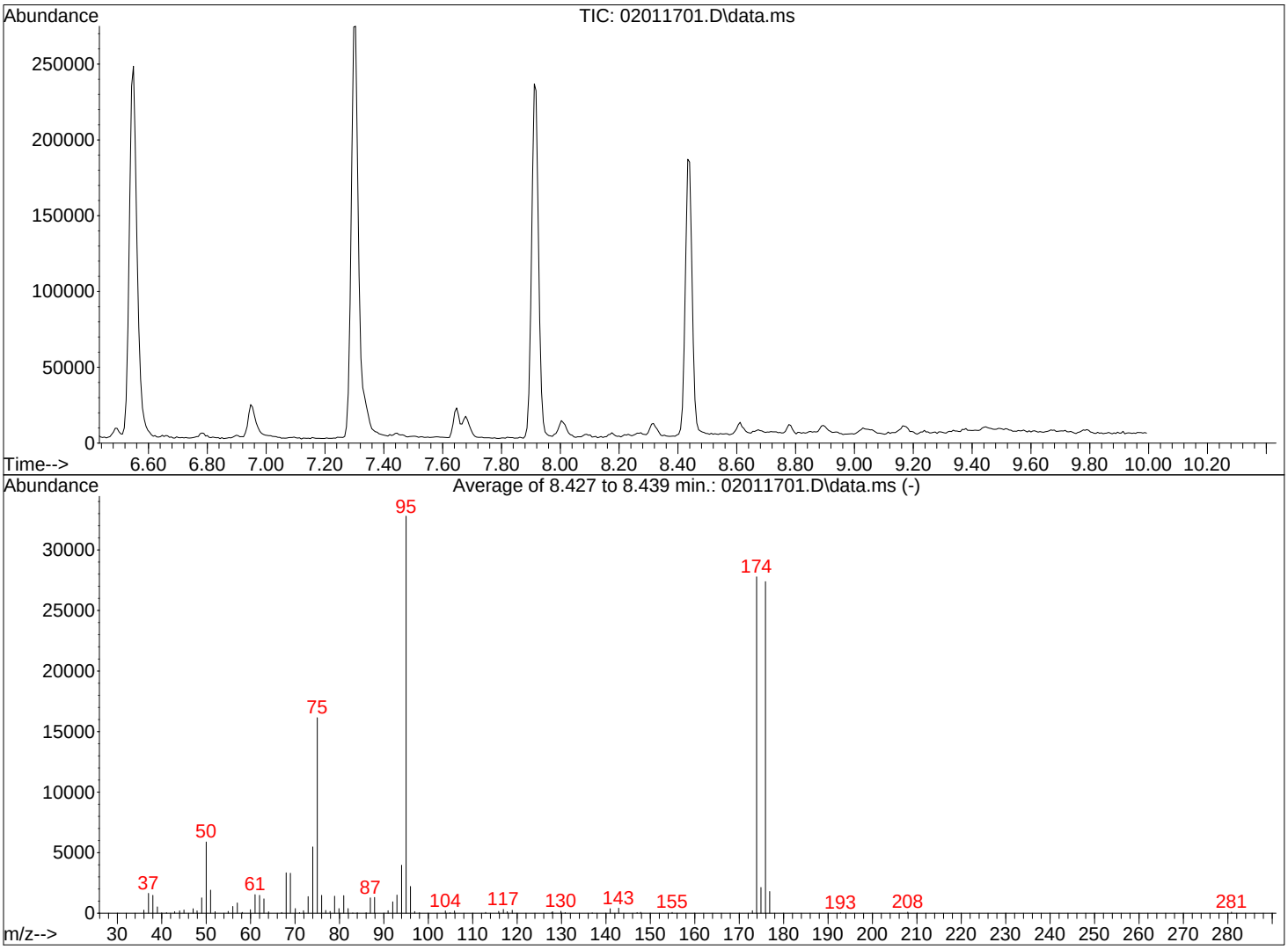
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.9	6941	PASS
75	95	30	66	48.6	18896	PASS
95	95	100	100	100.0	38853	PASS
96	95	5	9	6.9	2691	PASS
173	174	0.00	2	0.8	286	PASS
174	95	50	120	86.8	33728	PASS
175	174	4	9	7.6	2564	PASS
176	174	93	101	97.5	32901	PASS
177	176	5	9	6.8	2241	PASS

Data Path : I:\MS19\DATA\2017 02\01\
Data File : 02011701.D
Acq On : 1 Feb 2017 8:01
Operator : CL
Sample : BFB S19020117
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/1/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.9	5885	PASS
75	95	30	66	49.3	16151	PASS
95	95	100	100	100.0	32792	PASS
96	95	5	9	6.8	2214	PASS
173	174	0.00	2	0.8	211	PASS
174	95	50	120	84.7	27789	PASS
175	174	4	9	7.6	2123	PASS
176	174	93	101	98.5	27384	PASS
177	176	5	9	6.5	1790	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/27/17 7:29	01271701.D	ccv test	S29-01241701	CL	2	
2	1/27/17 8:04	01271702.D	blank	S29-01241701	CL	2	
3	1/27/17 8:35	01271703.D	ccv test	S29-01241701/S29-01051709 (2/3)	CL	16	
4	1/27/17 9:12	01271704.D	BFB S19012717	S29-01241701	CL	2	Pass
5	1/27/17 9:30	01271705.D	CCV S19012717_500pg	S29-01241701/S29-01051709 (2/3)	CL	16	Pass
6	1/27/17 10:02	01271706.D	MB S19012717_1000mL	S29-01241701/AC01205	CL	2	Pass
7	1/27/17 10:32	01271707.D	LCS S19012717_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
8	1/27/17 11:04	01271708.D	LCSD S19012717_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
9	1/27/17 11:57	01271709.D	P1700261-005 (1000mL) PF2	S29-01241701	CL	1	
10	1/27/17 12:28	01271710.D	P1700261-006 (1000mL)	S29-01241701	CL	3	
11	1/27/17 12:59	01271711.D	P1700261-007 (1000mL)	S29-01241701	CL	4	
12	1/27/17 13:30	01271712.D	P1700261-008 (1000mL)	S29-01241701	CL	5	
13	1/27/17 14:02	01271713.D	P1700261-009 (1000mL) PF2	S29-01241701	CL	6	
14	1/27/17 14:33	01271714.D	P1700261-010 (1000mL)	S29-01241701	CL	7	
15	1/27/17 15:05	01271715.D	blank	S29-01241701	CL	2	
16	1/27/17 15:36	01271716.D	P1700261-011 (1000mL)	S29-01241701	CL	8	
17	1/27/17 16:07	01271717.D	P1700261-012 (1000mL)	S29-01241701	CL	9	
18	1/27/17 16:51	01271718.D	CCV2 S19012617_500pg	S29-01241701/S29-01051708 (2/3)	CL	16	Not Needed
19	1/27/17 17:22	01271719.D	P1700261-013 (1000mL)	S29-01241701	CL	10	
20	1/27/17 17:53	01271720.D	P1700261-014 (1000mL) PF2	S29-01241701	CL	11	
21	1/27/17 18:25	01271721.D	P1700261-015 (1000mL)	S29-01241701	CL	12	
22	1/27/17 18:56	01271722.D	P1700261-015dup (1000mL)	S29-01241701	CL	12	
23	1/27/17 19:28	01271723.D	P1700261-016 (1000mL) PF2	S29-01241701	CL	13	
24	1/27/17 20:00	01271724.D	P1700261-017 (1000mL)	S29-01241701	CL	14	
25	1/27/17 20:31	01271725.D	blank	S29-01241701	CL	2	
26	1/27/17 21:02	01271726.D	P1700261-018 (1000mL)	S29-01241701	CL	15	
27	1/27/17 21:34	01271727.D	P1700261-019 (1000mL)	S29-01241701	CL	1	
28	1/27/17 22:05	01271728.D	P1700259-001 (1000mL)	S29-01241701	CL	3	
29	1/27/17 22:37	01271729.D	P1700259-002 (1000mL)	S29-01241701	CL	4	
30	1/27/17 23:08	01271730.D	P1700259-003 (1000mL)	S29-01241701	CL	5	
31	1/27/17 23:39	01271731.D	P1700259-004 (1000mL)	S29-01241701	CL	6	Surr 3 Fail
32	1/28/17 0:10	01271732.D	CCV S19012617_500pg_End	S29-01241701/S29-01051708 (2/3)	CL	16	Pass
33	1/28/17 0:41	01271733.D	blank	S29-01241701	CL	2	
34	1/28/17 3:04	01271734.D	blank	S29-01241701	CL	2	

CL 1/28/17

Injection Log

Directory: I:\MS19\DATA\2017_01\28\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	0128/17 3:36	01281701.D	BFB S19012817	S29-01241701	CL	2	Pass
2	1/28/17 3:54	01281702.D	CCV S19012817_500pg	S29-01241701/S29-01051708 (2/3)	CL	16	Pass
3	1/28/17 4:25	01281703.D	MB S19012817_1000mL	S29-01241701/AC01205	CL	2	Pass
4	1/28/17 4:57	01281704.D	LCS S19012817_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
5	1/28/17 5:28	01281705.D	LCSD S19012817_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
6	1/28/17 6:00	01281706.D	P1700259-005 (1000mL)	S29-01241701	CL	7	
7	1/28/17 6:31	01281707.D	P1700259-006 (1000mL)	S29-01241701	CL	8	
8	1/28/17 7:03	01281708.D	P1700259-006dup (1000mL)	S29-01241701	CL	8	Pass for Dup
9	1/28/17 7:34	01281709.D	P1700259-007 (1000mL)	S29-01241701	CL	9	
10	1/28/17 9:01	01281710.D	P1700259-008 (1000mL)	S29-01241701	CL	1	
11	1/28/17 9:32	01281711.D	P1700259-009 (1000mL)	S29-01241701	CL	3	
12	1/28/17 10:03	01281712.D	blank	S29-01241701	CL	2	
13	1/28/17 10:35	01281713.D	P1700259-010 (1000mL)	S29-01241701	CL	4	
14	1/28/17 11:06	01281714.D	P1700259-011 (1000mL)	S29-01241701	CL	5	
15	1/28/17 11:38	01281715.D	P1700259-012 (1000mL)	S29-01241701	CL	6	
16	1/28/17 12:09	01281716.D	P1700259-013 (1000mL)	S29-01241701	CL	7	
17	1/28/17 12:41	01281717.D	P1700259-014 (1000mL)	S29-01241701	CL	8	
18	1/28/17 13:13	01281718.D	P1700259-015 (1000mL)	S29-01241701	CL	9	IS3 Fail
19	1/28/17 13:44	01281719.D	blank	S29-01241701	CL	2	
20	1/28/17 14:16	01281720.D	P1700259-016 (1000mL)	S29-01241701	CL	10	IS3 Fail
21	1/28/17 14:47	01281721.D	P1700259-017 (1000mL)	S29-01241701	CL	11	
22	1/28/17 15:19	01281722.D	P1700259-018 (1000mL)	S29-01241701	CL	12	
23	1/28/17 15:50	01281723.D	P1700259-019 (1000mL)	S29-01241701	CL	13	
24	1/28/17 16:22	01281724.D	P1700259-020 (1000mL)	S29-01241701	CL	14	
25	1/28/17 16:54	01281725.D	P1700259-021 (1000mL)	S29-01241701	CL	15	
26	1/28/17 17:25	01281726.D	CCV S19012817_500pg_End	S29-01241701/S29-01051708 (2/3)	CL	16	Pass

CL 1/30/17

Injection Log

Directory: I:\MS19\DATA\2017_01\31\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/31/17 14:53	01311714.D	BFB S19013117	S29-01241701	CL	2	Pass
2	1/31/17 15:23	01311715.D	10pg TO15SIM ICAL STD	S29-01241701/S29-01171712 (2/15)	CL	11	
3	1/31/17 15:54	01311716.D	20pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
4	1/31/17 16:25	01311717.D	50pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
5	1/31/17 16:57	01311718.D	100pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
6	1/31/17 17:28	01311719.D	500pg TO15SIM ICAL STD	S29-01241701/S29-01301704 (2/28)	CL	13	
7	1/31/17 18:00	01311720.D	1000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
8	1/31/17 18:31	01311721.D	2000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
9	1/31/17 19:02	01311722.D	5000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
10	1/31/17 19:34	01311723.D	10000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
11	1/31/17 20:05	01311724.D	blank	S29-01241701	CL	2	
12	1/31/17 20:37	01311725.D	50000pg TO15SIM ICAL STD	S29-01241701/S29-01301701 (2/28)	CL	15	
13	1/31/17 21:08	01311726.D	blank	S29-01241701	CL	2	
14	1/31/17 21:39	01311727.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	Pass

CL 2/1/17

Injection Log

Directory: I:\MS19\DATA\2017_02\01\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/1/17 8:01	02011701.D	BFB S19020117	S29-01241701	CL	2	Pass
2	2/1/17 8:19	02011702.D	CCV S19020117_500pg	S29-01241701/S29-01301704 (2/28)	CL	13	Pass
3	2/1/17 8:50	02011703.D	MB S19020117_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/1/17 9:21	02011704.D	LCS S19020117_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/1/17 9:53	02011705.D	LCSD S19020117_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/1/17 10:45	02011706.D	P1700205-001 (400mL)	S29-01241701	CL	1	
7	2/1/17 11:16	02011707.D	P1700205-002 (400mL)	S29-01241701	CL	3	
8	2/1/17 11:48	02011708.D	P1700205-003 (400mL)	S29-01241701	CL	4	
9	2/1/17 12:19	02011709.D	P1700205-004 (400mL)	S29-01241701	CL	5	
10	2/1/17 12:51	02011710.D	P1700205-005 (400mL)	S29-01241701	CL	6	
11	2/1/17 13:22	02011711.D	P1700259-022 (1000mL) PF2	S29-01241701	CL	7	
12	2/1/17 13:53	02011712.D	P1700259-023 (1000mL) PF2	S29-01241701	CL	8	
13	2/1/17 14:25	02011713.D	P1700259-024 (1000mL) PF2	S29-01241701	CL	9	
14	2/1/17 14:56	02011714.D	P1700262-001 (1000mL) PF2	S29-01241701	CL	10	
15	2/1/17 15:41	02011715.D	blank	S29-01241701	CL	2	
16	2/1/17 16:12	02011716.D	P1700262-002 PF3 (1000mL)	S29-01241701	CL	11	
17	2/1/17 16:43	02011717.D	P1700262-003 PF2 (1000mL)	S29-01241701	CL	12	
18	2/1/17 17:15	02011718.D	P1700262-003dup PF2 (1000mL)	S29-01241701	CL	12	Pass for Dup
19	2/1/17 17:46	02011719.D	P1700262-004 PF2 (1000mL)	S29-01241701	CL	13	
20	2/1/17 18:18	02011720.D	P1700262-005 PF2 (1000mL)	S29-01241701	CL	14	
21	2/1/17 18:49	02011721.D	P1700262-006 PF2 (1000mL)	S29-01241701	CL	15	
22	2/1/17 19:20	02011722.D	blank	S29-01241701	CL	2	
23	2/1/17 19:52	02011723.D	P1700262-007 PF2 (1000mL)	S29-01241701	CL	1	
24	2/1/17 20:23	02011724.D	P1700262-008 PF2 (1000mL)	S29-01241701	CL	3	
25	2/1/17 20:55	02011725.D	P1700262-009 PF2 (1000mL)	S29-01241701	CL	4	
26	2/1/17 21:27	02011726.D	P1700262-010 PF2 (1000mL)	S29-01241701	CL	5	
27	2/1/17 21:58	02011727.D	P1700262-011 PF2 (1000mL)	S29-01241701	CL	6	
28	2/1/17 22:30	02011728.D	CCV S19020117_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	13	Pass
29	2/1/17 23:01	02011729.D	blank	S29-01241701	CL	2	
30	2/2/17 2:05	02011730.D	blank	S29-01241701	CL	2	

CL 2/2/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061709.D
Acq On : 6 Jan 2017 2:04 pm
Operator : JM
Sample : AC02115 FCS00123
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Jan 09 08:36:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	49068	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	164260	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	129147	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	80008	827.929 pg		0.00
Spiked Amount 1000.000			Recovery = 82.79%			
57) Toluene-d8 (SS2)	12.63	98	150484	953.561 pg		0.00
Spiked Amount 1000.000			Recovery = 95.36%			
74) Bromofluorobenzene (SS3)	16.14	174	48849	939.851 pg		0.00
Spiked Amount 1000.000			Recovery = 93.99%			
Target Compounds						Qvalue
2) * Propene	3.53	42	9960	101.132 pg		90
3) * Dichlorodifluoromethane	3.59	85	1143	5.448 pg		97
4) * Chloromethane	3.71	50	1076	6.861 pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	85	0.546 pg	#	42
7) * 1,3-Butadiene	4.00	54	184	1.652 pg	#	1
8) * Bromomethane	4.22	94	109	1.144 pg	#	3
9) * Chloroethane	4.35	64	279	4.099 pg	#	81
10) * Ethanol	4.43	45	64886	965.990 pg		100
11) * Acetonitrile	4.60	41	1767	10.492 pg		96
12) * Acrolein	4.71	56	15781	280.431 pg		99
13) * Acetone	4.85	58	265510	4184.916 pg	#	1
14) * Trichlorofluoromethane	4.97	101	382	2.726 pg		93
15) * 2-Propanol (Isopropa...	5.02	45	23306	135.578 pg		95
16) * Acrylonitrile	5.18	53	1020	10.209 pg		93
18) tert-Butanol	5.54	59	9940	95.937 pg		84
19) * Methylene Chloride	5.58	84	2900	41.035 pg		100
21) * Trichlorotrifluoroet...	5.82	151	75	1.365 pg	#	19
22) * Carbon Disulfide	5.84	76	3305	12.757 pg		98
26) * Vinyl Acetate	6.76	86	64	4.810 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	20571	540.198 pg		80
29) DIPE	7.64	45	418	1.883 pg	#	53
30) * Ethyl Acetate	7.64	61	476	24.450 pg		86
31) * n-Hexane	7.64	57	571	5.704 pg	#	89
32) * Chloroform	7.70	83	78	0.630 pg	#	16
34) * Tetrahydrofuran	8.15	71	75	2.457 pg		88
39) * Benzene	9.36	78	1163	6.139 pg	#	90
41) 1-Butanol	9.29	56	9366	263.756 pg	#	48
46) * Bromodichloromethane	10.51	83	67	0.786 pg	#	19
48) * 1,4-Dioxane	10.65	88	81	2.050 pg	#	1
49) Isooctane	10.71	56	178	1.966 pg	#	23
50) * Methyl Methacrylate	10.87	69	51	1.073 pg	#	1
51) * n-Heptane	11.04	71	792	8.142 pg	#	62
53) * 4-Methyl-2-pentanone	11.72	58	713	20.833 pg	#	86
58) * Toluene	12.74	91	1717	9.407 pg		99
59) * 2-Hexanone	13.06	58	2940	94.159 pg	#	84
62) * n-Butyl Acetate	13.80	56	93	4.165 pg	#	1
63) * n-Octane	13.91	85	148	5.198 pg		94
66) * Ethylbenzene	15.12	91	1491	9.686 pg		99
67) * m- & p-Xylenes	15.29	91	4671	39.055 pg		94
68) * Bromoform	15.32	173	245	6.410 pg		98
69) Cyclohexanone	15.44	98	798	59.741 pg		98
70) * Styrene	15.63	104	80	1.256 pg	#	28
71) * o-Xylene	15.73	91	2064	17.643 pg		98
72) * n-Nonane	15.98	57	246	4.666 pg	#	88
73) * 1,1,2,2-Tetrachloroe...	15.71	83	87	0.869 pg	#	19

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061709.D
Acq On : 6 Jan 2017 2:04 pm
Operator : JM
Sample : AC02115 FCS00123
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

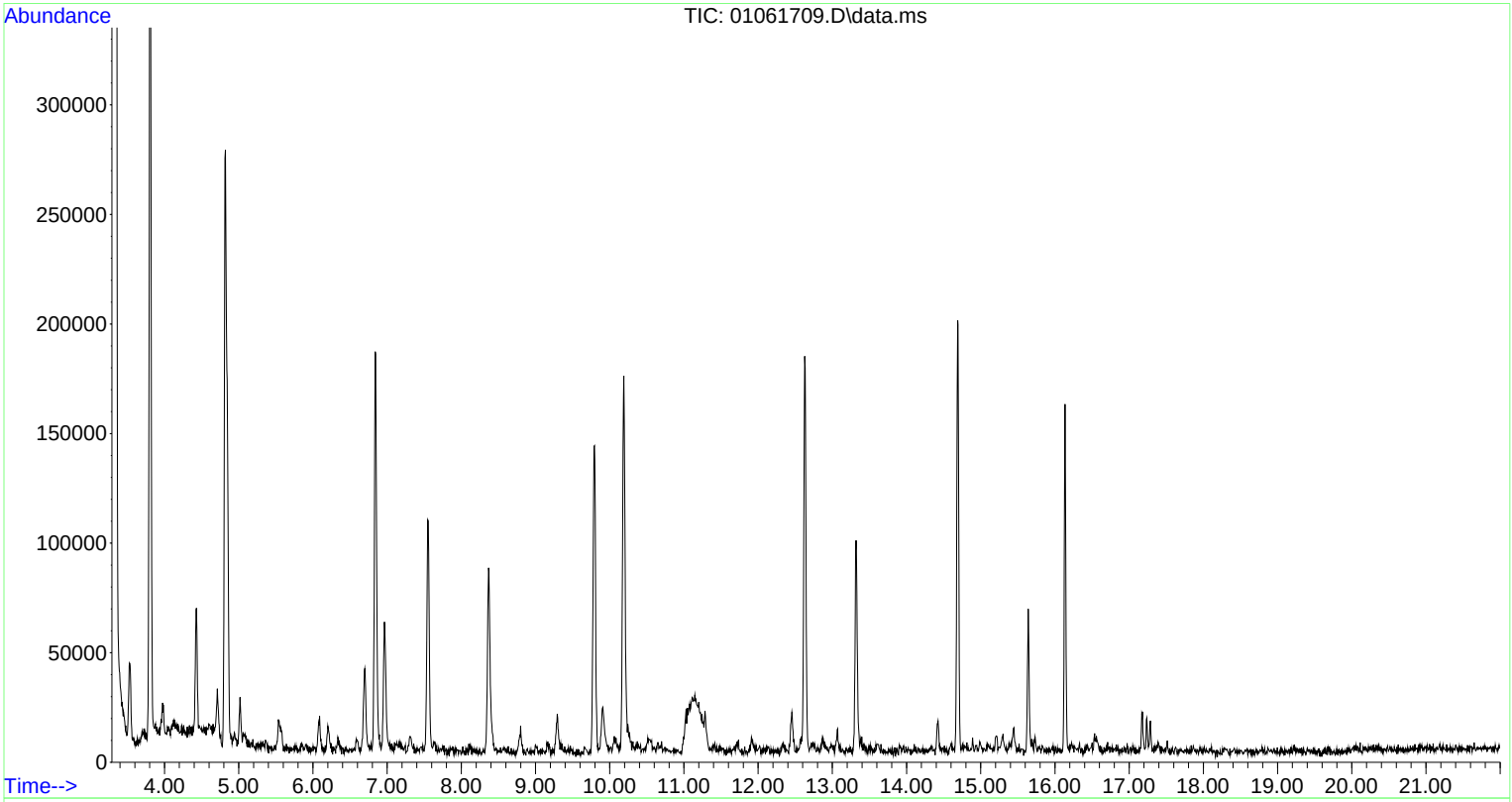
Quant Time: Jan 09 08:36:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

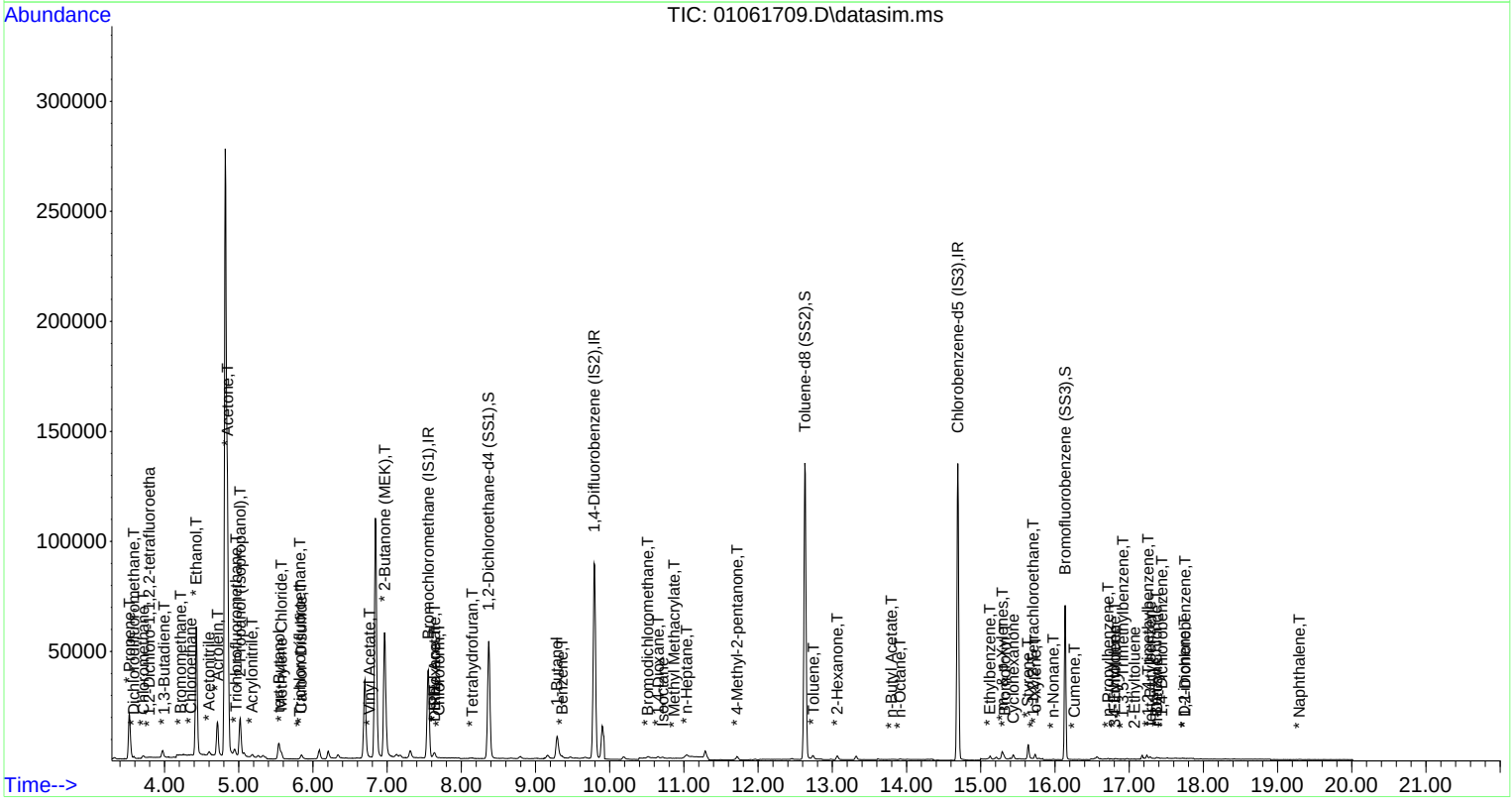
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
75) * Cumene	16.26	105	59	0.354	pg	#	49
77) * n-Propylbenzene	16.72	91	135	0.878	pg	#	56
78) 3-Ethyltoluene	16.80	105	86	0.803	pg	#	45
79) * 4-Ethyltoluene	16.80	105	86	0.916	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	104	0.988	pg	#	29
82) 2-Ethyltoluene	17.07	105	52	0.407	pg	#	45
83) tert-Butylbenzene	17.28	134	280	11.841	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	318	3.342	pg	#	55
85) * Benzyl Chloride	17.36	126	64	6.673	pg		81
87) * 1,4-Dichlorobenzene	17.44	146	70	1.613	pg	#	17
88) n-Decane	17.38	85	97	5.333	pg	#	29
92) * 1,2-Dichlorobenzene	17.75	146	59	1.005	pg	#	18
93) * D-Limonene	17.74	68	66	1.575	pg	#	15
98) * Naphthalene	19.29	128	118	2.906	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061709.D
Acq On : 6 Jan 2017 2:04 pm
Operator : JM
Sample : AC02115 FCS00123
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Jan 09 08:36:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091716.D
Acq On : 9 Jan 2017 20:34
Operator : JM
Sample : SSC00127 FCR00170
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

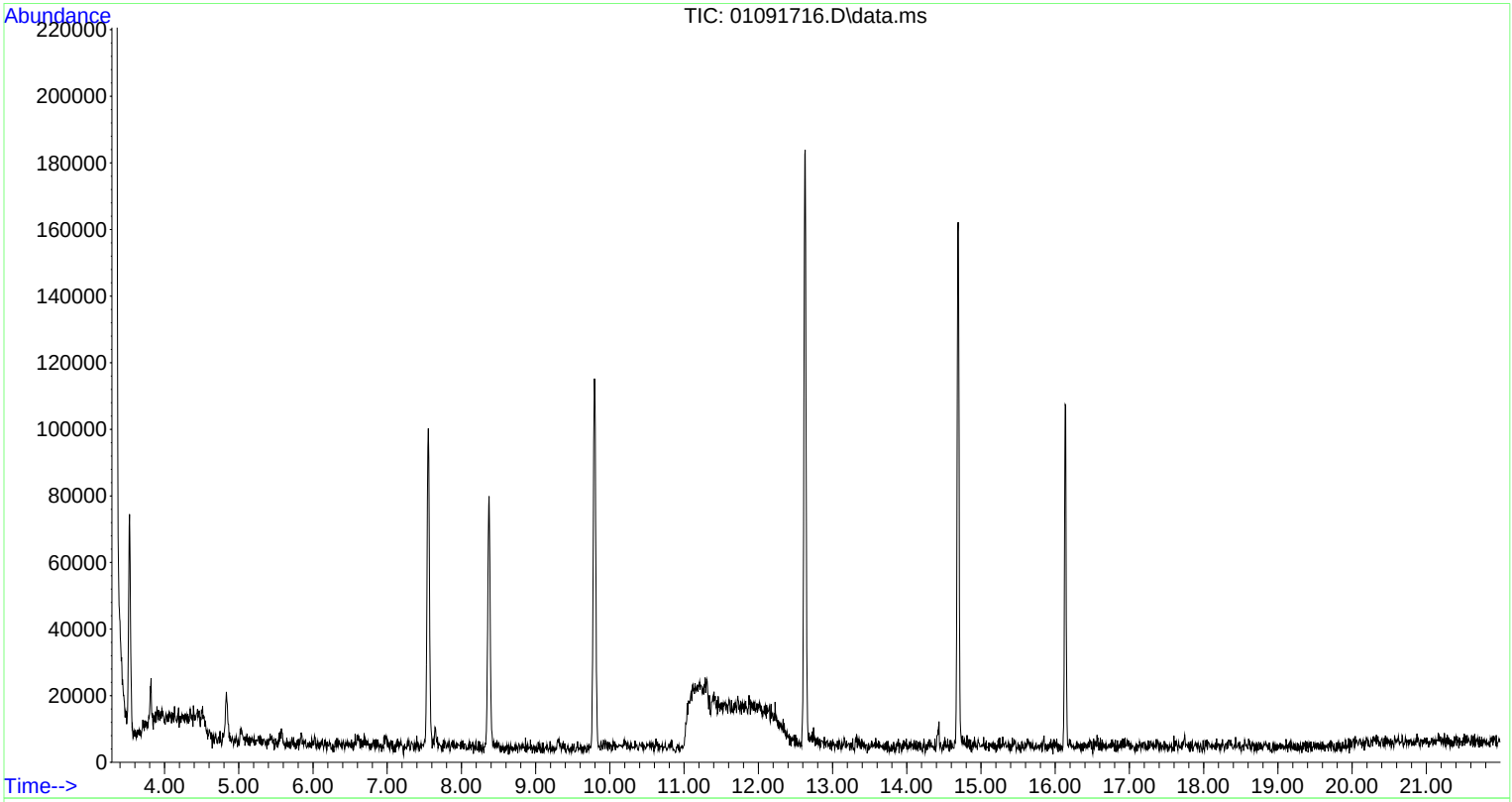
Quant Time: Jan 10 07:50:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

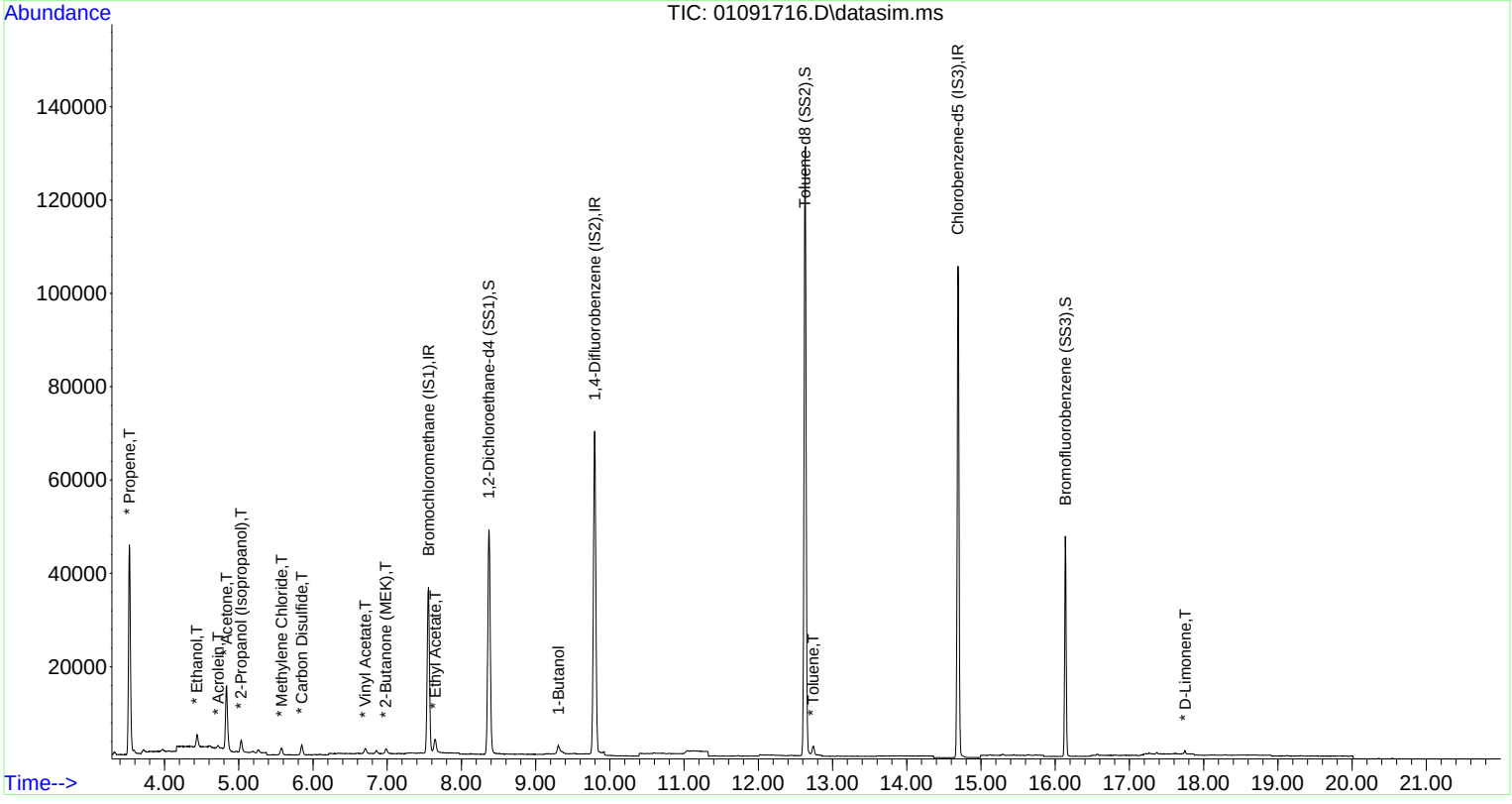
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	43867	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	128267	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102595	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72444	838.537	pg		0.00
Spiked Amount 1000.000			Recovery = 83.85%				
57) Toluene-d8 (SS2)	12.63	98	144302	1151.036	pg		0.00
Spiked Amount 1000.000			Recovery = 115.10%				
74) Bromofluorobenzene (SS3)	16.14	174	33140	802.627	pg		0.00
Spiked Amount 1000.000			Recovery = 80.26%				
Target Compounds							Qvalue
2) * Propene	3.53	42	21151	240.226	pg		100
10) * Ethanol	4.44	45	2954	49.192	pg		88
12) * Acrolein	4.72	56	611	12.145	pg		93
13) * Acetone	4.84	58	6954	122.603	pg	#	64
15) * 2-Propanol (Isopropa...	5.03	45	3460	22.514	pg		96
19) * Methylene Chloride	5.58	84	1630	25.799	pg		96
22) * Carbon Disulfide	5.85	76	3703	15.987	pg		99
26) * Vinyl Acetate	6.71	86	277	23.287	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	369	10.839	pg		96
30) * Ethyl Acetate	7.65	61	665	38.208	pg		94
41) 1-Butanol	9.31	56	1475	53.193	pg	#	54
58) * Toluene	12.74	91	2291	15.799	pg		99
93) * D-Limonene	17.75	68	391	11.749	pg	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091716.D
Acq On : 9 Jan 2017 20:34
Operator : JM
Sample : SSC00127 FCR00170
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 10 07:50:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051732.D
Acq On : 6 Jan 2017 6:22 am
Operator : JM
Sample : AC00894 FCA00247
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

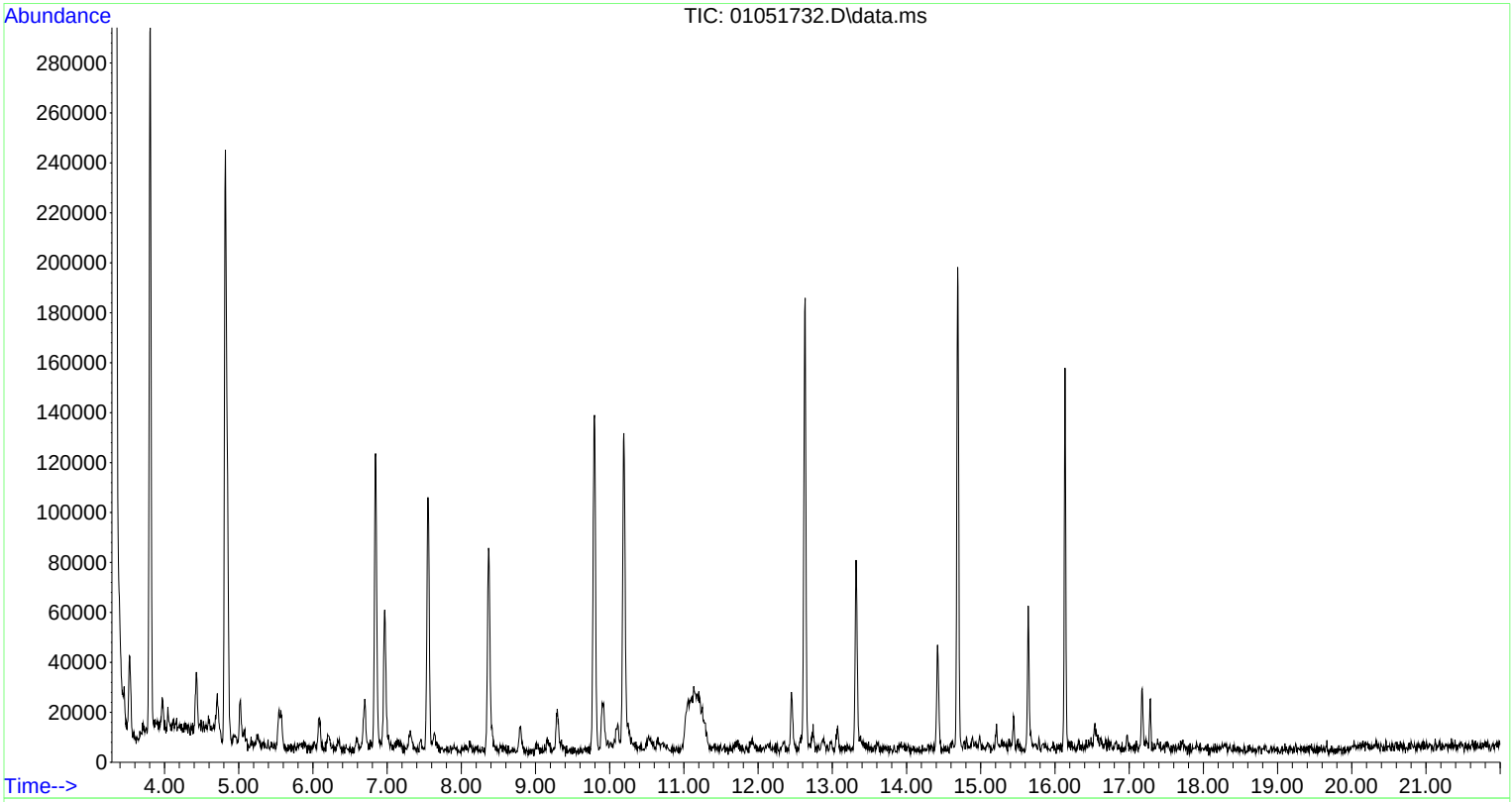
Quant Time: Jan 06 08:17:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

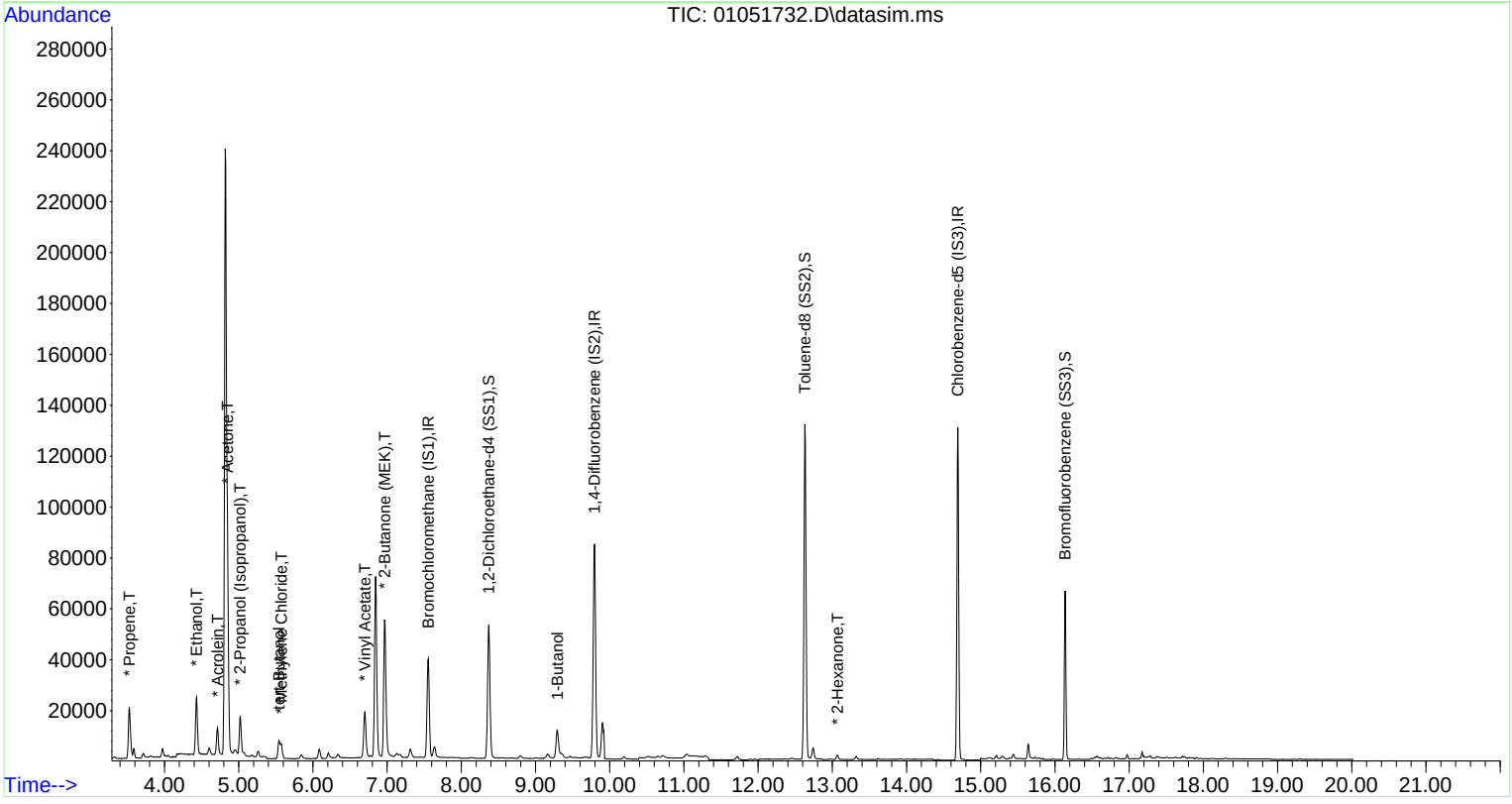
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47664	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	157267	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	125258	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78382	834.995	pg		0.00
Spiked Amount 1000.000			Recovery = 83.50%				
57) Toluene-d8 (SS2)	12.63	98	144903	946.705	pg		0.00
Spiked Amount 1000.000			Recovery = 94.67%				
74) Bromofluorobenzene (SS3)	16.14	174	46491	922.255	pg		0.00
Spiked Amount 1000.000			Recovery = 92.23%				
Target Compounds							Qvalue
2) * Propene	3.53	42	9763	102.052	pg		82
10) * Ethanol	4.43	45	25722	394.216	pg		100
12) * Acrolein	4.71	56	11036	201.888	pg		100
13) * Acetone	4.85	58	197163	3199.184	pg	#	10
15) * 2-Propanol (Isopropa...	5.02	45	20841	124.810	pg		98
18) tert-Butanol	5.54	59	9696	96.339	pg		85
19) * Methylene Chloride	5.58	84	5841	85.085	pg		100
26) * Vinyl Acetate	6.70	86	4920	380.660	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	19821	535.835	pg		80
41) 1-Butanol	9.30	56	5252	154.478	pg	#	55
59) * 2-Hexanone	13.07	58	2954	97.544	pg	#	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051732.D
Acq On : 6 Jan 2017 6:22 am
Operator : JM
Sample : AC00894 FCA00247
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Jan 06 08:17:00 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061706.D
Acq On : 6 Jan 2017 14:20 Operator: CL
Sample : AC01252-FCA00283 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 07 15:18:28 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

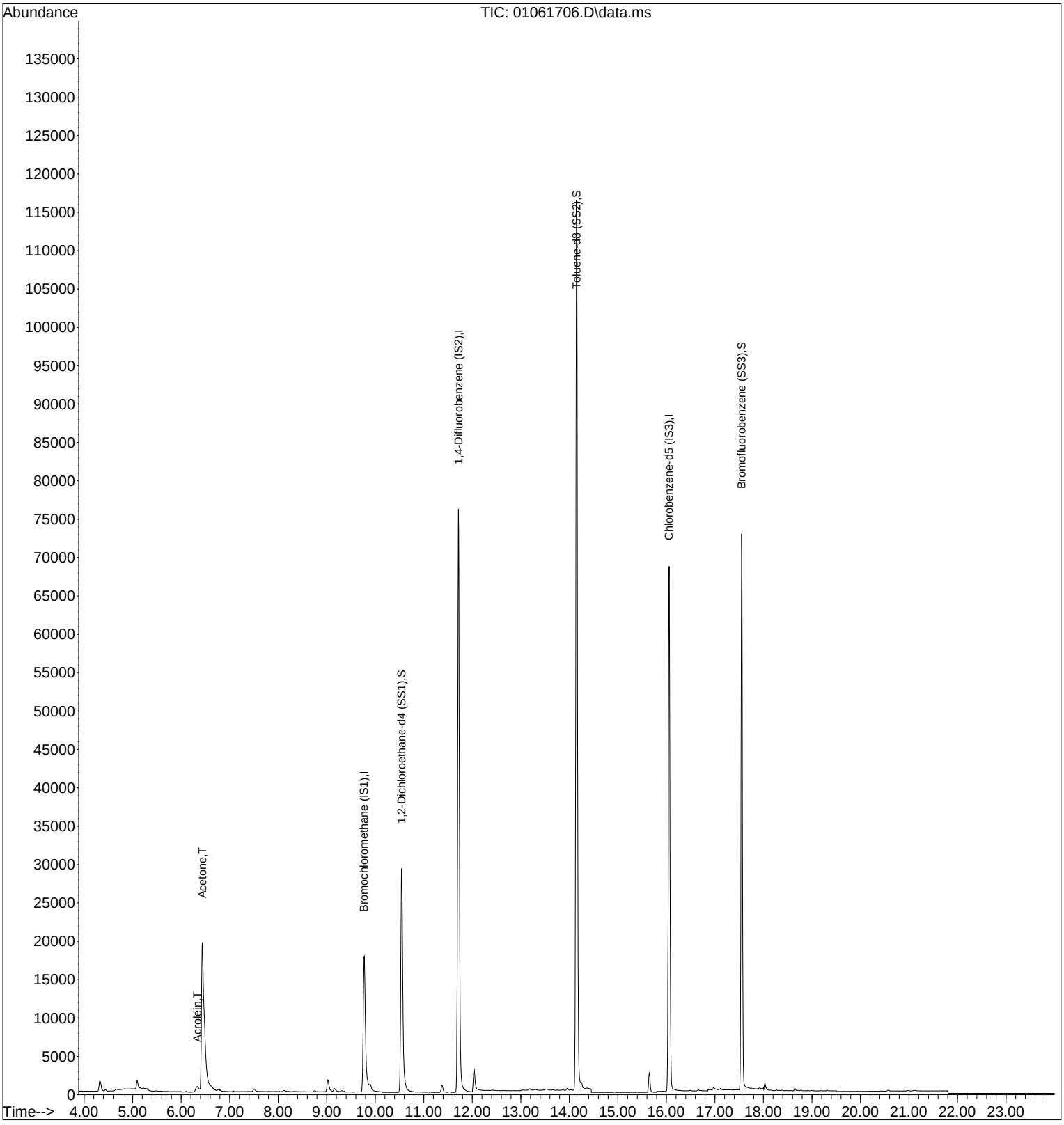
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	33853	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	159130	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	25728	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.5	65	56567	1043.216	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.32%			
33) Toluene-d8 (SS2)	14.1	98	161457	1038.761	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.88%			
45) Bromofluorobenzene (SS3)	17.6	174	55717	1092.779	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.28%			
Target Compounds						Qvalue
9) Acrolein	6.3	56	2183	143.922	pg	95
10) Acetone	6.4	58	30525	1508.381	pg	# 41

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061706.D
Acq On : 6 Jan 2017 14:20 Operator: CL
Sample : AC01252-FCA00283 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 07 15:18:28 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041722.D
Acq On : 5 Jan 2017 2:15 am
Operator : JM
Sample : AS01230 FCA00977
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

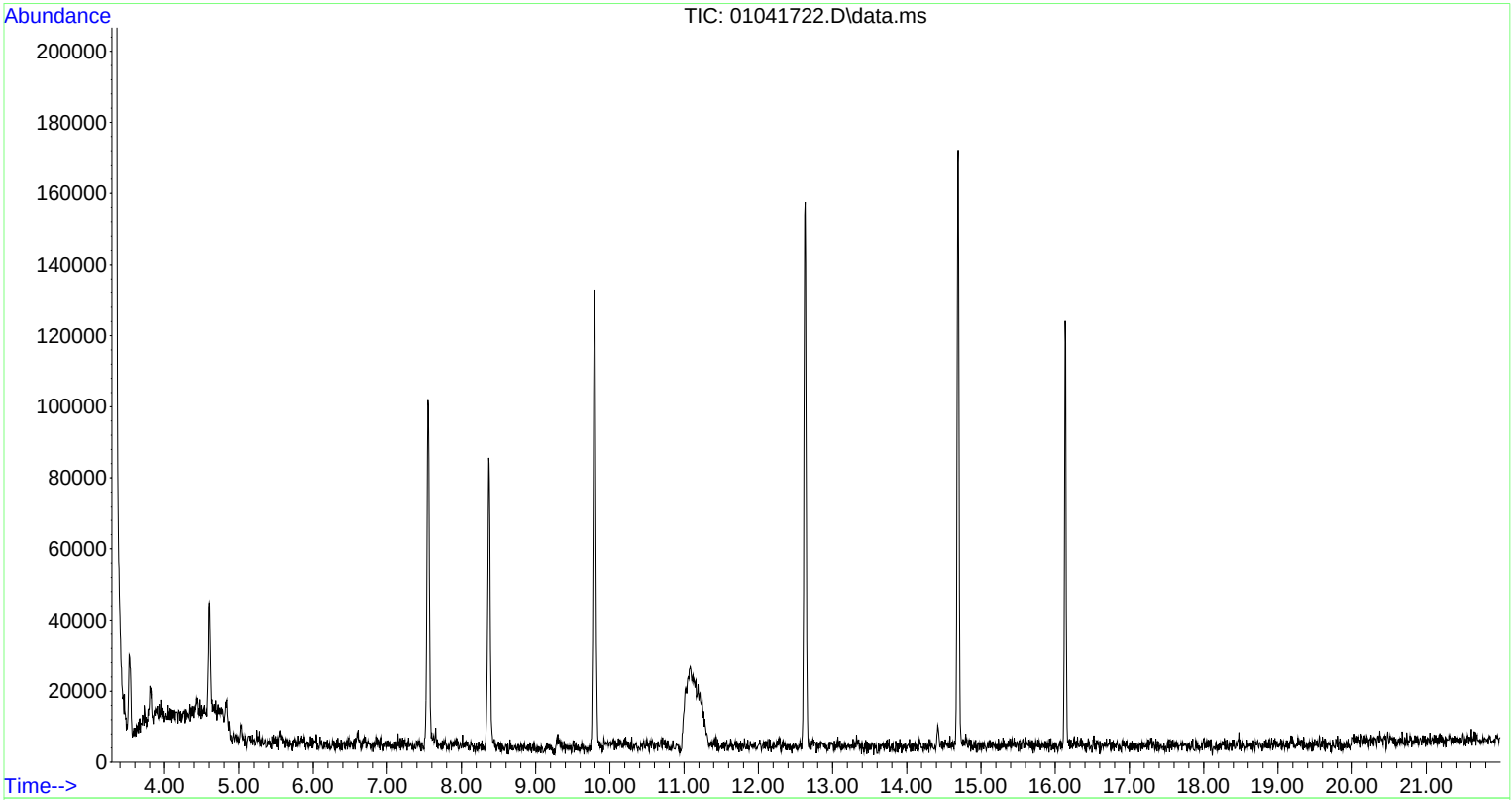
Quant Time: Jan 05 08:04:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

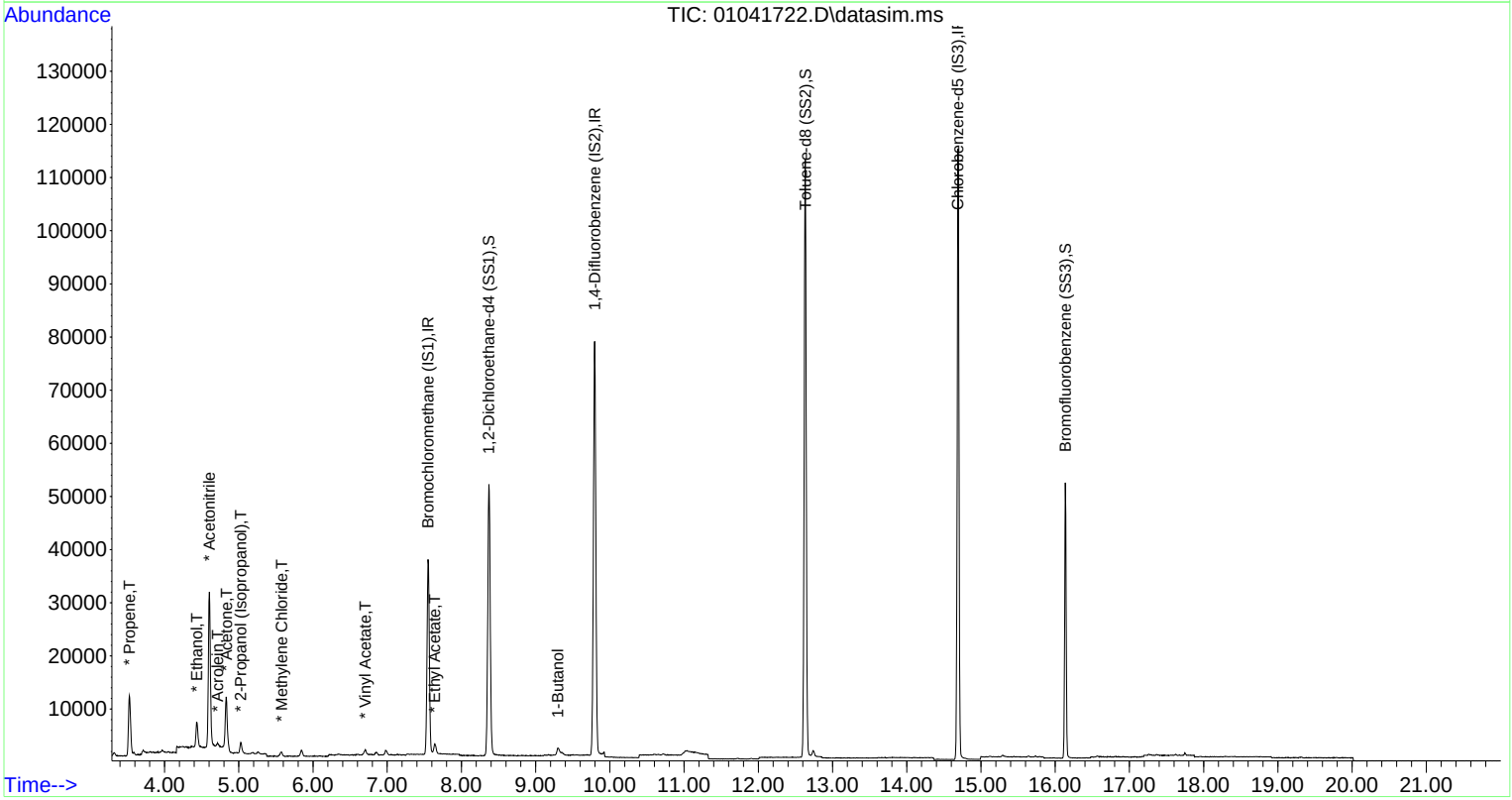
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45350	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	143873	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	110347	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76092	851.961	pg		0.00
Spiked Amount 1000.000			Recovery = 85.20%				
57) Toluene-d8 (SS2)	12.63	98	126272	936.460	pg		0.00
Spiked Amount 1000.000			Recovery = 93.65%				
74) Bromofluorobenzene (SS3)	16.14	174	36922	831.405	pg		0.00
Spiked Amount 1000.000			Recovery = 83.14%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5672	62.314	pg		80
10) * Ethanol	4.44	45	6063	97.663	pg		100
11) * Acetonitrile	4.60	41	36784	236.315	pg		99
12) * Acrolein	4.71	56	587	11.286	pg		93
13) * Acetone	4.84	58	5231	89.210	pg	#	62
15) * 2-Propanol (Isopropa...	5.03	45	2735	17.215	pg		88
19) * Methylene Chloride	5.58	84	882	13.504	pg		92
26) * Vinyl Acetate	6.71	86	205	16.670	pg	#	4
30) * Ethyl Acetate	7.64	61	392	21.786	pg		96
41) 1-Butanol	9.30	56	1190	38.260	pg	#	49

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041722.D
Acq On : 5 Jan 2017 2:15 am
Operator : JM
Sample : AS01230 FCA00977
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 05 08:04:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081716.D
Acq On : 8 Jan 2017 8:11 pm
Operator : JM
Sample : SSC00016 FCR00038
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 09 10:26:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45815	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	141928	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107802	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75284	834.359	pg		0.00
Spiked Amount 1000.000			Recovery = 83.44%				
57) Toluene-d8 (SS2)	12.63	98	122688	931.361	pg		0.00
Spiked Amount 1000.000			Recovery = 93.14%				
74) Bromofluorobenzene (SS3)	16.14	174	36793	848.059	pg		0.00
Spiked Amount 1000.000			Recovery = 84.81%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8133	88.444	pg	#	66
3) * Dichlorodifluoromethane	3.59	85	8909	45.481	pg		100
4) * Chloromethane	3.71	50	3055	20.863	pg		98
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	342	2.352	pg		91
7) * 1,3-Butadiene	4.01	54	140	1.346	pg	#	1
8) * Bromomethane	4.22	94	406	4.563	pg	#	73
9) * Chloroethane	4.34	64	63	0.991	pg	#	41
10) * Ethanol	4.44	45	9112	145.287	pg		100
11) * Acetonitrile	4.60	41	3371	21.437	pg		93
12) * Acrolein	4.72	56	1833	34.886	pg		86
13) * Acetone	4.83	58	20433	344.928	pg		75
14) * Trichlorofluoromethane	4.97	101	3302	25.233	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	6221	38.759	pg		99
16) * Acrylonitrile	5.19	53	280	3.001	pg		85
17) * 1,1-Dichloroethene	5.52	96	59	1.114	pg	#	17
18) tert-Butanol	5.55	59	660	6.822	pg	#	40
19) * Methylene Chloride	5.58	84	9086	137.696	pg		99
21) * Trichlorotrifluoroet...	5.83	151	683	13.317	pg		91
22) * Carbon Disulfide	5.85	76	4645	19.202	pg		98
26) * Vinyl Acetate	6.71	86	790	63.589	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1327	37.322	pg		90
29) DIPE	7.64	45	720	3.475	pg	#	53
30) * Ethyl Acetate	7.65	61	688	37.849	pg		85
31) * n-Hexane	7.64	57	1100	11.768	pg	#	85
32) * Chloroform	7.69	83	260	2.250	pg	#	83
36) * 1,2-Dichloroethane	8.50	62	72	0.736	pg	#	42
39) * Benzene	9.35	78	2751	16.807	pg		98
41) 1-Butanol	9.30	56	2231	72.713	pg	#	47
42) * Carbon Tetrachloride	9.54	117	488	7.664	pg		92
43) * Cyclohexane	9.70	84	95	1.824	pg		87
49) Isooctane	10.73	56	973	12.436	pg	#	67
51) * n-Heptane	11.03	71	607	7.222	pg		98
53) * 4-Methyl-2-pentanone	11.73	58	154	5.208	pg	#	47
58) * Toluene	12.74	91	7949	52.171	pg		99
59) * 2-Hexanone	13.07	58	139	5.333	pg	#	68
62) * n-Butyl Acetate	13.80	56	51	2.736	pg	#	37
64) * Tetrachloroethene	14.02	166	114	2.250	pg	#	38
65) * Chlorobenzene	14.73	112	53	0.528	pg	#	42
66) * Ethylbenzene	15.12	91	824	6.413	pg	#	86
67) * m- & p-Xylenes	15.29	91	1980	19.833	pg		94
68) * Bromoform	15.33	173	50	1.567	pg	#	26
69) Cyclohexanone	15.44	98	80	7.175	pg		76
70) * Styrene	15.63	104	246	4.628	pg		100
71) * o-Xylene	15.73	91	697	7.137	pg		93
72) * n-Nonane	15.98	57	131	2.977	pg	#	42

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081716.D
Acq On : 8 Jan 2017 8:11 pm
Operator : JM
Sample : SSC00016 FCR00038
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

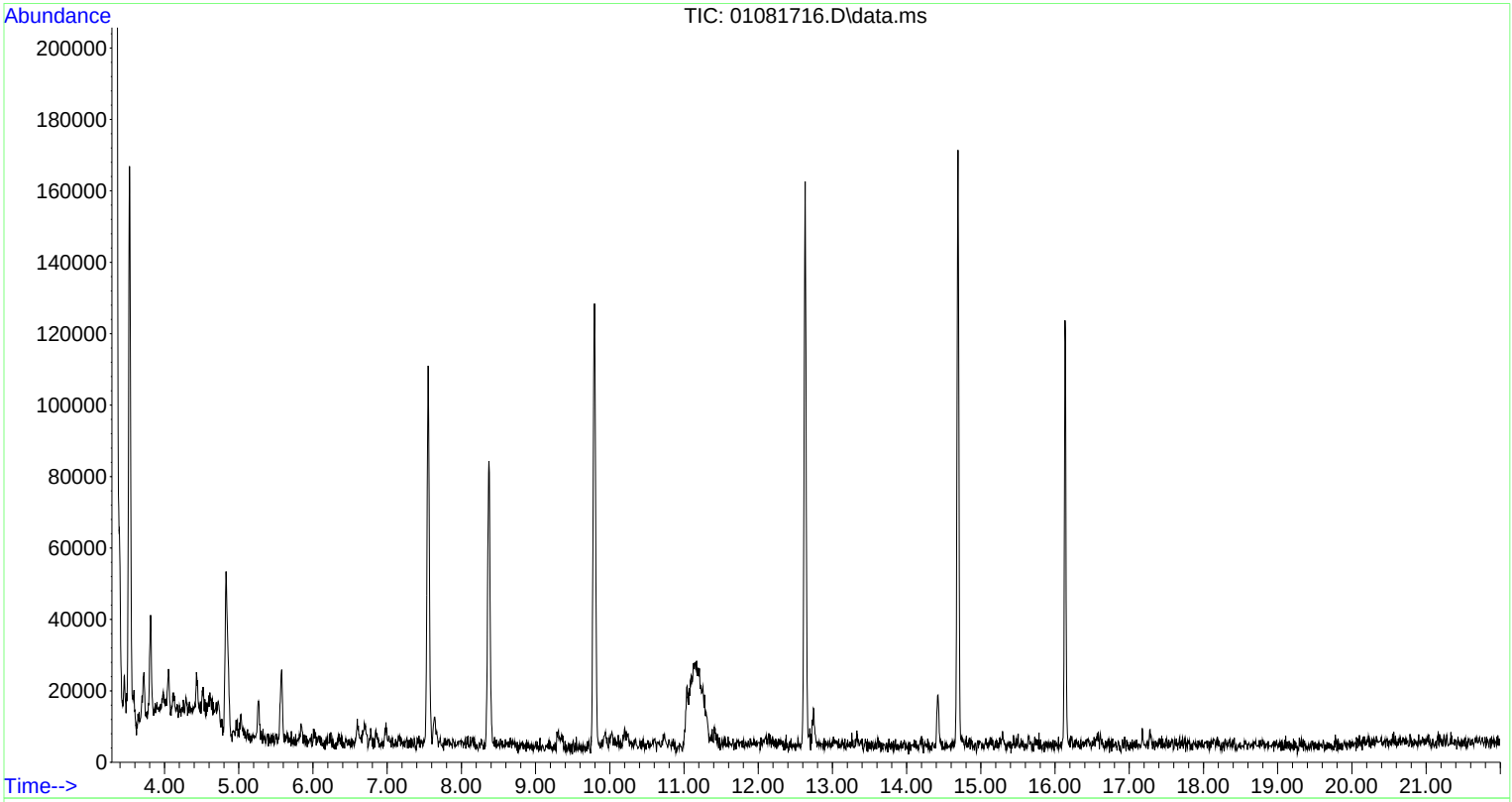
Quant Time: Jan 09 10:26:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

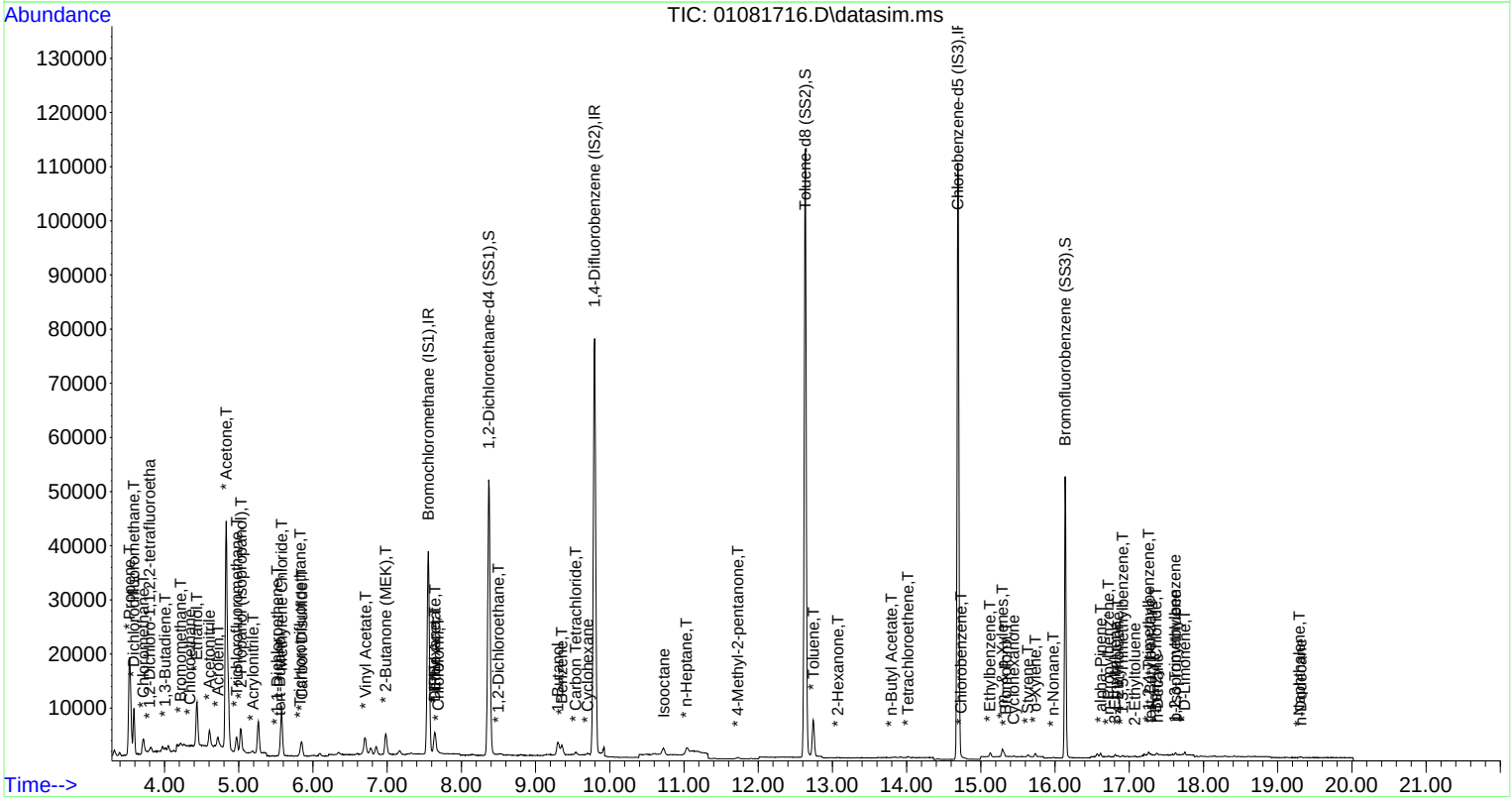
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
76) * alpha-Pinene	16.61	93	488	7.710	pg		99
77) * n-Propylbenzene	16.72	91	149	1.161	pg	#	61
78) 3-Ethyltoluene	16.81	105	325	3.637	pg	#	85
79) * 4-Ethyltoluene	16.85	105	154	1.966	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	74	0.842	pg	#	39
82) 2-Ethyltoluene	17.08	105	87	0.816	pg	#	1
83) tert-Butylbenzene	17.28	134	80	4.053	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	427	5.377	pg		94
85) * Benzyl Chloride	17.36	126	77	9.618	pg	#	9
88) n-Decane	17.38	85	184	12.118	pg	#	1
90) 1,2,3-Trimethylbenzene	17.62	105	115	1.381	pg		94
91) p-Isopropyltoluene	17.62	134	55	2.183	pg	#	57
93) * D-Limonene	17.75	68	278	7.950	pg	#	74
98) * Naphthalene	19.29	128	122	3.599	pg	#	66
99) n-Dodecane	19.31	85	64	11.736	pg	#	30

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081716.D
Acq On : 8 Jan 2017 8:11 pm
Operator : JM
Sample : SSC00016 FCR00038
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 09 10:26:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041713.D
Acq On : 4 Jan 2017 7:18 pm
Operator : JM
Sample : AC02017 FCA00834
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

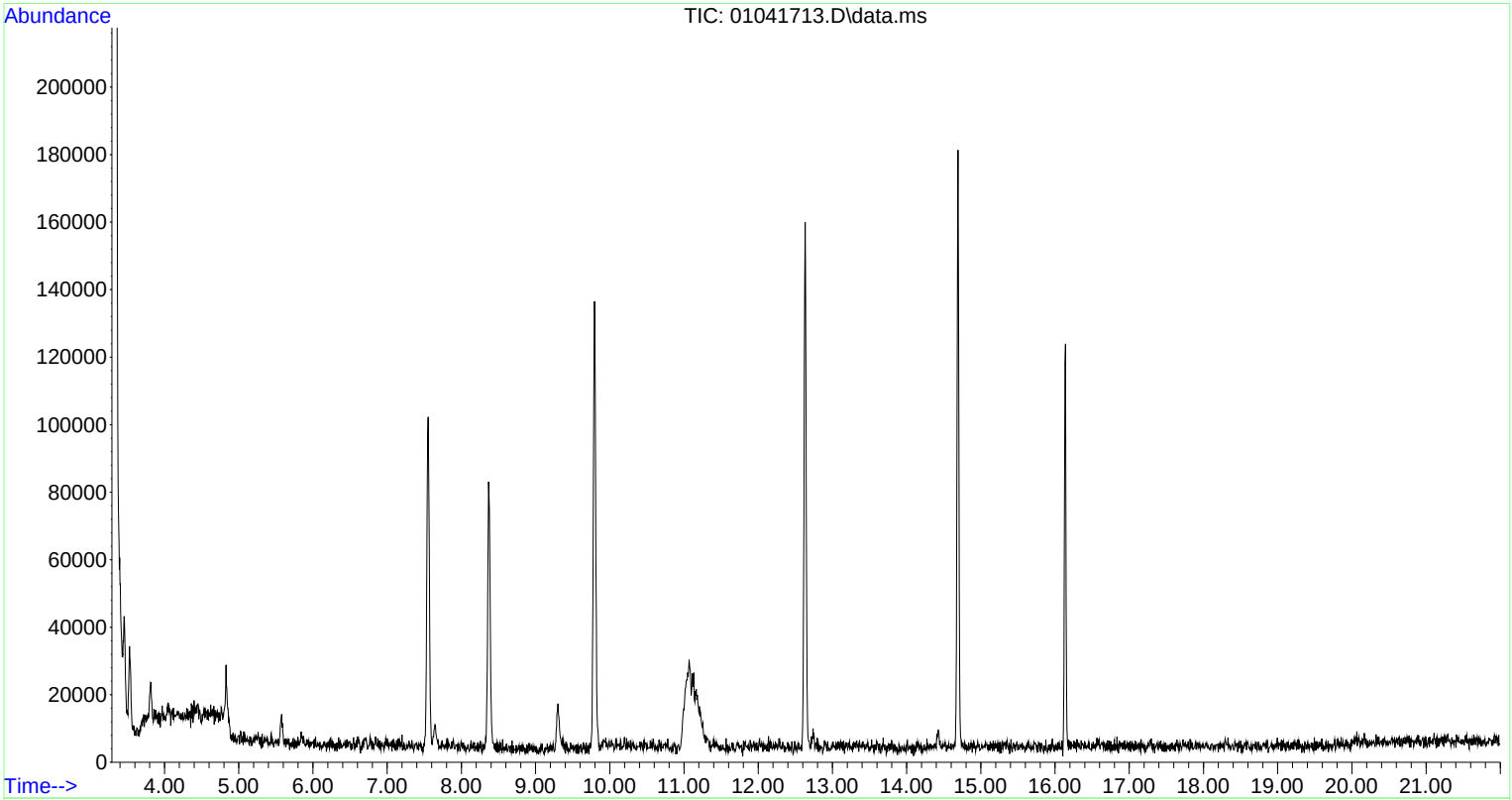
Quant Time: Jan 05 08:03:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

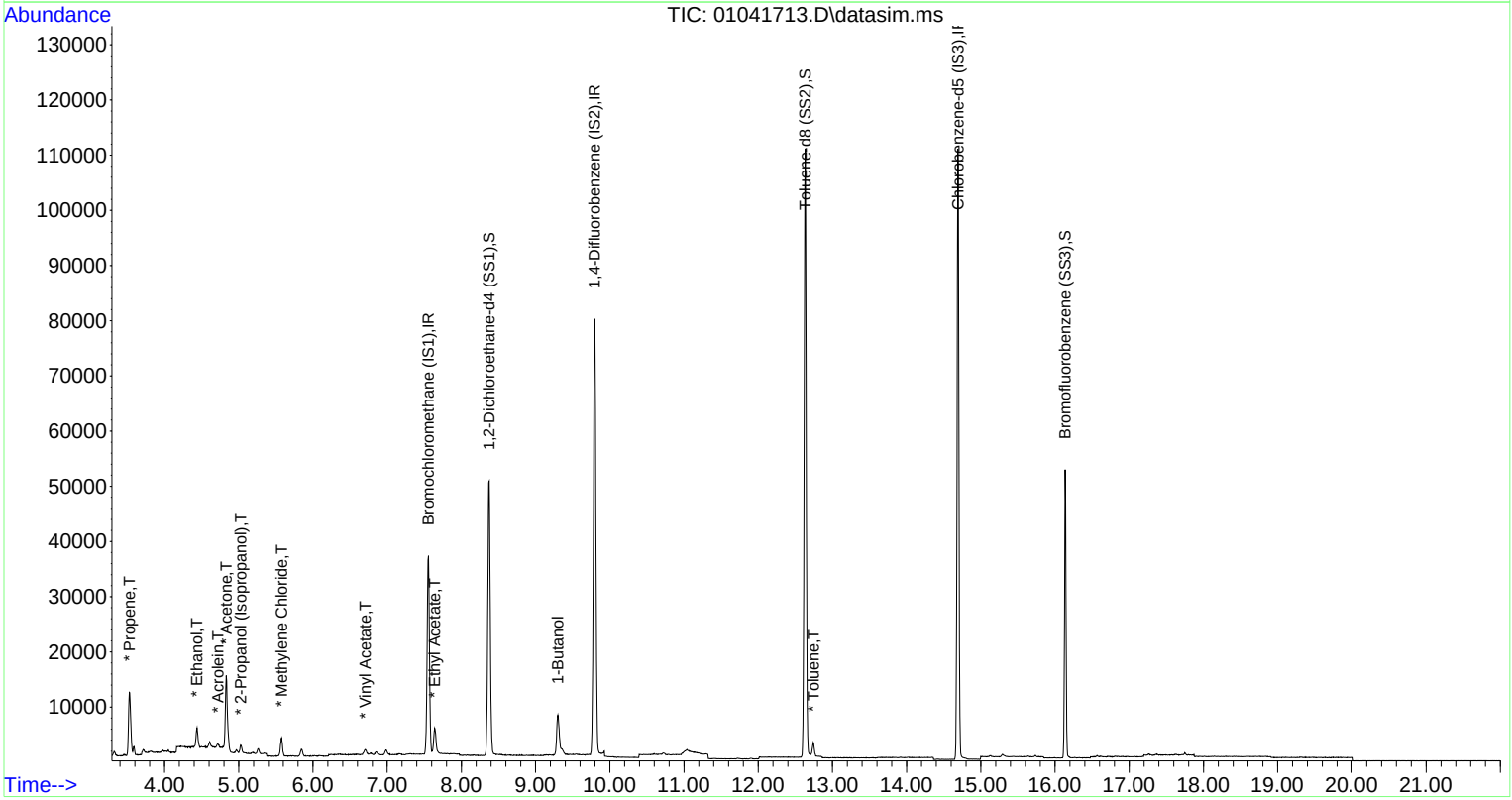
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44469	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144664	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	107287	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75648	863.770	pg		0.00
Spiked Amount 1000.000			Recovery = 86.38%				
57) Toluene-d8 (SS2)	12.63	98	122658	935.603	pg		0.00
Spiked Amount 1000.000			Recovery = 93.56%				
74) Bromofluorobenzene (SS3)	16.14	174	36318	841.129	pg		0.00
Spiked Amount 1000.000			Recovery = 84.11%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5852	65.565	pg	#	76
10) * Ethanol	4.44	45	3814	62.653	pg	#	87
12) * Acrolein	4.72	56	641	12.569	pg		83
13) * Acetone	4.83	58	6369	110.769	pg	#	65
15) * 2-Propanol (Isopropa...	5.03	45	2034	13.056	pg		99
19) * Methylene Chloride	5.58	84	3664	57.208	pg		97
26) * Vinyl Acetate	6.71	86	207	17.166	pg	#	30
30) * Ethyl Acetate	7.64	61	951	53.901	pg		98
41) 1-Butanol	9.30	56	6579	210.368	pg	#	51
58) * Toluene	12.74	91	2760	18.201	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041713.D
Acq On : 4 Jan 2017 7:18 pm
Operator : JM
Sample : AC02017 FCA00834
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 05 08:03:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041726.D
Acq On : 5 Jan 2017 4:59 am
Operator : JM
Sample : AC02069 FCA00069
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

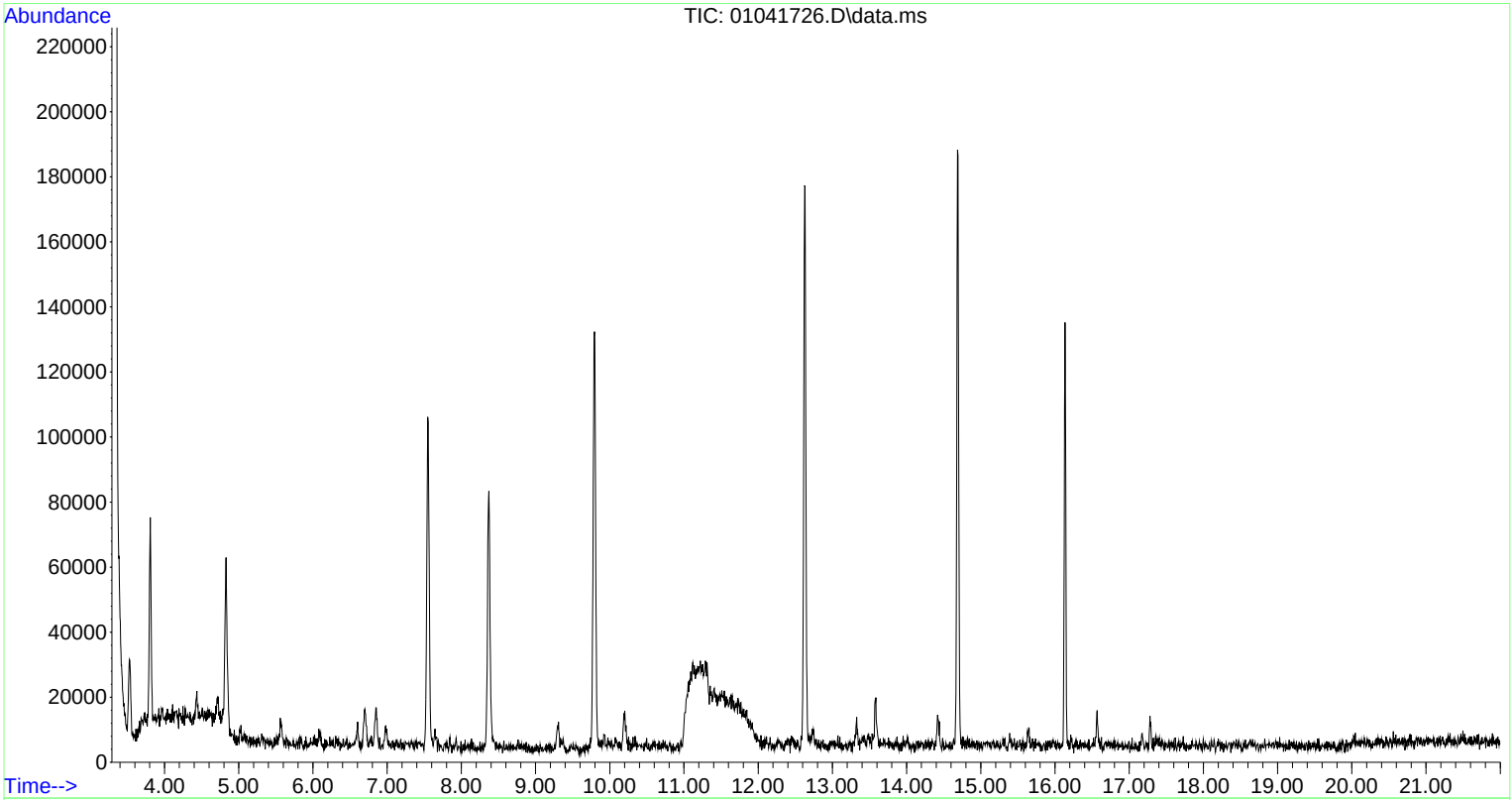
Quant Time: Jan 05 08:04:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

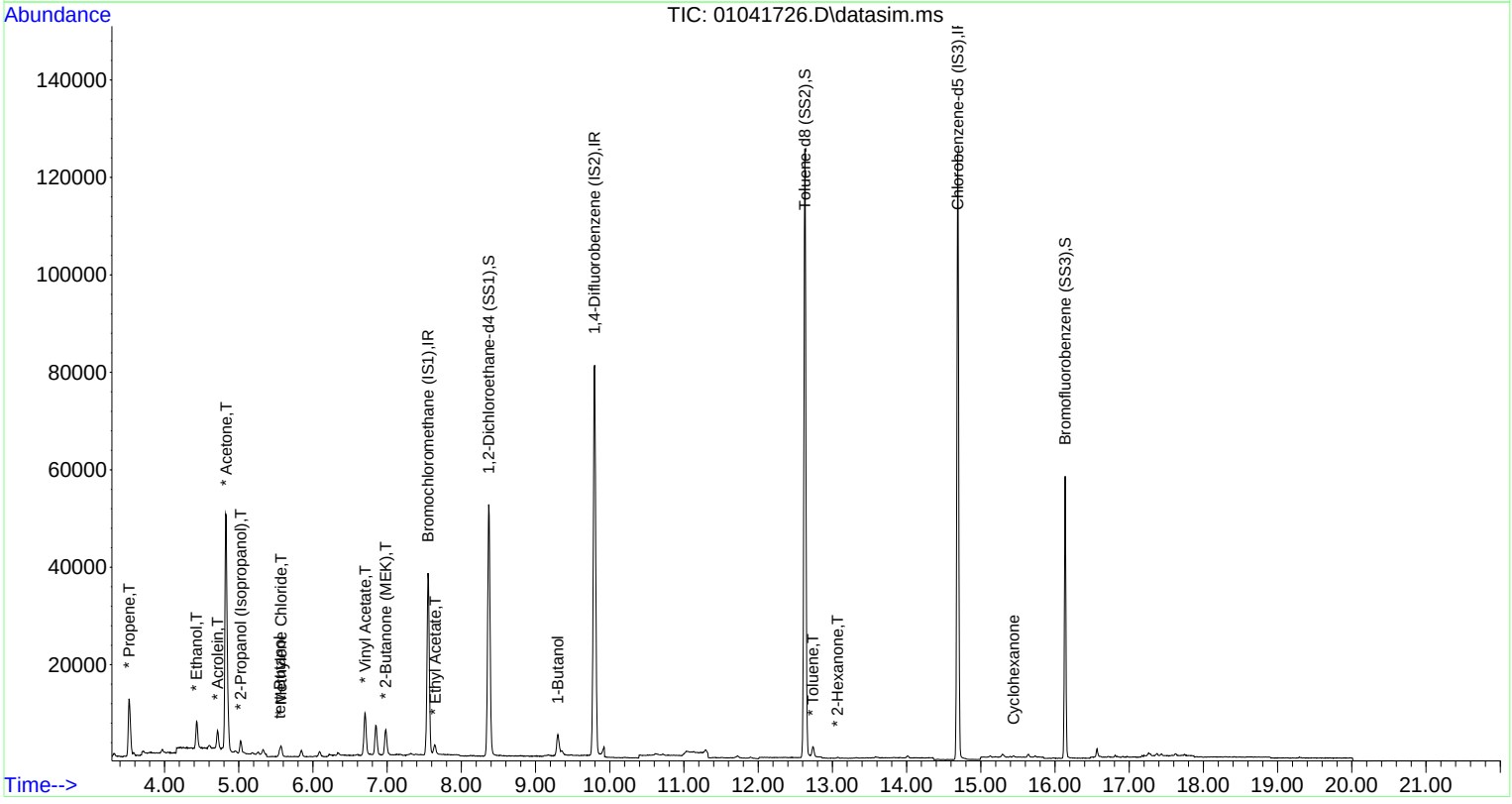
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45390	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	149050	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	117664	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76788	858.996	pg		0.00
Spiked Amount 1000.000			Recovery = 85.90%				
57) Toluene-d8 (SS2)	12.63	98	137456	956.011	pg		0.00
Spiked Amount 1000.000			Recovery = 95.60%				
74) Bromofluorobenzene (SS3)	16.14	174	40210	849.138	pg		0.00
Spiked Amount 1000.000			Recovery = 84.91%				
Target Compounds							Qvalue
2) * Propene	3.52	42	5764	63.269	pg	#	76
10) * Ethanol	4.43	45	6518	104.900	pg		96
12) * Acrolein	4.71	56	3935	75.592	pg		96
13) * Acetone	4.83	58	32554	554.688	pg	#	31
15) * 2-Propanol (Isopropa...	5.03	45	3414	21.470	pg	#	82
18) tert-Butanol	5.55	59	1529	15.953	pg		86
19) * Methylene Chloride	5.57	84	2050	31.358	pg		98
26) * Vinyl Acetate	6.71	86	2207	179.310	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1844	52.348	pg		91
30) * Ethyl Acetate	7.65	61	384	21.323	pg		95
41) 1-Butanol	9.30	56	3778	117.249	pg	#	50
58) * Toluene	12.74	91	2490	14.973	pg		99
59) * 2-Hexanone	13.07	58	363	12.760	pg	#	68
69) Cyclohexanone	15.44	98	129	10.600	pg	#	67

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041726.D
Acq On : 5 Jan 2017 4:59 am
Operator : JM
Sample : AC02069 FCA00069
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Jan 05 08:04:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051704.D Vial: 1
Acq On : 5 Jan 2017 14:46 Operator: CL
Sample : AS00560-FCA00377 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:00 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

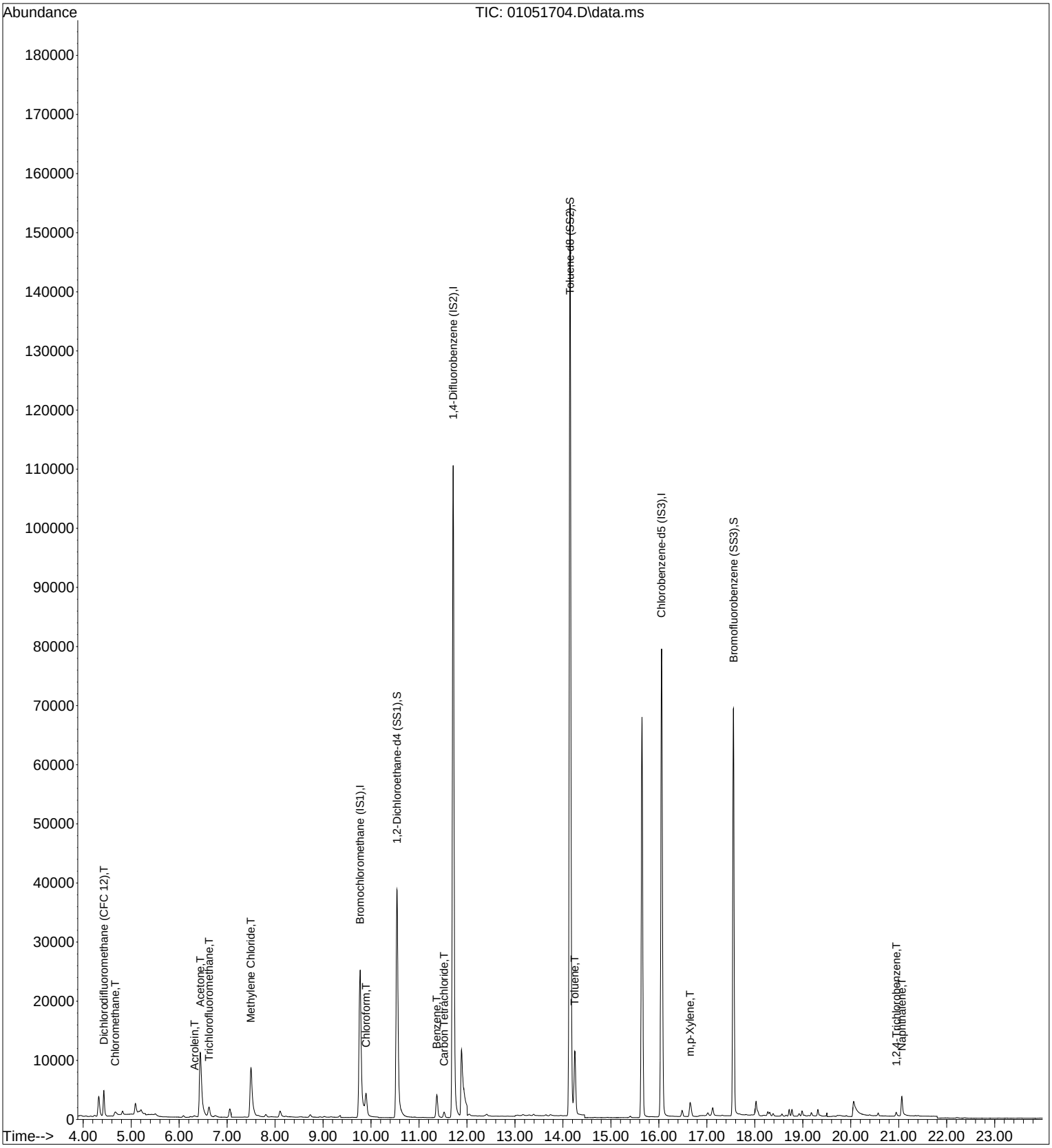
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	47266	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	232886	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	28351	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	74462	983.545	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.35%				
33) Toluene-d8 (SS2)	14.15	98	215573	947.681	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.77%				
45) Bromofluorobenzene (SS3)	17.56	174	55706	991.481	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	5945	51.835	pg		100
3) Chloromethane	4.67	52	642	20.912	pg	#	74
9) Acrolein	6.32	56	597	28.190	pg		100
10) Acetone	6.44	58	9490	335.869	pg	#	89
11) Trichlorofluoromethane	6.62	101	2449	29.169	pg		100
13) Methylene Chloride	7.49	84	10923	197.841	pg		94
19) Chloroform	9.90	83	5816	58.880	pg		99
23) Benzene	11.37	78	7943	34.065	pg		100
24) Carbon Tetrachloride	11.52	117	1173	15.174	pg		99
34) Toluene	14.25	91	14566	65.900	pg		100
41) m,p-Xylene	16.65	91	4429	27.082	pg		100
52) 1,2,4-Trichlorobenzene	20.95	182	915	17.845	pg		95
53) Naphthalene	21.07	128	6951	44.987	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051704.D Vial: 1
Acq On : 5 Jan 2017 14:46 Operator: CL
Sample : AS00560-FCA00377 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:00 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111718.D
Acq On : 11 Jan 2017 20:28
Operator : JM
Sample : AS01096 FCA00067
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

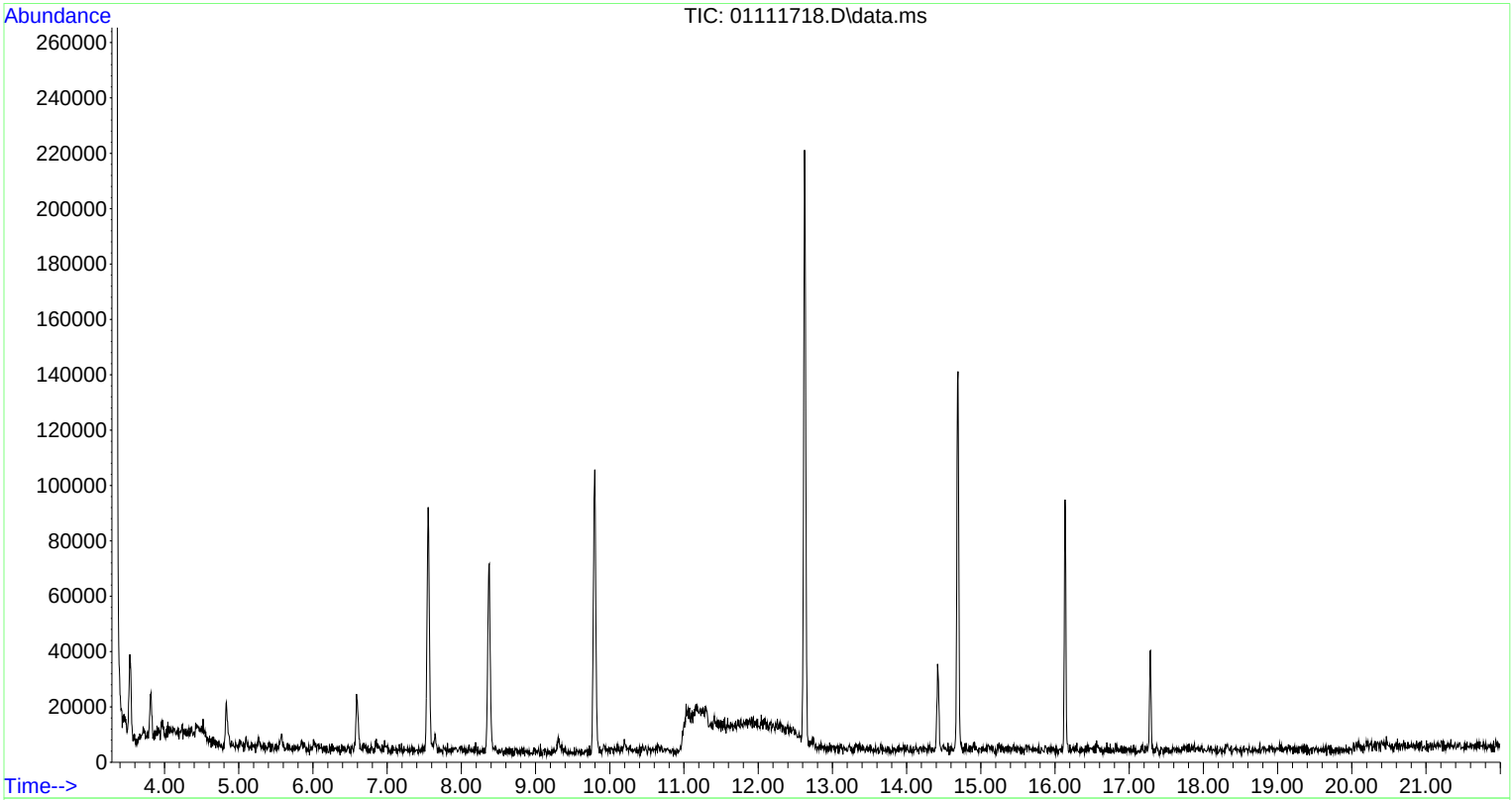
Quant Time: Jan 12 08:22:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

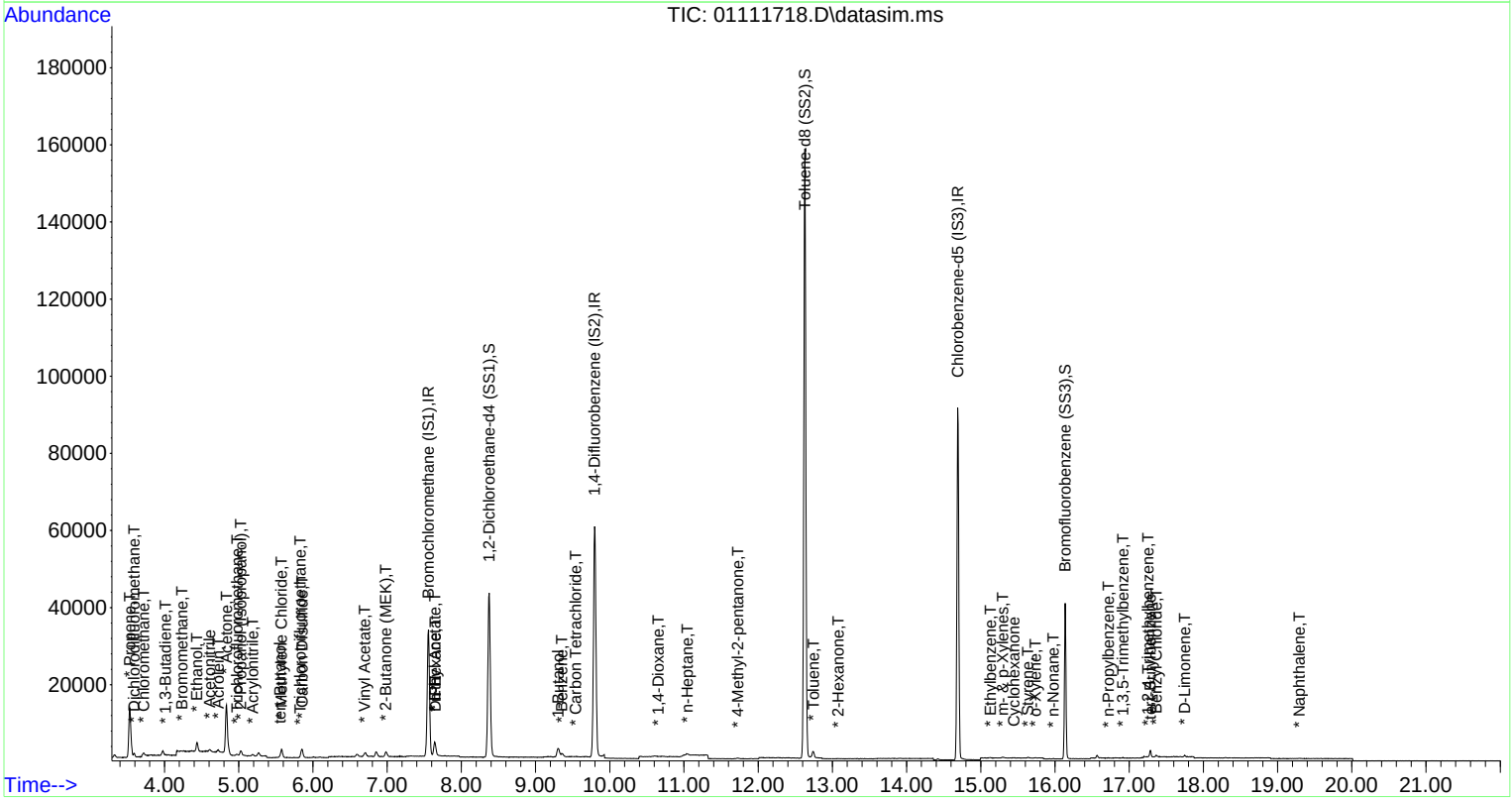
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	40716	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	111346	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	90543	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	63570	792.766	pg		0.00
Spiked Amount 1000.000			Recovery = 79.28%				
57) Toluene-d8 (SS2)	12.63	98	170929	1544.911	pg		0.00
Spiked Amount 1000.000			Recovery = 154.49%				
74) Bromofluorobenzene (SS3)	16.14	174	28801	790.388	pg		0.00
Spiked Amount 1000.000			Recovery = 79.04%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6422	78.584	pg		82
3) * Dichlorodifluoromethane	3.59	85	1034	5.940	pg		98
4) * Chloromethane	3.72	50	765	5.879	pg		96
7) * 1,3-Butadiene	4.01	54	70	0.757	pg	#	1
8) * Bromomethane	4.23	94	68	0.860	pg		99
10) * Ethanol	4.44	45	2603	46.701	pg		95
11) * Acetonitrile	4.61	41	825	5.903	pg	#	26
12) * Acrolein	4.72	56	634	13.577	pg		96
13) * Acetone	4.84	58	7167	136.137	pg	#	52
14) * Trichlorofluoromethane	4.98	101	449	3.861	pg		94
15) * 2-Propanol (Isopropa...	5.03	45	1829	12.822	pg		91
16) * Acrylonitrile	5.19	53	379	4.571	pg		94
18) tert-Butanol	5.56	59	336	3.908	pg	#	40
19) * Methylene Chloride	5.58	84	2361	40.261	pg		100
21) * Trichlorotrifluoroet...	5.83	151	107	2.348	pg	#	19
22) * Carbon Disulfide	5.85	76	4109	19.113	pg		97
26) * Vinyl Acetate	6.70	86	115	10.416	pg		52
27) * 2-Butanone (MEK)	6.98	72	531	16.804	pg	#	55
29) DIPE	7.65	45	766	4.159	pg	#	53
30) * Ethyl Acetate	7.64	61	762	47.170	pg		96
31) * n-Hexane	7.65	57	248	2.985	pg	#	72
39) * Benzene	9.35	78	1288	10.030	pg	#	89
41) 1-Butanol	9.31	56	2028	84.251	pg	#	52
42) * Carbon Tetrachloride	9.54	117	50	1.001	pg	#	1
48) * 1,4-Dioxane	10.65	88	122	4.556	pg	#	72
51) * n-Heptane	11.04	71	334	5.065	pg	#	87
53) * 4-Methyl-2-pentanone	11.73	58	131	5.647	pg	#	56
58) * Toluene	12.74	91	1979	15.464	pg		99
59) * 2-Hexanone	13.08	58	84	3.837	pg	#	68
66) * Ethylbenzene	15.13	91	128	1.186	pg	#	52
67) * m- & p-Xylenes	15.29	91	264	3.148	pg	#	81
69) Cyclohexanone	15.45	98	59	6.300	pg	#	23
70) * Styrene	15.63	104	99	2.218	pg	#	28
71) * o-Xylene	15.73	91	110	1.341	pg	#	32
72) * n-Nonane	15.98	57	85	2.300	pg	#	42
77) * n-Propylbenzene	16.72	91	87	0.807	pg	#	56
80) * 1,3,5-Trimethylbenzene	16.92	105	59	0.799	pg	#	8
83) tert-Butylbenzene	17.28	134	640	38.604	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	51	0.765	pg	#	24
85) * Benzyl Chloride	17.36	126	77	11.451	pg		96
93) * D-Limonene	17.75	68	221	7.525	pg	#	64
98) * Naphthalene	19.29	128	100	3.513	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111718.D
Acq On : 11 Jan 2017 20:28
Operator : JM
Sample : AS01096 FCA00067
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 12 08:22:14 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041712.D
Acq On : 4 Jan 2017 6:37 pm
Operator : JM
Sample : AS00340 FCA00971
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

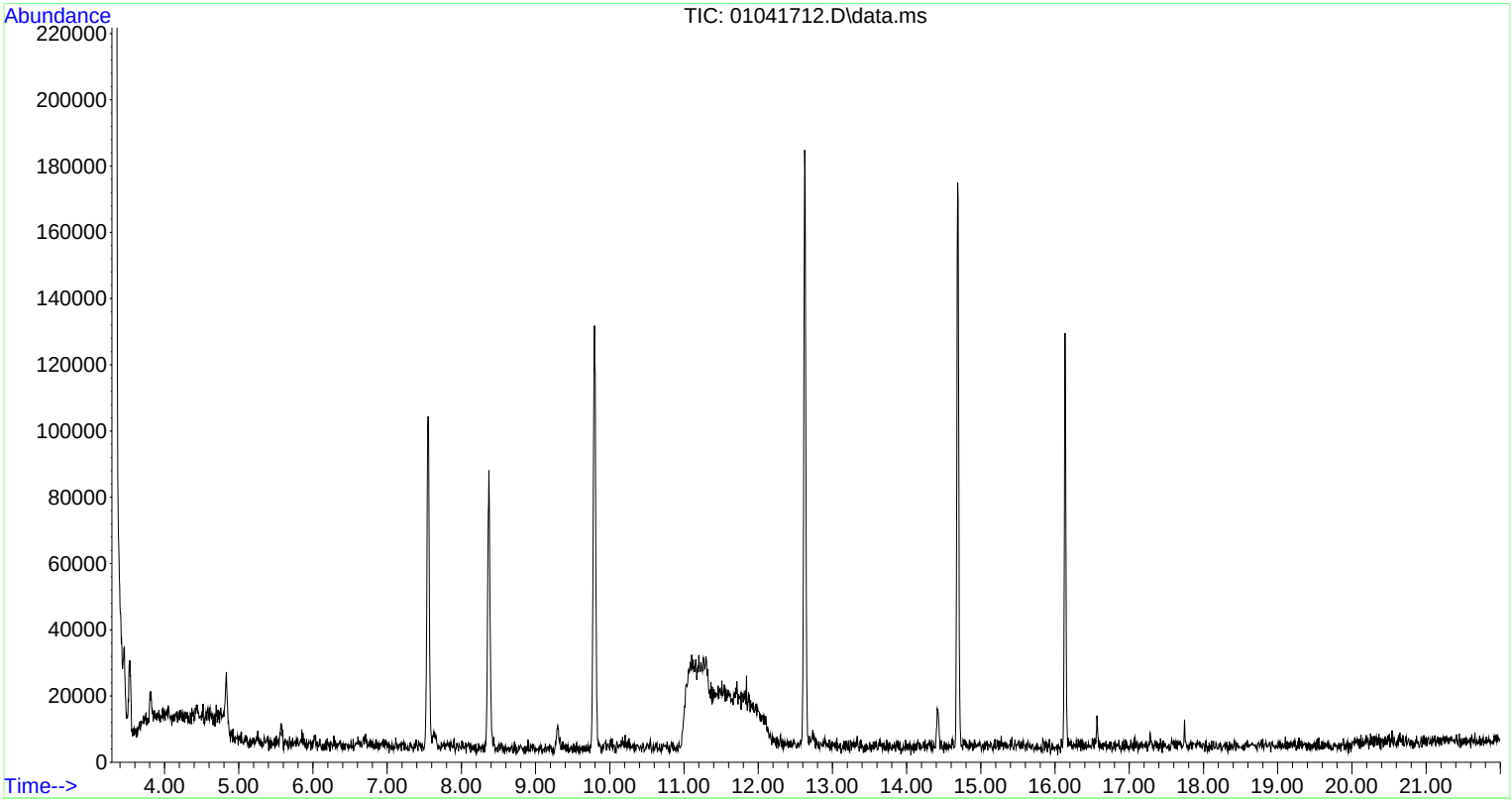
Quant Time: Jan 05 08:03:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

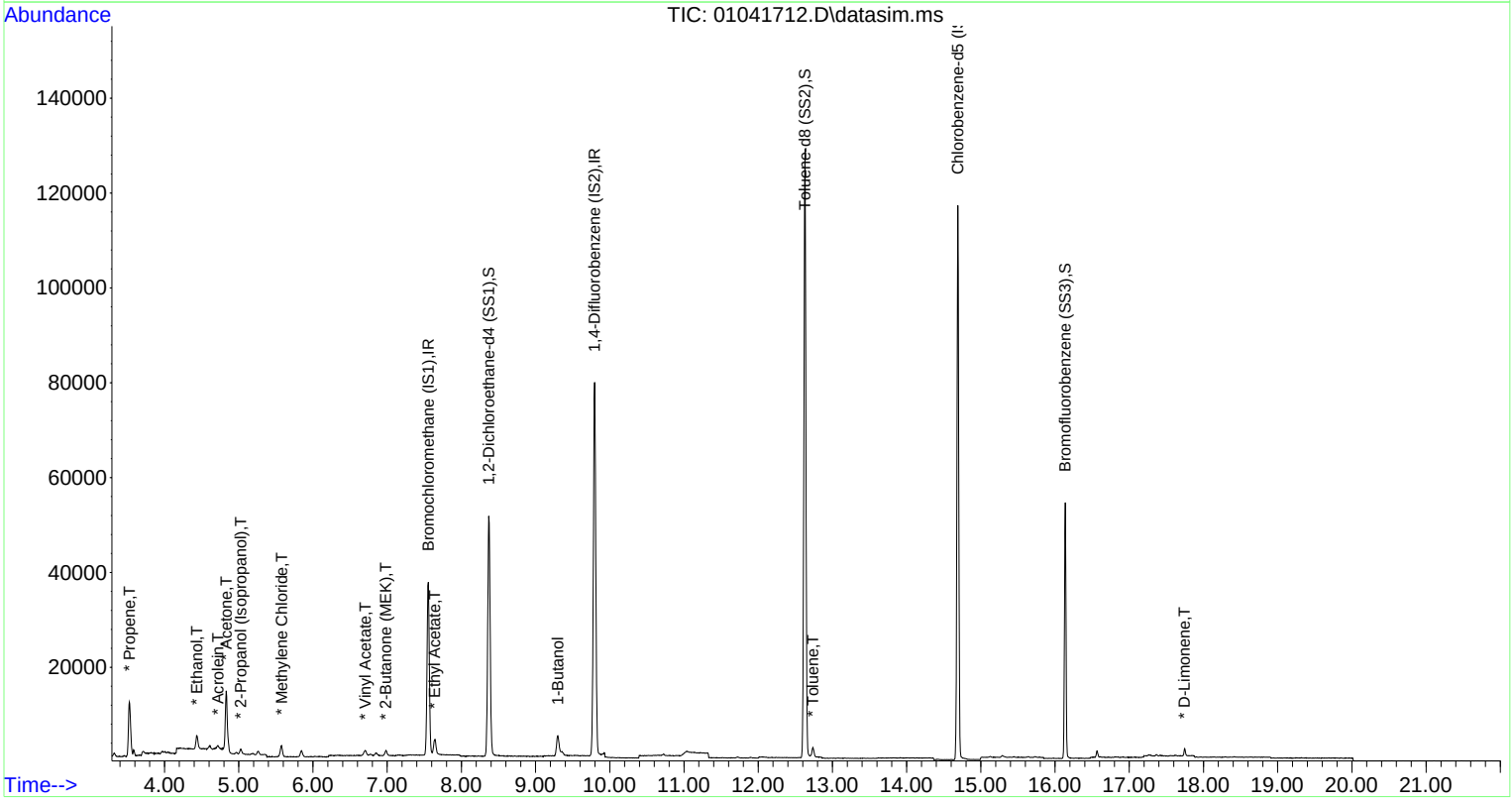
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45187	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	145353	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112094	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76153	855.719	pg		0.00
Spiked Amount 1000.000			Recovery = 85.57%				
57) Toluene-d8 (SS2)	12.63	98	140165	1023.293	pg		0.00
Spiked Amount 1000.000			Recovery = 102.33%				
74) Bromofluorobenzene (SS3)	16.14	174	38114	844.870	pg		0.00
Spiked Amount 1000.000			Recovery = 84.49%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5567	61.381	pg	#	73
10) * Ethanol	4.44	45	3713	60.025	pg		98
12) * Acrolein	4.72	56	734	14.164	pg		94
13) * Acetone	4.83	58	6289	107.640	pg	#	61
15) * 2-Propanol (Isopropa...	5.03	45	1612	10.183	pg	#	88
19) * Methylene Chloride	5.58	84	2706	41.579	pg		99
26) * Vinyl Acetate	6.71	86	238	19.423	pg	#	16
27) * 2-Butanone (MEK)	6.98	72	447	12.746	pg	#	63
30) * Ethyl Acetate	7.64	61	745	41.554	pg		93
41) 1-Butanol	9.30	56	3975	126.501	pg	#	47
58) * Toluene	12.74	91	2316	14.618	pg		100
93) * D-Limonene	17.74	68	802	22.057	pg		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041712.D
Acq On : 4 Jan 2017 6:37 pm
Operator : JM
Sample : AS00340 FCA00971
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 05 08:03:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091714.D Vial: 3
Acq On : 9 Jan 2017 17:10 Operator: CL
Sample : SC01710_FCR00281 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:26 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/10/17

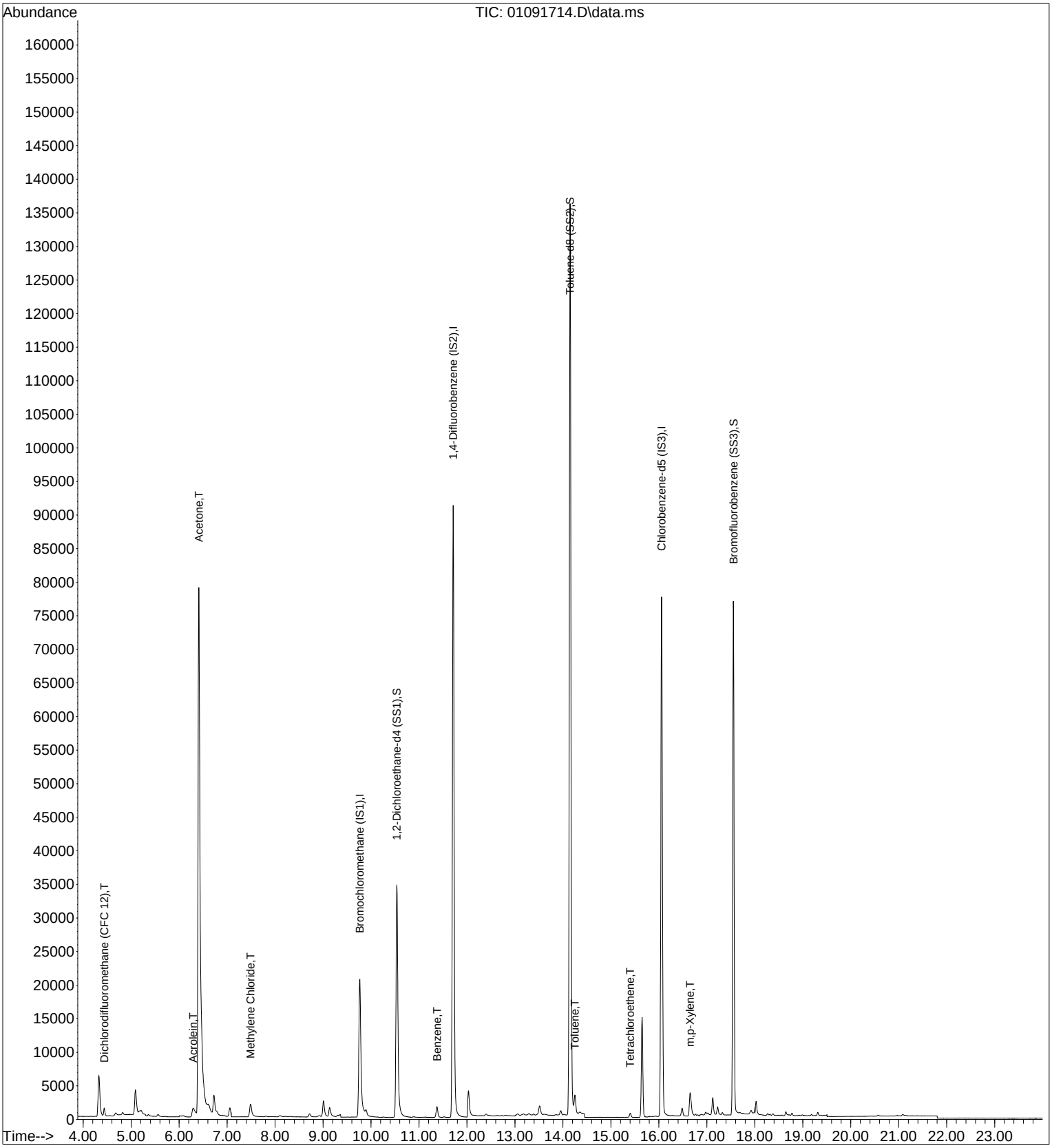
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	36441	1000.000	pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	185092	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	30640	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	63031	1084.497	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.45%				
33) Toluene-d8 (SS2)	14.15	98	187068	1071.164	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.12%				
45) Bromofluorobenzene (SS3)	17.56	174	59181	1008.629	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.86%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	1575	17.643	pg		100
9) Acrolein	6.29	56	4163	250.225	pg		99
10) Acetone	6.41	58	72823	3165.417	pg	#	82
13) Methylene Chloride	7.49	84	2159	50.087	pg		86
23) Benzene	11.37	78	3161	17.344	pg		99
34) Toluene	14.25	91	3572	20.582	pg		100
37) Tetrachloroethene	15.40	166	784	15.366	pg		99
41) m,p-Xylene	16.65	91	6318	38.582	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091714.D Vial: 3
Acq On : 9 Jan 2017 17:10 Operator: CL
Sample : SC01710_FCR00281 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:26 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061711.D
Acq On : 6 Jan 2017 16:57 Operator: CL
Sample : AC02048-FCA00541 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 07 15:18:34 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

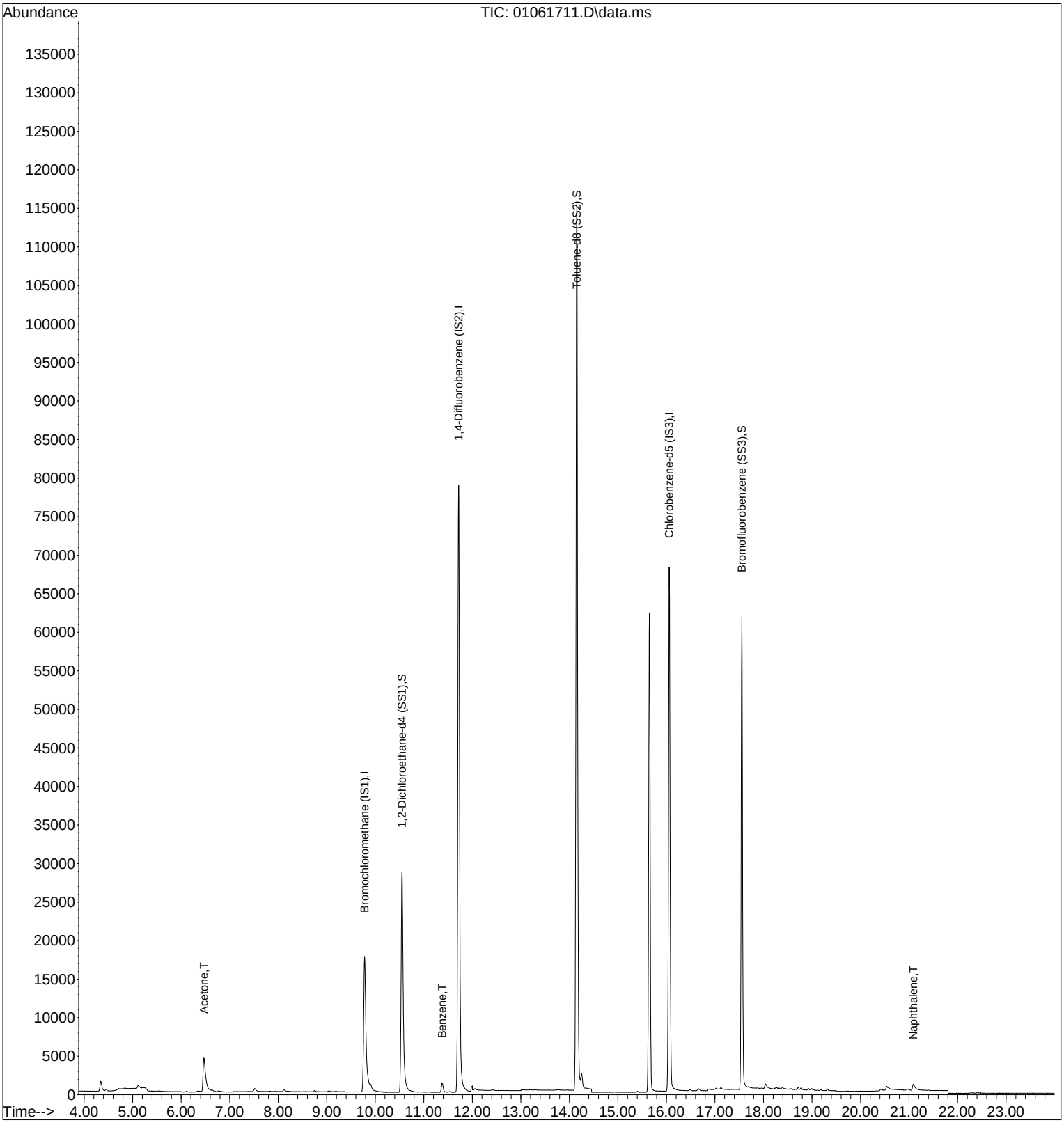
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	34353	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	172335	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	25740	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.6	65	57020	1036.265	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.63%				
33) Toluene-d8 (SS2)	14.2	98	161586	959.934	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.99%				
45) Bromofluorobenzene (SS3)	17.6	174	46942	920.246	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.03%				
Target Compounds							Qvalue
10) Acetone	6.5	58	5227	254.531	pg	#	76
23) Benzene	11.4	78	2543	15.006	pg		100
53) Naphthalene	21.1	128	2674	19.062	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061711.D
Acq On : 6 Jan 2017 16:57 Operator: CL
Sample : AC02048-FCA00541 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 07 15:18:34 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081707.D
Acq On : 8 Jan 2017 2:03 pm
Operator : JM
Sample : AS01076 FCR00225
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

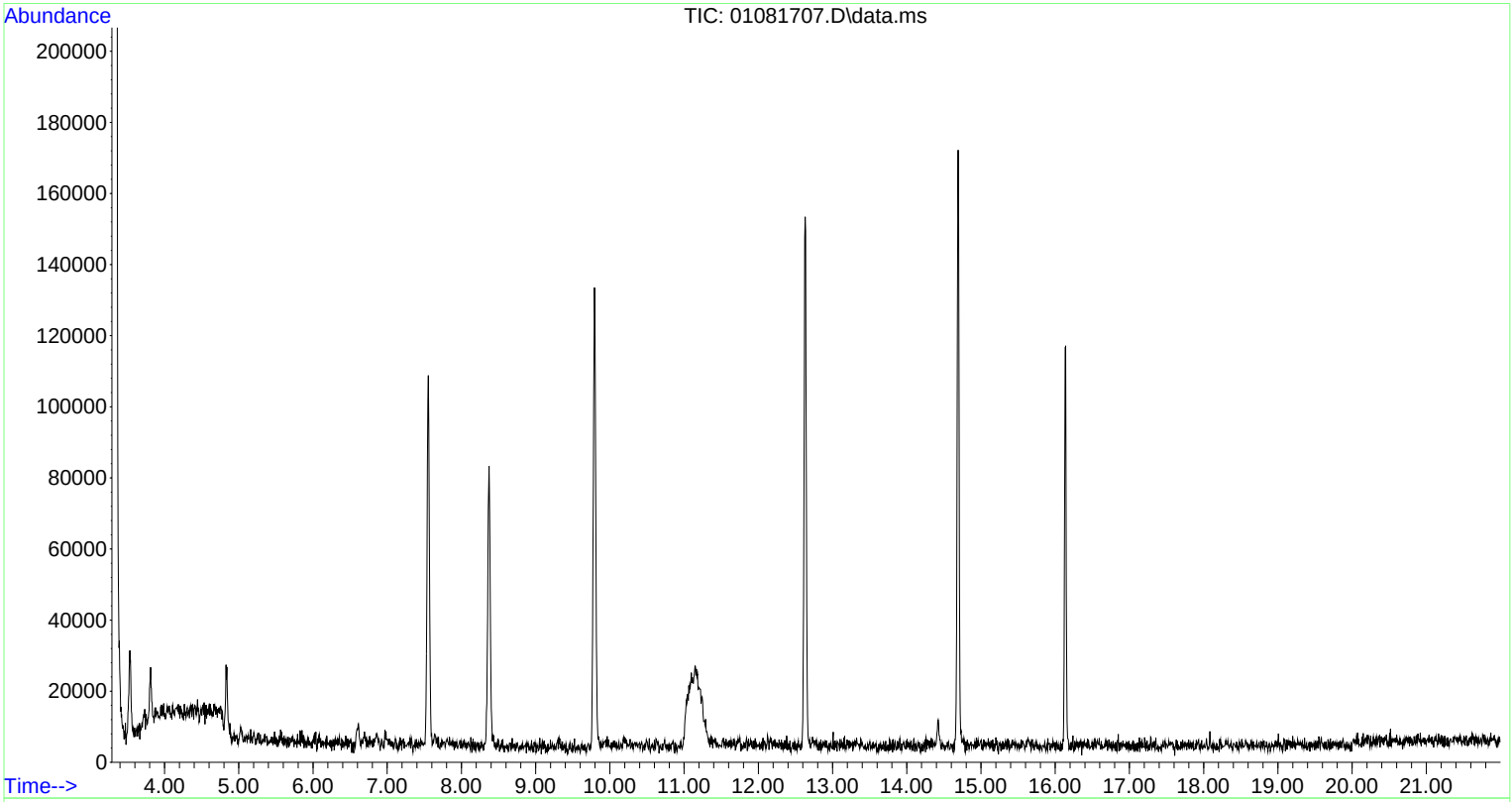
Quant Time: Jan 09 10:25:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

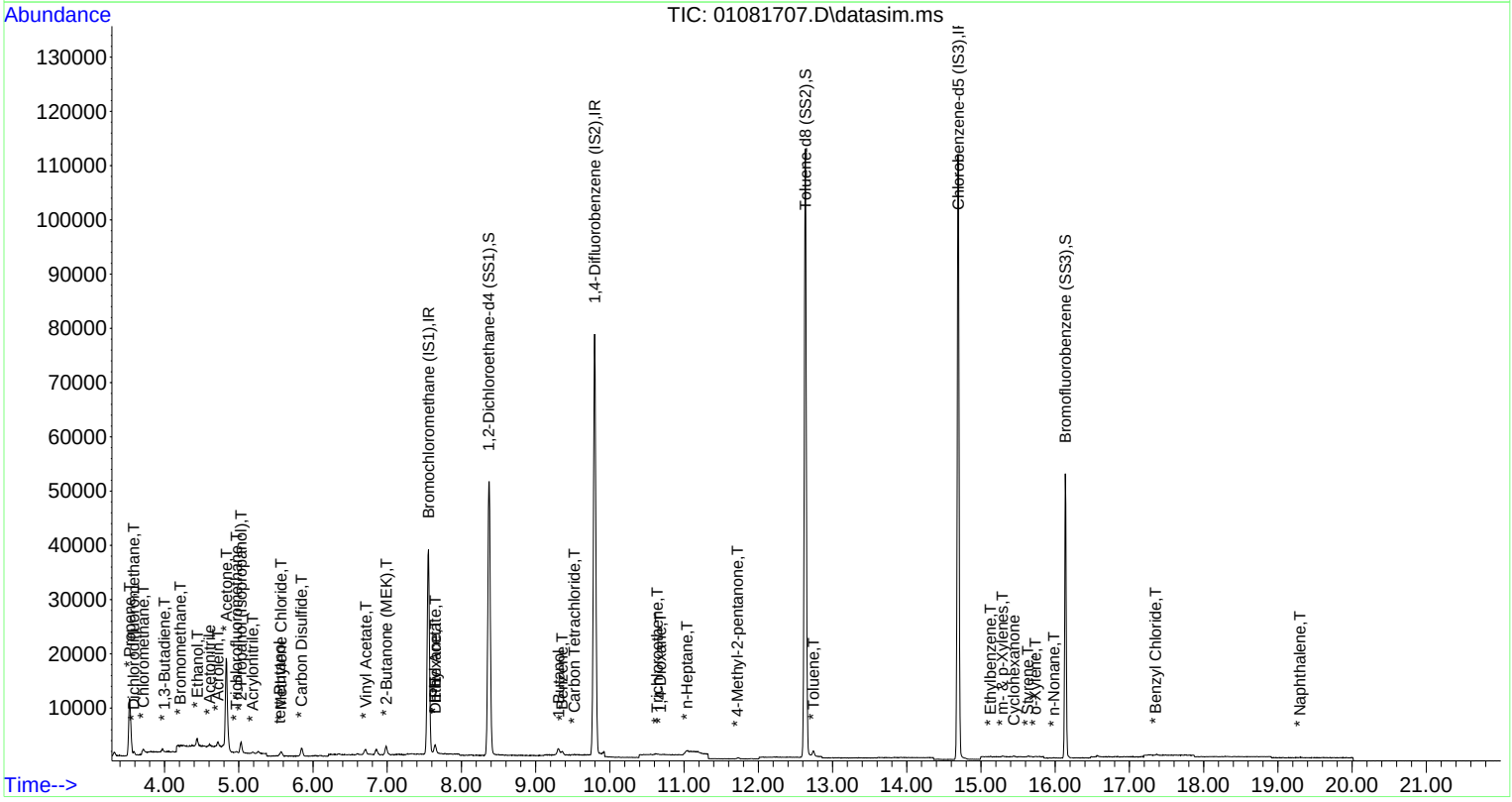
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	45883	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142543	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	109264	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76489	846.457	pg		0.00
Spiked Amount 1000.000			Recovery = 84.65%				
57) Toluene-d8 (SS2)	12.63	98	125053	936.612	pg		0.00
Spiked Amount 1000.000			Recovery = 93.66%				
74) Bromofluorobenzene (SS3)	16.14	174	36926	839.736	pg		0.00
Spiked Amount 1000.000			Recovery = 83.97%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5084	55.205	pg	#	72
3) * Dichlorodifluoromethane	3.58	85	739	3.767	pg		98
4) * Chloromethane	3.71	50	749	5.107	pg	#	72
7) * 1,3-Butadiene	4.00	54	23	0.221	pg	#	1
8) * Bromomethane	4.21	94	58	0.651	pg		97
10) * Ethanol	4.44	45	1616	25.728	pg		90
11) * Acetonitrile	4.61	41	447	2.838	pg		94
12) * Acrolein	4.72	56	873	16.590	pg		93
13) * Acetone	4.84	58	8946	150.793	pg	#	53
14) * Trichlorofluoromethane	4.97	101	262	1.999	pg	#	61
15) * 2-Propanol (Isopropa...	5.03	45	2612	16.250	pg		99
16) * Acrylonitrile	5.19	53	286	3.061	pg		85
18) tert-Butanol	5.55	59	555	5.728	pg	#	50
19) * Methylene Chloride	5.57	84	712	10.774	pg		96
22) * Carbon Disulfide	5.84	76	2725	11.248	pg		97
26) * Vinyl Acetate	6.71	86	90	7.234	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	678	19.040	pg	#	59
29) DIPE	7.65	45	395	1.903	pg	#	53
30) * Ethyl Acetate	7.65	61	279	15.326	pg	#	79
31) * n-Hexane	7.65	57	164	1.752	pg	#	60
39) * Benzene	9.36	78	1072	6.521	pg		94
41) 1-Butanol	9.31	56	844	27.389	pg	#	59
42) * Carbon Tetrachloride	9.52	117	55	0.860	pg		98
47) * Trichloroethene	10.64	130	131	2.500	pg	#	25
48) * 1,4-Dioxane	10.68	88	54	1.575	pg	#	9
51) * n-Heptane	11.04	71	204	2.417	pg		89
53) * 4-Methyl-2-pentanone	11.72	58	66	2.222	pg	#	47
58) * Toluene	12.74	91	1113	7.207	pg		98
66) * Ethylbenzene	15.13	91	111	0.852	pg	#	45
67) * m- & p-Xylenes	15.29	91	189	1.868	pg	#	74
69) Cyclohexanone	15.44	98	99	8.760	pg	#	24
70) * Styrene	15.63	104	55	1.021	pg	#	28
71) * o-Xylene	15.73	91	88	0.889	pg	#	32
72) * n-Nonane	15.98	57	98	2.197	pg	#	42
85) * Benzyl Chloride	17.35	126	61	7.517	pg	#	19
98) * Naphthalene	19.30	128	92	2.678	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081707.D
Acq On : 8 Jan 2017 2:03 pm
Operator : JM
Sample : AS01076 FCR00225
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 09 10:25:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051717.D Vial: 13
Acq On : 5 Jan 2017 21:45 Operator: CL
Sample : AC01603-FCR00164 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:14 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

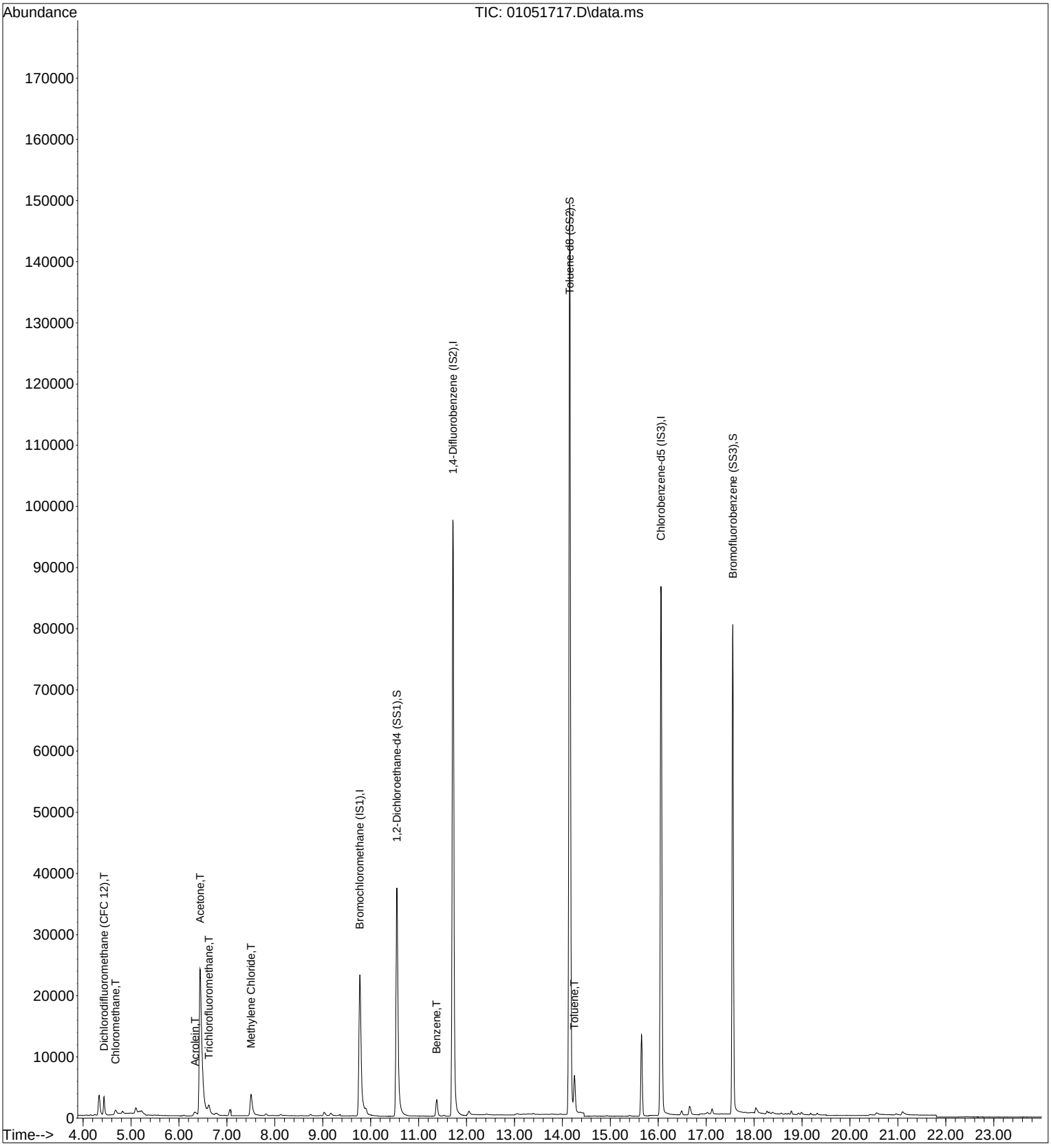
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	44296	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	207176	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	33439	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73735	1039.244	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.92%				
33) Toluene-d8 (SS2)	14.15	98	208303	1029.360	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.94%				
45) Bromofluorobenzene (SS3)	17.56	174	63538	958.807	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.88%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	4104	38.183	pg		99
3) Chloromethane	4.68	52	694	24.122	pg	#	79
9) Acrolein	6.34	56	1886	95.027	pg		94
10) Acetone	6.44	58	29843	1127.017	pg	#	70
11) Trichlorofluoromethane	6.63	101	1646	20.919	pg		99
13) Methylene Chloride	7.50	84	4512	87.202	pg		86
23) Benzene	11.38	78	5689	26.035	pg		99
34) Toluene	14.25	91	8109	41.240	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051717.D Vial: 13
Acq On : 5 Jan 2017 21:45 Operator: CL
Sample : AC01603-FCR00164 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:14 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071711.D
Acq On : 7 Jan 2017 9:48 pm
Operator : JM
Sample : AC01870 FCR00239
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Jan 09 09:39:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48028	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	159682	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	121366	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79533	840.835	pg		0.00
Spiked Amount 1000.000			Recovery = 84.08%				
57) Toluene-d8 (SS2)	12.63	98	135037	910.539	pg		0.00
Spiked Amount 1000.000			Recovery = 91.05%				
74) Bromofluorobenzene (SS3)	16.14	174	42748	875.198	pg		0.00
Spiked Amount 1000.000			Recovery = 87.52%				
Target Compounds							Qvalue
2) * Propene	3.53	42	25523	264.768	pg	#	59
3) * Dichlorodifluoromethane	3.58	85	58732	286.016	pg		100
4) * Chloromethane	3.71	50	17542	114.278	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	2077	13.626	pg		99
7) * 1,3-Butadiene	4.00	54	722	6.623	pg	#	1
8) * Bromomethane	4.22	94	552	5.919	pg		91
9) * Chloroethane	4.36	64	51	0.766	pg	#	1
10) * Ethanol	4.43	45	39375	598.889	pg		99
11) * Acetonitrile	4.60	41	20693	125.527	pg		97
12) * Acrolein	4.71	56	2960	53.739	pg		98
13) * Acetone	4.82	58	66779	1075.350	pg		82
14) * Trichlorofluoromethane	4.97	101	21454	156.392	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	27392	162.798	pg		97
16) * Acrylonitrile	5.18	53	522	5.338	pg	#	80
18) tert-Butanol	5.55	59	1657	16.339	pg	#	1
19) * Methylene Chloride	5.58	84	57369	829.352	pg		100
21) * Trichlorotrifluoroet...	5.82	151	3979	74.007	pg		99
22) * Carbon Disulfide	5.85	76	12583	49.619	pg		99
25) * Methyl tert-Butyl Ether	6.71	73	99	0.811	pg	#	34
26) * Vinyl Acetate	6.70	86	886	68.030	pg	#	36
27) * 2-Butanone (MEK)	6.98	72	2417	64.845	pg		69
29) DIPE	7.64	45	5266	24.241	pg	#	59
30) * Ethyl Acetate	7.64	61	4789	251.318	pg		93
31) * n-Hexane	7.65	57	6907	70.486	pg		97
32) * Chloroform	7.69	83	1830	15.109	pg		94
34) * Tetrahydrofuran	8.14	71	260	8.703	pg	#	1
36) * 1,2-Dichloroethane	8.49	62	1062	10.360	pg		90
38) * 1,1,1-Trichloroethane	8.81	97	142	1.708	pg	#	61
39) * Benzene	9.35	78	15207	82.578	pg		100
41) 1-Butanol	9.30	56	4078	118.133	pg	#	47
42) * Carbon Tetrachloride	9.55	117	5153	71.926	pg		100
43) * Cyclohexane	9.70	84	1071	18.281	pg		97
45) * 1,2-Dichloropropane	10.35	63	313	4.581	pg		94
46) * Bromodichloromethane	10.51	83	159	1.918	pg		85
47) * Trichloroethene	10.63	130	53	0.903	pg	#	47
48) * 1,4-Dioxane	10.65	88	252	6.561	pg		94
49) Isooctane	10.72	56	5028	57.120	pg		77
50) * Methyl Methacrylate	10.89	69	79	1.710	pg	#	42
51) * n-Heptane	11.04	71	3183	33.661	pg		89
53) * 4-Methyl-2-pentanone	11.72	58	326	9.798	pg		90
58) * Toluene	12.74	91	49008	285.703	pg		100
59) * 2-Hexanone	13.07	58	175	5.964	pg	#	41
60) * Dibromochloromethane	13.18	129	92	1.846	pg		95
62) * n-Butyl Acetate	13.80	56	253	12.057	pg	#	73
63) * n-Octane	13.92	85	362	13.528	pg	#	77

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071711.D
Acq On : 7 Jan 2017 9:48 pm
Operator : JM
Sample : AC01870 FCR00239
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

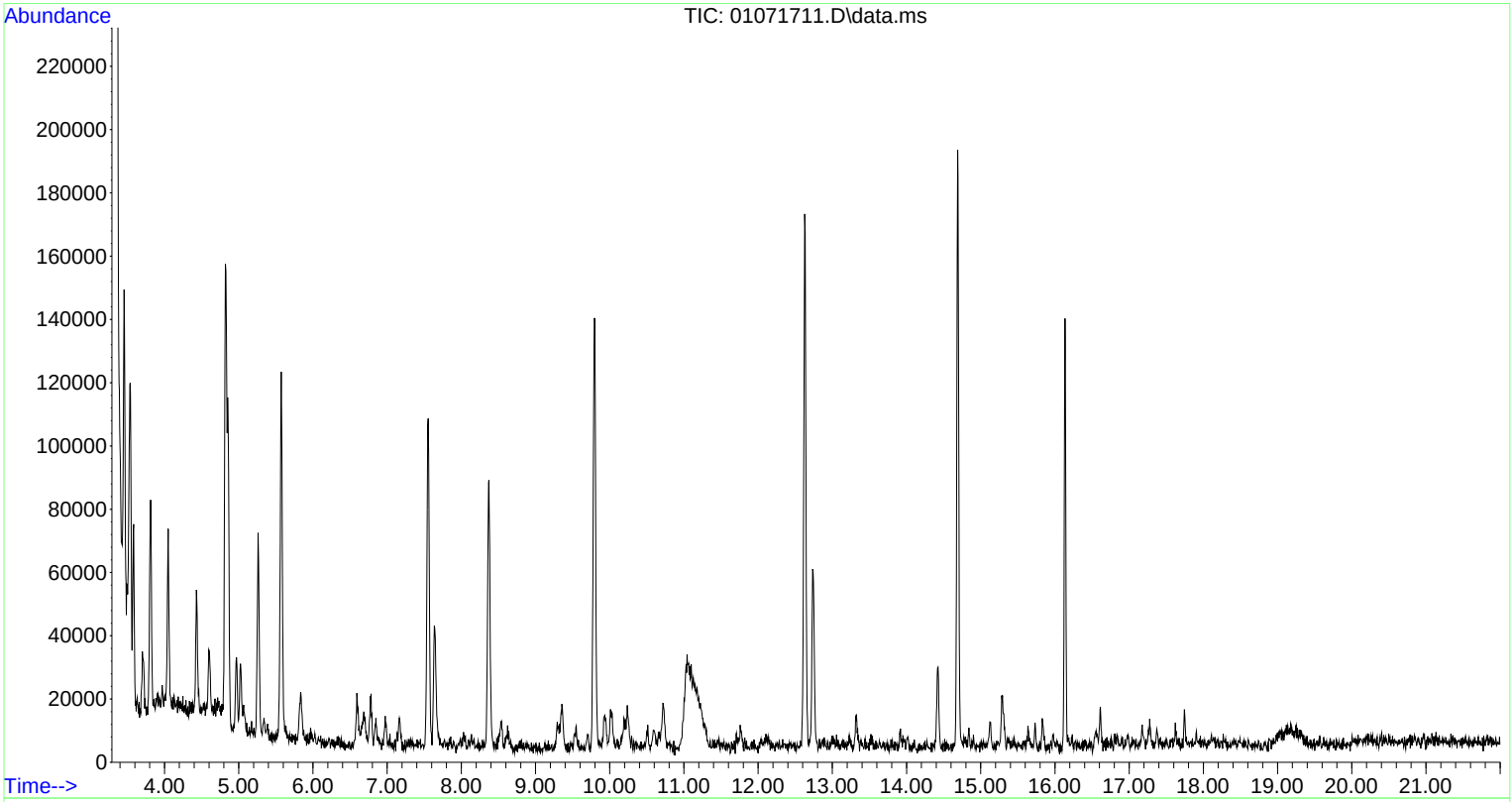
Quant Time: Jan 09 09:39:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

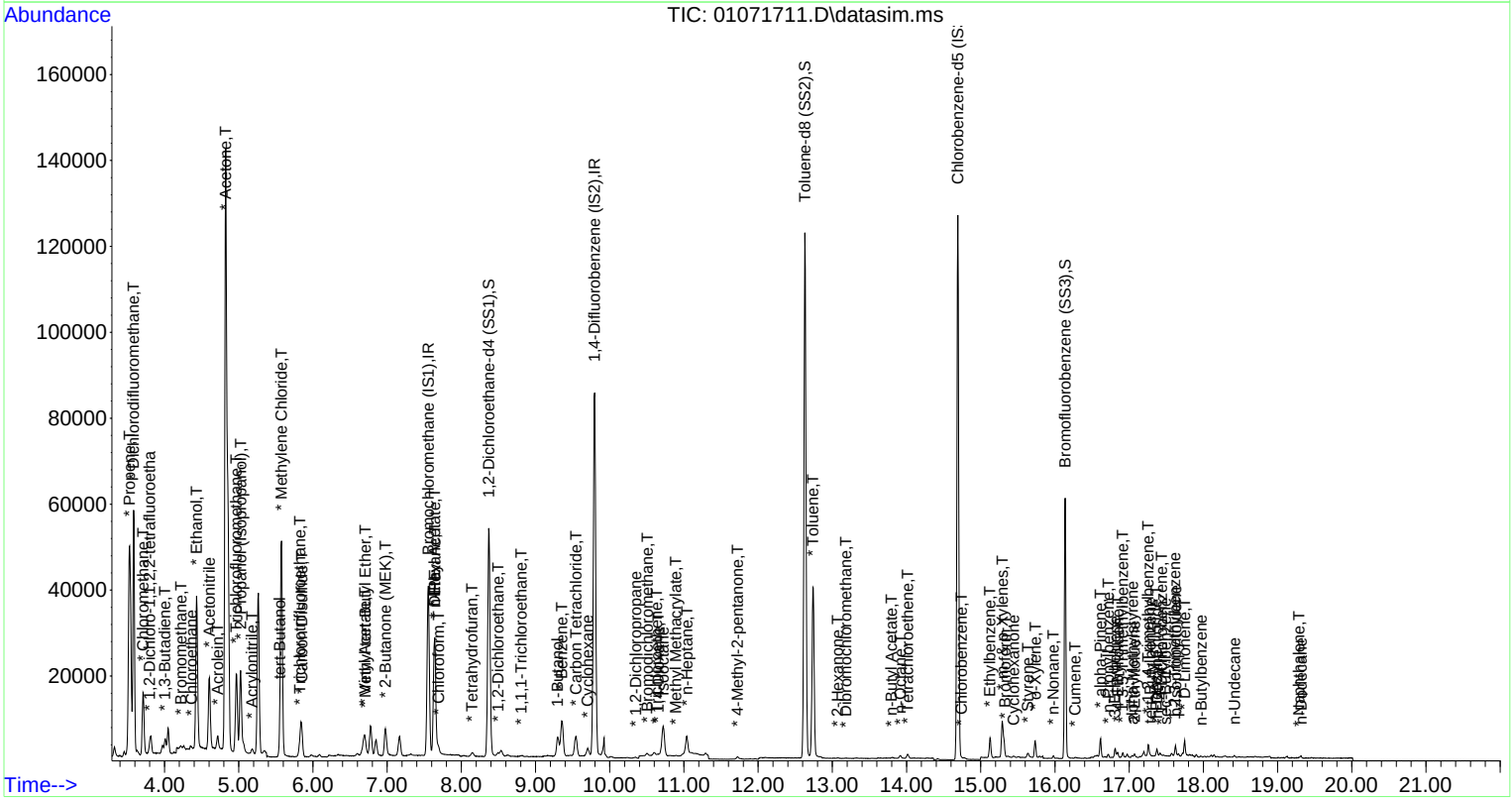
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
64) * Tetrachloroethene	14.01	166	1011	17.723	pg		92
65) * Chlorobenzene	14.74	112	85	0.752	pg	#	19
66) * Ethylbenzene	15.12	91	4840	33.457	pg		98
67) * m- & p-Xylenes	15.29	91	11278	100.343	pg		94
68) * Bromoform	15.32	173	161	4.482	pg		92
69) Cyclohexanone	15.44	98	161	12.826	pg		91
70) * Styrene	15.63	104	770	12.867	pg		98
71) * o-Xylene	15.73	91	3663	33.318	pg		97
72) * n-Nonane	15.98	57	624	12.594	pg	#	85
75) * Cumene	16.27	105	198	1.263	pg	#	76
76) * alpha-Pinene	16.62	93	2953	41.438	pg		96
77) * n-Propylbenzene	16.72	91	734	5.082	pg		91
78) 3-Ethyltoluene	16.81	105	1764	17.535	pg		97
79) * 4-Ethyltoluene	16.85	105	723	8.196	pg		99
80) * 1,3,5-Trimethylbenzene	16.91	105	681	6.883	pg	#	82
81) alpha-Methylstyrene	17.05	118	193	4.818	pg		84
82) 2-Ethyltoluene	17.07	105	720	5.997	pg	#	88
83) tert-Butylbenzene	17.28	134	205	9.225	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	2083	23.298	pg		89
85) * Benzyl Chloride	17.36	126	74	8.210	pg	#	55
87) * 1,4-Dichlorobenzene	17.43	146	161	3.948	pg		97
88) n-Decane	17.38	85	317	18.544	pg		85
89) sec-Butylbenzene	17.49	105	64	0.451	pg	#	59
90) 1,2,3-Trimethylbenzene	17.61	105	582	6.208	pg	#	80
91) p-Isopropyltoluene	17.63	134	371	13.077	pg		80
93) * D-Limonene	17.75	68	1668	42.370	pg	#	71
94) n-Butylbenzene	17.97	134	150	9.037	pg	#	1
96) n-Undecane	18.42	85	144	14.732	pg	#	50
98) * Naphthalene	19.29	128	267	6.997	pg	#	66
99) n-Dodecane	19.32	85	138	22.478	pg	#	61

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071711.D
Acq On : 7 Jan 2017 9:48 pm
Operator : JM
Sample : AC01870 FCR00239
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Jan 09 09:39:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061705.D
Acq On : 6 Jan 2017 13:49 Operator: CL
Sample : AS01140-FCA00687 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 07 15:18:27 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

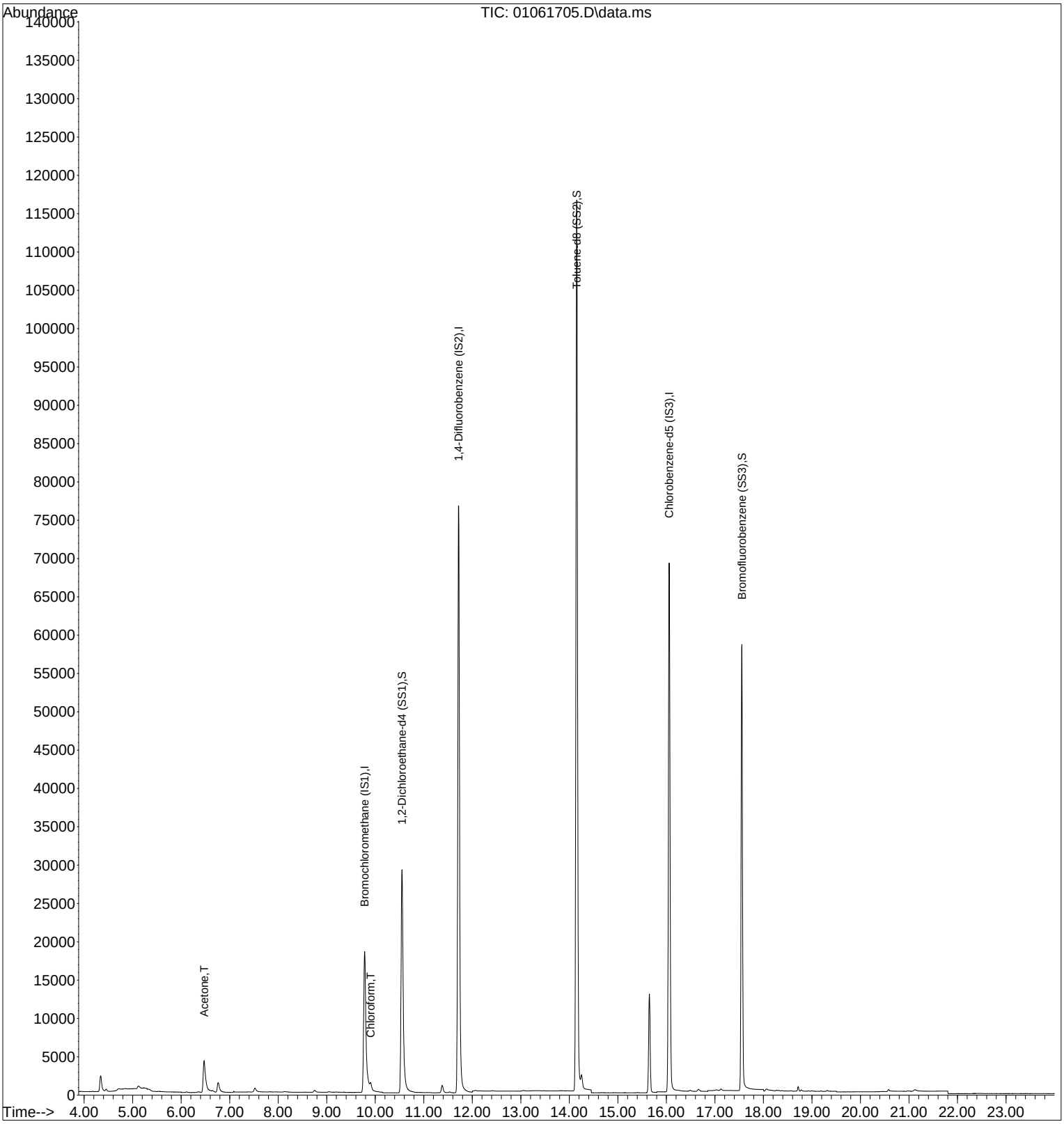
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	35539	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	166198	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	26054	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.6	65	58558	1028.701	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.87%			
33) Toluene-d8 (SS2)	14.2	98	164609	1014.002	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.40%			
45) Bromofluorobenzene (SS3)	17.6	174	46315	897.012	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.70%			
Target Compounds						Qvalue
10) Acetone	6.5	58	3903	183.716	pg	96
19) Chloroform	9.9	83	1301	17.517	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061705.D
Acq On : 6 Jan 2017 13:49 Operator: CL
Sample : AS01140-FCA00687 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 07 15:18:27 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061710.D
Acq On : 6 Jan 2017 2:45 pm
Operator : JM
Sample : AC01780 FCS00269
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Jan 09 08:36:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48264	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	153732	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116027	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78958	830.674	pg		0.00
Spiked Amount 1000.000			Recovery = 83.07%				
57) Toluene-d8 (SS2)	12.63	98	133194	939.438	pg		0.00
Spiked Amount 1000.000			Recovery = 93.94%				
74) Bromofluorobenzene (SS3)	16.14	174	39300	841.630	pg		0.00
Spiked Amount 1000.000			Recovery = 84.16%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5909	60.998	pg		80
3) * Dichlorodifluoromethane	3.59	85	747	3.620	pg		90
4) * Chloromethane	3.71	50	927	6.009	pg		95
7) * 1,3-Butadiene	4.00	54	113	1.032	pg	#	1
8) * Bromomethane	4.22	94	387	4.129	pg	#	76
9) * Chloroethane	4.34	64	50	0.747	pg	#	41
10) * Ethanol	4.43	45	4113	62.252	pg		95
11) * Acetonitrile	4.60	41	881	5.318	pg	#	70
12) * Acrolein	4.72	56	1880	33.964	pg	#	80
13) * Acetone	4.83	58	14261	228.524	pg	#	37
14) * Trichlorofluoromethane	4.97	101	294	2.133	pg	#	73
15) * 2-Propanol (Isopropa...	5.03	45	2862	16.926	pg	#	86
16) * Acrylonitrile	5.18	53	348	3.541	pg	#	59
18) tert-Butanol	5.55	59	581	5.701	pg		86
19) * Methylene Chloride	5.58	84	2044	29.404	pg		93
21) * Trichlorotrifluoroet...	5.81	151	77	1.425	pg	#	19
22) * Carbon Disulfide	5.84	76	2438	9.567	pg	#	83
26) * Vinyl Acetate	6.71	86	549	41.948	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1029	27.472	pg		82
29) DIPE	7.64	45	286	1.310	pg	#	53
30) * Ethyl Acetate	7.65	61	303	15.823	pg	#	83
31) * n-Hexane	7.64	57	226	2.295	pg	#	60
32) * Chloroform	7.70	83	58	0.477	pg	#	22
39) * Benzene	9.36	78	974	5.494	pg	#	86
41) 1-Butanol	9.30	56	2668	80.279	pg	#	45
46) * Bromodichloromethane	10.52	83	57	0.714	pg	#	19
48) * 1,4-Dioxane	10.66	88	91	2.461	pg		87
49) Isooctane	10.72	56	58	0.684	pg	#	22
51) * n-Heptane	11.03	71	121	1.329	pg	#	1
53) * 4-Methyl-2-pentanone	11.73	58	63	1.967	pg	#	47
58) * Toluene	12.74	91	1286	7.842	pg		98
59) * 2-Hexanone	13.07	58	104	3.707	pg	#	68
65) * Chlorobenzene	14.72	112	69	0.639	pg	#	9
66) * Ethylbenzene	15.13	91	154	1.114	pg	#	45
67) * m- & p-Xylenes	15.29	91	342	3.183	pg		90
70) * Styrene	15.63	104	382	6.677	pg		98
71) * o-Xylene	15.73	91	119	1.132	pg		95
72) * n-Nonane	15.98	57	61	1.288	pg	#	42
76) * alpha-Pinene	16.61	93	50	0.734	pg	#	18
77) * n-Propylbenzene	16.72	91	132	0.956	pg	#	56
78) 3-Ethyltoluene	16.85	105	76	0.790	pg	#	45
79) * 4-Ethyltoluene	16.85	105	76	0.901	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	52	0.550	pg	#	29
82) 2-Ethyltoluene	17.07	105	55	0.479	pg	#	45
83) tert-Butylbenzene	17.28	134	162	7.625	pg	#	1

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061710.D
Acq On : 6 Jan 2017 2:45 pm
Operator : JM
Sample : AC01780 FCS00269
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

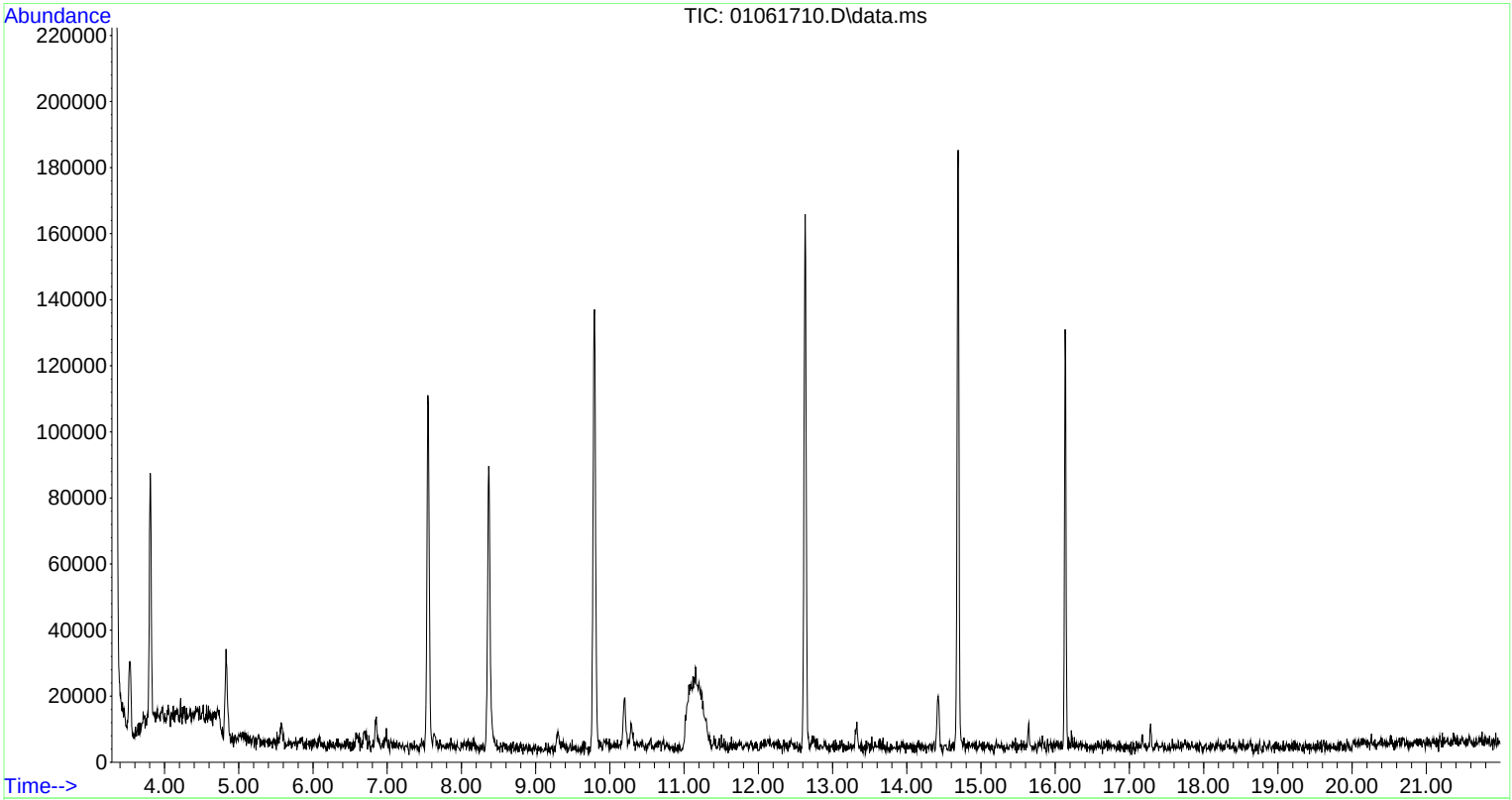
Quant Time: Jan 09 08:36:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

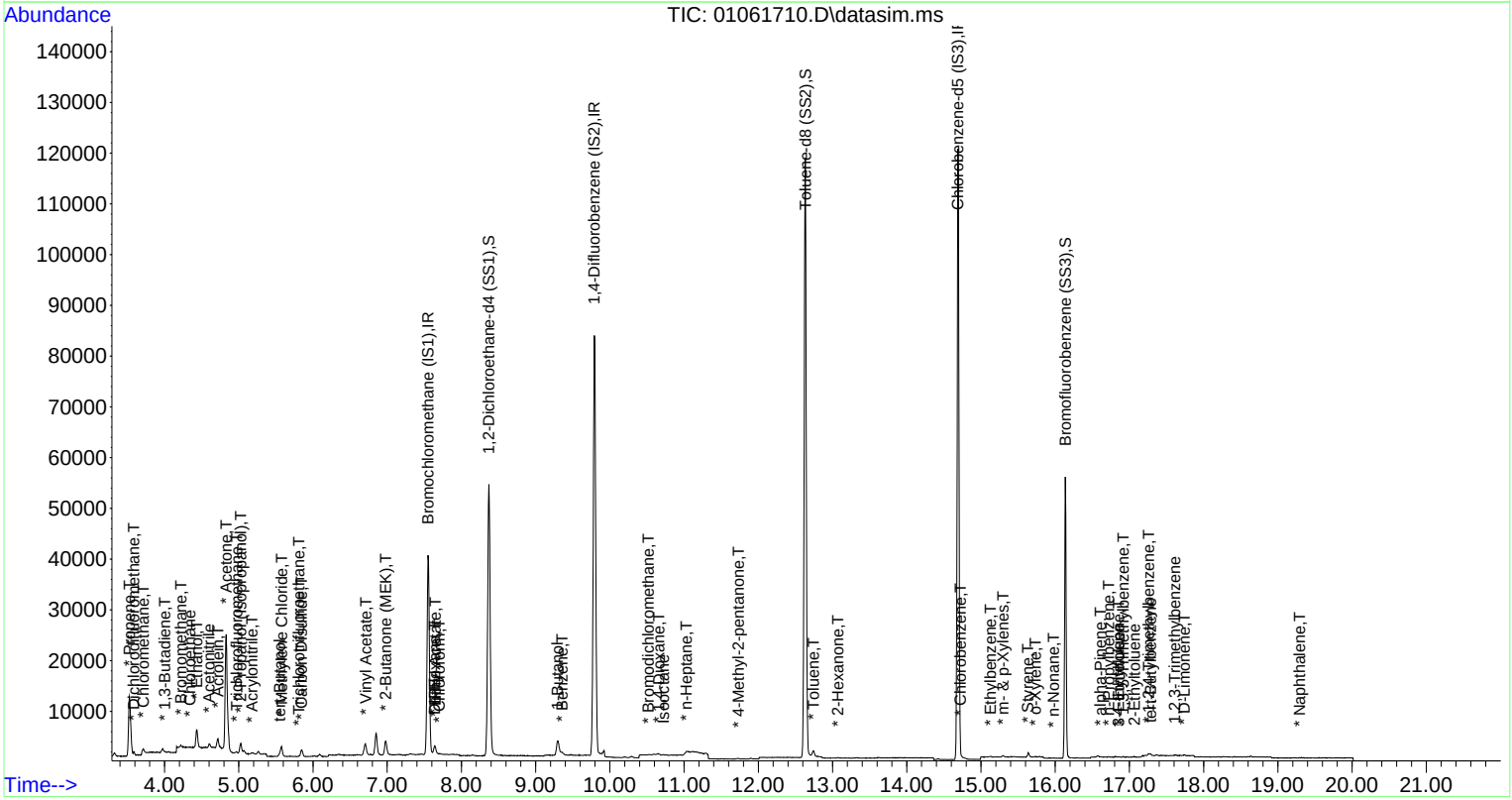
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
84) * 1,2,4-Trimethylbenzene	17.26	105	288	3.369	pg		96
90) 1,2,3-Trimethylbenzene	17.61	105	86	0.960	pg	#	27
93) * D-Limonene	17.74	68	62	1.647	pg	#	15
98) * Naphthalene	19.29	128	50	1.371	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061710.D
Acq On : 6 Jan 2017 2:45 pm
Operator : JM
Sample : AC01780 FCS00269
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Jan 09 08:36:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031726.D
Acq On : 4 Jan 2017 5:33 am
Operator : SM
Sample : AC02183 FCA01002
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

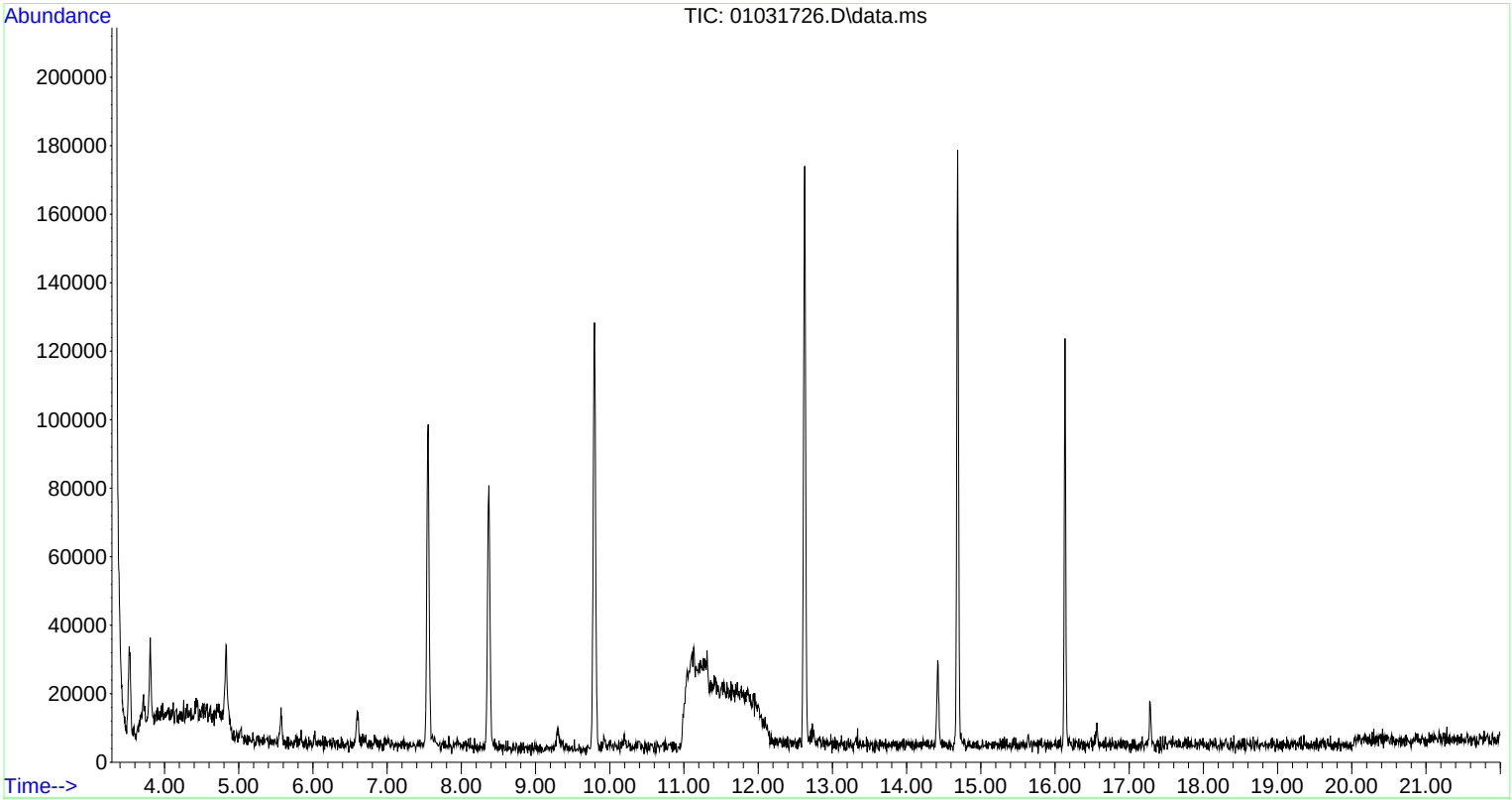
Quant Time: Jan 04 09:32:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

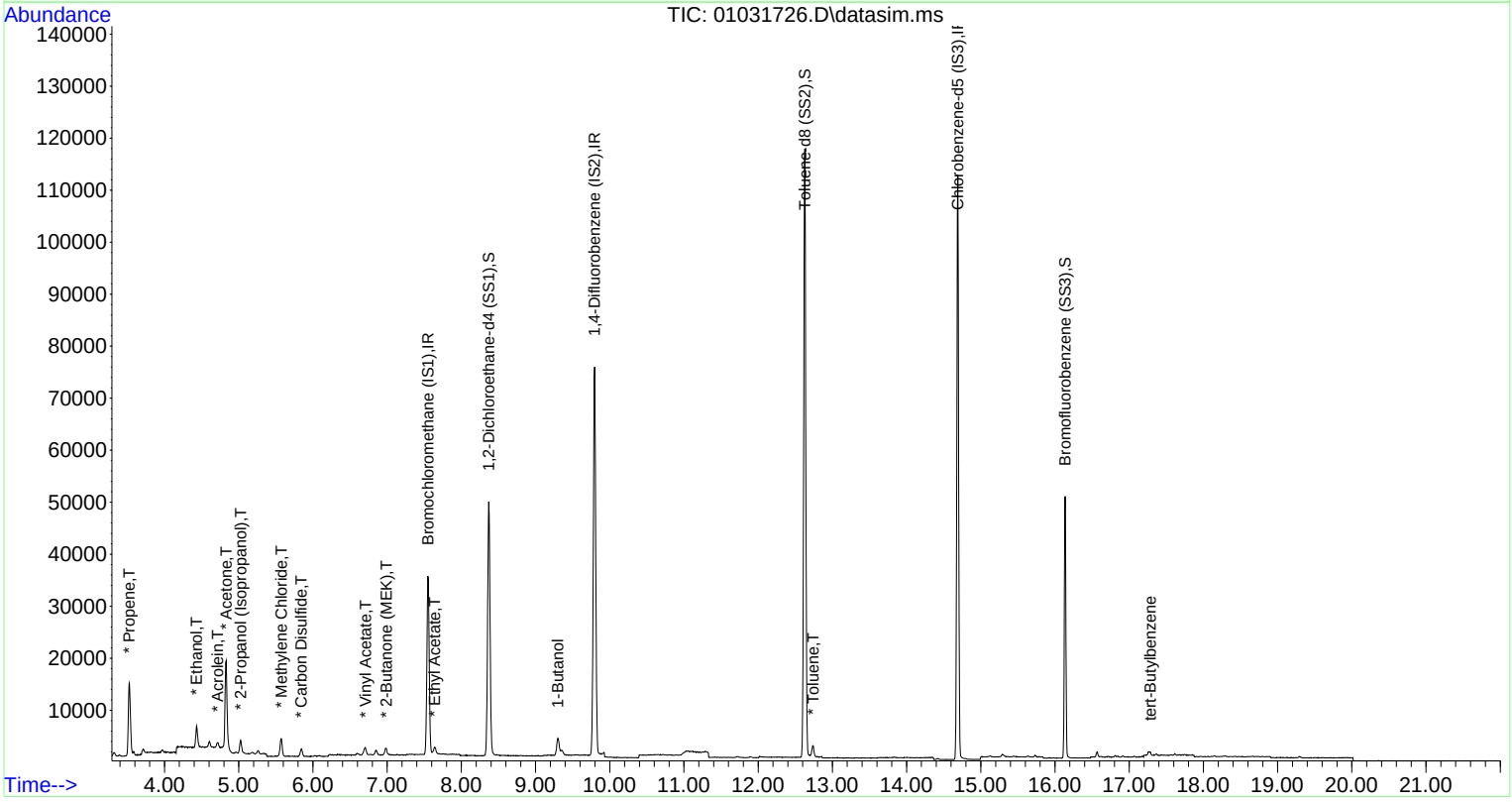
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42528	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	137192	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106351	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73126	873.081	pg		0.00
Spiked Amount 1000.000			Recovery = 87.31%				
57) Toluene-d8 (SS2)	12.63	98	131076	1008.612	pg		0.00
Spiked Amount 1000.000			Recovery = 100.86%				
74) Bromofluorobenzene (SS3)	16.14	174	36270	847.410	pg		0.00
Spiked Amount 1000.000			Recovery = 84.74%				
Target Compounds							Qvalue
2) * Propene	3.52	42	6849	80.238	pg		80
10) * Ethanol	4.43	45	4535	77.897	pg		90
12) * Acrolein	4.71	56	985	20.195	pg		98
13) * Acetone	4.83	58	8962	162.980	pg	#	58
15) * 2-Propanol (Isopropa...	5.03	45	3450	23.156	pg		99
19) * Methylene Chloride	5.58	84	4081	66.627	pg		95
22) * Carbon Disulfide	5.84	76	2585	11.512	pg		99
26) * Vinyl Acetate	6.71	86	326	28.269	pg	#	6
27) * 2-Butanone (MEK)	6.99	72	473	14.331	pg		83
30) * Ethyl Acetate	7.64	61	224	13.275	pg	#	75
41) 1-Butanol	9.30	56	3139	105.838	pg	#	49
58) * Toluene	12.74	91	2518	16.752	pg		100
83) tert-Butylbenzene	17.28	134	328	16.844	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031726.D
Acq On : 4 Jan 2017 5:33 am
Operator : SM
Sample : AC02183 FCA01002
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 04 09:32:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051711.D Vial: 8
Acq On : 5 Jan 2017 18:37 Operator: CL
Sample : AS01166-FCA00909 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:08 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

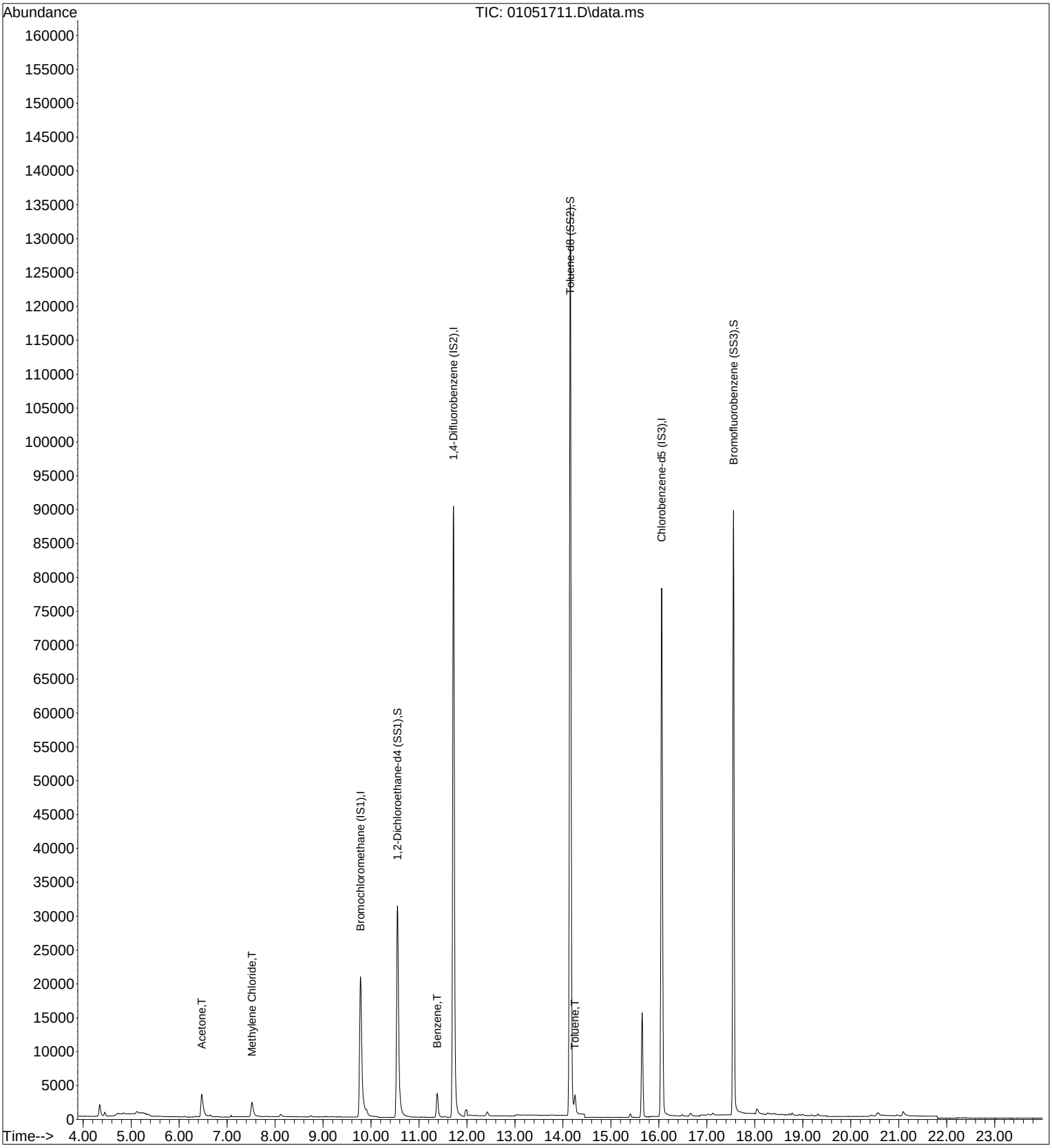
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	40414	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	195026	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	28514	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	62819	970.437	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.04%			
33) Toluene-d8 (SS2)	14.15	98	188190	987.905	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.79%			
45) Bromofluorobenzene (SS3)	17.56	174	71056	1257.458	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 125.75%			
Target Compounds						Qvalue
10) Acetone	6.47	58	3338	138.168	pg	91
13) Methylene Chloride	7.52	84	2852	60.415	pg	96
23) Benzene	11.38	78	7490	37.569	pg	99
34) Toluene	14.25	91	3347	18.082	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051711.D Vial: 8
Acq On : 5 Jan 2017 18:37 Operator: CL
Sample : AS01166-FCA00909 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:08 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291630.D
Acq On : 30 Dec 2016 5:13 am
Operator : JM
Sample : AS00976 FCA00506
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

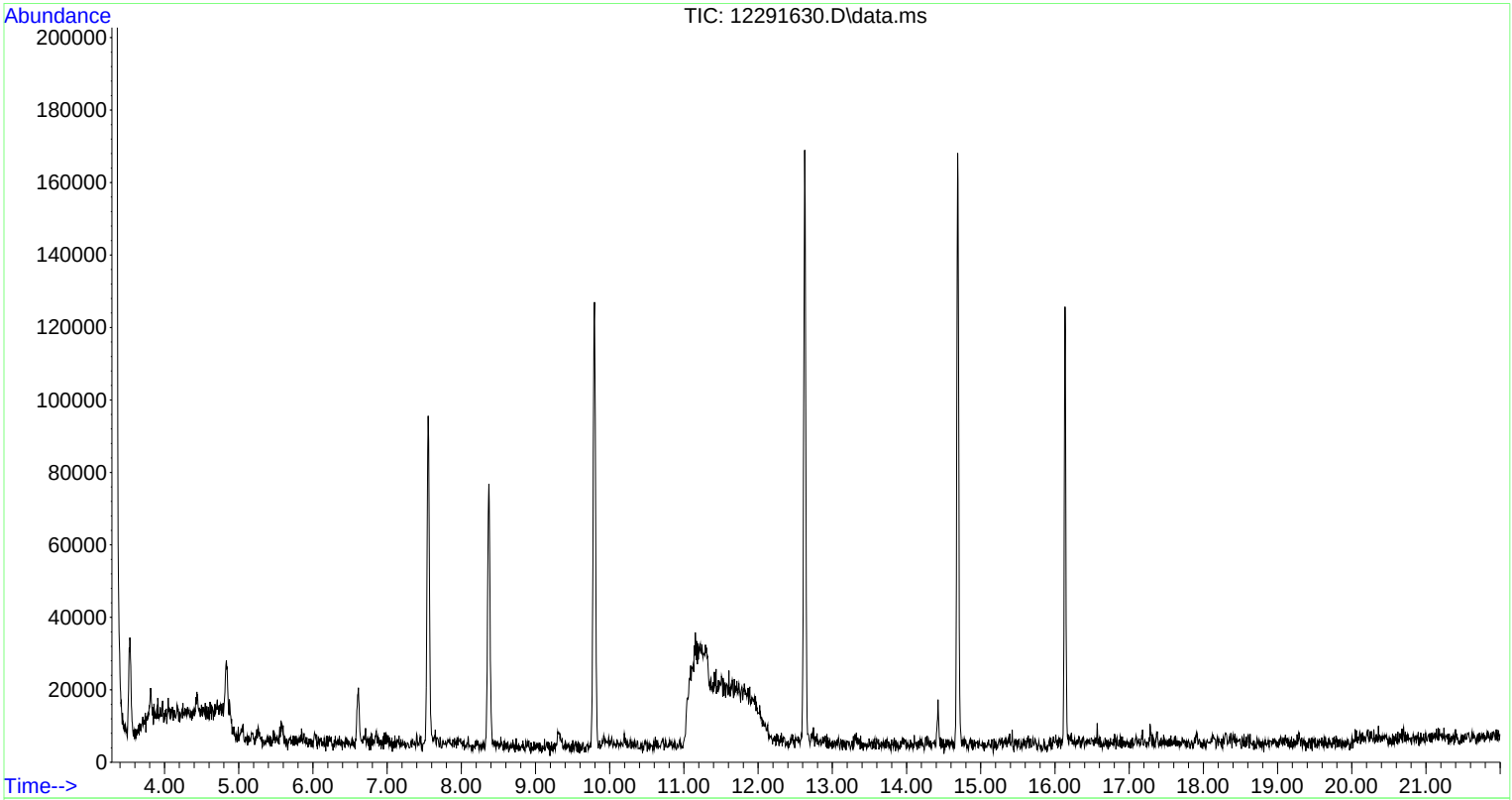
Quant Time: Dec 30 10:38:18 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

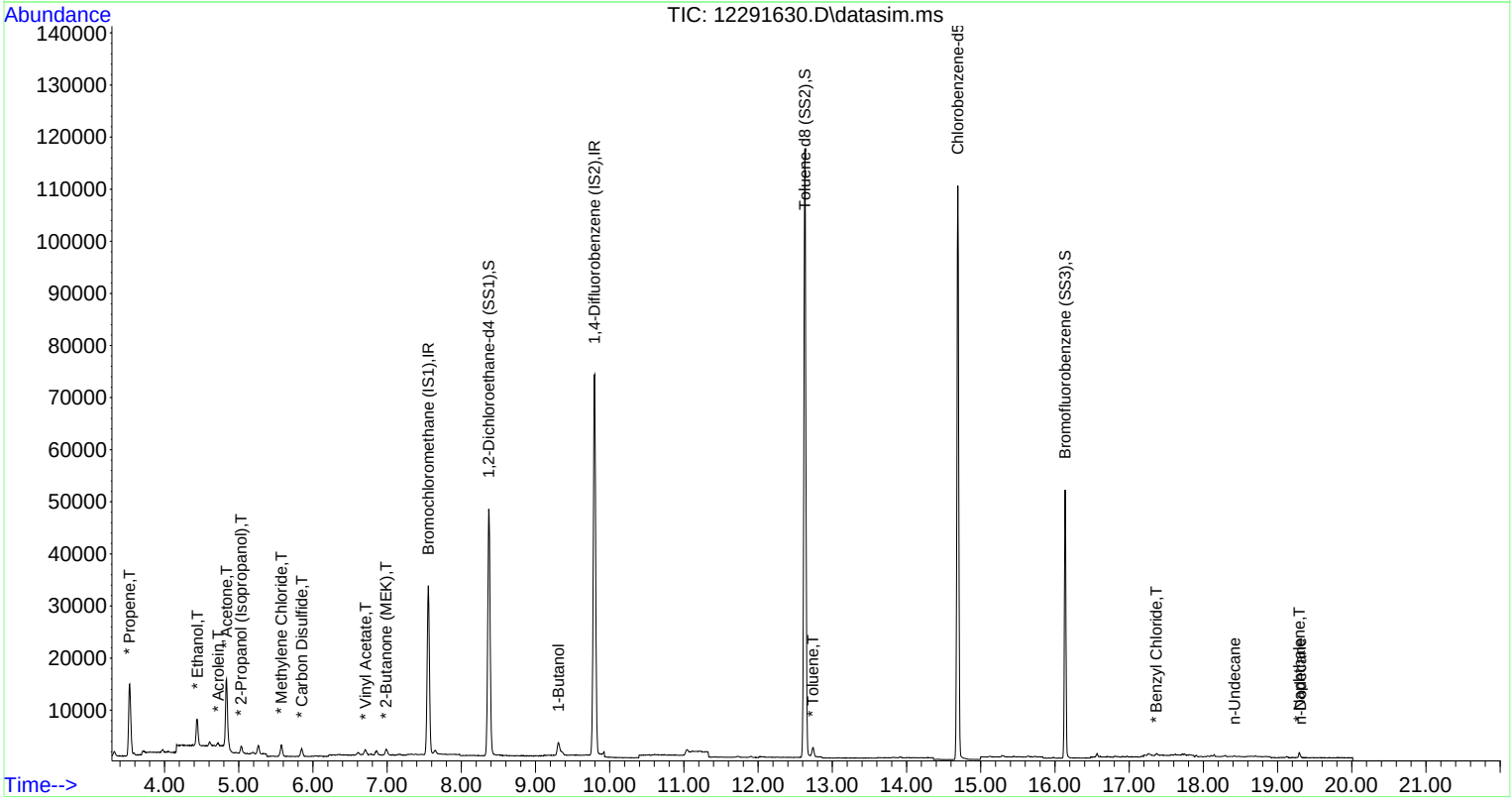
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39346	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134620	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	103131	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71274	919.789	pg		0.00
Spiked Amount 1000.000			Recovery = 91.98%				
57) Toluene-d8 (SS2)	12.63	98	127353	1010.561	pg		0.00
Spiked Amount 1000.000			Recovery = 101.06%				
74) Bromofluorobenzene (SS3)	16.14	174	36321	875.097	pg		0.00
Spiked Amount 1000.000			Recovery = 87.51%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6716	85.043	pg	#	73
10) * Ethanol	4.44	45	5874	109.057	pg		95
12) * Acrolein	4.72	56	749	16.599	pg		97
13) * Acetone	4.84	58	6980	137.202	pg	#	64
15) * 2-Propanol (Isopropa...	5.03	45	1918	13.915	pg		94
19) * Methylene Chloride	5.58	84	2330	41.116	pg		89
22) * Carbon Disulfide	5.85	76	2821	13.579	pg	#	92
26) * Vinyl Acetate	6.71	86	200	18.745	pg	#	20
27) * 2-Butanone (MEK)	6.99	72	352	11.528	pg		81
41) 1-Butanol	9.31	56	2150	73.877	pg	#	44
58) * Toluene	12.74	91	2083	14.290	pg		96
85) * Benzyl Chloride	17.36	126	77	10.053	pg	#	1
96) n-Undecane	18.42	85	167	20.106	pg	#	1
98) * Naphthalene	19.29	128	1162	35.835	pg		99
99) n-Dodecane	19.31	85	77	14.760	pg	#	17

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291630.D
Acq On : 30 Dec 2016 5:13 am
Operator : JM
Sample : AS00976 FCA00506
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 30 10:38:18 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291616.D
Acq On : 29 Dec 2016 6:48 pm
Operator : JM
Sample : AC01642 FCA01081
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

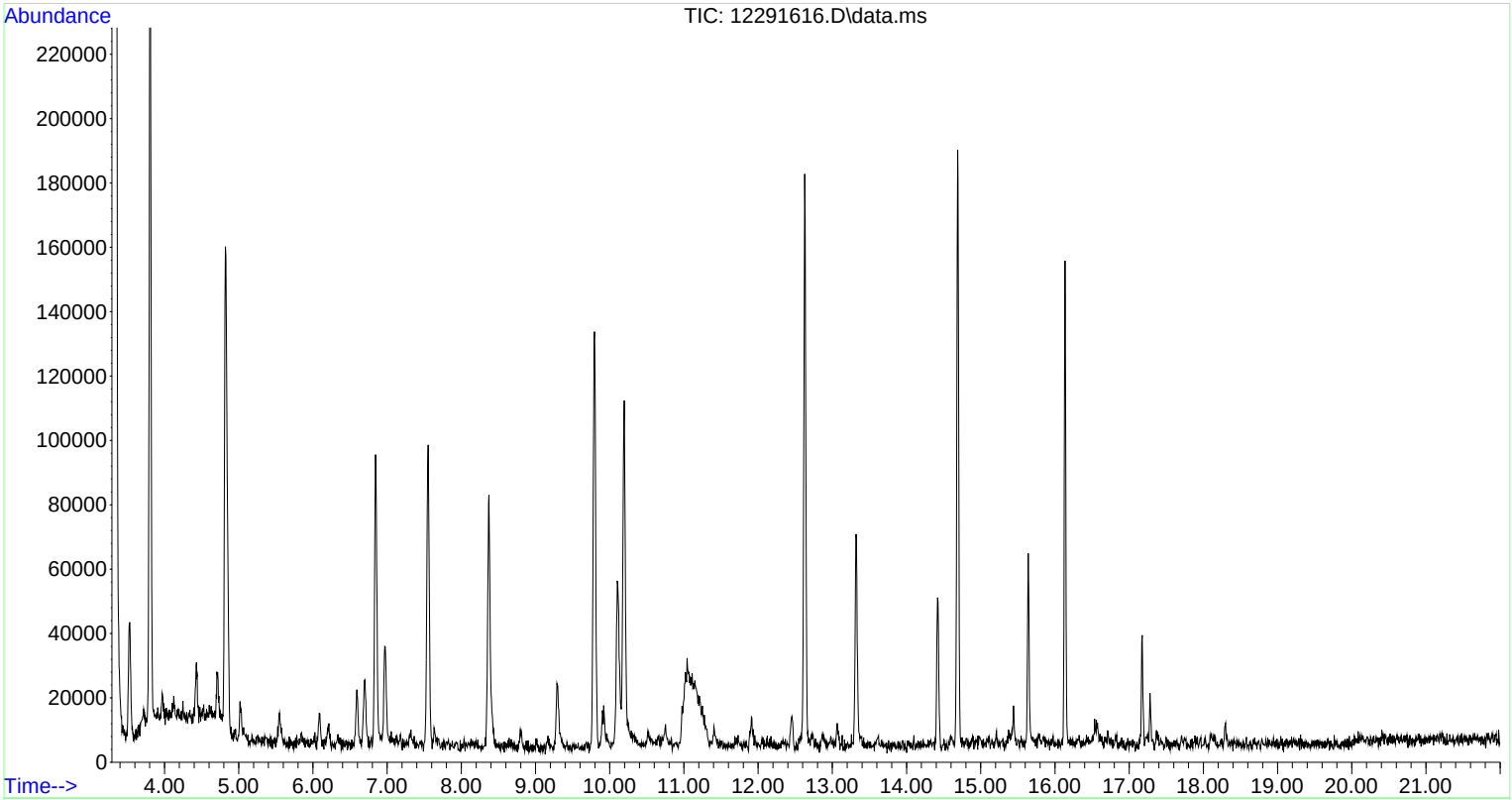
Quant Time: Dec 30 10:04:56 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

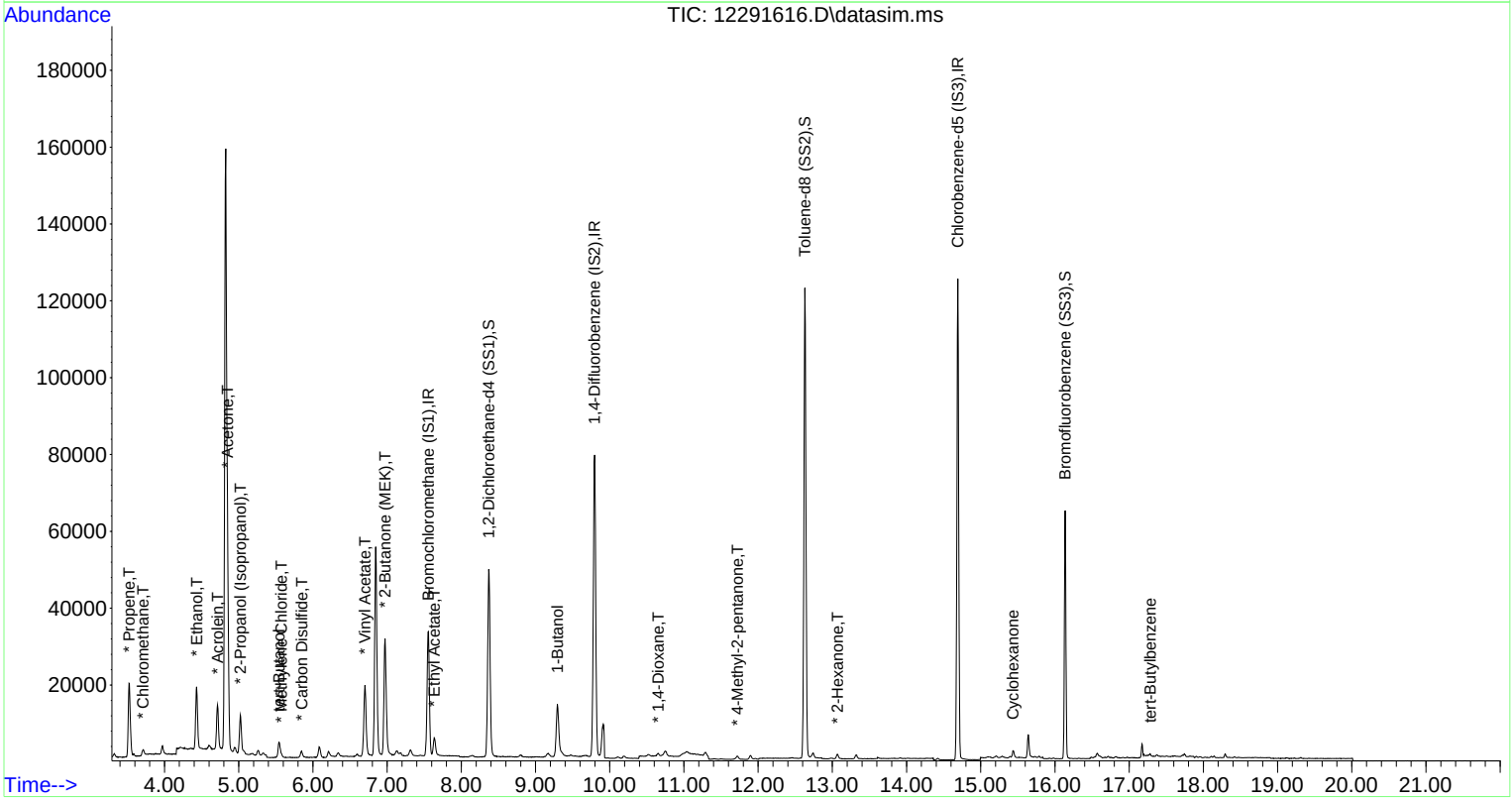
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39894	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144716	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	115141	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73148	931.007	pg		0.00
Spiked Amount 1000.000			Recovery = 93.10%				
57) Toluene-d8 (SS2)	12.63	98	133958	952.097	pg		0.00
Spiked Amount 1000.000			Recovery = 95.21%				
74) Bromofluorobenzene (SS3)	16.14	174	44399	958.144	pg		0.00
Spiked Amount 1000.000			Recovery = 95.81%				
Target Compounds							Qvalue
2) * Propene	3.52	42	9229	115.259	pg		86
4) * Chloromethane	3.71	50	1581	12.399	pg		97
10) * Ethanol	4.43	45	18579	340.200	pg		98
12) * Acrolein	4.71	56	12051	263.394	pg		98
13) * Acetone	4.85	58	127393	2469.689	pg	#	13
15) * 2-Propanol (Isopropa...	5.02	45	13523	96.758	pg		100
18) tert-Butanol	5.54	59	5246	62.276	pg		84
19) * Methylene Chloride	5.58	84	832	14.480	pg		93
22) * Carbon Disulfide	5.85	76	2950	14.005	pg	#	93
26) * Vinyl Acetate	6.70	86	4634	428.362	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	9883	319.211	pg		99
30) * Ethyl Acetate	7.63	61	991	62.609	pg		100
41) 1-Butanol	9.30	56	5719	182.803	pg	#	53
48) * 1,4-Dioxane	10.65	88	470	13.503	pg		96
53) * 4-Methyl-2-pentanone	11.72	58	365	12.105	pg		91
59) * 2-Hexanone	13.07	58	2045	73.462	pg		94
69) Cyclohexanone	15.43	98	786	66.000	pg		95
83) tert-Butylbenzene	17.28	134	265	12.570	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291616.D
Acq On : 29 Dec 2016 6:48 pm
Operator : JM
Sample : AC01642 FCA01081
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Dec 30 10:04:56 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291617.D
Acq On : 29 Dec 2016 7:29 pm
Operator : JM
Sample : AC01036 FCA00952
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

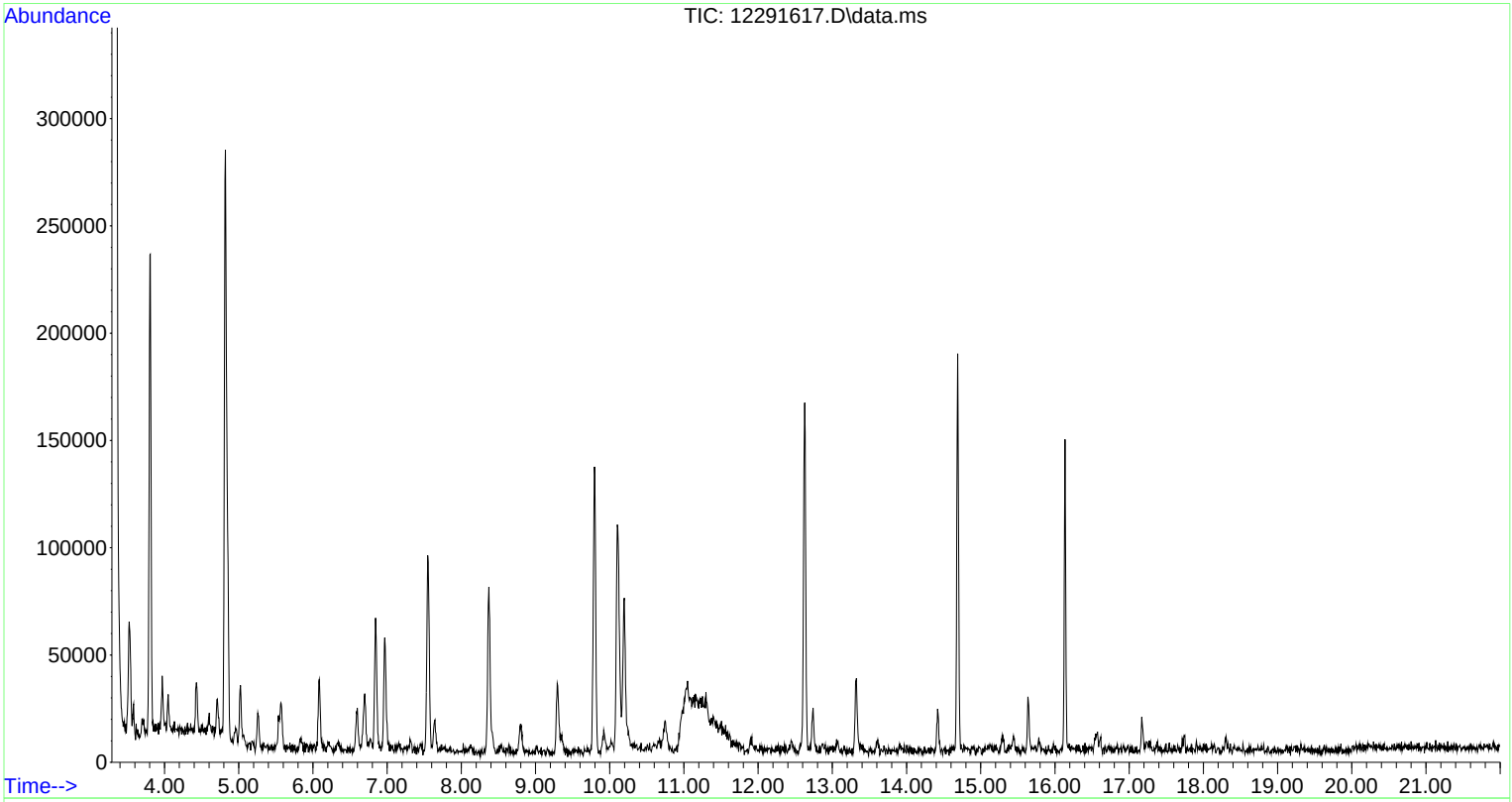
Quant Time: Dec 30 10:07:20 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

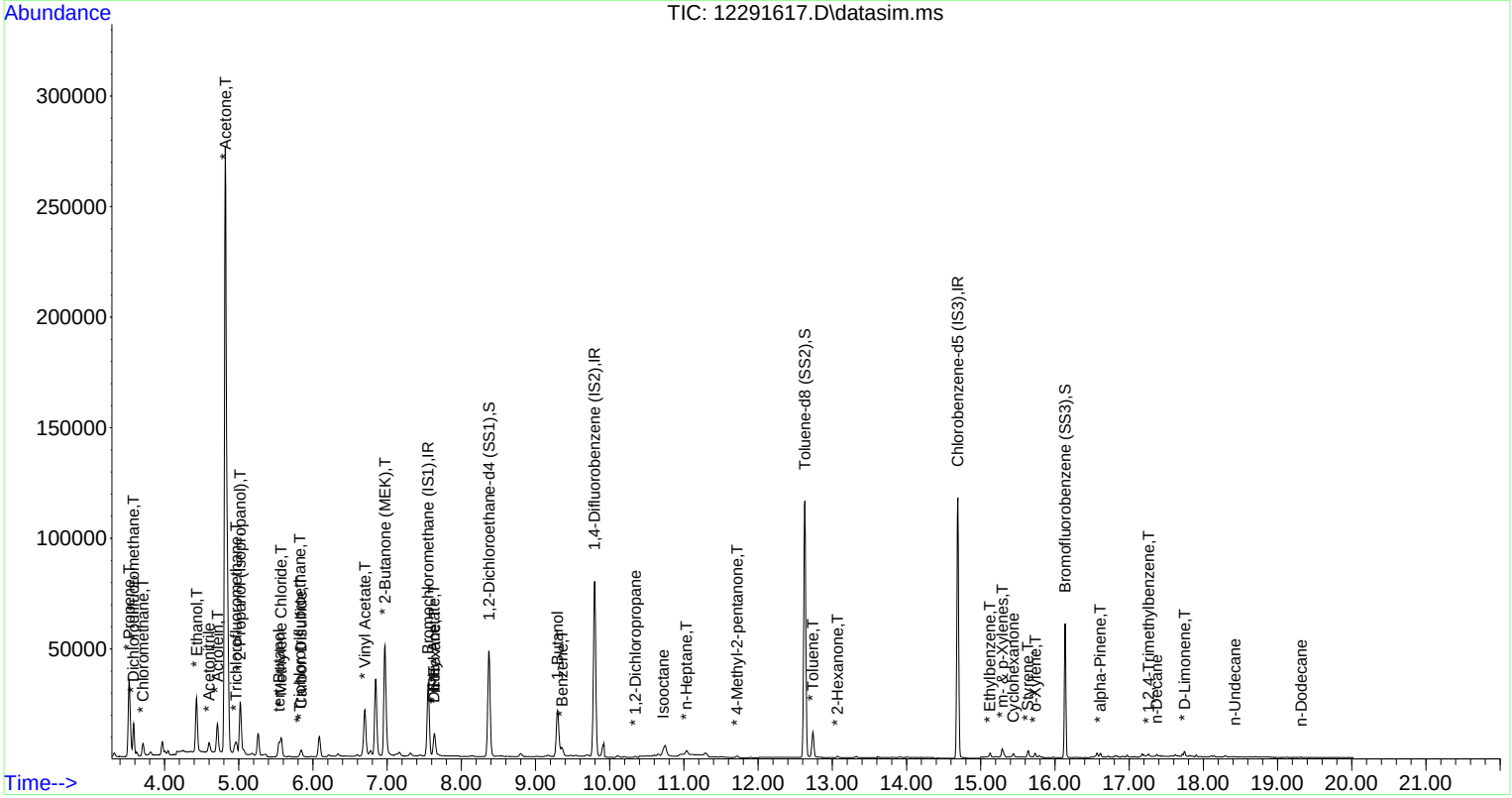
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39212	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142983	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109147	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72482	938.575	pg		0.00
Spiked Amount 1000.000			Recovery = 93.86%				
57) Toluene-d8 (SS2)	12.63	98	129101	967.967	pg		0.00
Spiked Amount 1000.000			Recovery = 96.80%				
74) Bromofluorobenzene (SS3)	16.14	174	41681	948.886	pg		0.00
Spiked Amount 1000.000			Recovery = 94.89%				
Target Compounds							Qvalue
2) * Propene	3.52	42	16750	212.825	pg		80
3) * Dichlorodifluoromethane	3.58	85	15456	92.191	pg		100
4) * Chloromethane	3.71	50	6759	53.931	pg		100
10) * Ethanol	4.43	45	27602	514.211	pg		99
11) * Acetonitrile	4.60	41	4966	36.897	pg		93
12) * Acrolein	4.71	56	13487	299.907	pg		96
13) * Acetone	4.82	58	188486	3717.615	pg	#	28
14) * Trichlorofluoromethane	4.97	101	5573	49.759	pg		99
15) * 2-Propanol (Isopropa...	5.02	45	32760	238.476	pg		94
18) tert-Butanol	5.54	59	8436	101.886	pg		96
19) * Methylene Chloride	5.57	84	9035	159.980	pg		98
21) * Trichlorotrifluoroet...	5.82	151	1031	23.487	pg		90
22) * Carbon Disulfide	5.84	76	5092	24.594	pg		98
26) * Vinyl Acetate	6.70	86	4911	461.863	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	17094	561.721	pg		94
29) DIPE	7.63	45	2047	11.542	pg	#	53
30) * Ethyl Acetate	7.63	61	1863	119.748	pg		98
31) * n-Hexane	7.64	57	1606	20.074	pg		96
39) * Benzene	9.36	78	6212	37.672	pg		98
41) 1-Butanol	9.30	56	7919	256.192	pg	#	53
45) * 1,2-Dichloropropane	10.34	63	828	13.533	pg		97
49) Isooctane	10.72	56	1723	21.860	pg	#	51
51) * n-Heptane	11.03	71	1283	15.153	pg		89
53) * 4-Methyl-2-pentanone	11.72	58	438	14.702	pg	#	89
58) * Toluene	12.74	91	13514	87.602	pg		100
59) * 2-Hexanone	13.07	58	1104	41.836	pg	#	80
66) * Ethylbenzene	15.12	91	1978	15.204	pg		92
67) * m- & p-Xylenes	15.29	91	4852	48.002	pg		94
69) Cyclohexanone	15.44	98	726	64.310	pg		94
70) * Styrene	15.63	104	726	13.490	pg		100
71) * o-Xylene	15.73	91	1684	17.032	pg		94
76) * alpha-Pinene	16.61	93	1207	18.834	pg		99
84) * 1,2,4-Trimethylbenzene	17.26	105	869	10.808	pg		95
88) n-Decane	17.37	85	181	11.774	pg		93
93) * D-Limonene	17.75	68	1257	35.504	pg		97
96) n-Undecane	18.43	85	122	13.879	pg	#	40
99) n-Dodecane	19.32	85	75	13.584	pg	#	38

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291617.D
Acq On : 29 Dec 2016 7:29 pm
Operator : JM
Sample : AC01036 FCA00952
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

Quant Time: Dec 30 10:07:20 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291619.D
Acq On : 29 Dec 2016 9:18 pm
Operator : JM
Sample : AS00739 FCA00782
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

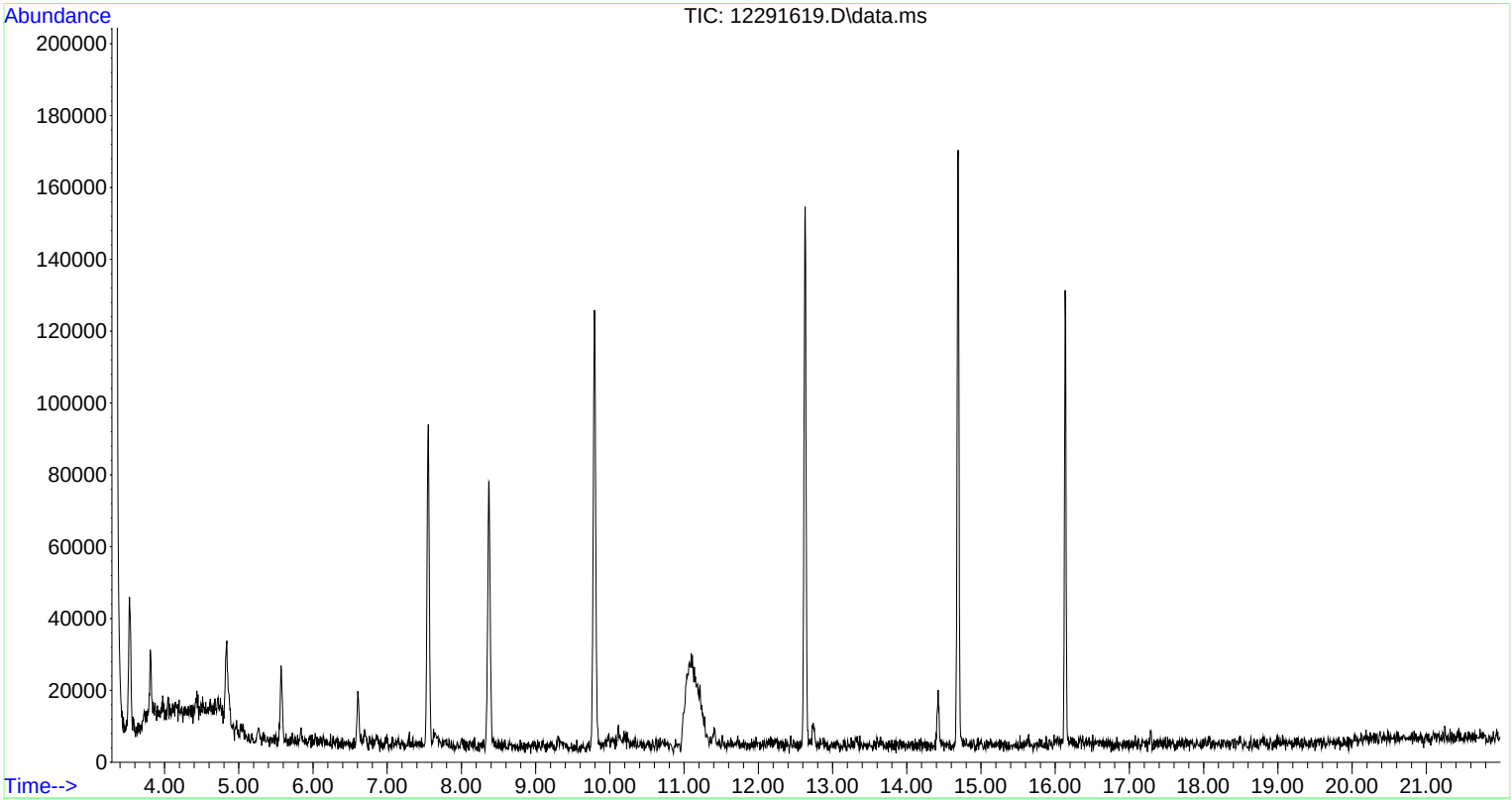
Quant Time: Dec 30 10:13:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

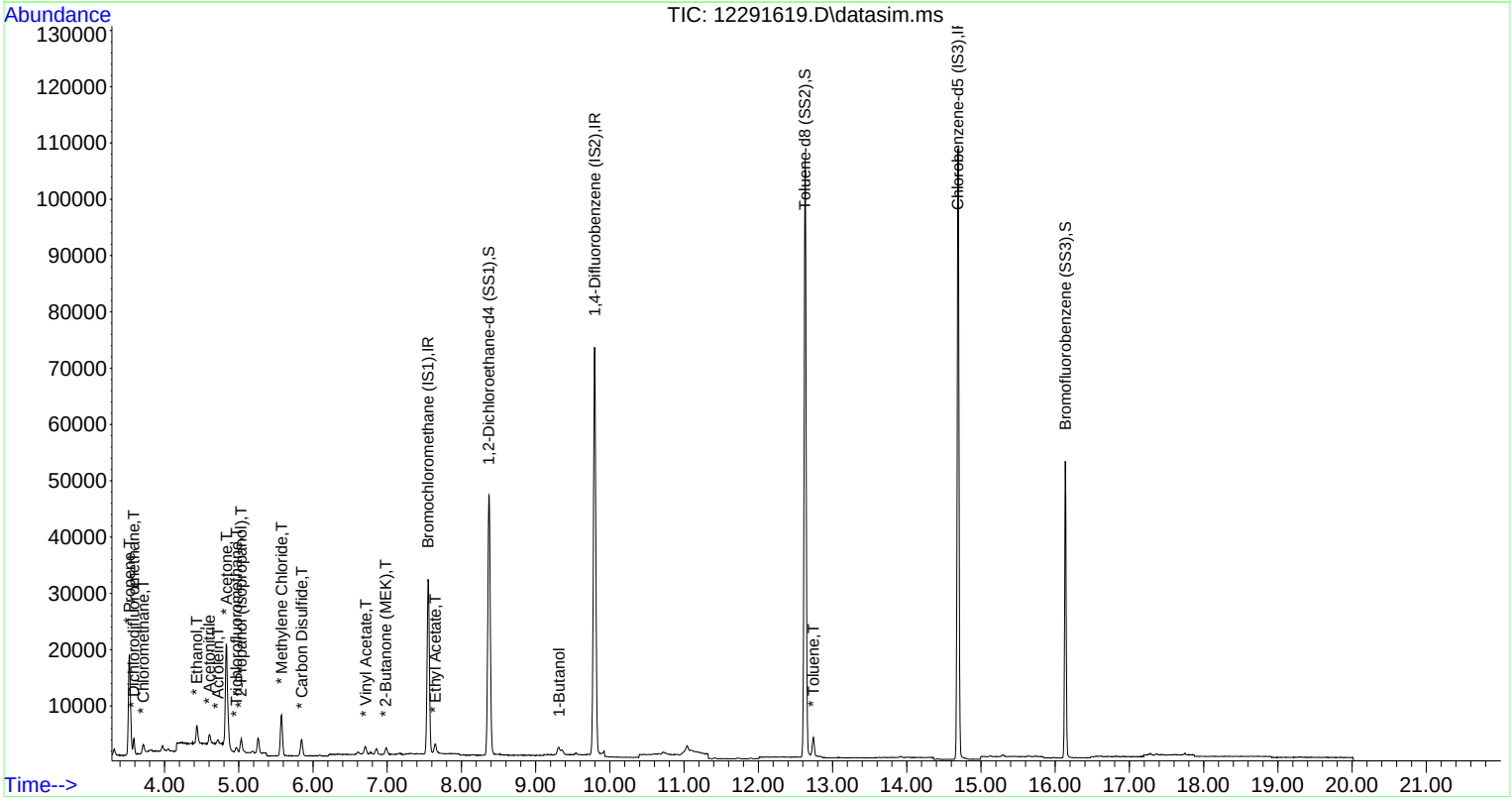
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	38063	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	131534	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102572	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70491	940.348	pg		0.00
Spiked Amount 1000.000			Recovery = 94.03%				
57) Toluene-d8 (SS2)	12.63	98	118800	947.830	pg		0.00
Spiked Amount 1000.000			Recovery = 94.78%				
74) Bromofluorobenzene (SS3)	16.14	174	36848	892.633	pg		0.00
Spiked Amount 1000.000			Recovery = 89.26%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8571	112.190	pg		79
3) * Dichlorodifluoromethane	3.59	85	2974	18.275	pg		97
4) * Chloromethane	3.71	50	1611	13.243	pg		99
10) * Ethanol	4.44	45	3761	72.181	pg		94
11) * Acetonitrile	4.60	41	2189	16.755	pg		97
12) * Acrolein	4.72	56	757	17.341	pg		99
13) * Acetone	4.84	58	9508	193.193	pg	#	67
14) * Trichlorofluoromethane	4.97	101	1137	10.458	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	3425	25.685	pg		90
19) * Methylene Chloride	5.58	84	8111	147.954	pg		99
22) * Carbon Disulfide	5.85	76	5381	26.775	pg		95
26) * Vinyl Acetate	6.71	86	358	34.685	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	444	15.031	pg		89
30) * Ethyl Acetate	7.65	61	271	17.945	pg		89
41) 1-Butanol	9.32	56	1006	35.379	pg	#	54
58) * Toluene	12.74	91	3883	26.784	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291619.D
Acq On : 29 Dec 2016 9:18 pm
Operator : JM
Sample : AS00739 FCA00782
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 10:13:16 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





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LABORATORY REPORT

January 29, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 20, 2017. For your reference, these analyses have been assigned our service request number P1700260.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 12:40 pm, Jan 29, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700260

CASE NARRATIVE

The samples were received intact under chain of custody on January 20, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1700260-002	1,1-Dichloroethane

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700260
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/20/2017
Time Received: 09:35

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
17M015-1-06-F	P1700260-001	Air	1/15/2017	09:06	AC02074	-2.19	3.42	X
17M315-1-03-F	P1700260-002	Air	1/15/2017	09:04	AC02111	-2.24	3.38	X
17M015-A-01-F	P1700260-003	Air	1/15/2017	09:11	SC01489	-0.40	3.45	X
17M016-1-01-F	P1700260-004	Air	1/16/2017	07:42	AC02154	-2.25	3.54	X
17M016-1-02-F	P1700260-005	Air	1/16/2017	07:44	AC02131	-2.06	3.50	X
17M016-1-03-F	P1700260-006	Air	1/16/2017	07:26	AC02159	-2.06	3.62	X
17M016-1-04-F	P1700260-007	Air	1/16/2017	07:48	AS00991	-4.91	3.78	X
17M016-1-05-F	P1700260-008	Air	1/16/2017	07:41	AS00435	-4.19	3.54	X
17M016-1-06-F	P1700260-009	Air	1/16/2017	07:50	AS00642	-2.93	3.36	X
17M316-1-03-F	P1700260-010	Air	1/16/2017	07:47	AS00855	-2.09	3.51	X
17M016-A-01-F	P1700260-011	Air	1/15/2017	09:28	AS01030	-0.99	3.71	X
17M107-1-01-F	P1700260-012	Air	1/16/2017	07:58	AS00974	-0.48	3.47	X
17M107-1-02-F	P1700260-013	Air	1/16/2017	07:59	AS00982	-1.42	3.59	X
17M510-1-02-F	P1700260-014	Air	1/15/2017	09:18	AS00978	-1.00	3.69	X
17M510-1-03-F	P1700260-015	Air	1/15/2017	09:17	AC02190	-1.97	3.59	X
17M510-A-01-F	P1700260-016	Air	1/15/2017	09:20	AS01023	-1.28	3.56	X
17M555-1-01-F	P1700260-017	Air	1/16/2017	08:25	AS00823	-2.47	3.67	X
17M555-1-03-F	P1700260-018	Air	1/16/2017	08:26	SC01745	-1.70	3.60	X
17M555-A-01-F	P1700260-019	Air	1/15/2017	09:24	AC02182	-1.52	3.11	X
17M566-1-01-F	P1700260-020	Air	1/16/2017	08:19	AS00917	-0.94	3.75	X
17M566-1-02-F	P1700260-021	Air	1/16/2017	08:20	AC01507	-2.45	3.48	X
17N210-1-01-F	P1700260-022	Air	1/16/2017	09:22	AS00841	-3.14	3.59	X
17N210-1-02-F	P1700260-023	Air	1/16/2017	09:15	AC02204	-2.18	3.88	X
17N210-G-03-F	P1700260-024	Air	1/16/2017	09:26	AC02228	-1.71	3.69	X

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005 P1700260
PAGE 3 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M015-1-06-F	AC02074	FCR00090	1/15/17	0906	-29.87	-6.01	6L	24hr	X				
2	17M315-1-03-F	AC02111	FCR00133	1/15/17	0904	-30.19	-6.11	6L	24hr	X				
3	17M015-A-01-F	SC01489	FCR00149	1/15/17	0911	-30.29	-2.42	6L	24hr	X				
4	17M016-1-01-F	AC02154	FCA00174	1/16/17	0742	-30.32	-7.1	6L	10hr	X				
5	17M016-1-02-F	AS02131	FCA00023	1/16/17	0744	-30.23	-6.6	6L	10hr	X				
6	17M016-1-03-F	AC02159	FCA00997	1/16/17	0726	-30.15	-6.72	6L	10hr	X				X
7	17M016-1-04-F	AS00991	FCA00081	1/16/17	0748	-30.1	-0.76	6L	10hr	X				
8	17M016-1-05-F	AS00435	FCA00715	1/16/17	0741	-30.2	-10.92	6L	10hr	X				
9	17M016-1-06-F	AS00642	FCA00909	1/16/17	0750	-30.68	-0.73	6L	10hr	X				
10	17M316-1-03-F	AS00855	FCA00888	1/16/17	0747	-30.23	-6.84	6L	10hr	X				
11	17M016-A-01-F	AS01030	FCR00235	1/15/17	0928	-30.21	-0.26	6L	24hr	X				
12	17M107-1-01-F	AS00974	FCA01076	1/16/17	0758	-30.17	-3.45	6L	8hr	X				

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature)	Date 0935
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005 P1700260
PAGE 4 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero **Phone/email:** (619) 302-9651/ luis.rivero@noreasinc.com	**Laboratory Phone:** (805) 526-7161	
Project Contact: Sevda Aleckson **Phone/email:** (949) 467-9117 / sevda.aleckson@noreasinc.com	**Airbill No.** FedEx	

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17M107-1-02-F	AS00982	FCS00269	1/16/17	0759	-30.20	-4.74	6L	8hr	X				X
14	17M510-1-02-F	AS00978	FCR00117	1/15/17	0918	-29.68	-4.18	6L	24hr	X				
15	17M510-1-03-F	AC02190	FCR00248	1/15/17	0917	-30.22	-5.48	6L	24hr	X				
16	17M510-A-01-F	AS01023	FCR00207	1/15/17	0920	-30.13	-4.14	6L	24hr	X				
17	17M555-1-01-F	AS00823	FCA00353	1/16/17	0825	-29.74	-6.4	6L	8hr	X				X
18	17M555-1-03-F	SC01745	FCA00722	1/16/17	0826	-29.66	-4.85	6L	8hr	X				
19	17M555-A-01-F	AC02182	FCR00272	1/15/17	0924	-29.73	-5.24	6L	24hr	X				
20	17M566-1-01-F	AS00917	FCS0053	1/16/17	0819	-29.77	-3.41	6L	8hr	X				
21	17M566-1-02-F	AC01507	FCA00515	1/16/17	0820	-29.72	-6.79	6L	8hr	X				
22	17N210-1-01-F	AS00841	FCA00834	1/16/17	0922	-29.65	-8.9	6L	8hr	X				
23	17N210-1-02-F	AC02204	FCA01007	1/16/17	0915	-29.73	-7.02	6L	8hr	X				
24	17N210-G-03-F	AC02228	N/A	1/16/17	0926	-29.7	-5.72	6L	Grab	X				X

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature) 1/20/17	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

6 of 214

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700260

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700260-001.01	6.0 L Ambient Can					
P1700260-002.01	6.0 L Ambient Can					
P1700260-003.01	6.0 L Source Can					
P1700260-004.01	6.0 L Ambient Can					
P1700260-005.01	6.0 L Ambient Can					
P1700260-006.01	6.0 L Ambient Can					
P1700260-007.01	6.0 L Silonite Can					
P1700260-008.01	6.0 L Silonite Can					
P1700260-009.01	6.0 L Silonite Can					
P1700260-010.01	6.0 L Silonite Can					
P1700260-011.01	6.0 L Silonite Can					
P1700260-012.01	6.0 L Silonite Can					
P1700260-013.01	6.0 L Silonite Can					
P1700260-014.01	6.0 L Silonite Can					
P1700260-015.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

Sample -005 was noted on the COC as AS02031 but the canister ID is AC02031.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700260

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700260-016.01	6.0 L Silonite Can					
P1700260-017.01	6.0 L Silonite Can					
P1700260-018.01	6.0 L Source Can					
P1700260-019.01	6.0 L Ambient Can					
P1700260-020.01	6.0 L Silonite Can					
P1700260-021.01	6.0 L Ambient Can					
P1700260-022.01	6.0 L Silonite Can					
P1700260-023.01	6.0 L Ambient Can					
P1700260-024.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-1-06-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-001

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02074
Initial Pressure (psig): -2.19 Final Pressure (psig): 3.42

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.056**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.011**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.042**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**1.1**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.058**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M315-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-002

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02111
Initial Pressure (psig): -2.24 Final Pressure (psig): 3.38

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.054**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.012**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.048**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.88**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.062**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M015-A-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-003

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01489

Initial Pressure (psig): -0.40 Final Pressure (psig): 3.45

Canister Dilution Factor: 1.27

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.032	0.025	0.0097	**U**
75-35-4	1,1-Dichloroethene	0.027	0.032	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.073**	0.032	0.027	0.0093	
75-34-3	1,1-Dichloroethane	**0.010**	0.032	0.025	0.0077	**J**
156-59-2	cis-1,2-Dichloroethene	**0.021**	0.032	0.027	0.012	**J**
79-01-6	Trichloroethene	**0.082**	0.032	0.027	0.011	
127-18-4	Tetrachloroethene	**0.060**	0.032	0.027	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-004

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02154
Initial Pressure (psig): -2.25 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.037	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.043**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.020**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.15**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.88**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.12**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-02-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-005

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02131
Initial Pressure (psig): -2.06 Final Pressure (psig): 3.50

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.039**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.030**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.16**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.81**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.14**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-006

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02159
Initial Pressure (psig): -2.06 Final Pressure (psig): 3.62

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.036**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.021**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.16**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.79**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.16**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-04-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-007

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00991
Initial Pressure (psig): -4.91 Final Pressure (psig): 3.78

Canister Dilution Factor: 1.89

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.038	0.047	0.038	0.014	**U**
75-35-4	1,1-Dichloroethene	0.040	0.047	0.040	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	**0.075**	0.047	0.040	0.014	
75-34-3	1,1-Dichloroethane	**0.033**	0.047	0.038	0.012	**J**
156-59-2	cis-1,2-Dichloroethene	**0.29**	0.047	0.040	0.017	
79-01-6	Trichloroethene	**1.8**	0.047	0.040	0.016	
127-18-4	Tetrachloroethene	**0.25**	0.047	0.040	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-05-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-008

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00435
Initial Pressure (psig): -4.19 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.74

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.035	0.044	0.035	0.013	**U**
75-35-4	1,1-Dichloroethene	0.037	0.044	0.037	0.015	**U**
156-60-5	trans-1,2-Dichloroethene	**0.038**	0.044	0.037	0.013	**J**
75-34-3	1,1-Dichloroethane	**0.021**	0.044	0.035	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.044	0.037	0.016	
79-01-6	Trichloroethene	**0.79**	0.044	0.037	0.015	
127-18-4	Tetrachloroethene	**0.11**	0.044	0.037	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-06-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-009

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00642

Initial Pressure (psig): -2.93 Final Pressure (psig): 3.36

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.041**	0.038	0.031	0.012	
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.064**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.023**	0.038	0.031	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.23**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.92**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.20**	0.038	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M316-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-010

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00855

Initial Pressure (psig): -2.09 Final Pressure (psig): 3.51

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.038**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.018**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.16**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.77**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.17**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-A-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-011

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01030

Initial Pressure (psig): -0.99 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.069**	0.034	0.028	0.0098	
75-34-3	1,1-Dichloroethane	**0.010**	0.034	0.027	0.0082	**J**
156-59-2	cis-1,2-Dichloroethene	**0.053**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**0.27**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.059**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M107-1-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-012

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00974
Initial Pressure (psig): -0.48 Final Pressure (psig): 3.47

Canister Dilution Factor: 1.28

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026		0.032	0.026	0.0097	**U**
75-35-4	1,1-Dichloroethene	0.027		0.032	0.027	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**1.1**		0.032	0.027	0.0093	
75-34-3	1,1-Dichloroethane	0.026		0.032	0.026	0.0078	**U**
156-59-2	cis-1,2-Dichloroethene	**0.020**		0.032	0.027	0.012	**J**
79-01-6	Trichloroethene	**0.075**		0.032	0.027	0.011	
127-18-4	Tetrachloroethene	**0.11**		0.032	0.027	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M107-1-02-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-013

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00982

Initial Pressure (psig): -1.42 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.029**	0.035	0.029	0.010	**J**
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0084	**U**
156-59-2	cis-1,2-Dichloroethene	**0.015**	0.035	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.058**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.048**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-1-02-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-014

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00978

Initial Pressure (psig): -1.00 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.069**	0.034	0.028	0.0098	
75-34-3	1,1-Dichloroethane	0.027	0.034	0.027	0.0082	**U**
156-59-2	cis-1,2-Dichloroethene	**0.024**	0.034	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.17**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.055**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-015

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02190
Initial Pressure (psig): -1.97 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.061**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.029**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.19**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.060**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-A-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-016

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01023

Initial Pressure (psig): -1.28 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.013**		0.034	0.027	0.010	**J**
75-35-4	1,1-Dichloroethene		0.029	0.034	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.061**		0.034	0.029	0.0099	
75-34-3	1,1-Dichloroethane		0.027	0.034	0.027	0.0083	**U**
156-59-2	cis-1,2-Dichloroethene	**0.029**		0.034	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.12**		0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.061**		0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-1-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-017

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00823

Initial Pressure (psig): -2.47 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.021**	0.038	0.030	0.011	**J**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.052**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.033**	0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	**0.45**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.76**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.12**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-018

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01745
Initial Pressure (psig): -1.70 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.022**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.012**	0.035	0.030	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.055**	0.035	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.037**	0.035	0.028	0.0086	
156-59-2	cis-1,2-Dichloroethene	**0.51**	0.035	0.030	0.013	
79-01-6	Trichloroethene	**0.86**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.13**	0.035	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-A-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-019

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02182
Initial Pressure (psig): -1.52 Final Pressure (psig): 3.11

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027		0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028		0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.050**		0.034	0.028	0.0099	
75-34-3	1,1-Dichloroethane	0.027		0.034	0.027	0.0082	**U**
156-59-2	cis-1,2-Dichloroethene	**0.034**		0.034	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.063**		0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.057**		0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M566-1-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-020

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00917
Initial Pressure (psig): -0.94 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.034	0.028	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.033**	0.034	0.028	0.0098	**J**
75-34-3	1,1-Dichloroethane	0.027	0.034	0.027	0.0082	**U**
156-59-2	cis-1,2-Dichloroethene	0.028	0.034	0.028	0.012	**U**
79-01-6	Trichloroethene	**0.14**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.047**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M566-1-02-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-021

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01507
Initial Pressure (psig): -2.45 Final Pressure (psig): 3.48

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.037	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.037**	0.037	0.031	0.011	**J**
75-34-3	1,1-Dichloroethane	0.030	0.037	0.030	0.0090	**U**
156-59-2	cis-1,2-Dichloroethene	**0.014**	0.037	0.031	0.014	**J**
79-01-6	Trichloroethene	**0.17**	0.037	0.031	0.013	
127-18-4	Tetrachloroethene	**0.047**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-01-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-022

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00841

Initial Pressure (psig): -3.14 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.032		0.040	0.032	0.012	**U**
75-35-4	1,1-Dichloroethene	0.033		0.040	0.033	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.13**		0.040	0.033	0.012	
75-34-3	1,1-Dichloroethane	0.032		0.040	0.032	0.0096	**U**
156-59-2	cis-1,2-Dichloroethene	**0.028**		0.040	0.033	0.015	**J**
79-01-6	Trichloroethene	**0.32**		0.040	0.033	0.013	
127-18-4	Tetrachloroethene	**0.063**		0.040	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-02-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-023

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02204

Initial Pressure (psig): -2.18 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.037	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.024**	0.037	0.031	0.011	**J**
75-34-3	1,1-Dichloroethane	0.030	0.037	0.030	0.0090	**U**
156-59-2	cis-1,2-Dichloroethene	**0.026**	0.037	0.031	0.014	**J**
79-01-6	Trichloroethene	**0.30**	0.037	0.031	0.013	
127-18-4	Tetrachloroethene	**0.047**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-G-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-024

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02228

Initial Pressure (psig): -1.71 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.046**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.096**	0.036	0.028	0.0087	
156-59-2	cis-1,2-Dichloroethene	**0.11**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.54**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170125-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700260

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/15 - 1/16/17
Analyst: Cory Lewis Date(s) Received: 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/24 - 1/25/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170124-MB	**90**	**101**	**104**	70-130	
Method Blank	P170125-MB	**91**	**101**	**106**	70-130	
Lab Control Sample	P170124-LCS	**90**	**95**	**116**	70-130	
Lab Control Sample	P170125-LCS	**90**	**96**	**117**	70-130	
17M015-1-06-F	P1700260-001	**89**	**101**	**114**	70-130	
17M315-1-03-F	P1700260-002	**89**	**102**	**117**	70-130	
17M015-A-01-F	P1700260-003	**89**	**104**	**114**	70-130	
17M016-1-01-F	P1700260-004	**90**	**103**	**118**	70-130	
17M016-1-02-F	P1700260-005	**90**	**101**	**116**	70-130	
17M016-1-03-F	P1700260-006	**90**	**102**	**116**	70-130	
17M016-1-04-F	P1700260-007	**89**	**101**	**115**	70-130	
17M016-1-05-F	P1700260-008	**90**	**98**	**110**	70-130	
17M016-1-06-F	P1700260-009	**90**	**103**	**118**	70-130	
17M316-1-03-F	P1700260-010	**89**	**103**	**118**	70-130	
17M016-A-01-F	P1700260-011	**90**	**102**	**113**	70-130	
17M107-1-01-F	P1700260-012	**90**	**102**	**117**	70-130	
17M107-1-02-F	P1700260-013	**90**	**101**	**115**	70-130	
17M510-1-02-F	P1700260-014	**90**	**102**	**112**	70-130	
17M510-1-03-F	P1700260-015	**90**	**103**	**114**	70-130	
17M510-1-03-F	P1700260-015DUP	**89**	**103**	**117**	70-130	
17M510-A-01-F	P1700260-016	**90**	**102**	**112**	70-130	
17M555-1-01-F	P1700260-017	**91**	**102**	**115**	70-130	
17M555-1-03-F	P1700260-018	**90**	**104**	**121**	70-130	
17M555-A-01-F	P1700260-019	**89**	**103**	**118**	70-130	
17M566-1-01-F	P1700260-020	**90**	**102**	**124**	70-130	
17M566-1-02-F	P1700260-021	**90**	**102**	**122**	70-130	
17N210-1-01-F	P1700260-022	**89**	**100**	**118**	70-130	
17N210-1-02-F	P1700260-023	**90**	**100**	**117**	70-130	
17N210-G-03-F	P1700260-024	**88**	**97**	**105**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170124-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.61**	**86**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.90**	**92**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.88**	**91**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.63**	**85**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.95**	**93**	70-121	
79-01-6	Trichloroethene	4.25	**3.91**	**92**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.79**	**89**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170125-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.42**	**81**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.54**	**83**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.58**	**84**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.32**	**78**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.59**	**85**	70-121	
79-01-6	Trichloroethene	4.25	**3.56**	**84**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.42**	**80**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17M510-1-03-F** ALS Project ID: P1700260
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700260-015DUP

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02190
Initial Pressure (psig): -1.97 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.44

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result **µg/m³**	Duplicate Sample Result ppbV	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	**-**	25	
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	**-**	25	
156-60-5	trans-1,2-Dichloroethene	0.0612	0.0154	0.0612	0.0154	0.0612	**0**	25	
75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	-	**-**	25	
156-59-2	cis-1,2-Dichloroethene	0.0289	0.00729	0.0295	0.00744	0.0292	**2**	25	**J**
79-01-6	Trichloroethene	0.192	0.0357	0.192	0.0357	0.192	**0**	25	
127-18-4	Tetrachloroethene	0.0598	0.00882	0.0601	0.00887	0.05995	**0.5**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700260

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01241734.D
Analyst: Cory Lewis Date Analyzed: 1/24/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 20:41
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170124-LCS	01241735.D	21:12
17M015-1-06-F	P1700260-001	01241741.D	00:21
17M315-1-03-F	P1700260-002	01241743.D	01:24
17M015-A-01-F	P1700260-003	01241744.D	01:55
17M016-1-01-F	P1700260-004	01241745.D	02:26
17M016-1-02-F	P1700260-005	01241746.D	02:57
17M016-1-03-F	P1700260-006	01241747.D	03:29
17M016-1-04-F	P1700260-007	01241748.D	04:00
17M107-1-01-F	P1700260-012	01241750.D	08:42
17M016-1-05-F	P1700260-008	01241752.D	09:44
17M016-1-06-F	P1700260-009	01241753.D	10:15
17M316-1-03-F	P1700260-010	01241754.D	10:47
17M016-A-01-F	P1700260-011	01241755.D	11:18
17M107-1-02-F	P1700260-013	01241757.D	12:21
17M510-1-02-F	P1700260-014	01241758.D	12:52
17M510-1-03-F	P1700260-015	01241759.D	13:24
17M510-1-03-F (Lab Duplicate)	P1700260-015DUP	01241760.D	13:55

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700260

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01251703.D
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 16:08
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170125-LCS	01251704.D	16:39
17M510-A-01-F	P1700260-016	01251706.D	17:42
17M555-1-01-F	P1700260-017	01251707.D	18:14
17M555-1-03-F	P1700260-018	01251708.D	18:45
17M555-A-01-F	P1700260-019	01251709.D	19:16
17M566-1-01-F	P1700260-020	01251710.D	19:16
17M566-1-02-F	P1700260-021	01251711.D	20:19
17N210-1-01-F	P1700260-022	01251713.D	21:21
17N210-1-02-F	P1700260-023	01251714.D	21:52
17N210-G-03-F	P1700260-024	01251715.D	22:23

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700260

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01241733.D

Analyst: Cory Lewis Date Analyzed: 1/24/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 20:10

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	41272		9.75	202075		11.71		28240		16.05	
	Upper Limit	57781		10.08	282905		12.04		39536		16.38	
	Lower Limit	24763		9.42	121245		11.38		16944		15.72	
	Client Sample ID											
01	Method Blank	41192		9.78	180390		11.72		27584		16.06	
02	Lab Control Sample	42073		9.75	208156		11.71		29367		16.05	
03	17M015-1-06-F	43649		9.76	208376		11.71		31256		16.05	
04	17M315-1-03-F	43232		9.76	205456		11.71		30654		16.05	
05	17M015-A-01-F	42148		9.76	197349		11.71		30105		16.05	
06	17M016-1-01-F	42918		9.75	204000		11.71		30840		16.05	
07	17M016-1-02-F	43219		9.75	210813		11.71		31646		16.05	
08	17M016-1-03-F	43391		9.75	207162		11.71		31273		16.05	
09	17M016-1-04-F	42246		9.75	204893		11.71		31097		16.05	
10	17M107-1-01-F	42606		9.75	204560		11.71		30808		16.05	
11	17M016-1-05-F	42595		9.76	207126		11.71		30413		16.05	
12	17M016-1-06-F	42993		9.75	206898		11.71		31644		16.05	
13	17M316-1-03-F	44049		9.76	209576		11.71		31847		16.05	
14	17M016-A-01-F	44733		9.76	212072		11.71		32368		16.05	
15	17M107-1-02-F	41586		9.76	196350		11.71		29517		16.05	
16	17M510-1-02-F	43366		9.75	205651		11.71		31811		16.05	
17	17M510-1-03-F	43002		9.76	207062		11.71		32908		16.05	
18	17M510-1-03-F (Lab Duplicate)	45400		9.76	217416		11.71		34214		16.05	
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700260

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01251702.D

Analyst: Cory Lewis Date Analyzed: 1/25/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 15:36

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	44323		9.76	218293		11.71		31623		16.05	
	Upper Limit	62052		10.09	305610		12.04		44272		16.38	
	Lower Limit	26594		9.43	130976		11.38		18974		15.72	
	Client Sample ID											
01	Method Blank	42360		9.79	187253		11.72		28915		16.06	
02	Lab Control Sample	43243		9.76	212725		11.71		30868		16.05	
03	17M510-A-01-F	41992		9.76	197637		11.71		30466		16.05	
04	17M555-1-01-F	42269		9.76	203734		11.71		30907		16.05	
05	17M555-1-03-F	43144		9.76	211827		11.71		32521		16.05	
06	17M555-A-01-F	43675		9.76	205496		11.71		31294		16.05	
07	17M566-1-01-F	43898		9.75	217303		11.71		33379		16.05	
08	17M566-1-02-F	44790		9.76	212777		11.71		31484		16.05	
09	17N210-1-01-F	42123		9.76	200403		11.71		29383		16.05	
10	17N210-1-02-F	43067		9.76	205799		11.71		30536		16.05	
11	17N210-G-03-F	45068		9.77	231047		11.71		39898		16.05	
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 09:31:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	43391	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	207162	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	31273	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	67478	897.944	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.79%				
33) Toluene-d8 (SS2)	14.14	98	209123	1016.236	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.62%				
45) Bromofluorobenzene (SS3)	17.55	174	66240	1157.817	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.78%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	174505	1591.933	pg		100
3) Chloromethane	4.64	52	8497	260.181	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	7861	72.890	pg		100
5) Vinyl Chloride	4.95	62	581	5.544	pg	#	62
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.46	94	1084	25.714	pg		97
8) Chloroethane	5.68	64	246	7.630	pg		98
9) Acrolein	6.26	56	11122	485.596	pg		100
10) Acetone	6.39	58	168626	5694.294	pg	#	83
11) Trichlorofluoromethane	6.60	101	69199	922.963	pg		100
12) 1,1-Dichloroethene	7.34	96	279	5.940	pg	#	85
13) Methylene Chloride	7.48	84	15092	296.081	pg		98
14) Trichlorotrifluoroethane	7.80	151	15722	335.496	pg		100
15) trans-1,2-Dichloroethene	8.51	96	1262	24.922	pg		99
16) 1,1-Dichloroethane	8.72	63	1311	14.593	pg		95
17) Methyl tert-Butyl Ether	8.81	73	851	6.348	pg		91
18) cis-1,2-Dichloroethene	9.59	96	6005	113.006	pg		100
19) Chloroform	9.89	83	9310	98.546	pg		97
21) 1,2-Dichloroethane	10.64	62	2991	41.128	pg		99
22) 1,1,1-Trichloroethane	10.91	97	7791	88.839	pg		100
23) Benzene	11.36	78	101286	486.607	pg		99
24) Carbon Tetrachloride	11.52	117	22608	321.051	pg		100
26) 1,2-Dichloropropane	12.18	63	804	15.237	pg		93
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	29217	542.463	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.25	75	76	N.D.			
31) trans-1,3-Dichloropropene	13.77	75	79	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	208	N.D.			
34) Toluene	14.25	91	211756	1101.733	pg		100
35) Dibromochloromethane	14.66	129	249	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	6077	108.819	pg		98
39) Chlorobenzene	16.10	112	403	N.D.			
40) Ethylbenzene	16.48	91	38817	218.346	pg		99
41) m,p-Xylene	16.65	91	99094	743.149	pg		99
42) Styrene	17.01	104	7194	77.007	pg		98
43) o-Xylene	17.12	106	19574	285.746	pg		97
44) 1,1,2,2-Tetrachloroethane	17.12	83	291	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	10387	73.587	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	35928	259.322	pg		88
48) 1,3-Dichlorobenzene	18.92	146	108	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	3820	43.088	pg		99
50) 1,2-Dichlorobenzene	19.31	146	182	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	68	N.D.			
53) Naphthalene	21.06	128	29457	180.603	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 09:31:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

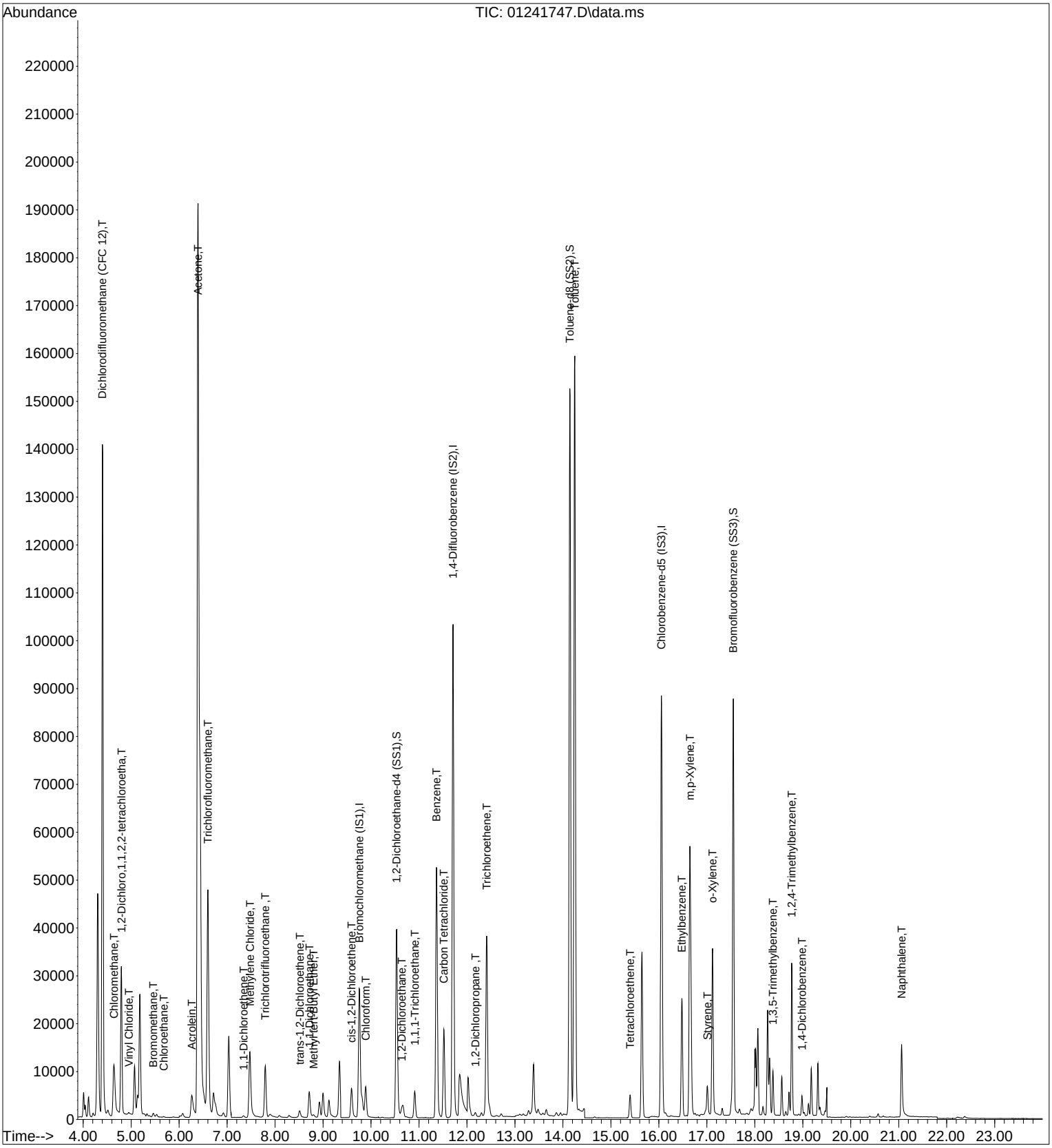
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

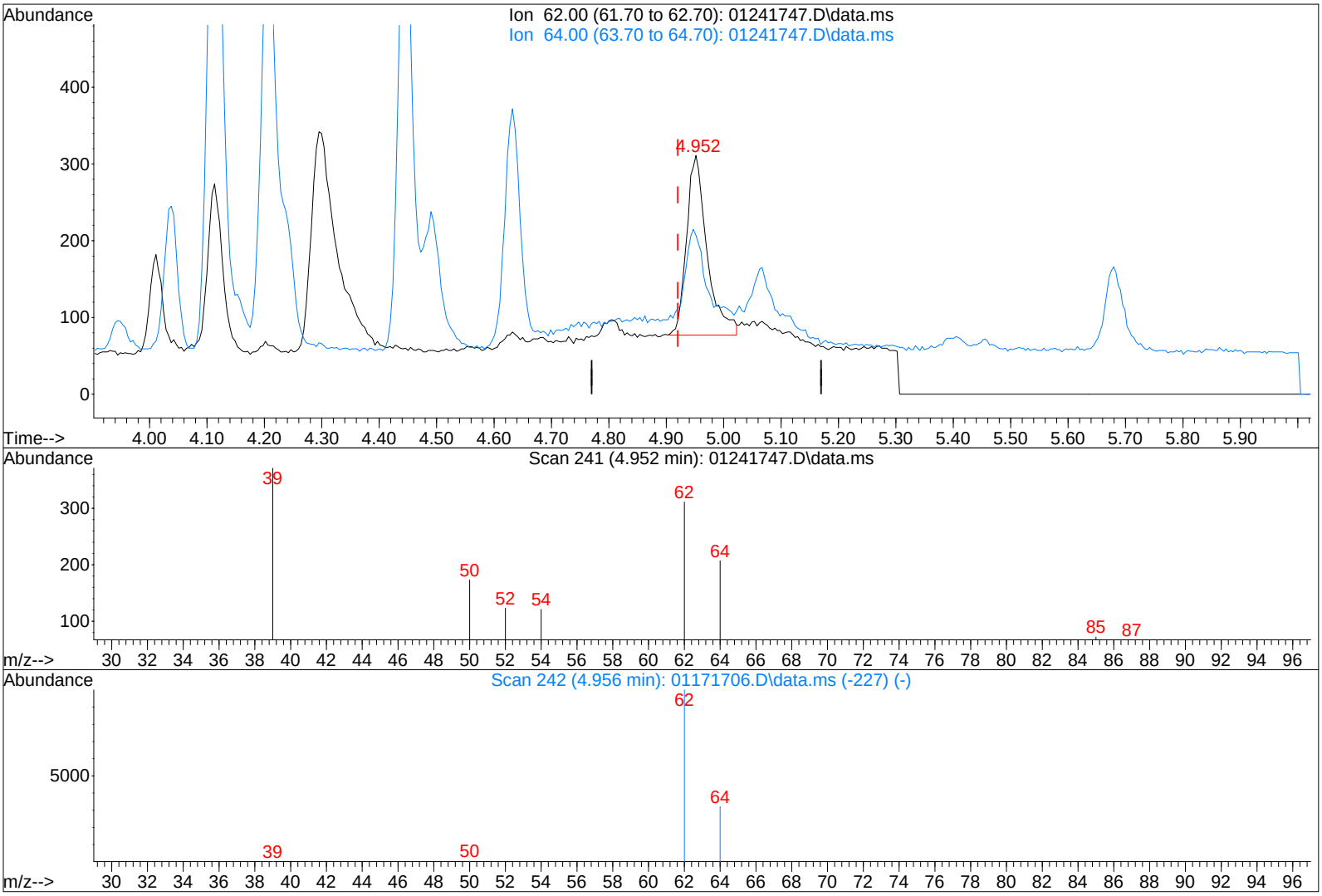
Quant Time: Jan 25 09:31:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241747.D\data.ms

(5) Vinyl Chloride (T)

4.952min (+0.032) 5.54pg

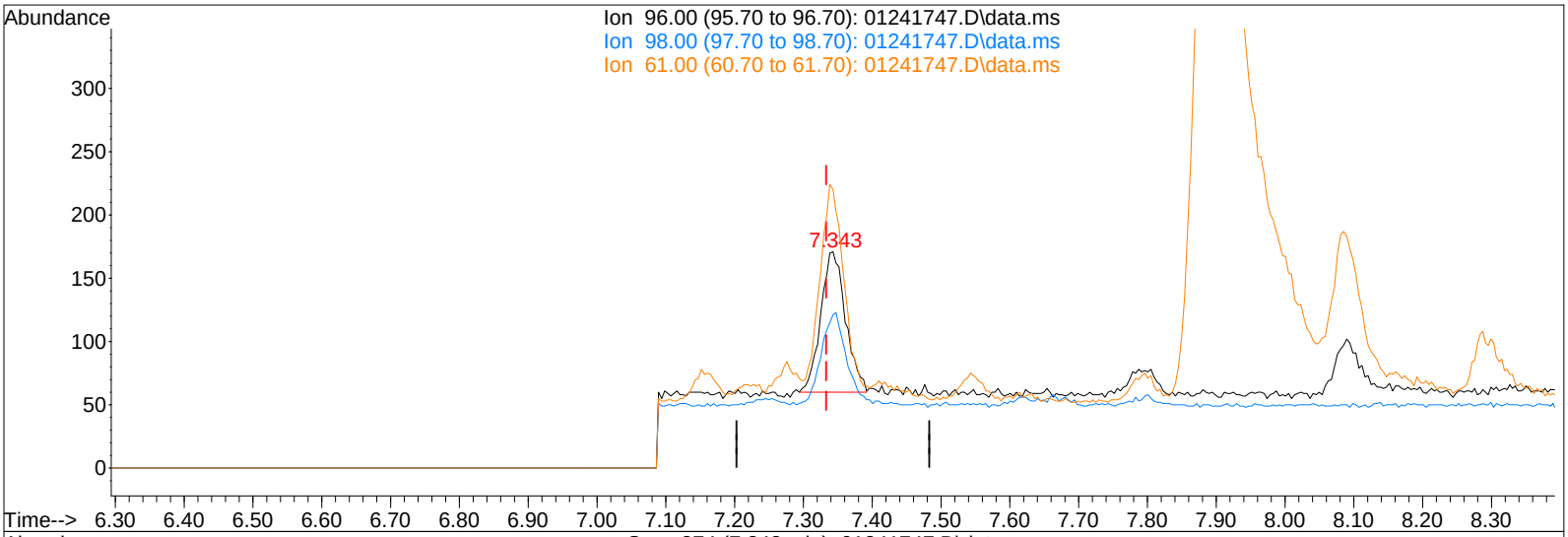
response 581

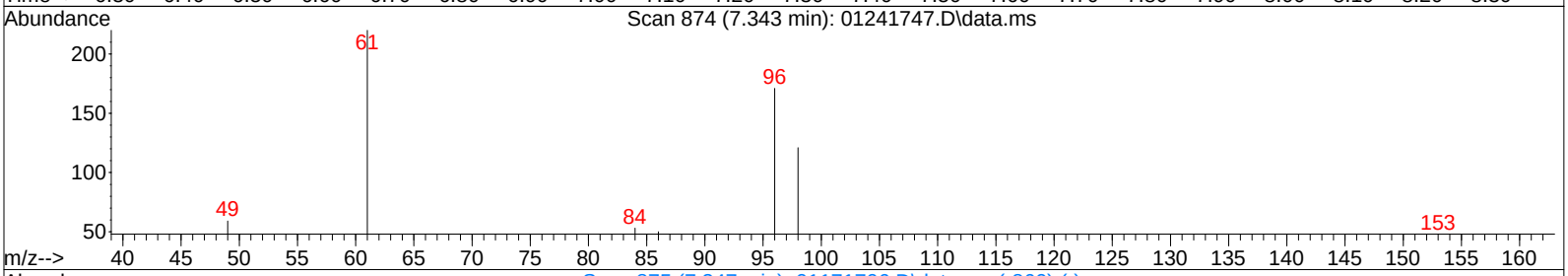
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	53.18#
0.00	0.00	0.00
0.00	0.00	0.00

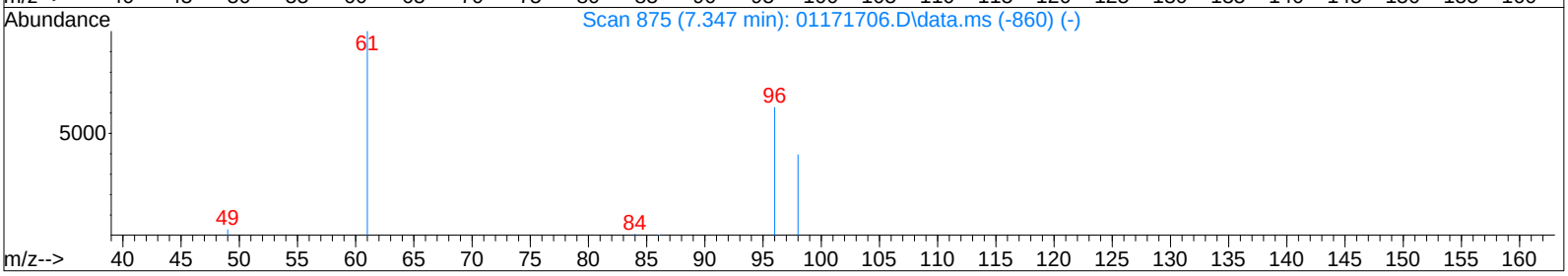
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241747.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 5.94pg

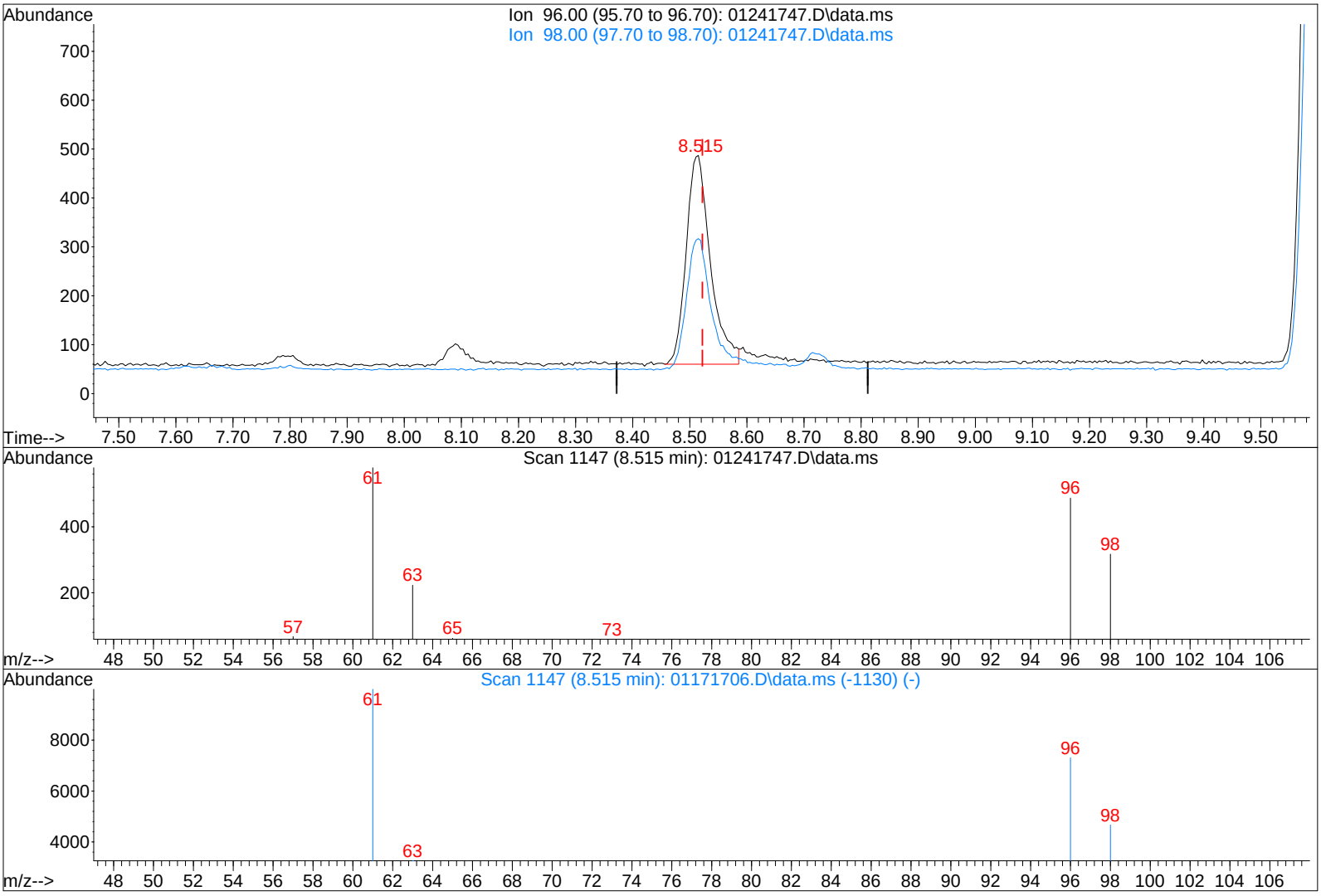
response 279

Ion	Exp%	Act%
96.00	100	100
98.00	63.50	66.31
61.00	162.10	135.84#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241747.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.515min (-0.007) 24.92pg

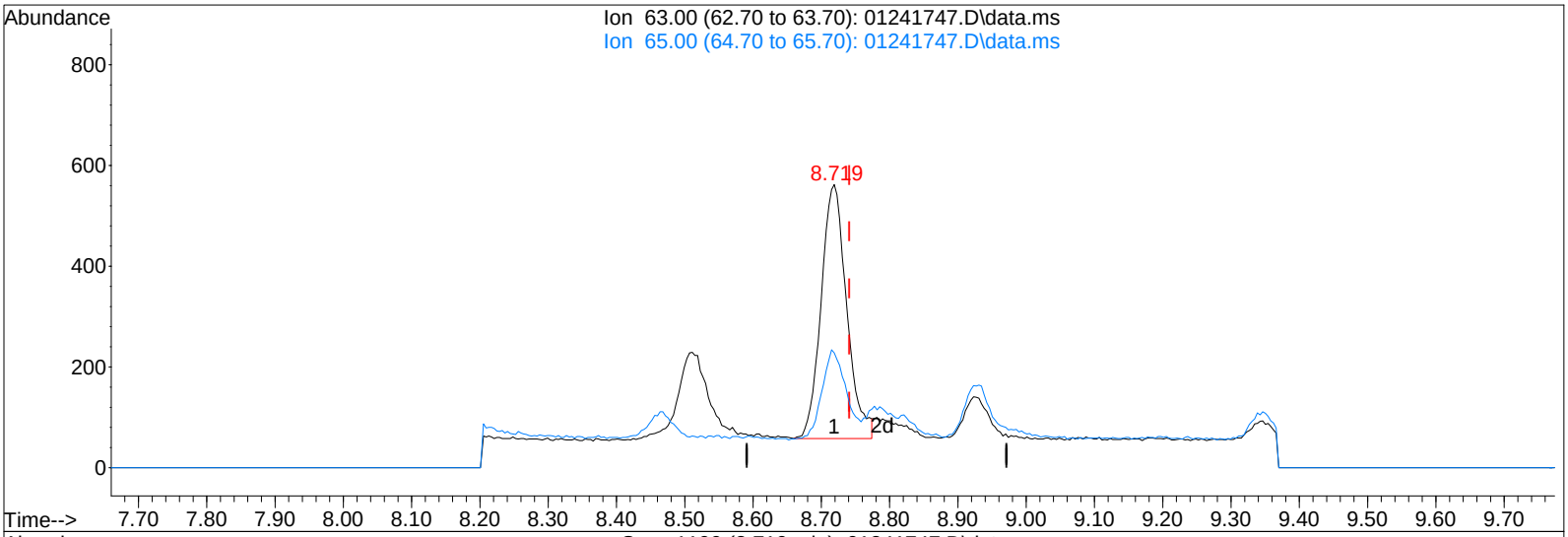
response 1262

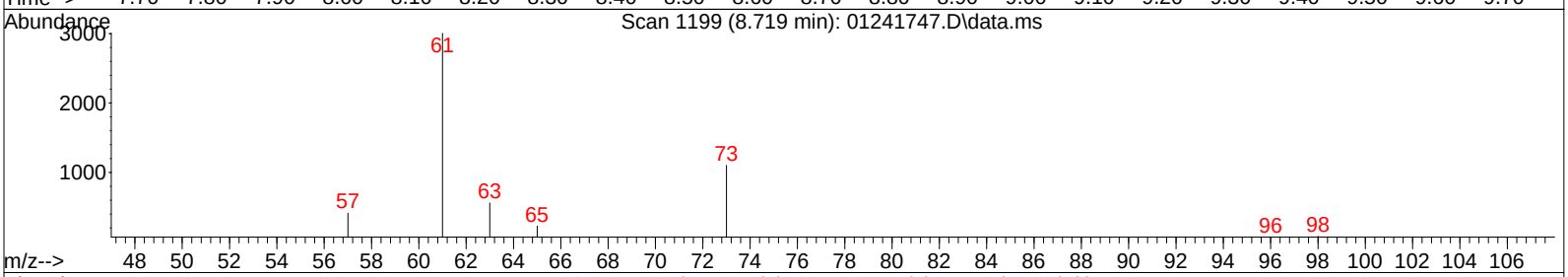
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	61.25
0.00	0.00	0.00
0.00	0.00	0.00

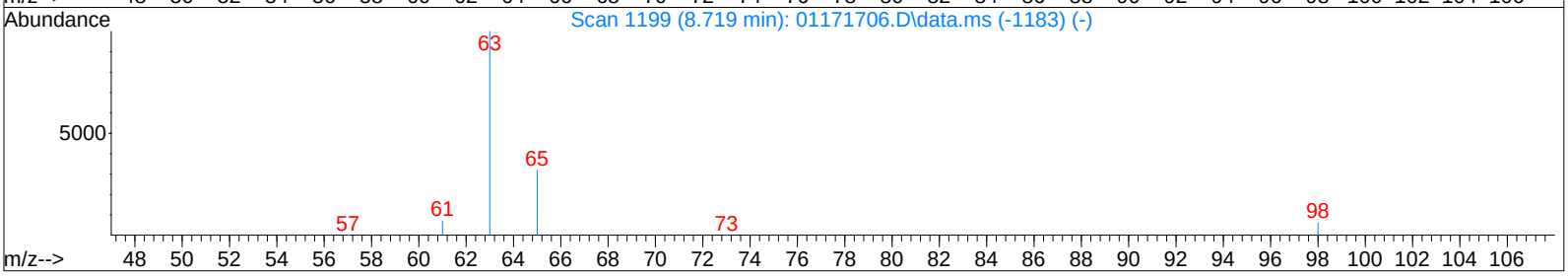
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241747.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 14.59pg

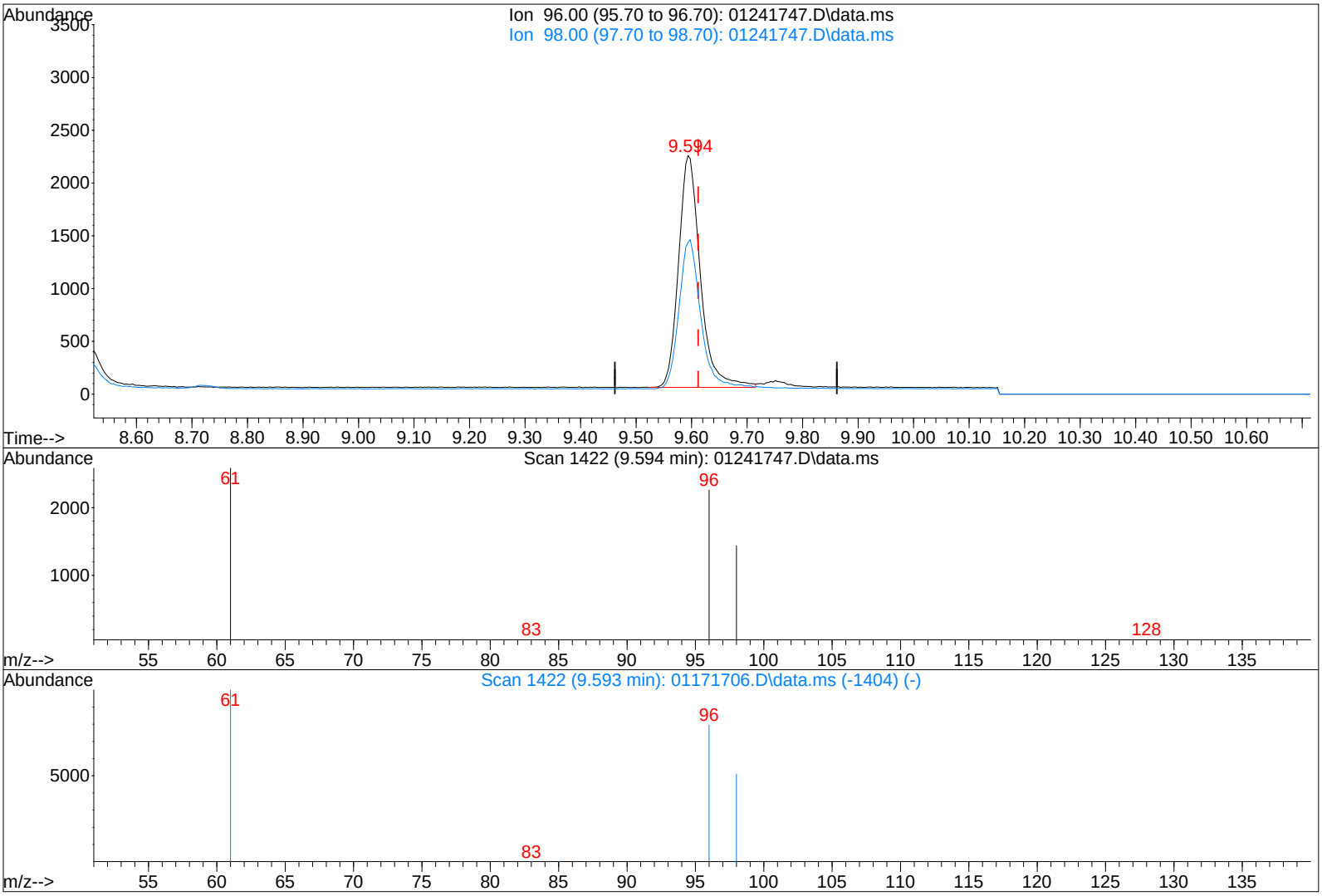
response 1311

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	34.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241747.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 113.01pg

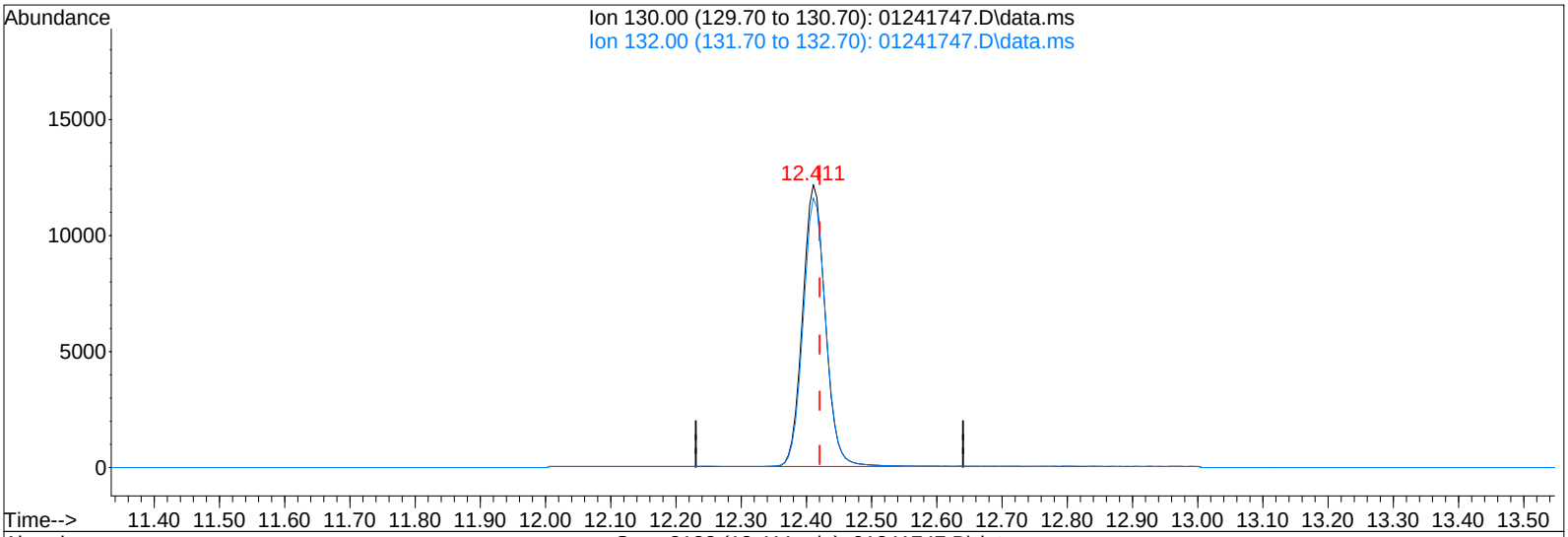
response 6005

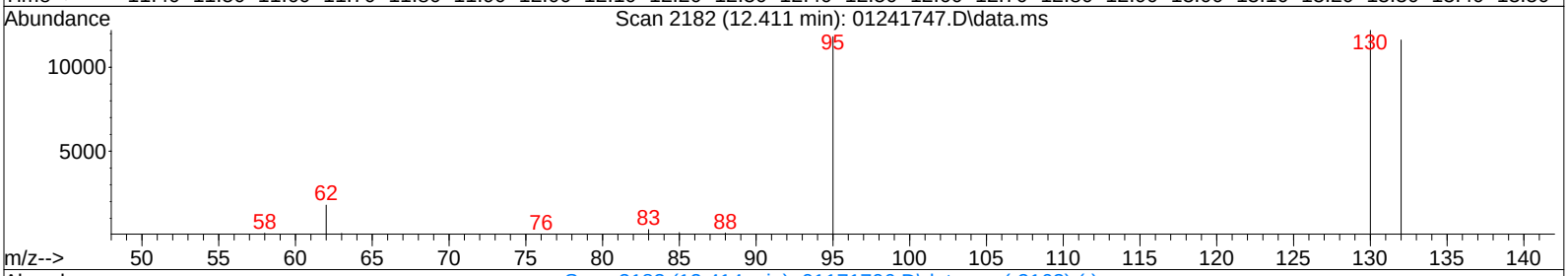
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.50
0.00	0.00	0.00
0.00	0.00	0.00

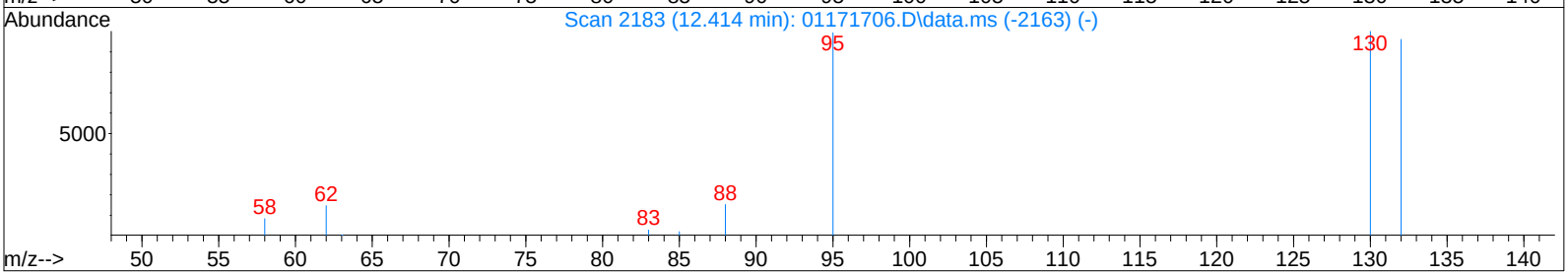
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241747.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 542.46pg

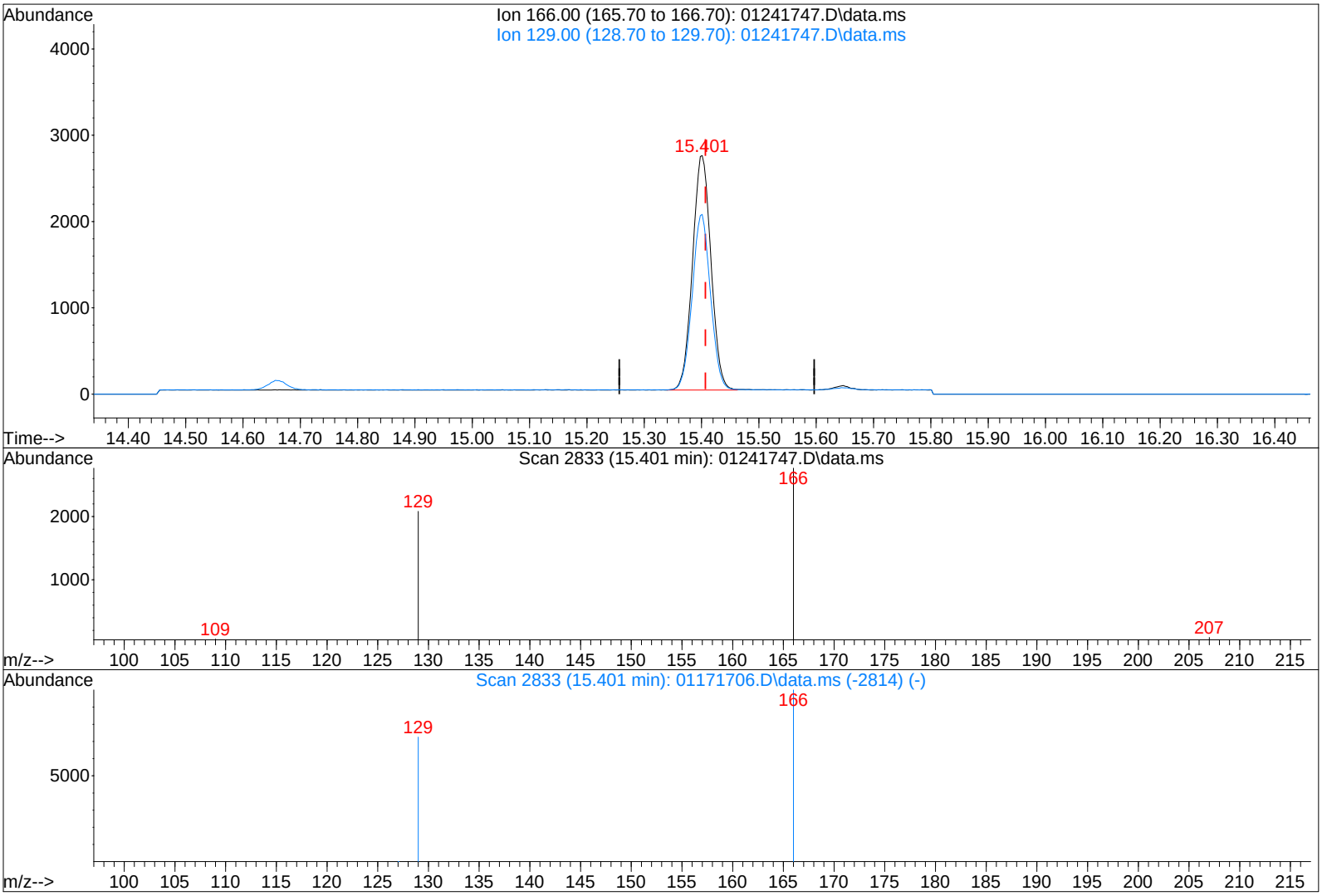
response 29217

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.67
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241747.D Vial: 10
Acq On : 25 Jan 2017 3:29 Operator: CL
Sample : P1700260-006 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 07:13:36 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241747.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 108.82pg

response 6077

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.26
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	41586	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	196350	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	29517	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	64807	899.832 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.98%		
33) Toluene-d8 (SS2)	14.15	98	195854	1004.163 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.42%		
45) Bromofluorobenzene (SS3)	17.55	174	62210	1152.065 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.21%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	181355	1726.231 pg	100
3) Chloromethane	4.64	52	8238	263.199 pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	8564	82.855 pg	100
5) Vinyl Chloride	4.95	62	135	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	976	24.157 pg	100
8) Chloroethane	5.70	64	236	7.637 pg	98
9) Acrolein	6.27	56	4711	214.614 pg	100
10) Acetone	6.40	58	107242	3778.616 pg	# 89
11) Trichlorofluoromethane	6.60	101	67452	938.710 pg	100
12) 1,1-Dichloroethene	7.35	96	315	6.997 pg	90
13) Methylene Chloride	7.48	84	15072	308.523 pg	96
14) Trichlorotrifluoroethane	7.80	151	15700	349.568 pg	100
15) trans-1,2-Dichloroethene	8.52	96	1032	21.265 pg	98
16) 1,1-Dichloroethane	8.72	63	460	5.343 pg	99
17) Methyl tert-Butyl Ether	8.80	73	785	6.110 pg	86
18) cis-1,2-Dichloroethene	9.60	96	568	11.153 pg	96
19) Chloroform	9.89	83	10485	115.801 pg	97
21) 1,2-Dichloroethane	10.64	62	3121	44.778 pg	95
22) 1,1,1-Trichloroethane	10.91	97	37977	451.840 pg	100
23) Benzene	11.37	78	94674	474.583 pg	100
24) Carbon Tetrachloride	11.52	117	23000	340.795 pg	100
26) 1,2-Dichloropropane	12.18	63	870	17.395 pg	97
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	2135	41.823 pg	95
29) 1,4-Dioxane	12.40	88	153	N.D.	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.95	83	110	N.D.	
34) Toluene	14.25	91	156018	856.435 pg	100
35) Dibromochloromethane	14.67	129	244	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	1835	34.668 pg	98
39) Chlorobenzene	16.11	112	592	5.203 pg	84
40) Ethylbenzene	16.48	91	30466	181.566 pg	99
41) m,p-Xylene	16.65	91	61619	489.599 pg	99
42) Styrene	17.01	104	11209	127.122 pg	98
43) o-Xylene	17.12	106	12916	199.768 pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	6481	48.646 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	33962	259.715 pg	88
48) 1,3-Dichlorobenzene	18.92	146	59	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	2745	32.804 pg	98
50) 1,2-Dichlorobenzene	19.31	146	117	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.	
53) Naphthalene	21.07	128	5782	37.559 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

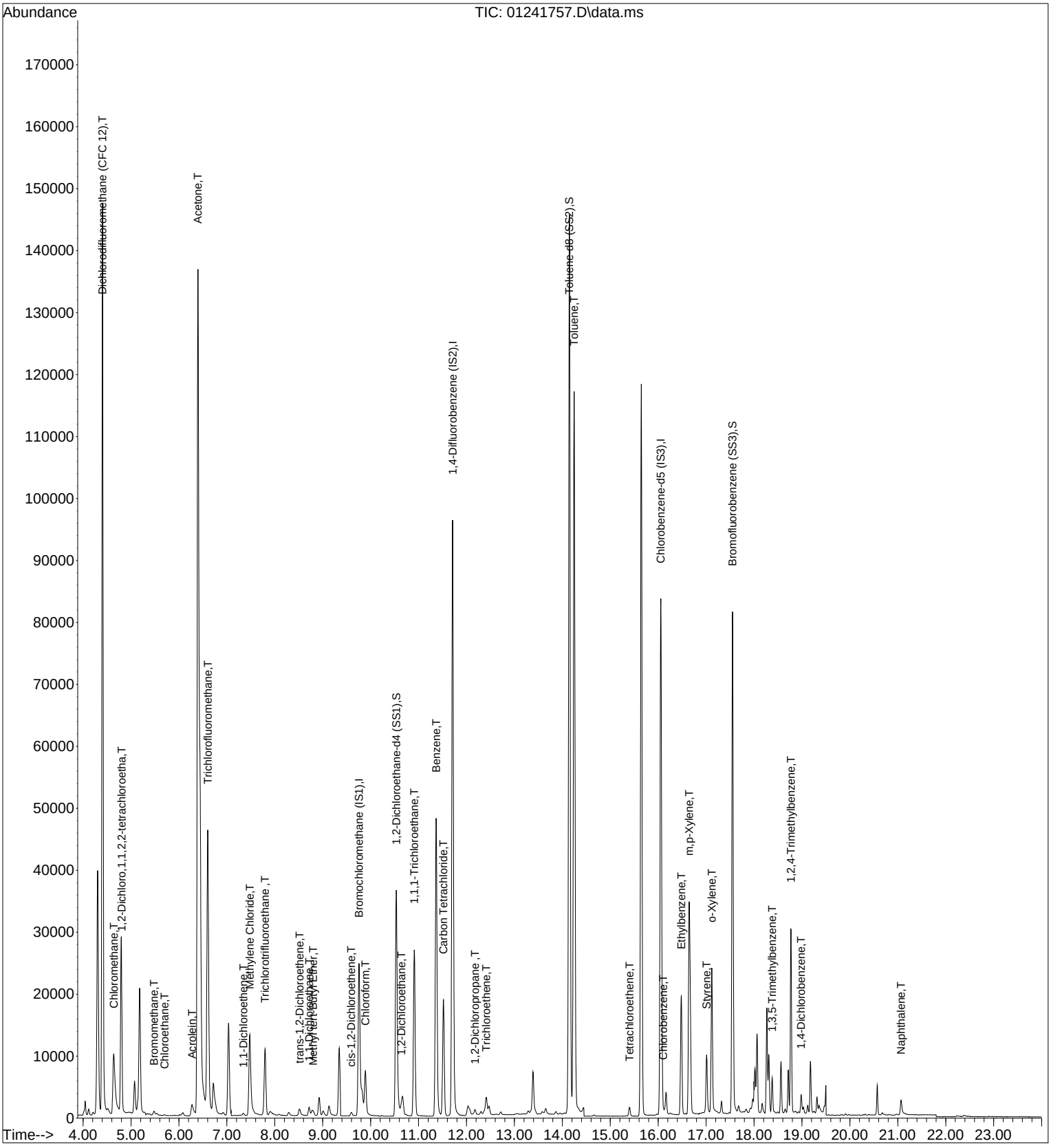
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

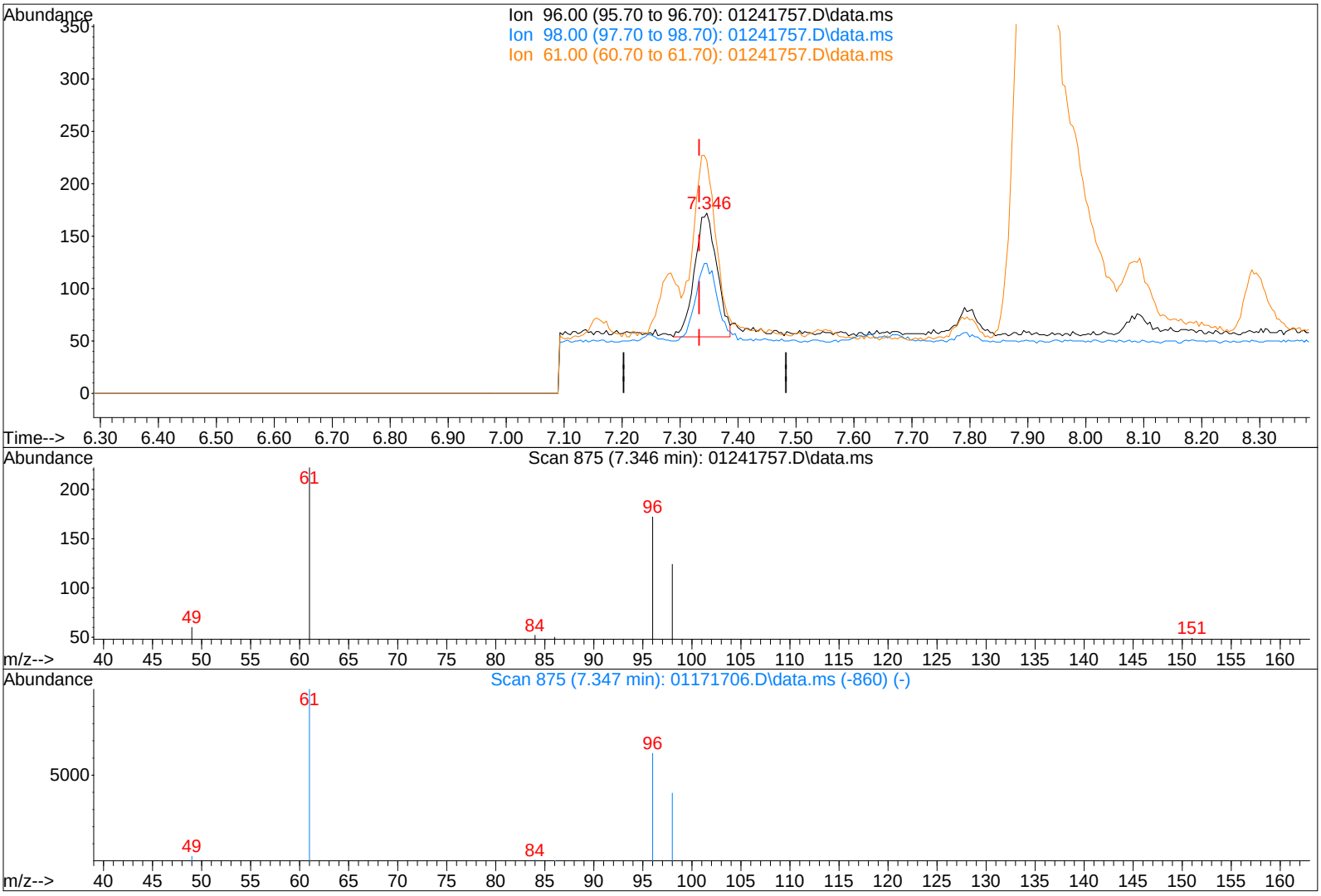
Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241757.D\data.ms

(12) 1,1-Dichloroethene (T)

7.346min (+0.013) 7.00pg

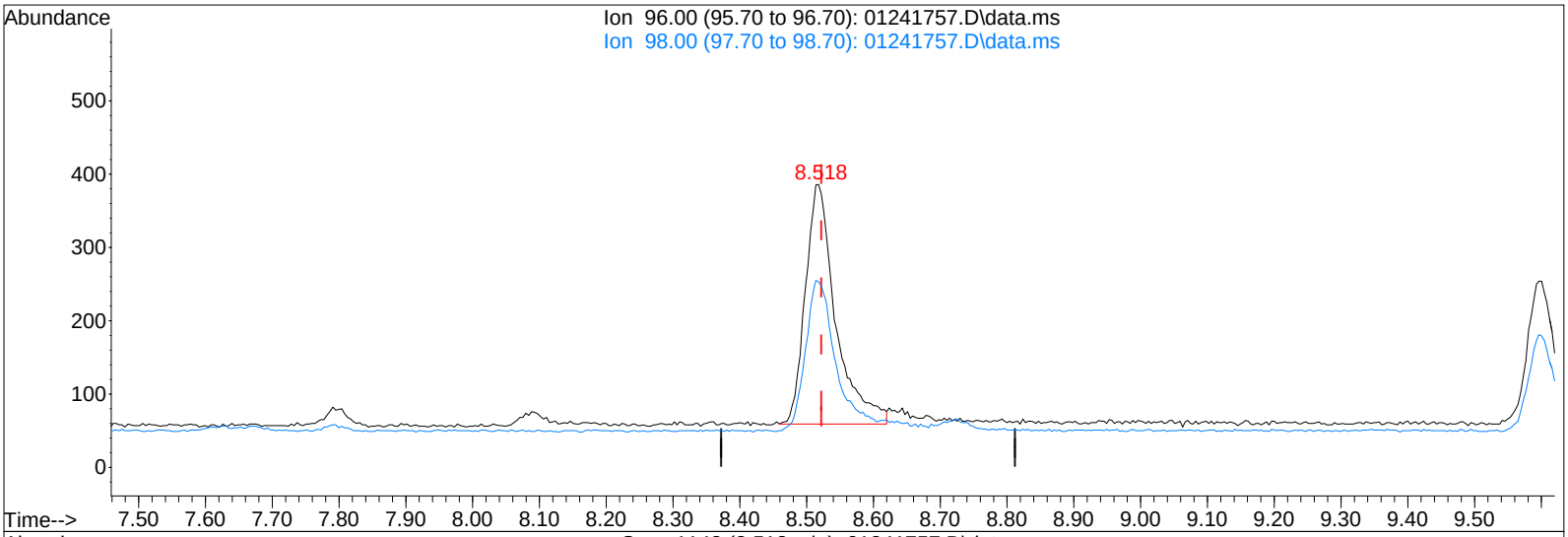
response 315

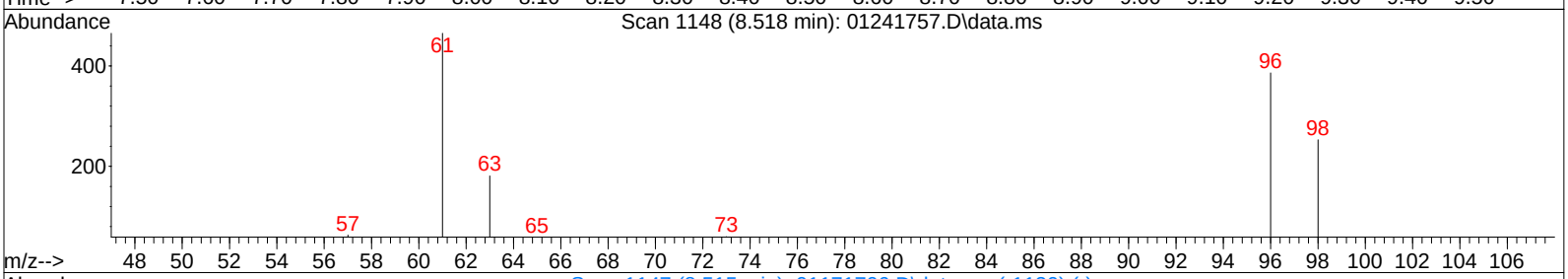
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	62.54
61.00	162.10	145.08
0.00	0.00	0.00

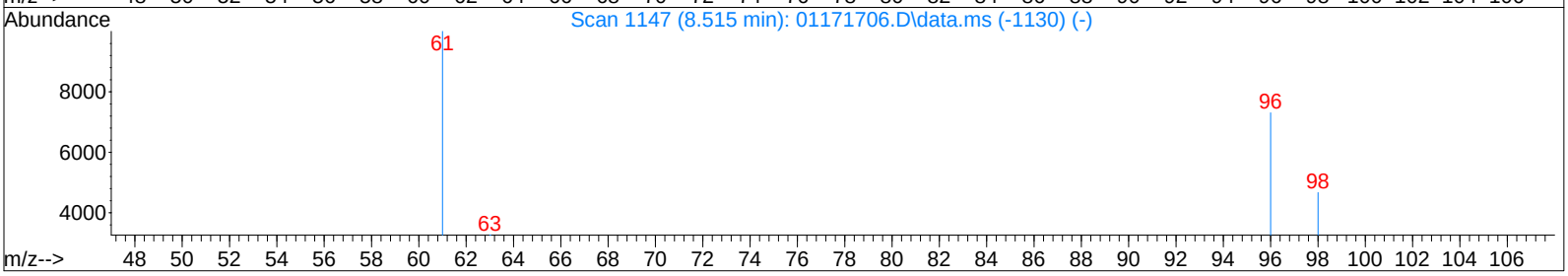
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241757.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.518min (-0.004) 21.26pg

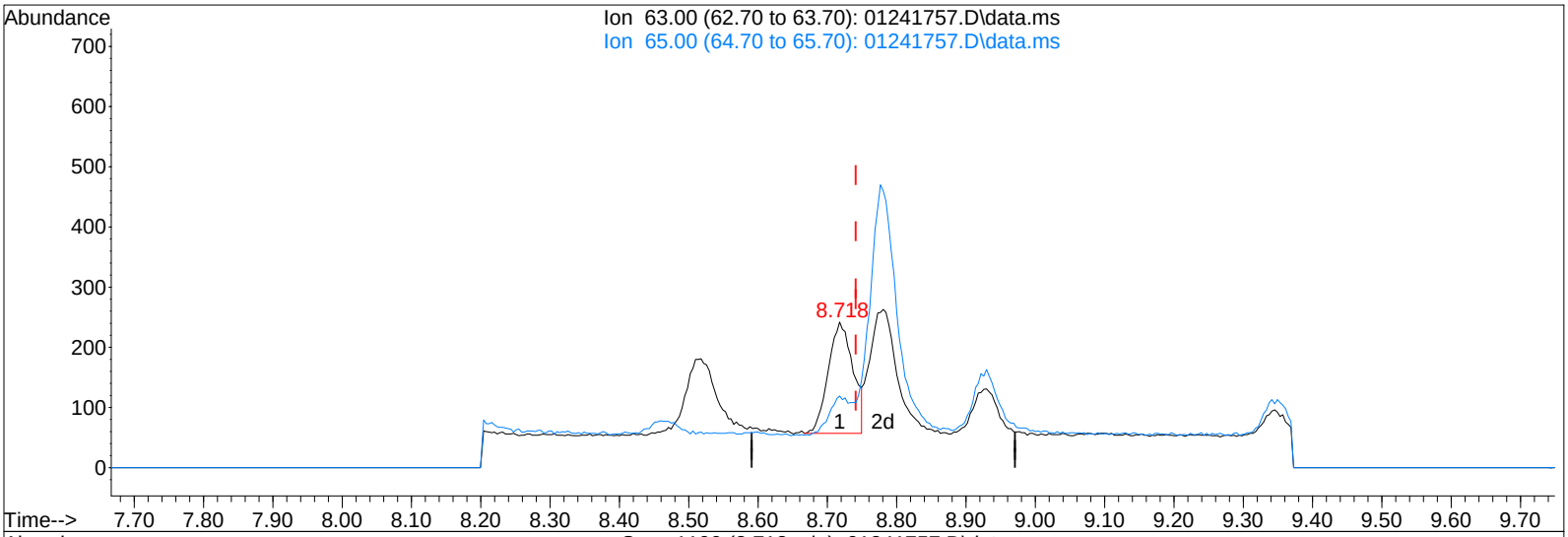
response 1032

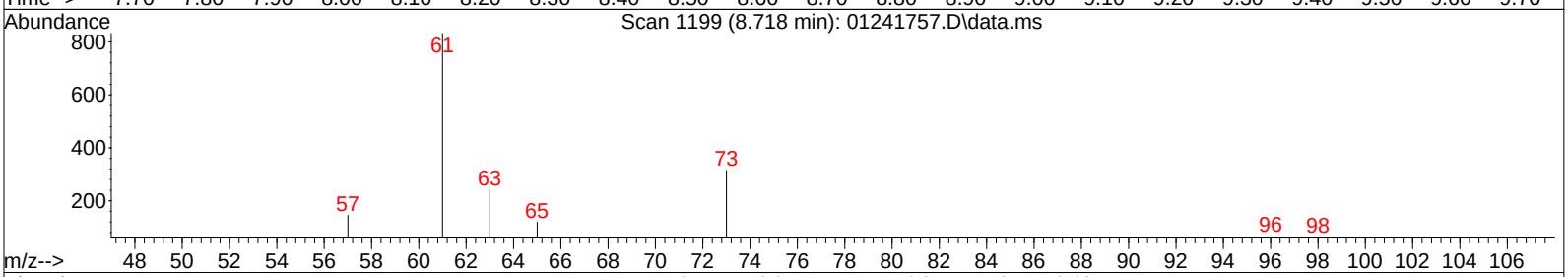
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.28
0.00	0.00	0.00
0.00	0.00	0.00

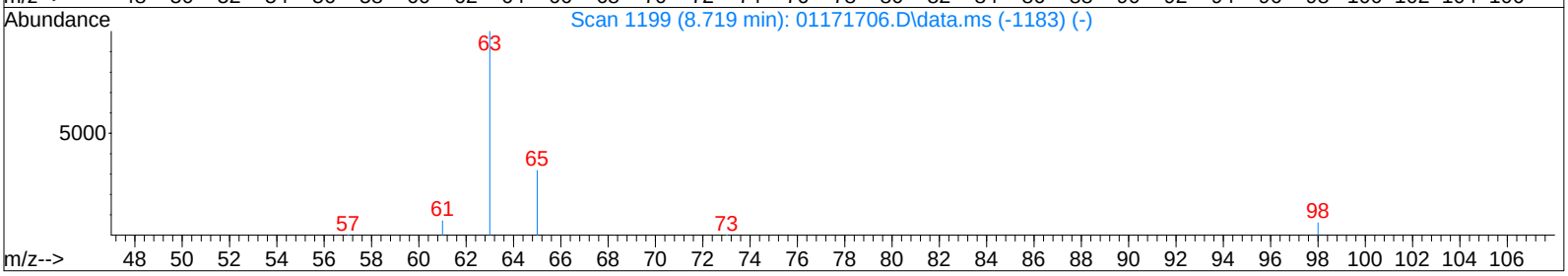
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241757.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.023) 5.34pg

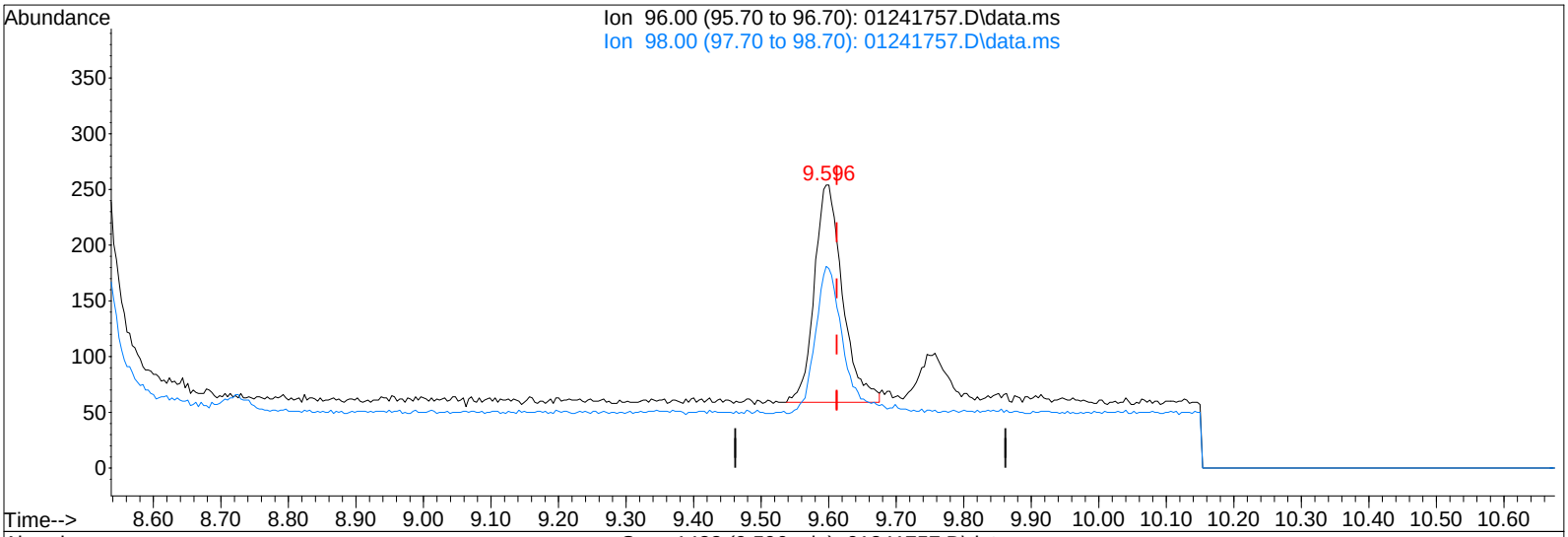
response 460

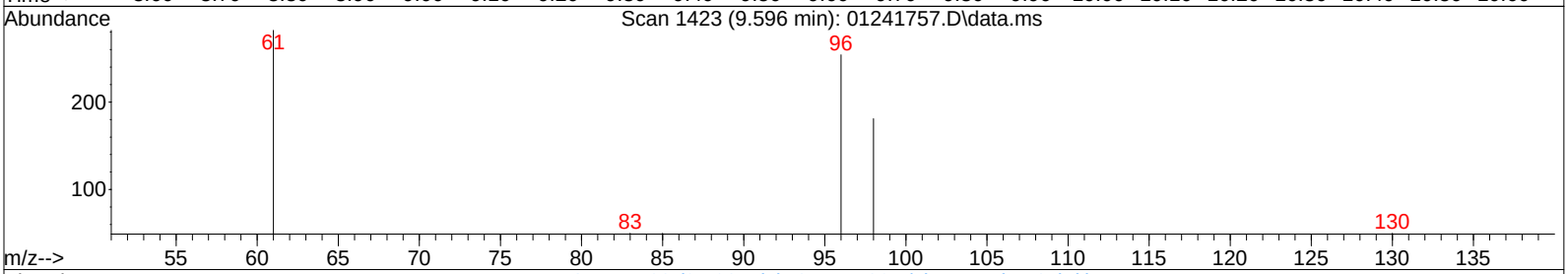
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.09
0.00	0.00	0.00
0.00	0.00	0.00

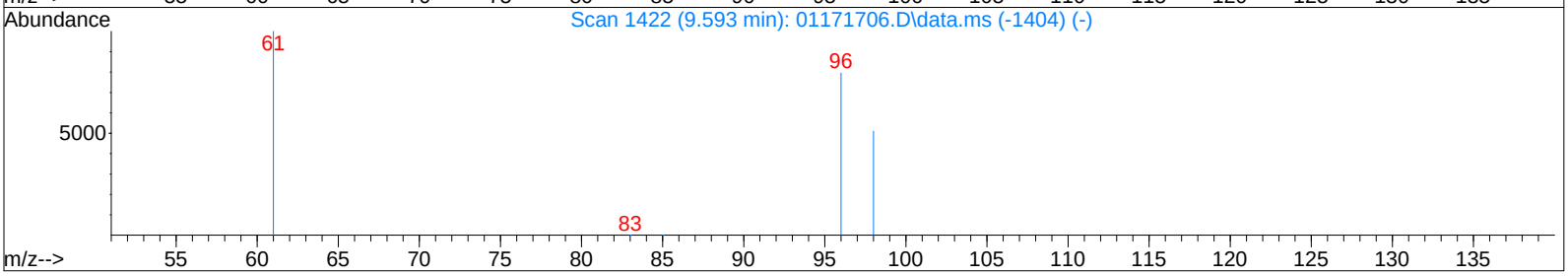
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01241757.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.596min (-0.016) 11.15pg

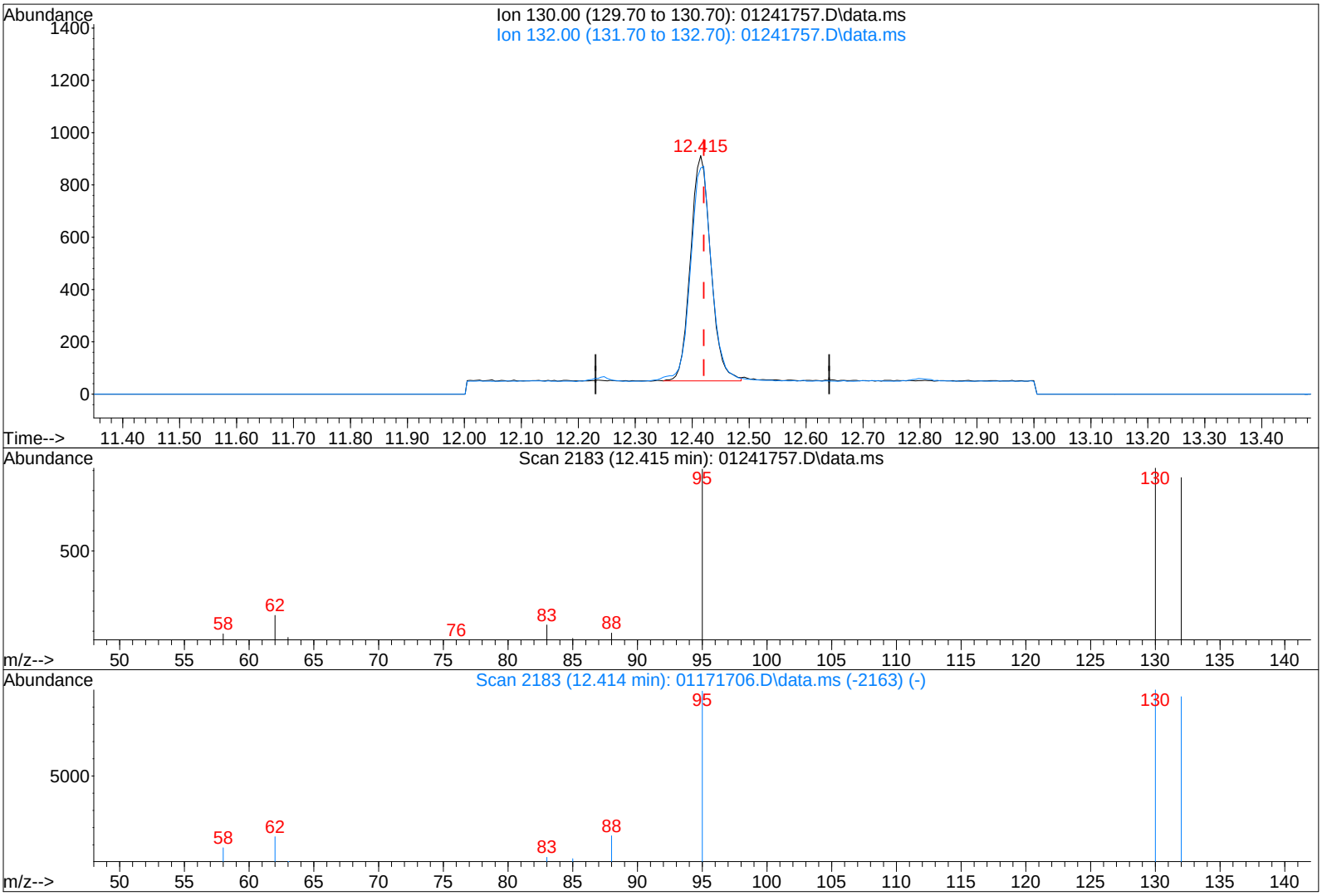
response 568

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.55
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241757.D\data.ms

(28) Trichloroethene (T)

12.415min (-0.005) 41.82pg

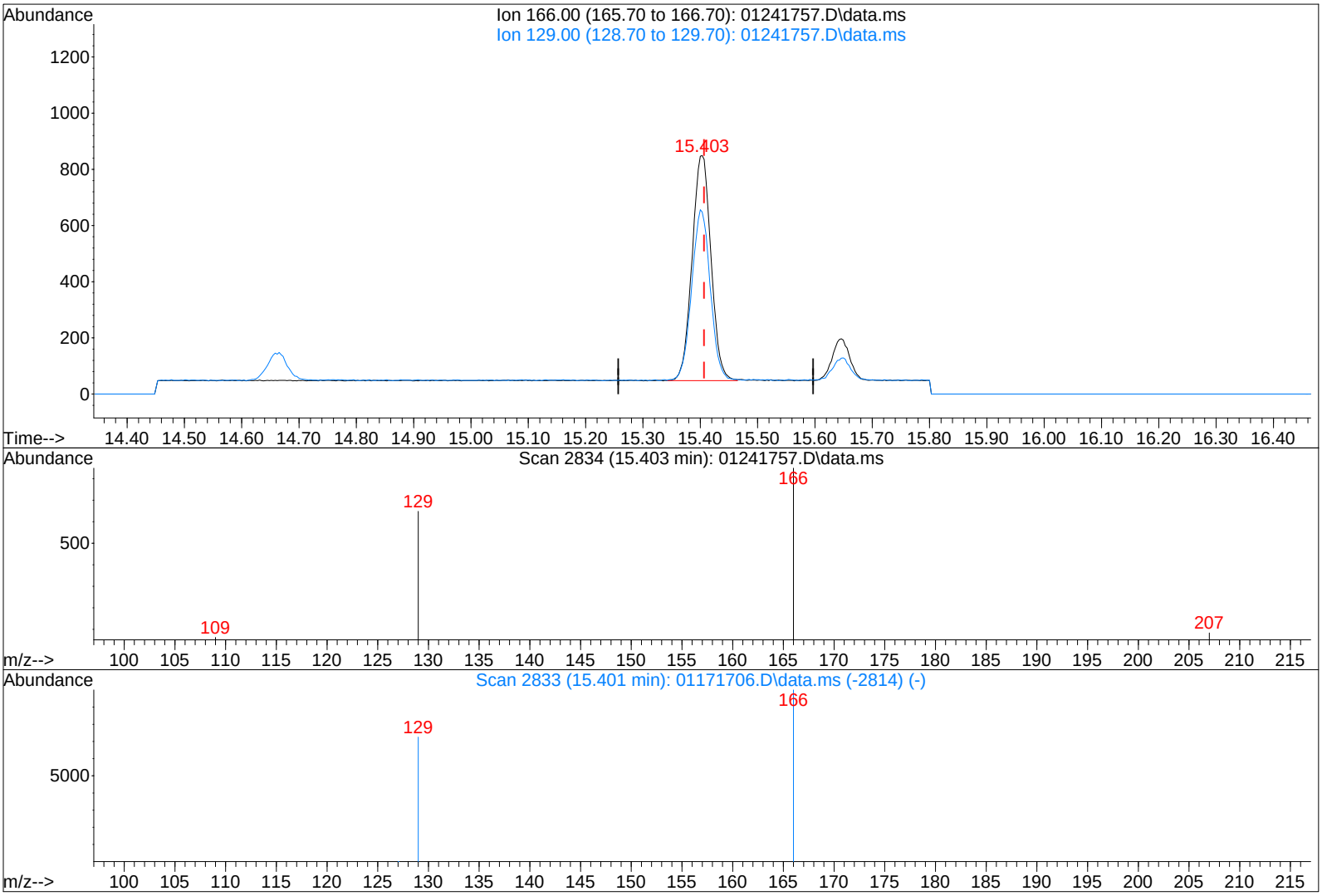
response 2135

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	100.28
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\24\01241757.D Vial: 7
Acq On : 25 Jan 2017 12:21 Operator: CL
Sample : P1700260-013 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 25 13:46:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01241757.D\data.ms

(37) Tetrachloroethene (T)

15.403min (-0.003) 34.67pg

response 1835

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.22
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 08:37:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	42269	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	203734	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	30907	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	66611	909.936 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.99%		
33) Toluene-d8 (SS2)	14.14	98	206800	1021.856 pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.19%		
45) Bromofluorobenzene (SS3)	17.55	174	65198	1153.099 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.31%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	162674	1523.396 pg	100
3) Chloromethane	4.64	52	7266	228.393 pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	7338	69.846 pg	99
5) Vinyl Chloride	4.95	62	1431	14.018 pg	89
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.47	94	848	20.650 pg	96
8) Chloroethane	5.68	64	206	6.559 pg	99
9) Acrolein	6.26	56	8892	398.538 pg	97
10) Acetone	6.38	58	883750	30635.322 pg	91
11) Trichlorofluoromethane	6.59	101	60031	821.935 pg	100
12) 1,1-Dichloroethene	7.33	96	329	7.190 pg	99
13) Methylene Chloride	7.48	84	13341	268.677 pg	95
14) Trichlorotrifluoroethane	7.80	151	14416	315.793 pg	100
15) trans-1,2-Dichloroethene	8.51	96	1699	34.443 pg	98
16) 1,1-Dichloroethane	8.72	63	1900	21.710 pg	99
17) Methyl tert-Butyl Ether	8.79	73	662	5.069 pg	83
18) cis-1,2-Dichloroethene	9.59	96	15533	300.069 pg	99
19) Chloroform	9.89	83	14868	161.555 pg	99
21) 1,2-Dichloroethane	10.64	62	4569	64.494 pg	99
22) 1,1,1-Trichloroethane	10.91	97	1500	17.558 pg	100
23) Benzene	11.37	78	101087	498.542 pg	100
24) Carbon Tetrachloride	11.52	117	21329	310.929 pg	100
26) 1,2-Dichloropropane	12.18	63	1251	24.107 pg	98
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	26999	509.716 pg	99
29) 1,4-Dioxane	12.38	88	3306	84.999 pg	90
30) cis-1,3-Dichloropropene	13.26	75	71	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.94	83	101	N.D.	
34) Toluene	14.25	91	652913	3454.161 pg	99
35) Dibromochloromethane	14.67	129	253	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	4408	80.261 pg	98
39) Chlorobenzene	16.11	112	751	6.303 pg	90
40) Ethylbenzene	16.48	91	193022	1098.606 pg	99
41) m,p-Xylene	16.65	91	655728	4975.823 pg	99
42) Styrene	17.01	104	17593	190.551 pg	100
43) o-Xylene	17.12	106	106441	1572.252 pg	98
44) 1,1,2,2-Tetrachloroethane	17.12	83	156	N.D.	
46) 1,3,5-Trimethylbenzene	18.38	105	10046	72.014 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	38495	281.140 pg	89
48) 1,3-Dichlorobenzene	18.92	146	67	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	3208	36.613 pg	99
50) 1,2-Dichlorobenzene	19.31	146	193	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	119	N.D.	
53) Naphthalene	21.06	128	7343	45.554 pg	96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 08:37:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

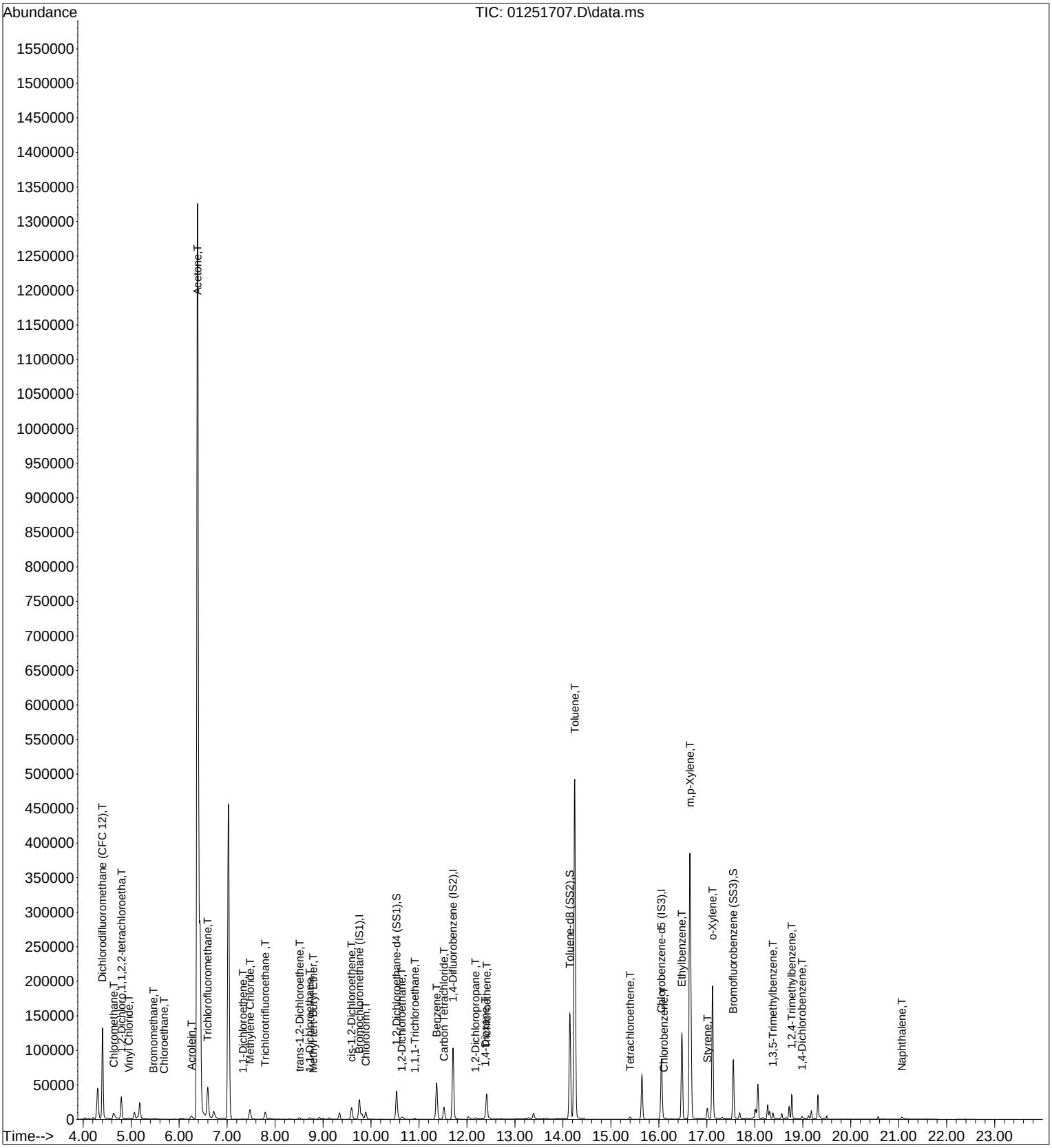
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

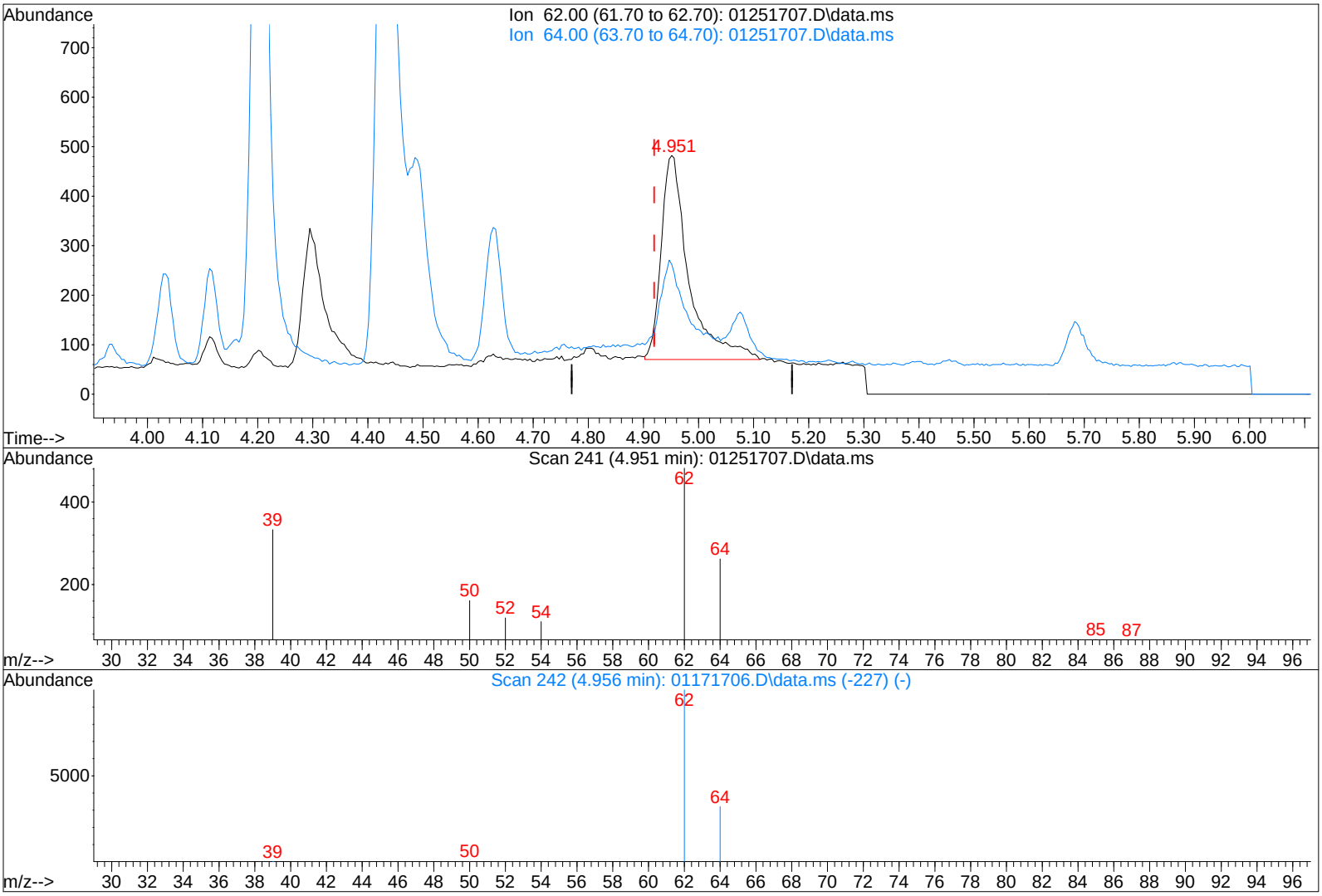
Quant Time: Jan 26 08:37:37 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251707.D\data.ms

(5) Vinyl Chloride (T)

4.951min (+0.031) 14.02pg

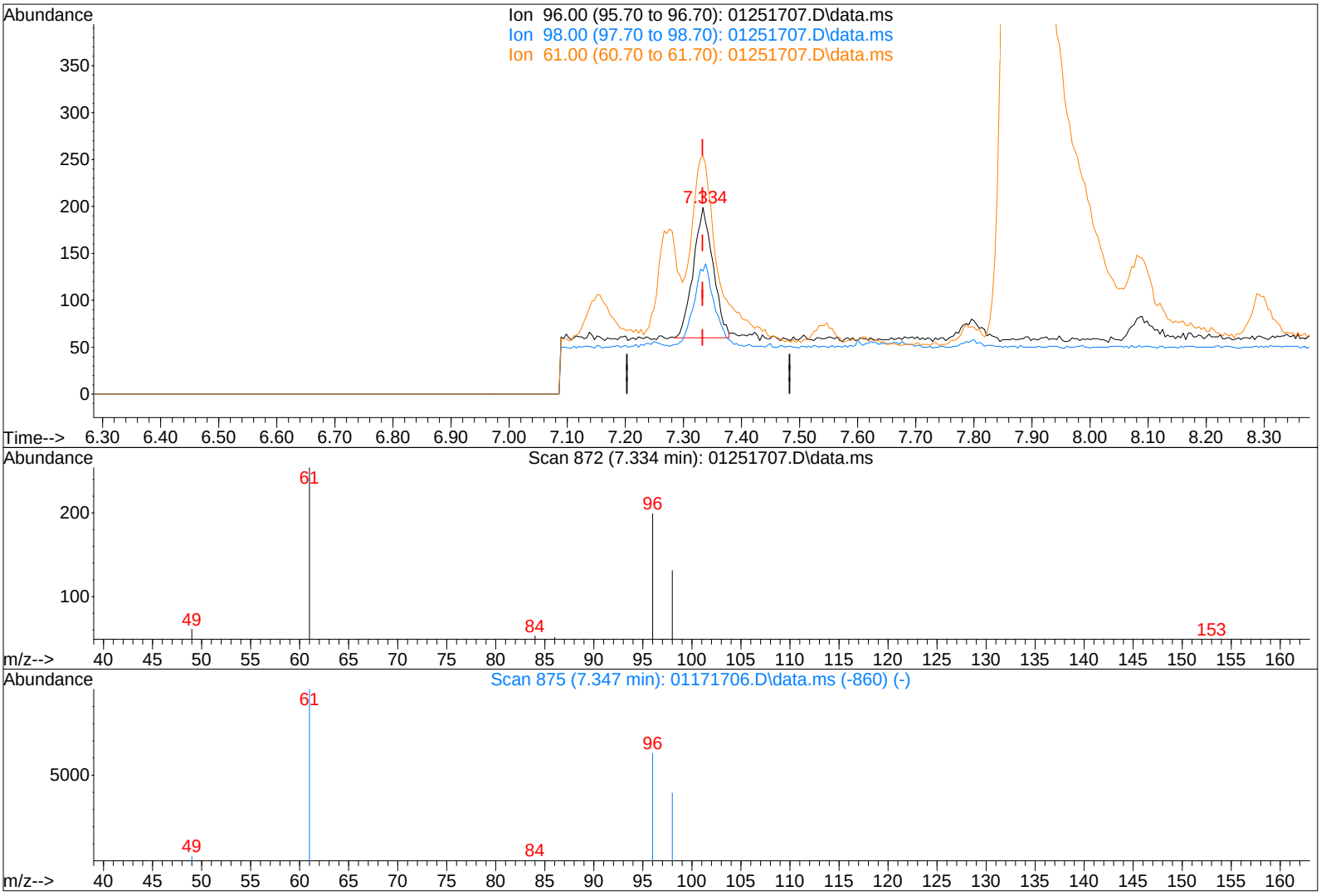
response 1431

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	38.16
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251707.D\data.ms

(12) 1,1-Dichloroethene (T)

7.334min (+0.001) 7.19pg

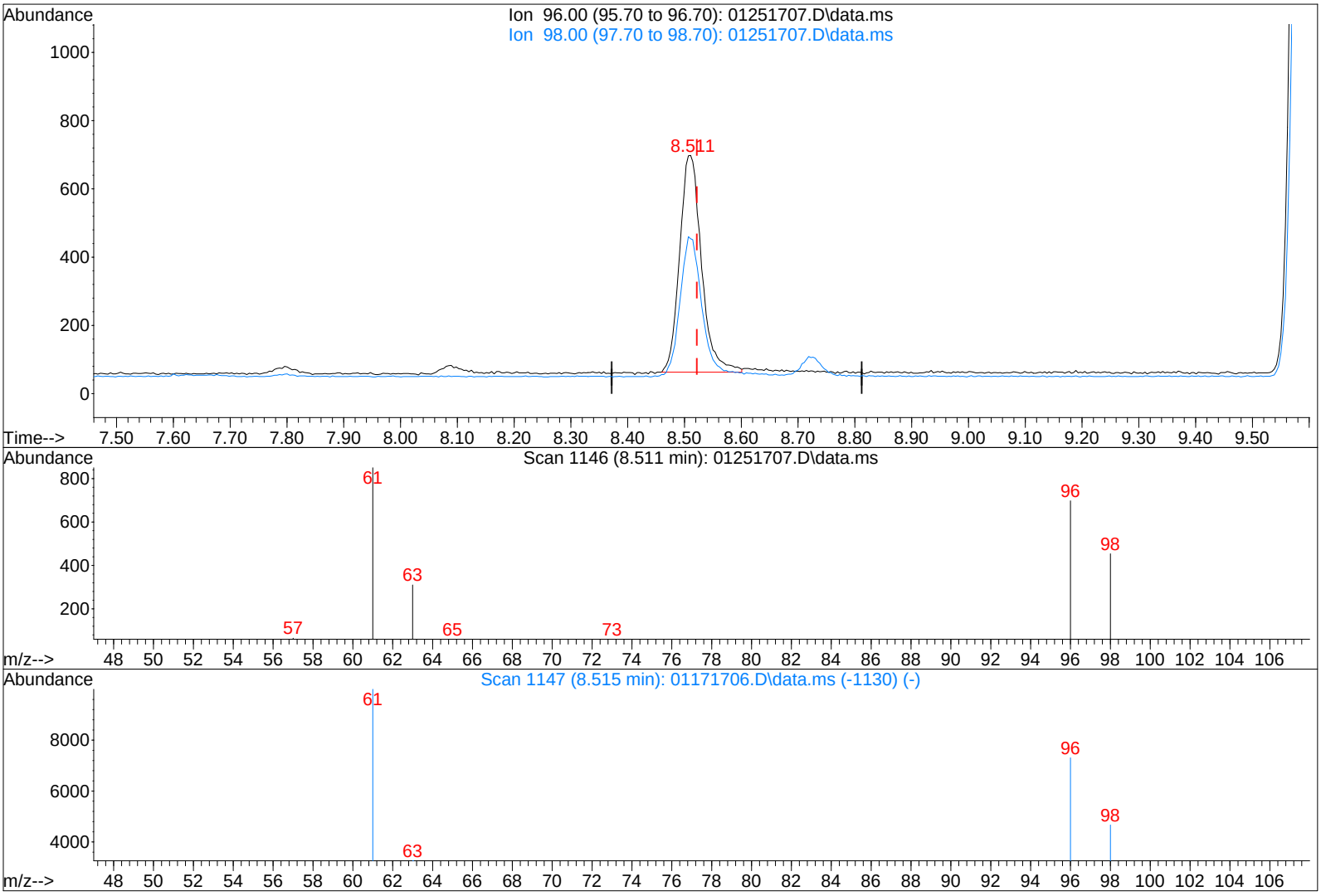
response 329

Ion	Exp%	Act%
96.00	100	100
98.00	63.50	65.96
61.00	162.10	161.70
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251707.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 34.44pg

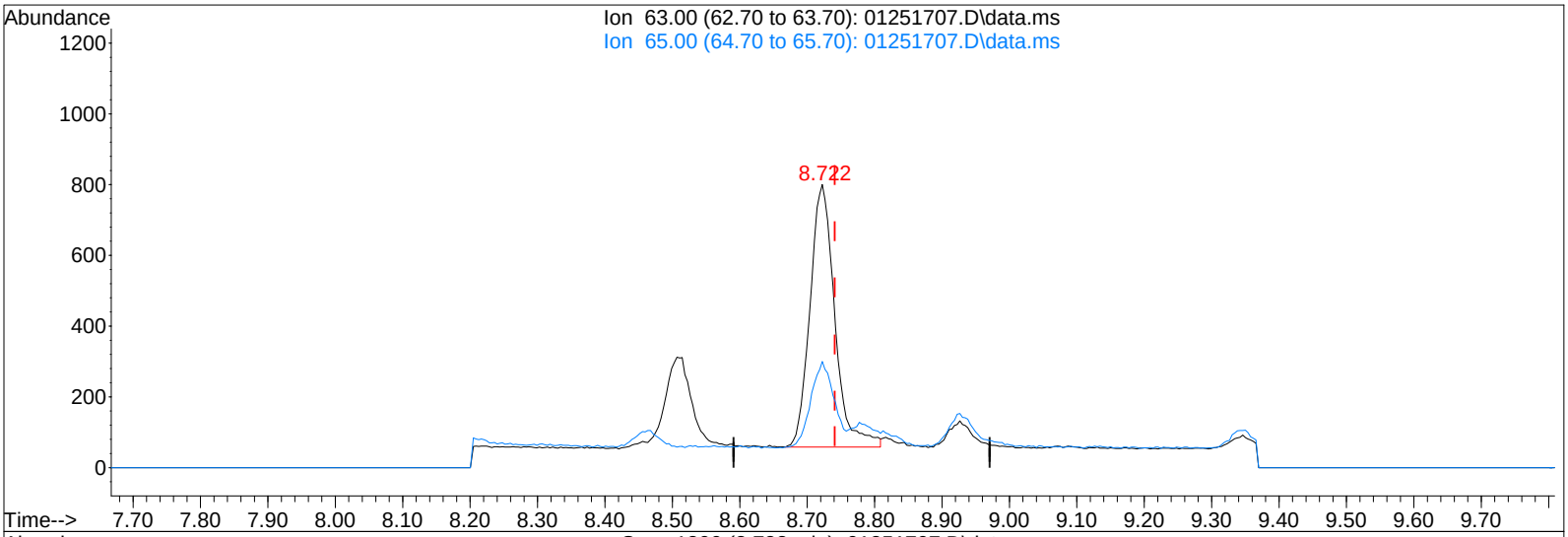
response 1699

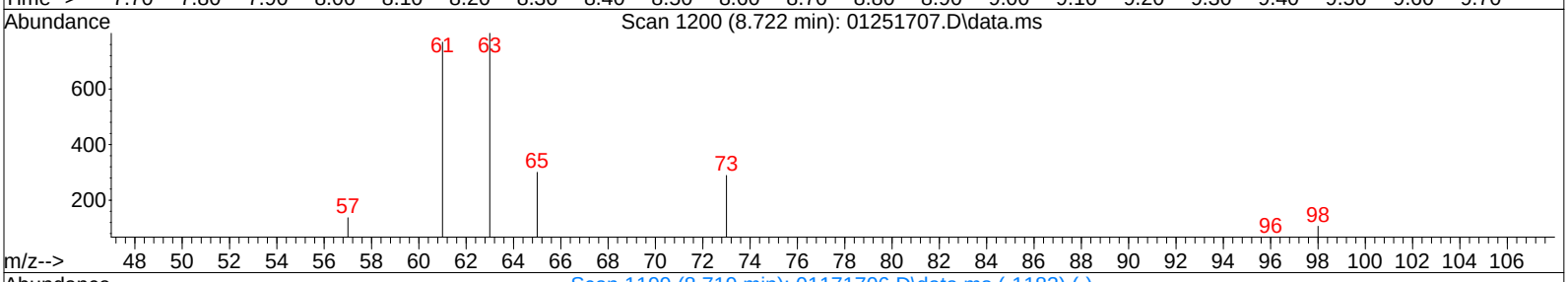
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.63
0.00	0.00	0.00
0.00	0.00	0.00

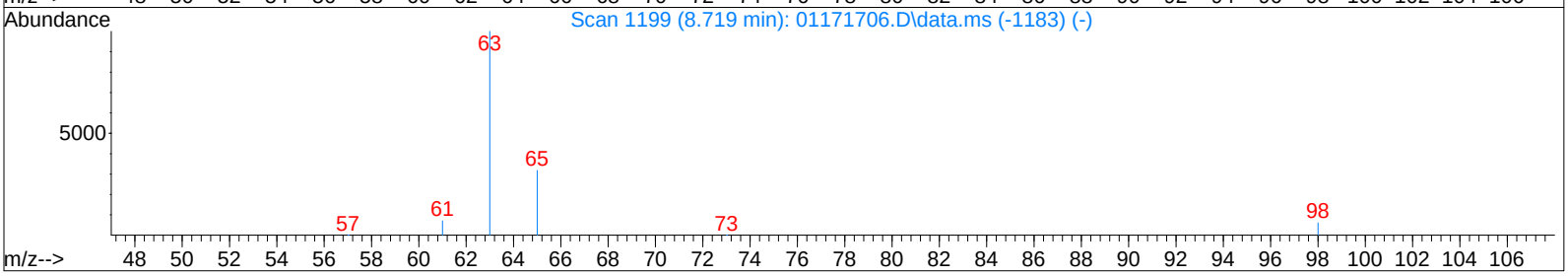
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01251707.D\data.ms

(16) 1,1-Dichloroethane (T)

8.722min (-0.019) 21.71pg

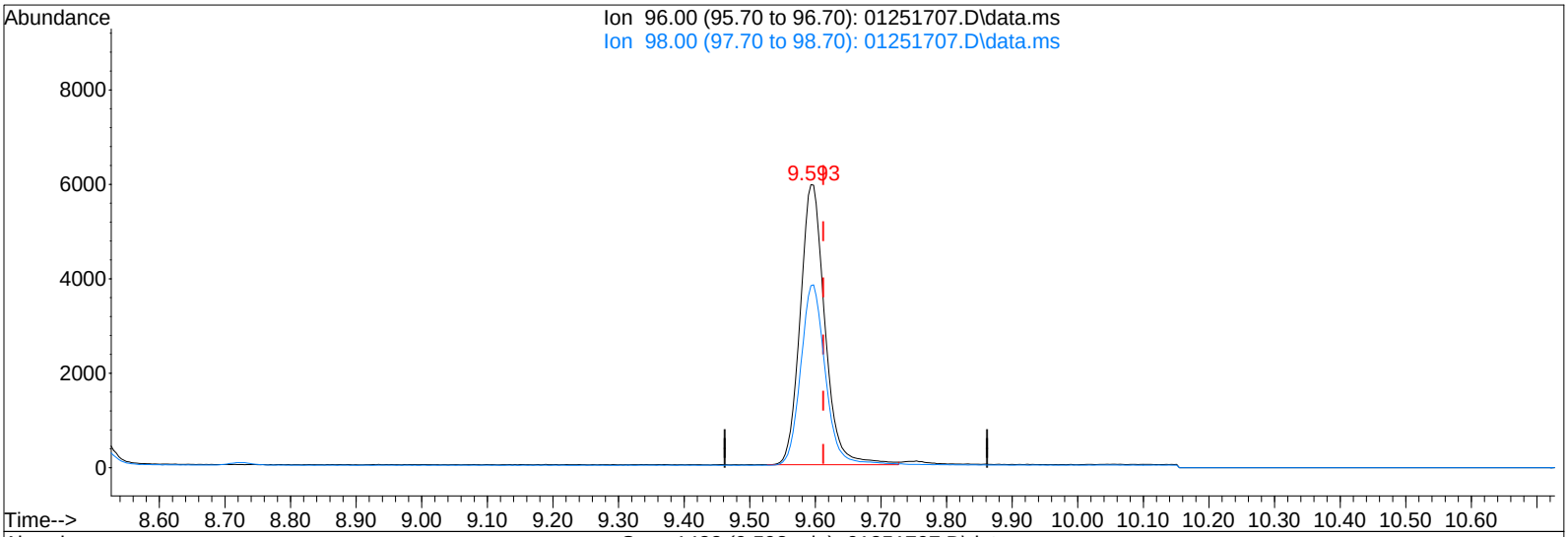
response 1900

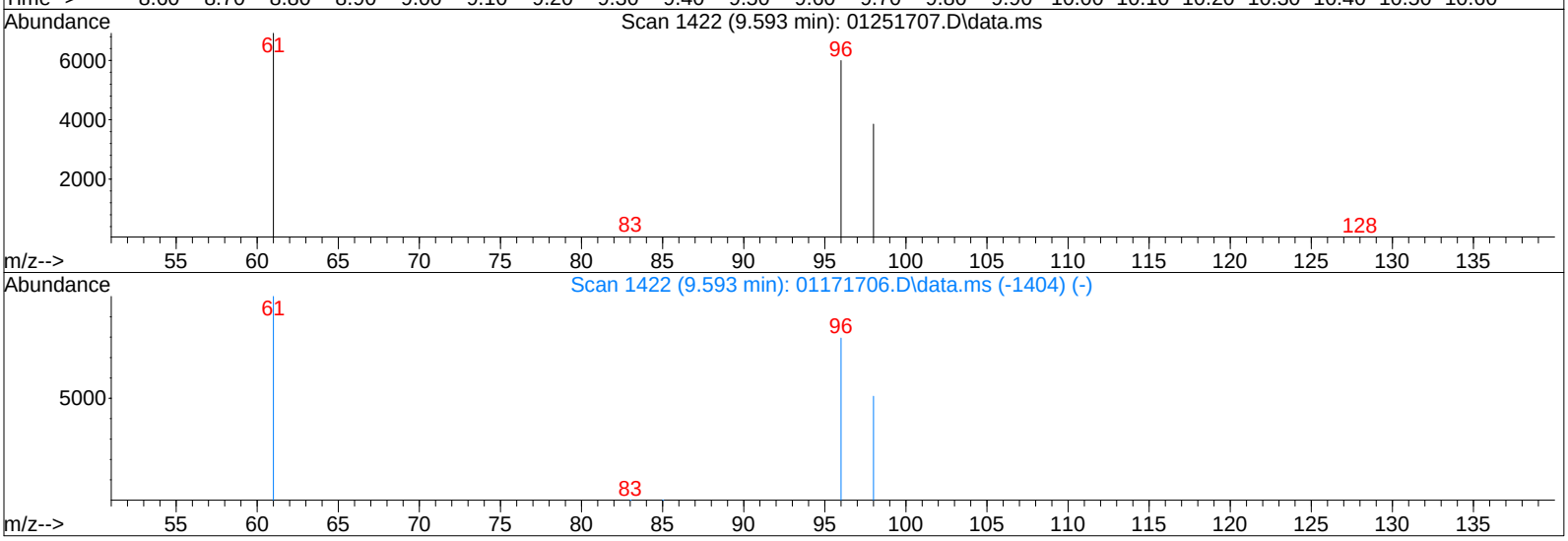
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01251707.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.593min (-0.019) 300.07pg

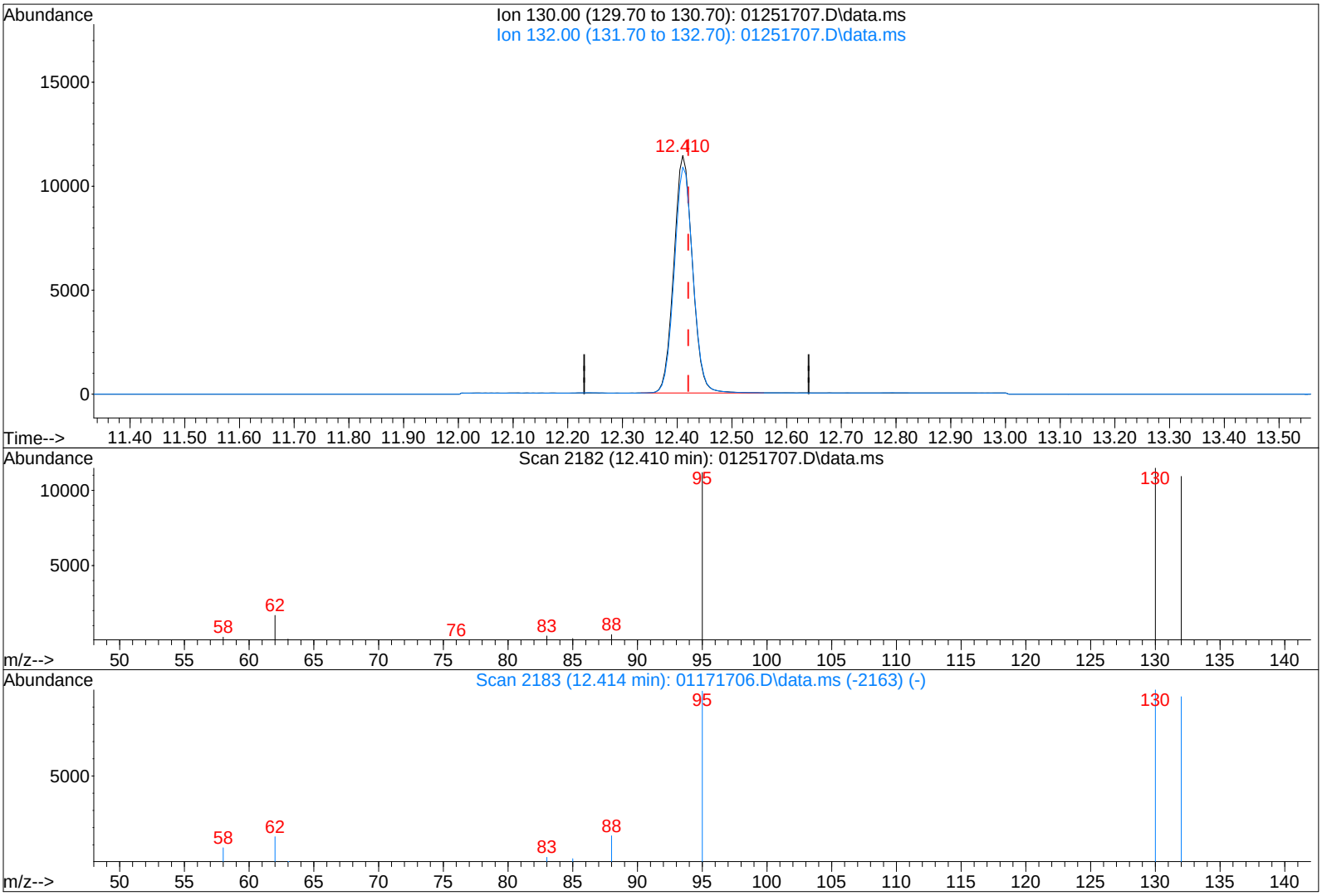
response 15533

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251707.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 509.72pg

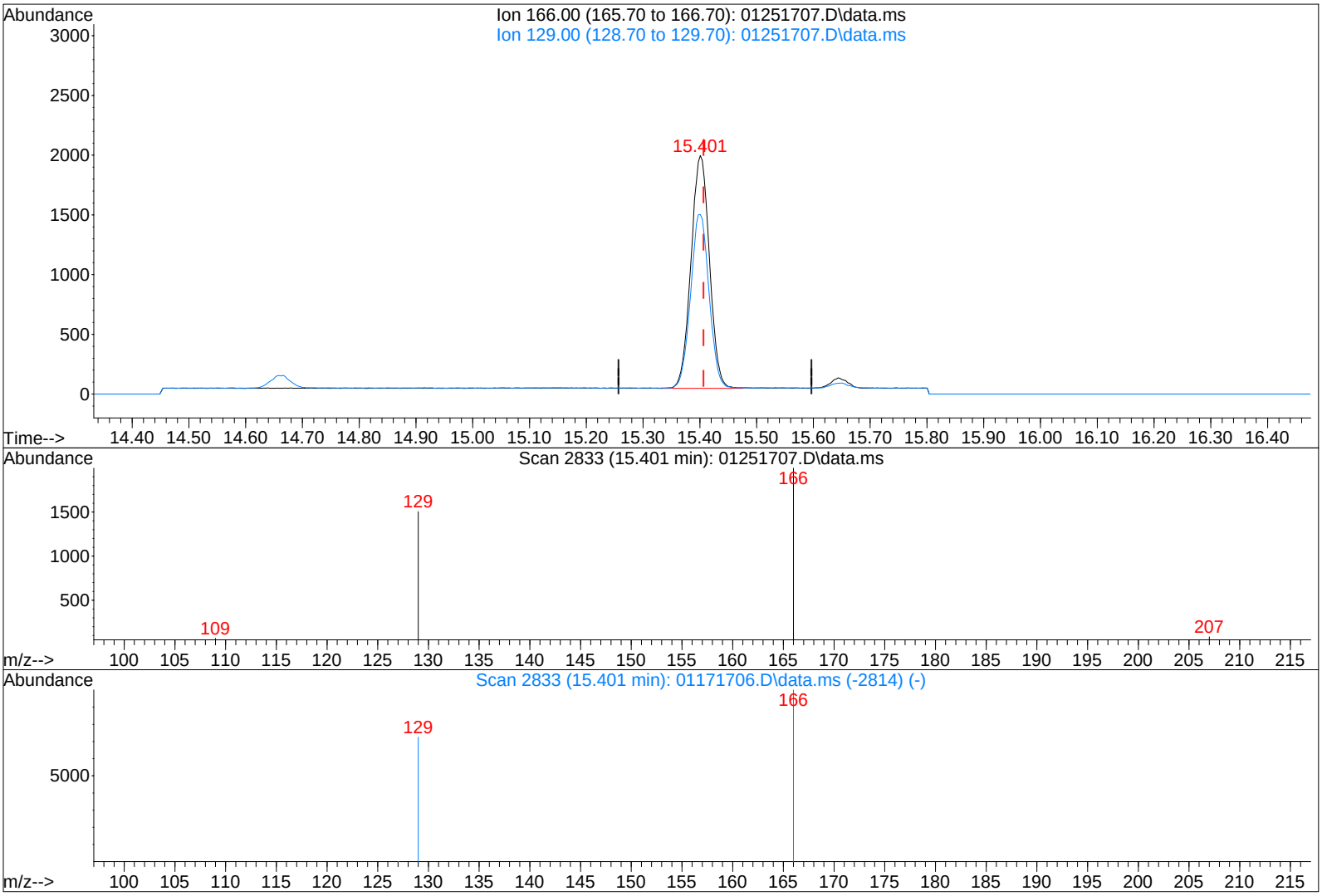
response 26999

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.03
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251707.D Vial: 11
Acq On : 25 Jan 2017 18:14 Operator: CL
Sample : P1700260-017 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251707.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 80.26pg

response 4408

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 08:45:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45068	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	231047	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	39898	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	68573	878.560 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.86%			
33) Toluene-d8 (SS2)	14.14	98	221413	964.729 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.47%			
45) Bromofluorobenzene (SS3)	17.55	174	76851	1052.901 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.29%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	173801	1526.513 pg		100
3) Chloromethane	4.63	52	7494	220.930 pg		94
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	7847	70.052 pg		99
5) Vinyl Chloride	4.94	62	631	5.797 pg		72
6) 1,3-Butadiene	5.12	54	4997	77.218 pg	#	65
7) Bromomethane	5.47	94	1236	28.229 pg		97
8) Chloroethane	5.68	64	206	6.152 pg		99
9) Acrolein	6.27	56	4993	209.887 pg		96
10) Acetone	6.41	58	9343767	303786.663 pg	#	66
11) Trichlorofluoromethane	6.59	101	69937	898.096 pg		100
12) 1,1-Dichloroethene	7.33	96	188	N.D.		
13) Methylene Chloride	7.49	84	30210	570.619 pg		96
14) Trichlorotrifluoroethane	7.79	151	17245	354.303 pg		100
15) trans-1,2-Dichloroethene	8.52	96	1699	32.303 pg		97
16) 1,1-Dichloroethane	8.71	63	6296	67.473 pg		89
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.61	96	4308	78.054 pg		98
19) Chloroform	9.90	83	11795	120.204 pg		100
21) 1,2-Dichloroethane	10.65	62	3722	49.275 pg		99
22) 1,1,1-Trichloroethane	10.92	97	1406	15.436 pg		99
23) Benzene	11.37	78	180925	836.872 pg		98
24) Carbon Tetrachloride	11.53	117	27438	375.142 pg		100
26) 1,2-Dichloropropane	12.18	63	1030	17.502 pg		92
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.42	130	22632	376.762 pg		99
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	13.26	75	108	N.D.		
31) trans-1,3-Dichloropropene	13.80	75	246	N.D.		
32) 1,1,2-Trichloroethane	13.95	83	232	N.D.		
34) Toluene	14.25	91	787413	3673.272 pg		99
35) Dibromochloromethane	14.66	129	493	8.305 pg		98
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	4554	73.117 pg		99
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.48	91	1419979	6260.697 pg		98
41) m,p-Xylene	16.65	91	3728046	21914.328 pg		97
42) Styrene	17.01	104	23637	198.321 pg		99
43) o-Xylene	17.12	106	533644	6106.195 pg		96
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.37	105	247161	1372.492 pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	744139	4209.968 pg		89
48) 1,3-Dichlorobenzene	18.92	146	651	5.992 pg		94
49) 1,4-Dichlorobenzene	18.98	146	5978	52.853 pg		98
50) 1,2-Dichlorobenzene	19.31	146	197	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	82	N.D.		
53) Naphthalene	21.06	128	22661	108.902 pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 08:45:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

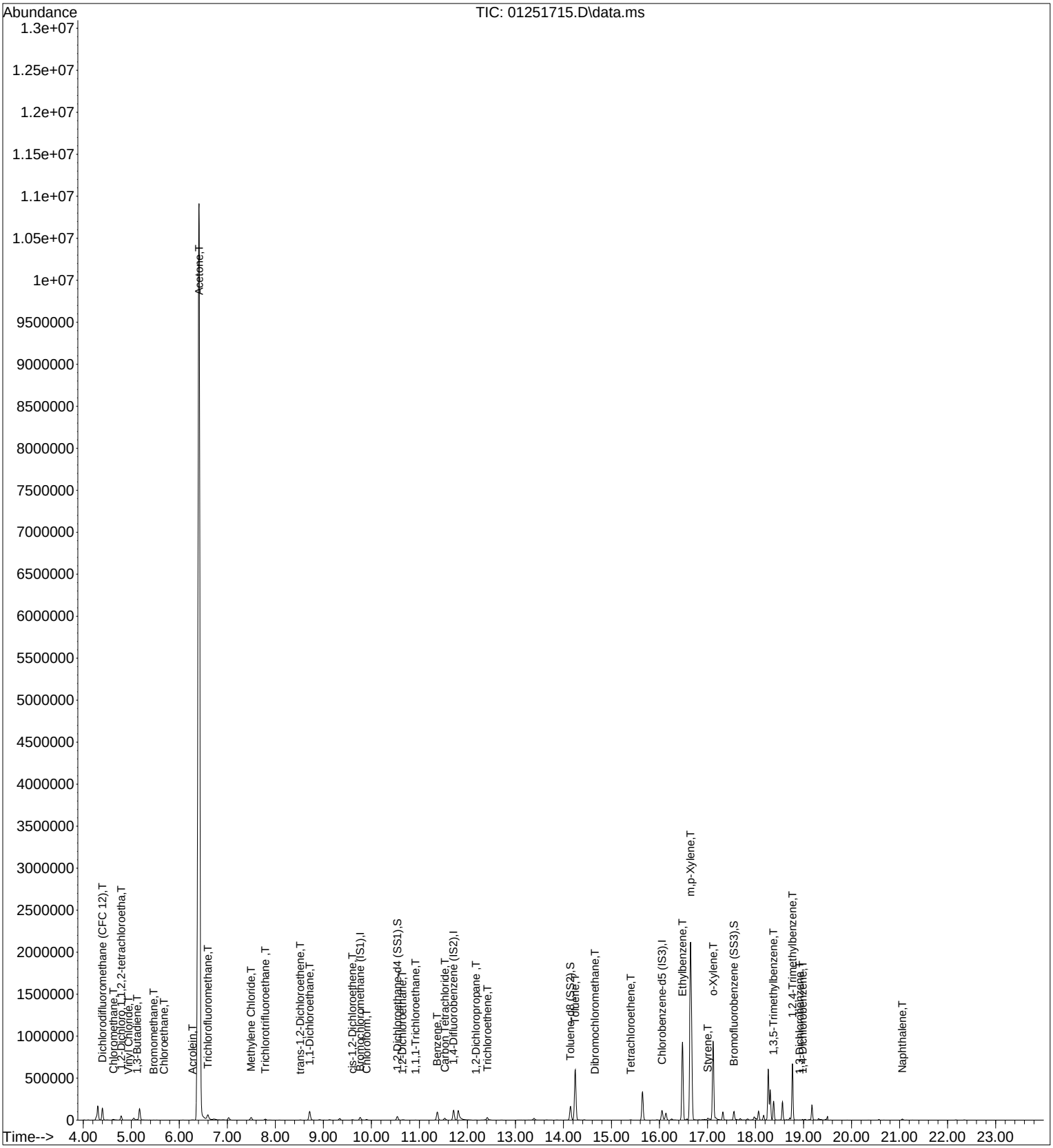
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

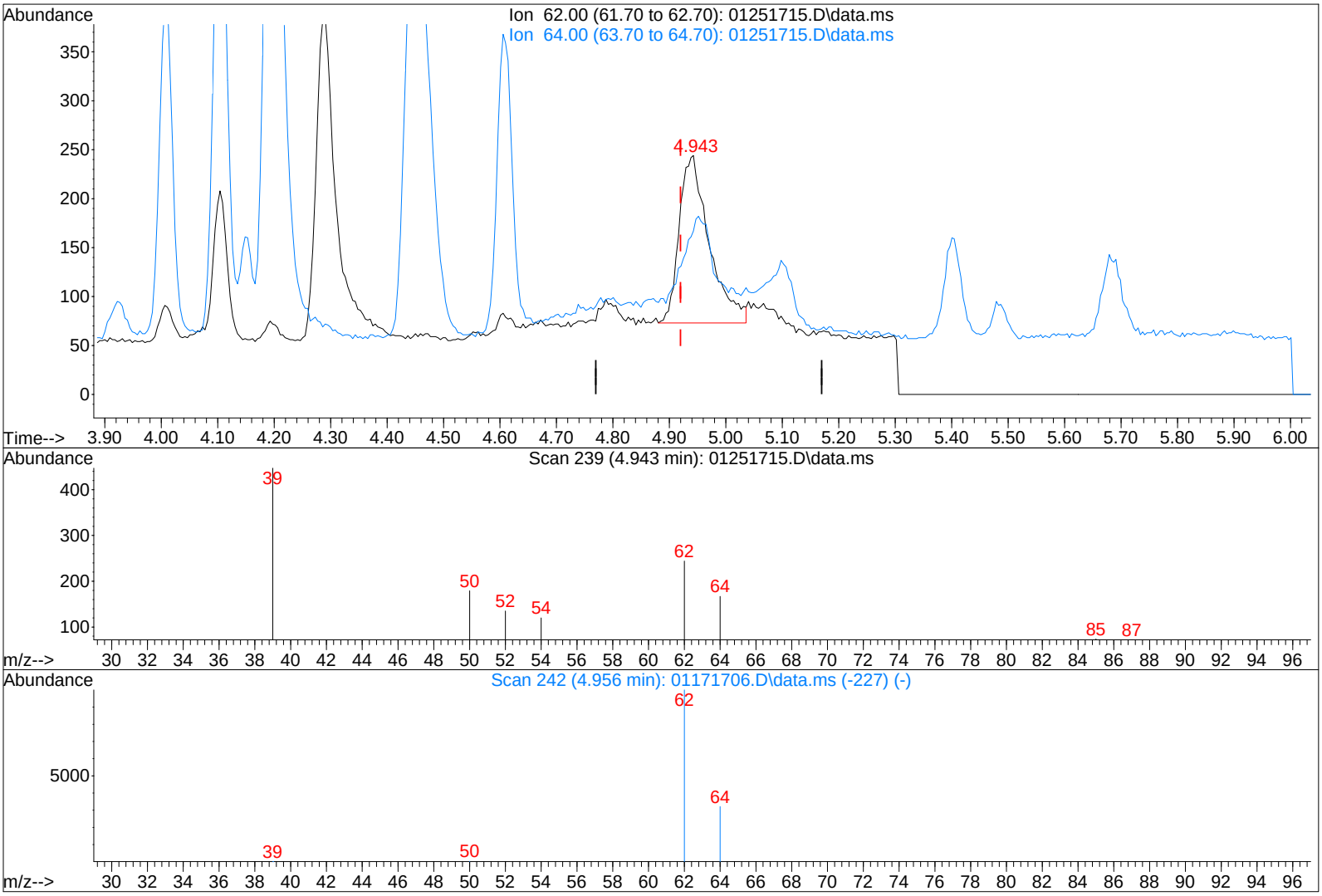
Quant Time: Jan 26 08:45:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251715.D\data.ms

(5) Vinyl Chloride (T)

4.943min (+0.023) 5.80pg

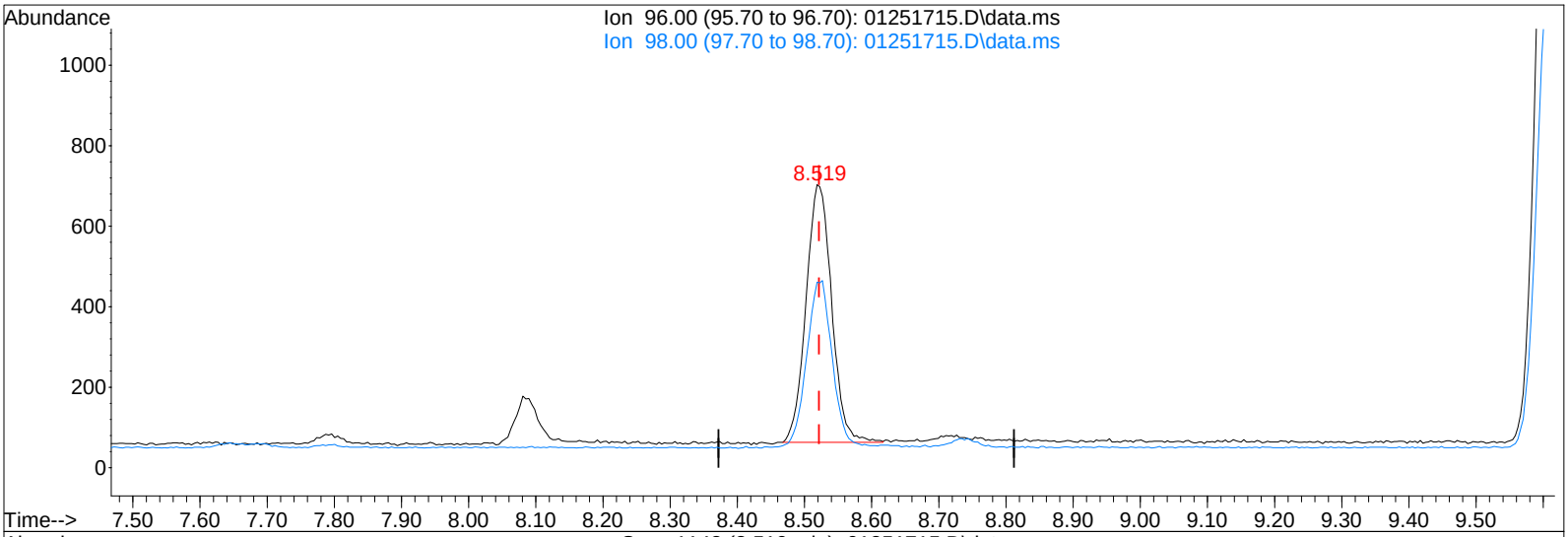
response 631

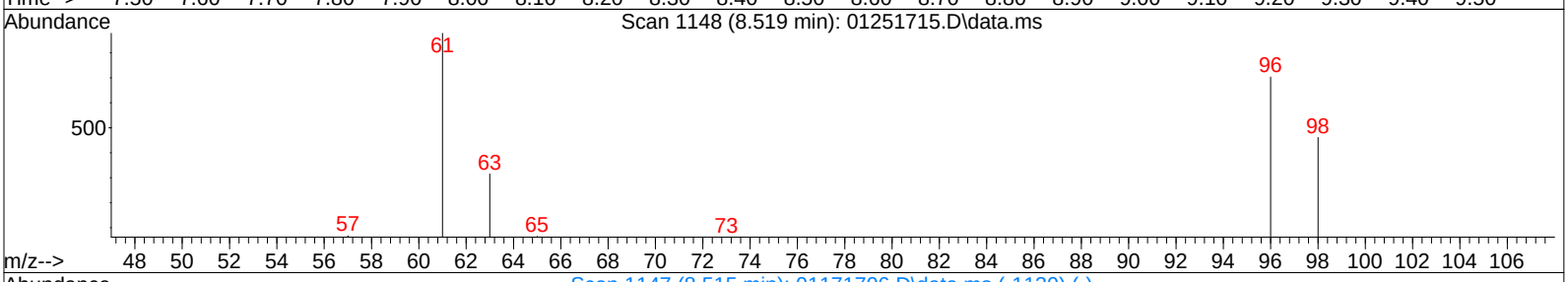
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	47.54
0.00	0.00	0.00
0.00	0.00	0.00

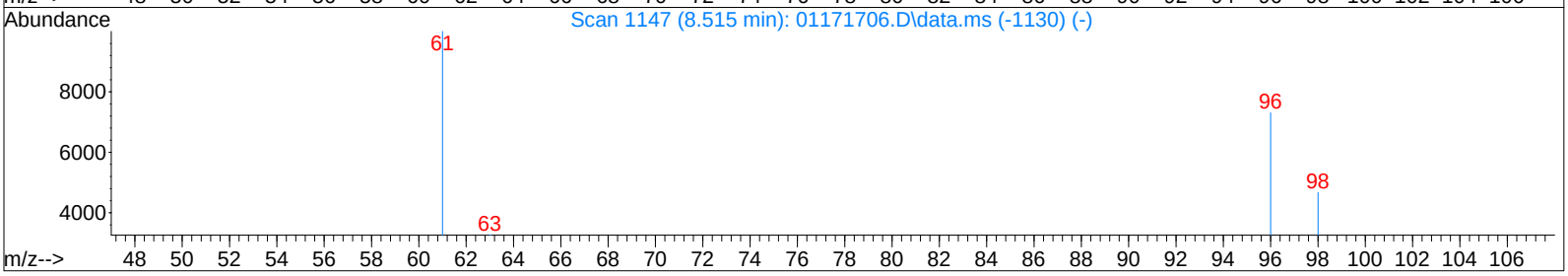
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01251715.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.003) 32.30pg

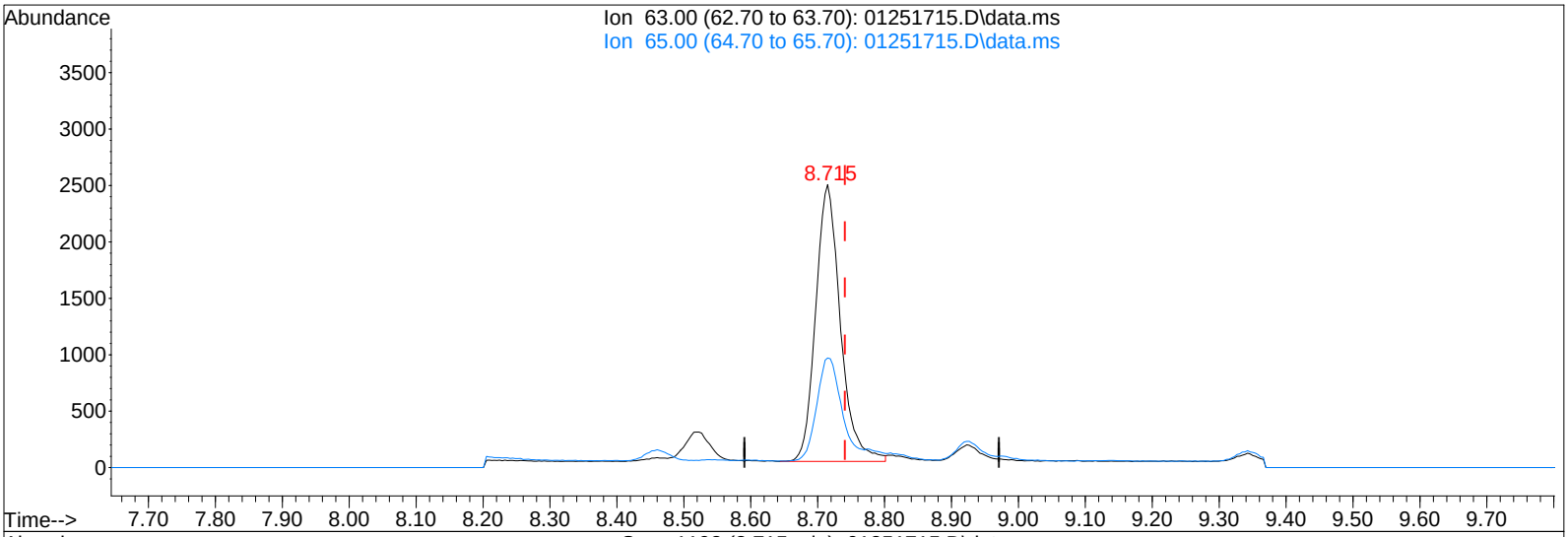
response 1699

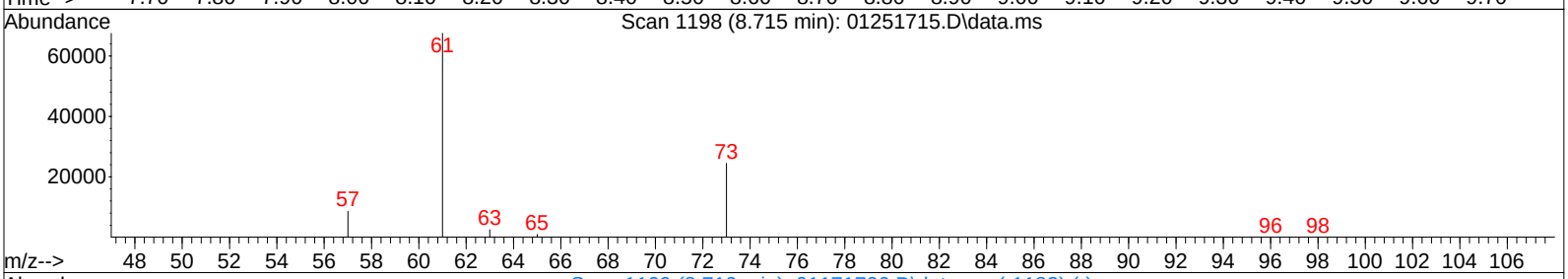
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	64.45
0.00	0.00	0.00
0.00	0.00	0.00

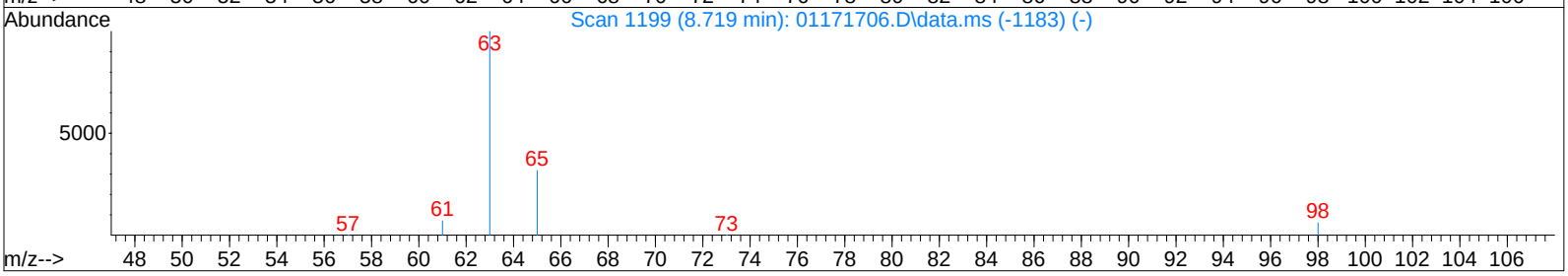
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01251715.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 67.47pg

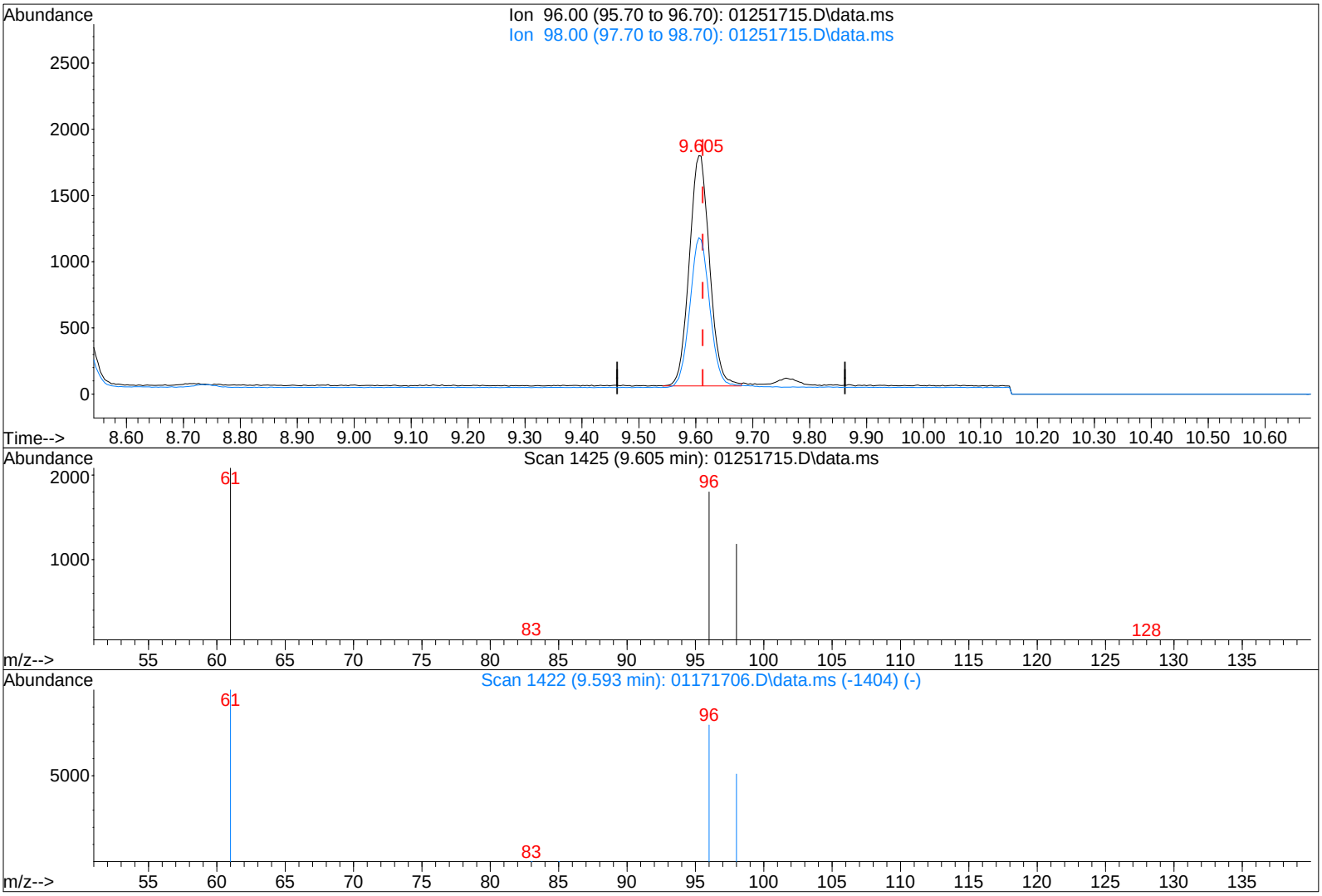
response 6296

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	37.82
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251715.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.605min (-0.007) 78.05pg

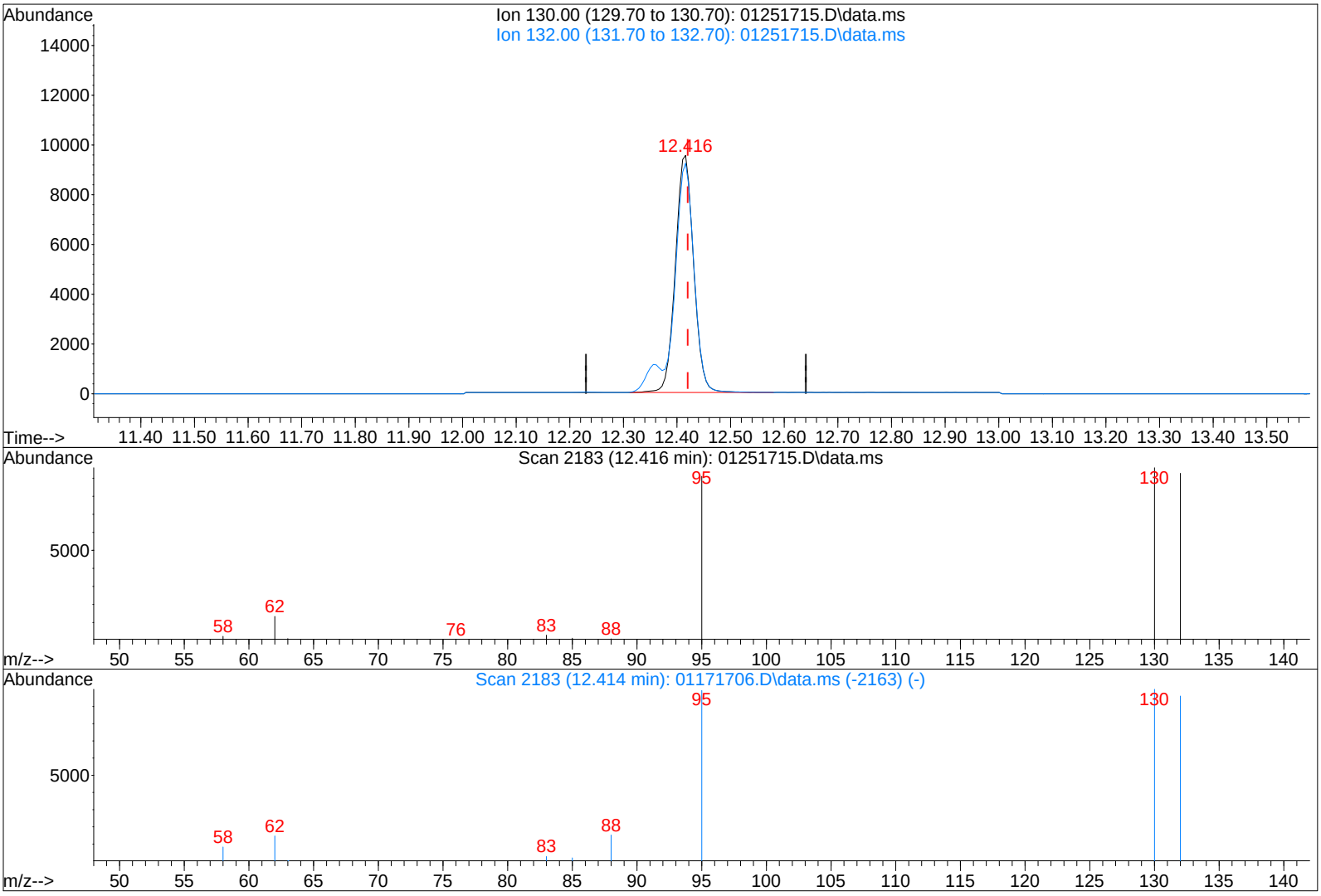
response 4308

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	65.20
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251715.D\data.ms

(28) Trichloroethene (T)

12.416min (-0.004) 376.76pg

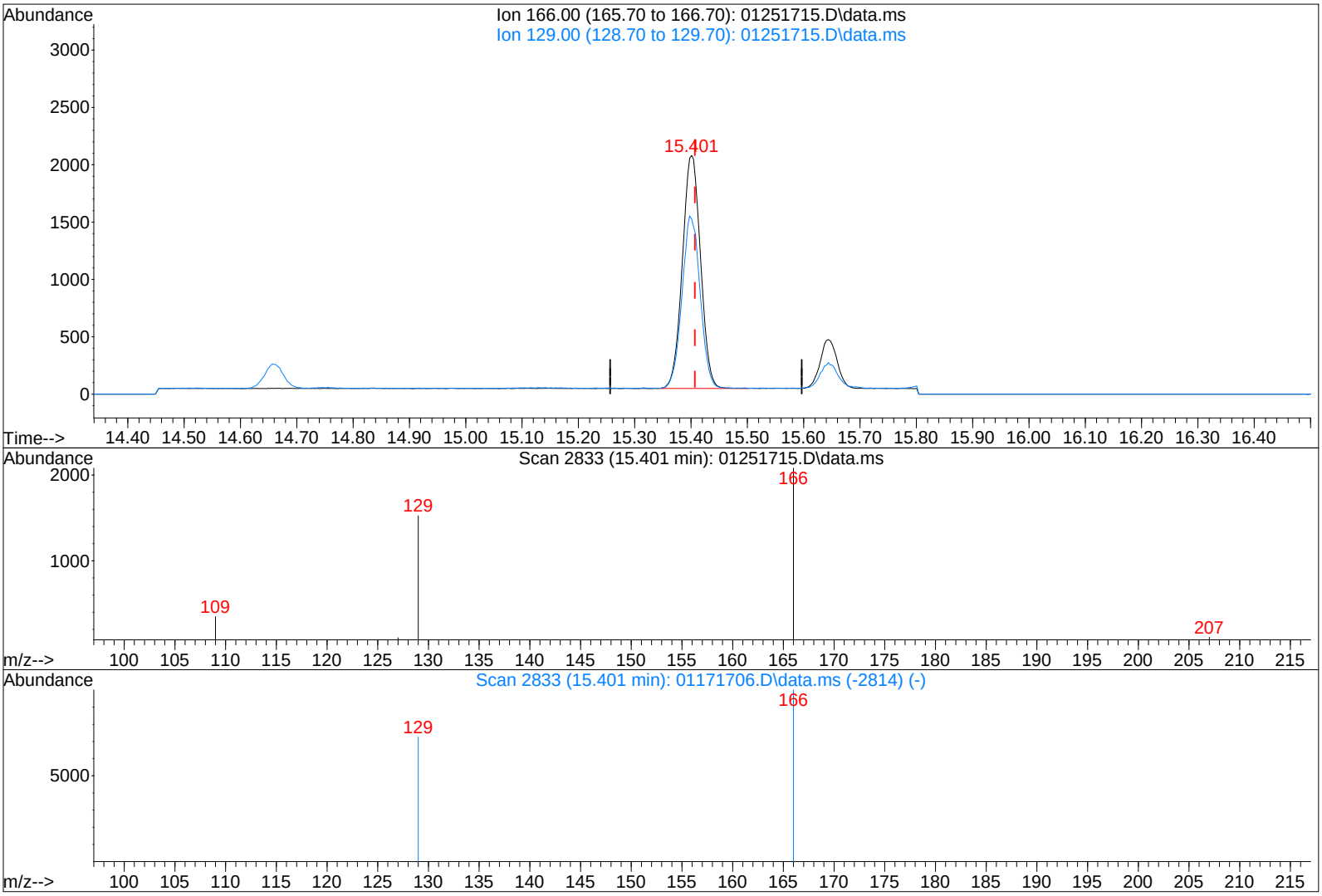
response 22632

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.29
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251715.D Vial: 4
Acq On : 25 Jan 2017 22:23 Operator: CL
Sample : P1700260-024 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251715.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 73.12pg

response 4554

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.72
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41192	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	180390	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	27584	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	64205	900.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.00%				
33) Toluene-d8 (SS2)	14.15	98	180000	1004.530	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.45%				
45) Bromofluorobenzene (SS3)	17.56	174	52345	1037.307	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.73%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	78	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	3361	119.556	pg	#	77
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.52	84	192	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.75	73	83	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	619	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3186	N.D.			
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.26	91	589	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.10	112	94	N.D.			
40) Ethylbenzene	16.49	91	78	N.D.			
41) m,p-Xylene	16.67	91	73	N.D.			
42) Styrene	17.04	104	93	N.D.			
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	101	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	59	N.D.			
48) 1,3-Dichlorobenzene	18.93	146	68	N.D.			
49) 1,4-Dichlorobenzene	19.00	146	76	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	74	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.98	182	130	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

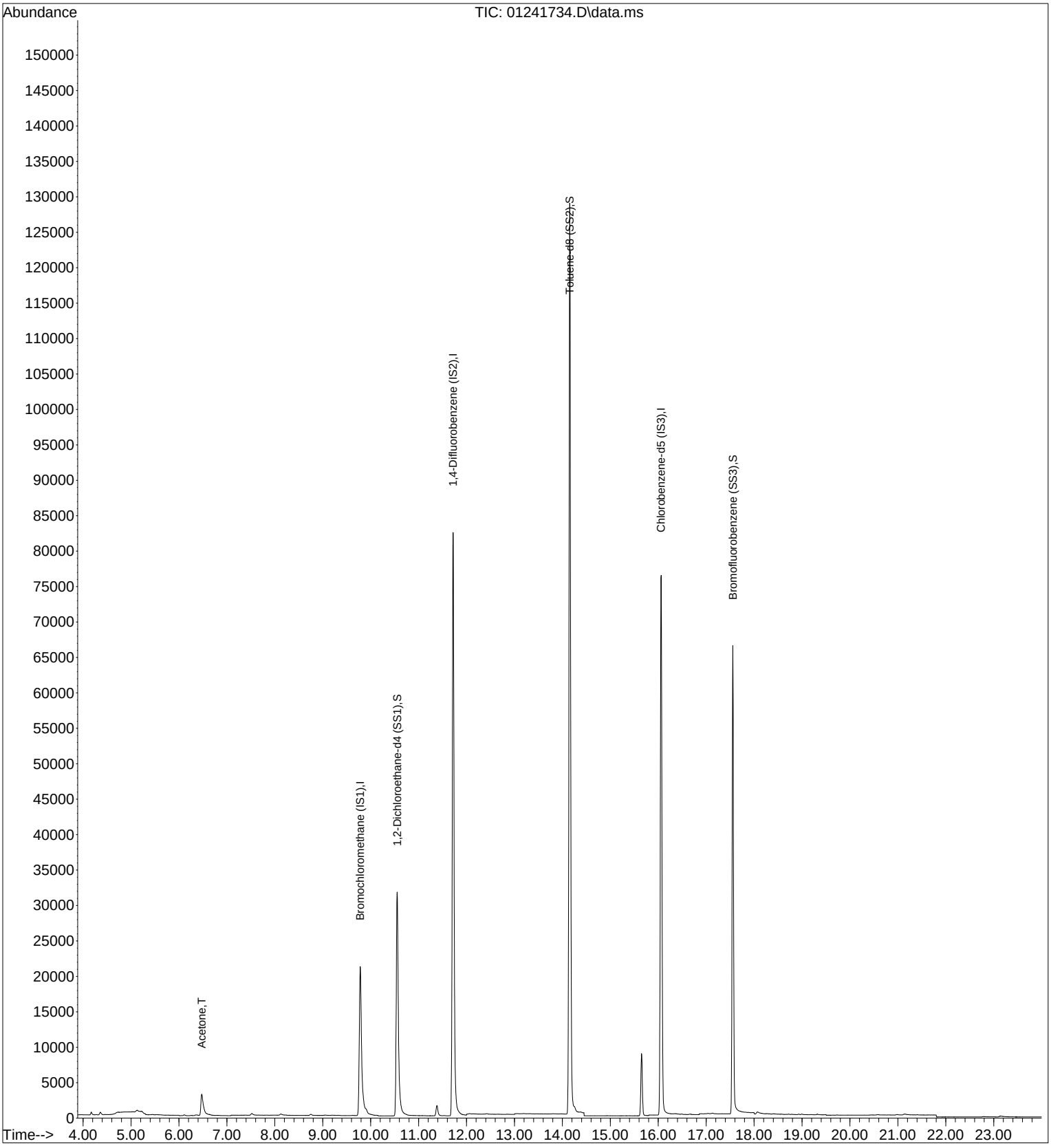
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241734.D Vial: 2
Acq On : 24 Jan 2017 20:41 Operator: CL
Sample : MB2 S19012417 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 25 07:13:23 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	42360	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	187253	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	28915	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	66552	907.177	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.72%			
33) Toluene-d8 (SS2)	14.15	98	187865	1009.996	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.00%			
45) Bromofluorobenzene (SS3)	17.56	174	56201	1062.454	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	75	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	2943	101.800	pg	93
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.53	84	233	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	617	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.39	78	3326	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	476	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.10	112	85	N.D.		
40) Ethylbenzene	16.50	91	91	N.D.		
41) m,p-Xylene	16.67	91	141	N.D.		
42) Styrene	17.04	104	92	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	163	N.D.		
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
47) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	68	N.D.		
49) 1,4-Dichlorobenzene	18.99	146	81	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	81	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.98	182	120	N.D.		
53) Naphthalene	21.13	128	572	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

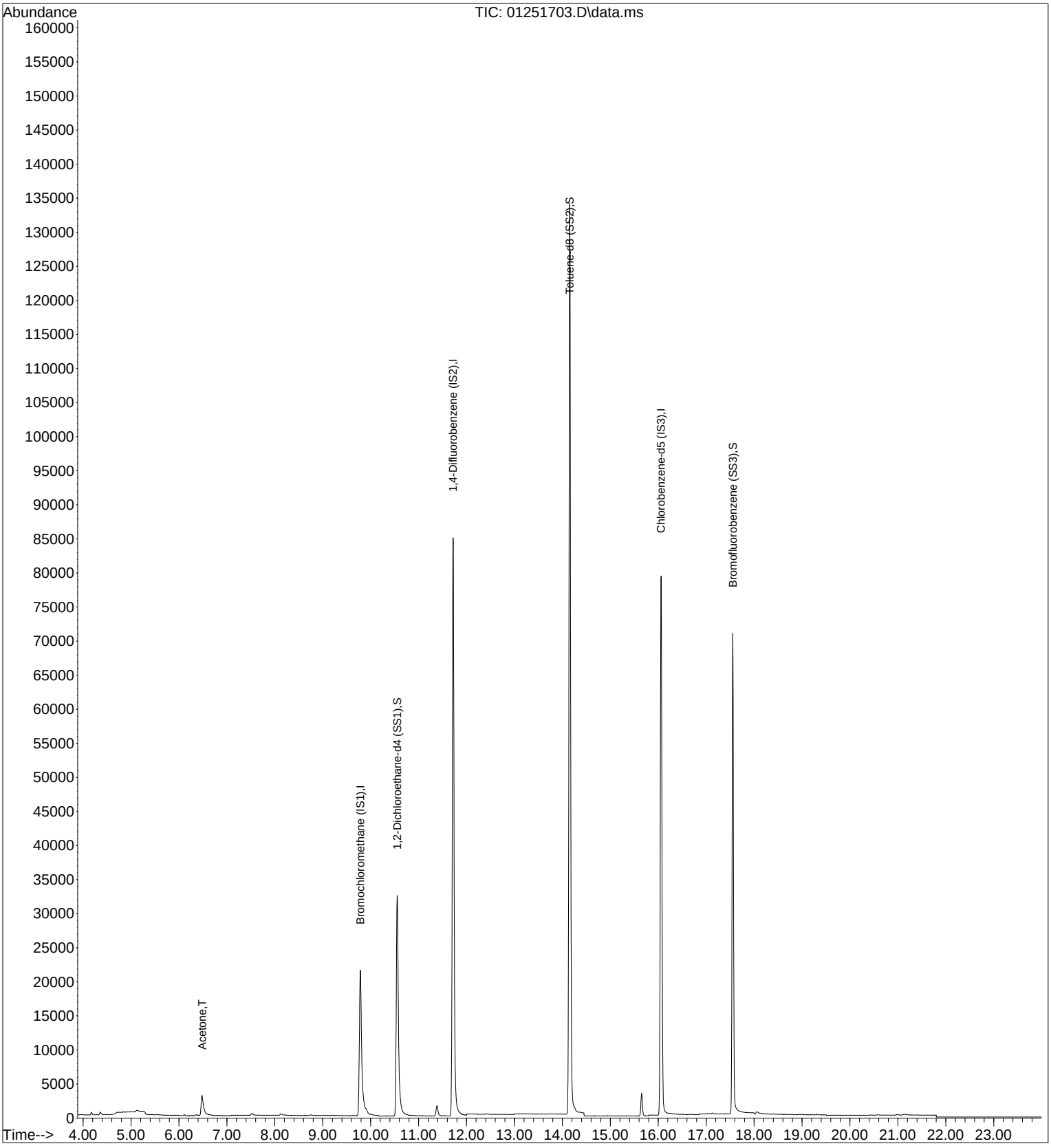
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	42073	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	208156	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	29367	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	65298	896.155	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.61%			
33) Toluene-d8 (SS2)	14.15	98	195193	944.013	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.40%			
45) Bromofluorobenzene (SS3)	17.55	174	62222	1158.173	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 115.82%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54558	513.300	pg	100
3) Chloromethane	4.65	52	11390	359.691	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	52173	498.919	pg	100
5) Vinyl Chloride	4.95	62	45902	451.741	pg	100
6) 1,3-Butadiene	5.14	54	19519	323.096	pg	96
7) Bromomethane	5.47	94	19782	483.957	pg	100
8) Chloroethane	5.70	64	13505	431.991	pg	100
9) Acrolein	6.27	56	8290	373.287	pg	98
10) Acetone	6.40	58	66470	2314.926	pg	91
11) Trichlorofluoromethane	6.61	101	39502	543.375	pg	100
12) 1,1-Dichloroethene	7.34	96	22193	487.281	pg	92
13) Methylene Chloride	7.48	84	25722	520.433	pg	88
14) Trichlorotrifluoroethane	7.80	151	22947	505.012	pg	99
15) trans-1,2-Dichloroethene	8.51	96	23806	484.849	pg	99
16) 1,1-Dichloroethane	8.72	63	39569	454.240	pg	99
17) Methyl tert-Butyl Ether	8.79	73	59682	459.139	pg	96
18) cis-1,2-Dichloroethene	9.59	96	25472	494.365	pg	100
19) Chloroform	9.89	83	44983	491.060	pg	100
21) 1,2-Dichloroethane	10.64	62	31908	452.498	pg	100
22) 1,1,1-Trichloroethane	10.91	97	40047	470.953	pg	100
23) Benzene	11.36	78	107944	534.840	pg	100
24) Carbon Tetrachloride	11.52	117	35370	518.017	pg	100
26) 1,2-Dichloropropane	12.18	63	21796	411.088	pg	98
27) Bromodichloromethane	12.36	83	33336	455.308	pg	100
28) Trichloroethene	12.41	130	26472	489.150	pg	100
29) 1,4-Dioxane	12.38	88	17964	452.054	pg	92
30) cis-1,3-Dichloropropene	13.25	75	32102	450.148	pg	100
31) trans-1,3-Dichloropropene	13.77	75	26886	463.268	pg	100
32) 1,1,2-Trichloroethane	13.95	83	20353	453.826	pg	96
34) Toluene	14.25	91	93281	483.009	pg	100
35) Dibromochloromethane	14.66	129	25841	483.198	pg	100
36) 1,2-Dibromoethane	14.92	107	25213	498.481	pg	100
37) Tetrachloroethene	15.40	166	26550	473.152	pg	98
39) Chlorobenzene	16.10	112	65083	574.896	pg	100
40) Ethylbenzene	16.48	91	93187	558.197	pg	99
41) m,p-Xylene	16.66	91	150606	1202.765	pg	99
42) Styrene	17.01	104	50610	576.905	pg	100
43) o-Xylene	17.12	106	39465	613.511	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	41464	560.991	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	85021	641.428	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	85581	657.800	pg	99
48) 1,3-Dichlorobenzene	18.92	146	51339	642.032	pg	100
49) 1,4-Dichlorobenzene	18.98	146	49077	589.496	pg	100
50) 1,2-Dichlorobenzene	19.31	146	49921	612.611	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	14881	604.097	pg	95
52) 1,2,4-Trichlorobenzene	20.94	182	24032	498.233	pg	97
53) Naphthalene	21.06	128	82259	537.070	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

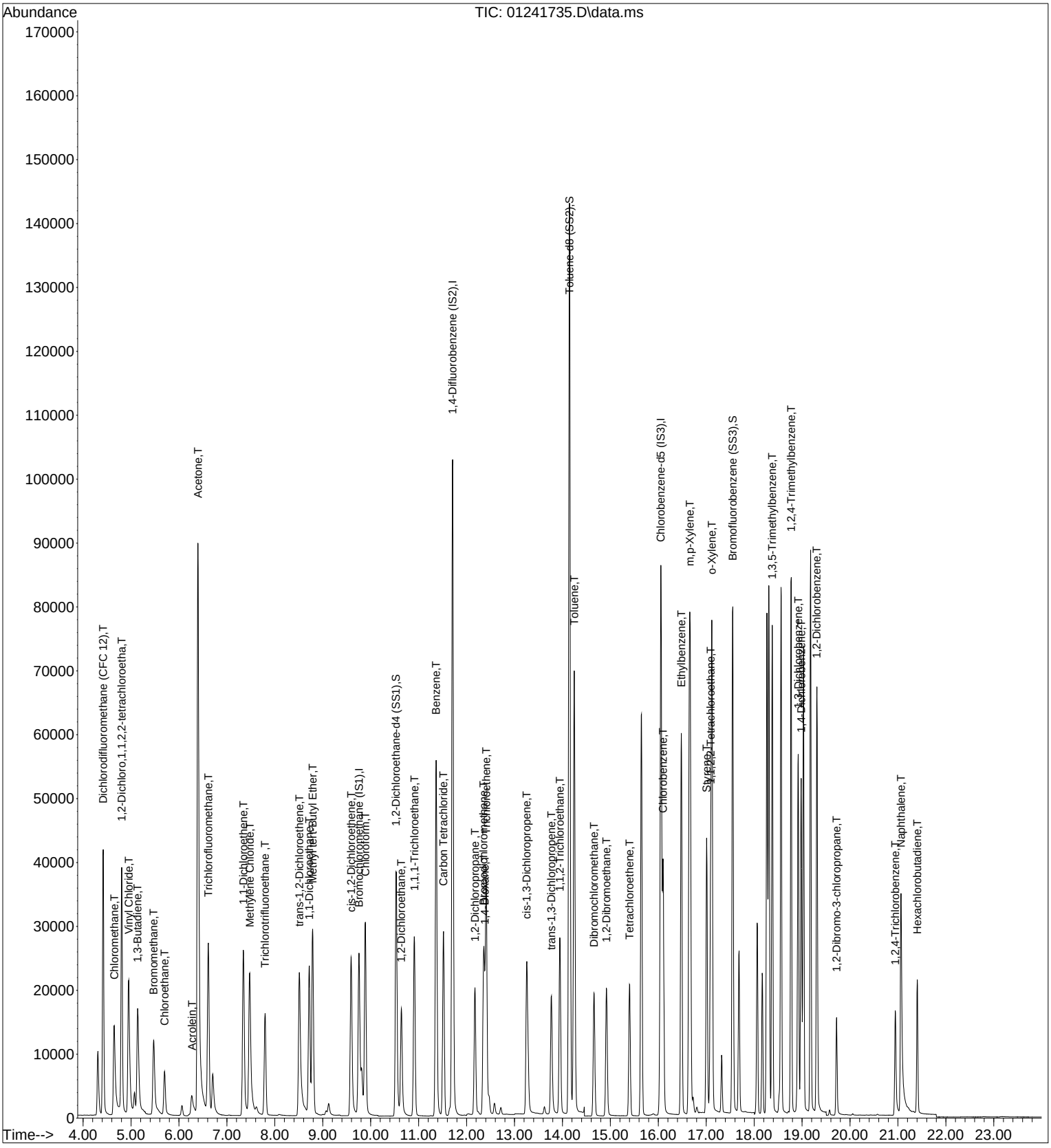
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	20228	530.082	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241735.D Vial: 2
Acq On : 24 Jan 2017 21:12 Operator: CL
Sample : LCS2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171714 (1/17)

Quant Time: Jan 25 07:13:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	43243	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	212725	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	30868	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	67145	896.571	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.66%			
33) Toluene-d8 (SS2)	14.15	98	201850	955.241	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.52%			
45) Bromofluorobenzene (SS3)	17.55	174	66047	1169.590	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.96%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	50628	463.438	pg	100
3) Chloromethane	4.65	52	11989	368.363	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	48184	448.306	pg	100
5) Vinyl Chloride	4.96	62	44624	427.282	pg	99
6) 1,3-Butadiene	5.14	54	18868	303.869	pg	96
7) Bromomethane	5.48	94	18498	440.301	pg	100
8) Chloroethane	5.70	64	12815	398.829	pg	99
9) Acrolein	6.27	56	8022	351.446	pg	99
10) Acetone	6.40	58	66491	2253.004	pg	# 88
11) Trichlorofluoromethane	6.62	101	36646	490.450	pg	100
12) 1,1-Dichloroethene	7.35	96	20723	442.694	pg	93
13) Methylene Chloride	7.48	84	23806	468.634	pg	89
14) Trichlorotrifluoroethane	7.80	151	21278	455.611	pg	99
15) trans-1,2-Dichloroethene	8.51	96	22589	447.615	pg	100
16) 1,1-Dichloroethane	8.72	63	37154	414.977	pg	99
17) Methyl tert-Butyl Ether	8.79	73	56513	422.996	pg	97
18) cis-1,2-Dichloroethene	9.59	96	23732	448.133	pg	100
19) Chloroform	9.89	83	41956	445.623	pg	100
21) 1,2-Dichloroethane	10.64	62	29823	411.487	pg	99
22) 1,1,1-Trichloroethane	10.91	97	37038	423.782	pg	99
23) Benzene	11.37	78	98159	473.198	pg	100
24) Carbon Tetrachloride	11.52	117	32818	467.636	pg	100
26) 1,2-Dichloropropane	12.18	63	20382	376.162	pg	98
27) Bromodichloromethane	12.36	83	31020	414.576	pg	100
28) Trichloroethene	12.41	130	24589	444.597	pg	100
29) 1,4-Dioxane	12.38	88	16443	404.891	pg	92
30) cis-1,3-Dichloropropene	13.26	75	30457	417.909	pg	100
31) trans-1,3-Dichloropropene	13.77	75	26043	439.104	pg	100
32) 1,1,2-Trichloroethane	13.95	83	18866	411.634	pg	97
34) Toluene	14.25	91	86416	437.851	pg	100
35) Dibromochloromethane	14.66	129	24022	439.537	pg	100
36) 1,2-Dibromoethane	14.92	107	23467	453.996	pg	100
37) Tetrachloroethene	15.40	166	24539	427.920	pg	98
39) Chlorobenzene	16.10	112	60764	510.645	pg	100
40) Ethylbenzene	16.48	91	85715	488.473	pg	99
41) m,p-Xylene	16.66	91	137131	1041.898	pg	99
42) Styrene	17.01	104	46944	509.095	pg	100
43) o-Xylene	17.12	106	35875	530.583	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	37270	479.728	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	72386	519.550	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	71871	525.558	pg	99
48) 1,3-Dichlorobenzene	18.92	146	45469	540.974	pg	100
49) 1,4-Dichlorobenzene	18.98	146	43870	501.328	pg	100
50) 1,2-Dichlorobenzene	19.31	146	43259	505.044	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	11400	440.282	pg	94
52) 1,2,4-Trichlorobenzene	20.95	182	14738	290.691	pg	97
53) Naphthalene	21.07	128	43519	270.320	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

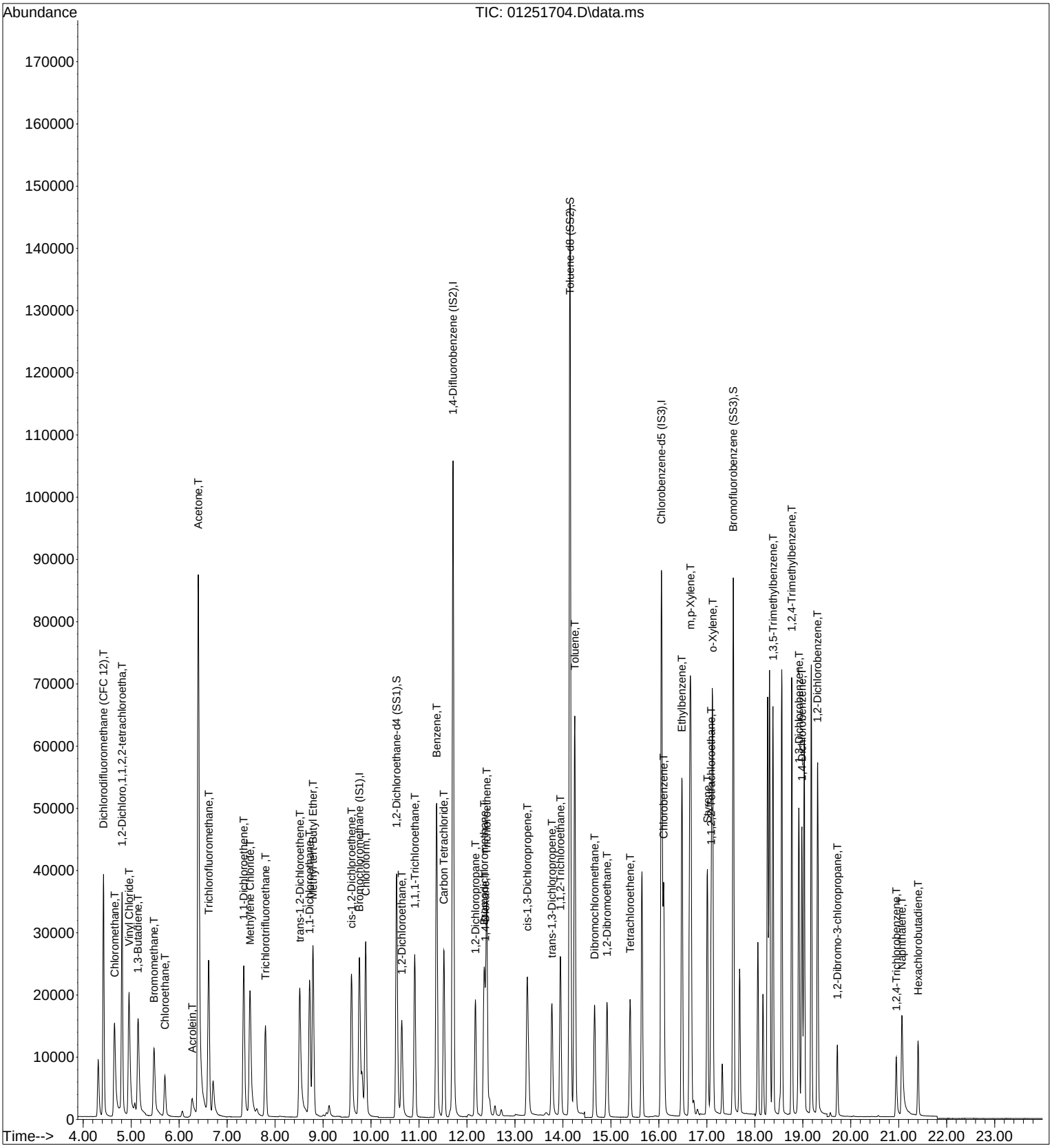
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	11870	295.932	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane			1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771	25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride			2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488	11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane			1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane			0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein			0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone					0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...				2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...			1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...				1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...			1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...			2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...			3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m³	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704	
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703	
4ng/L Std. ID:	S29-01171706				

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

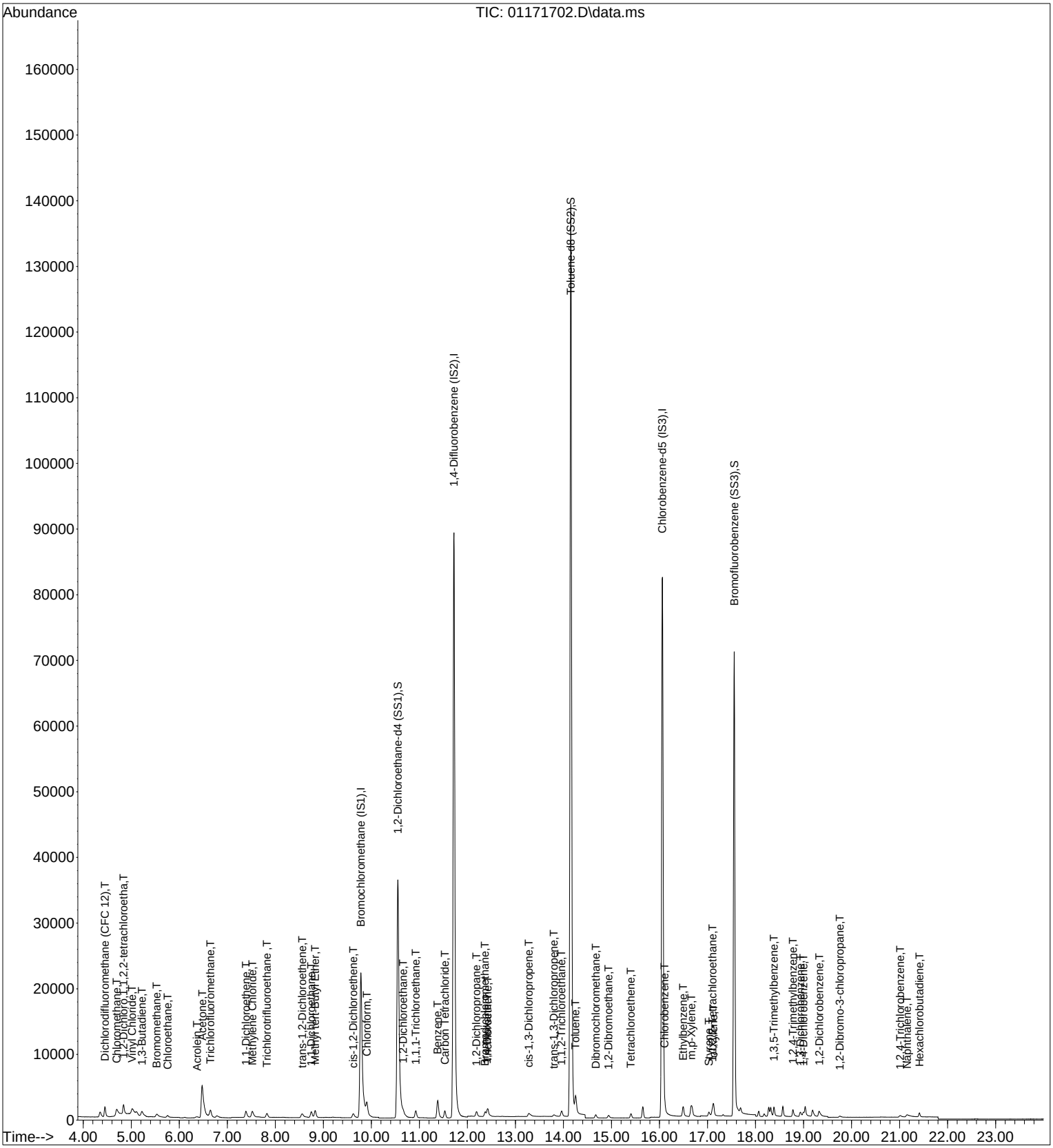
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

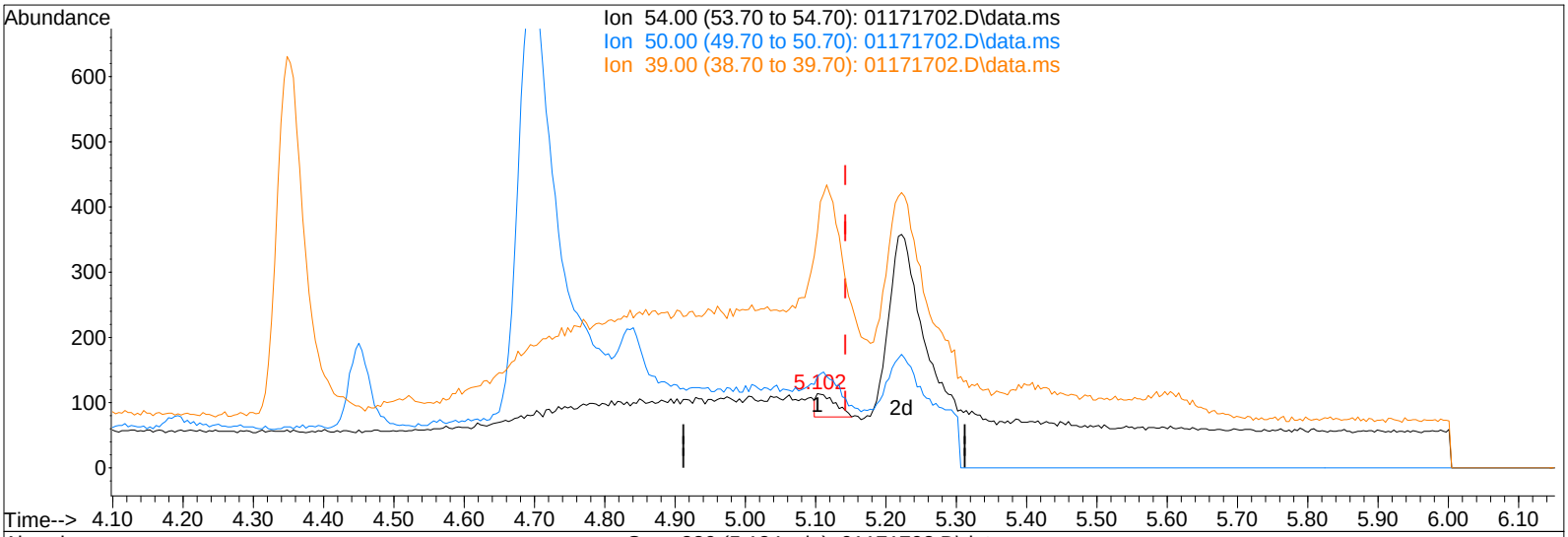
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

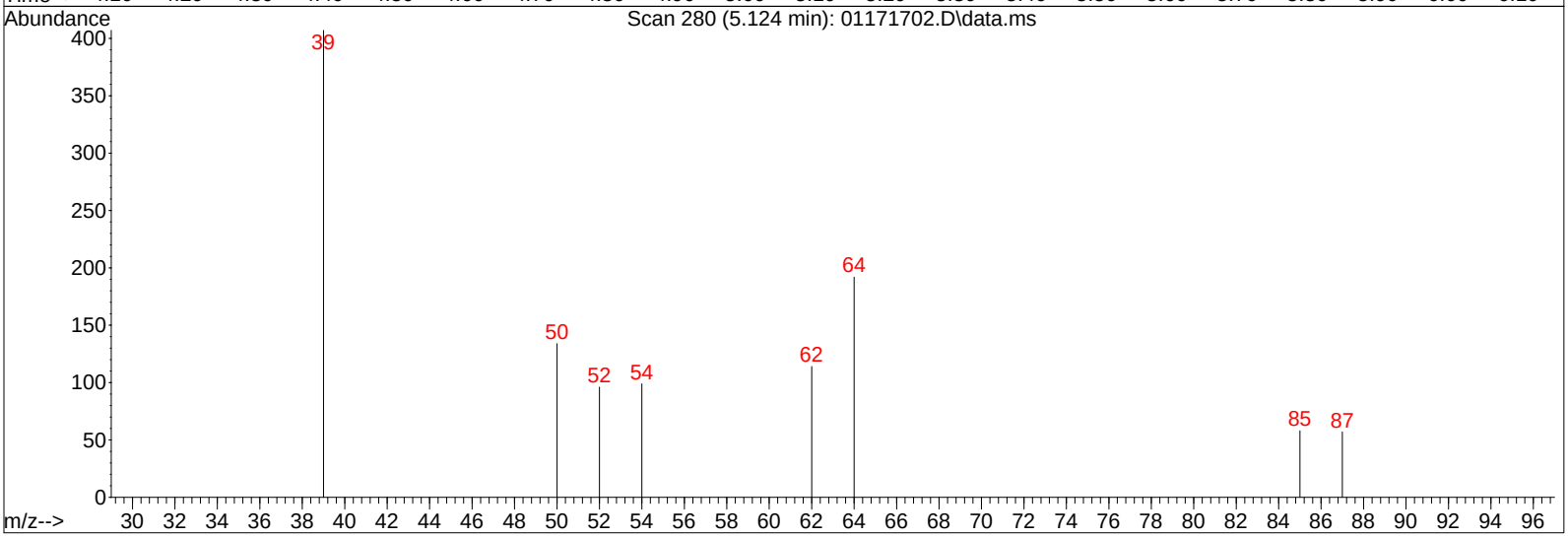


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

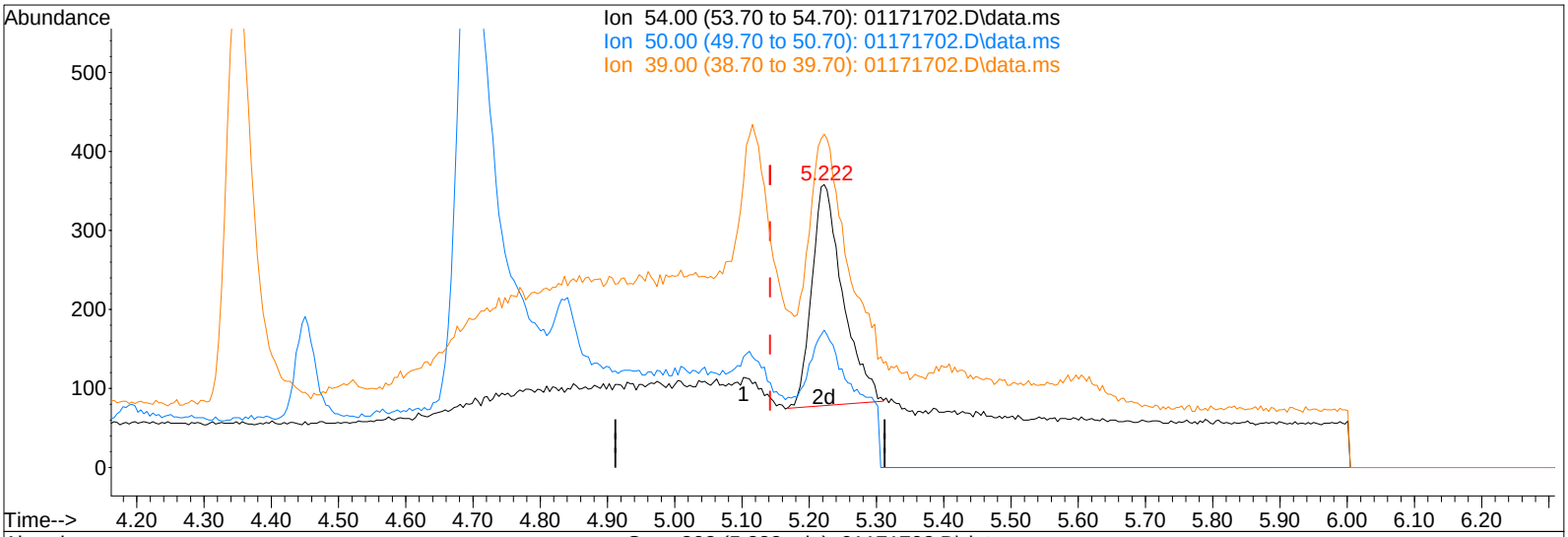
response 67

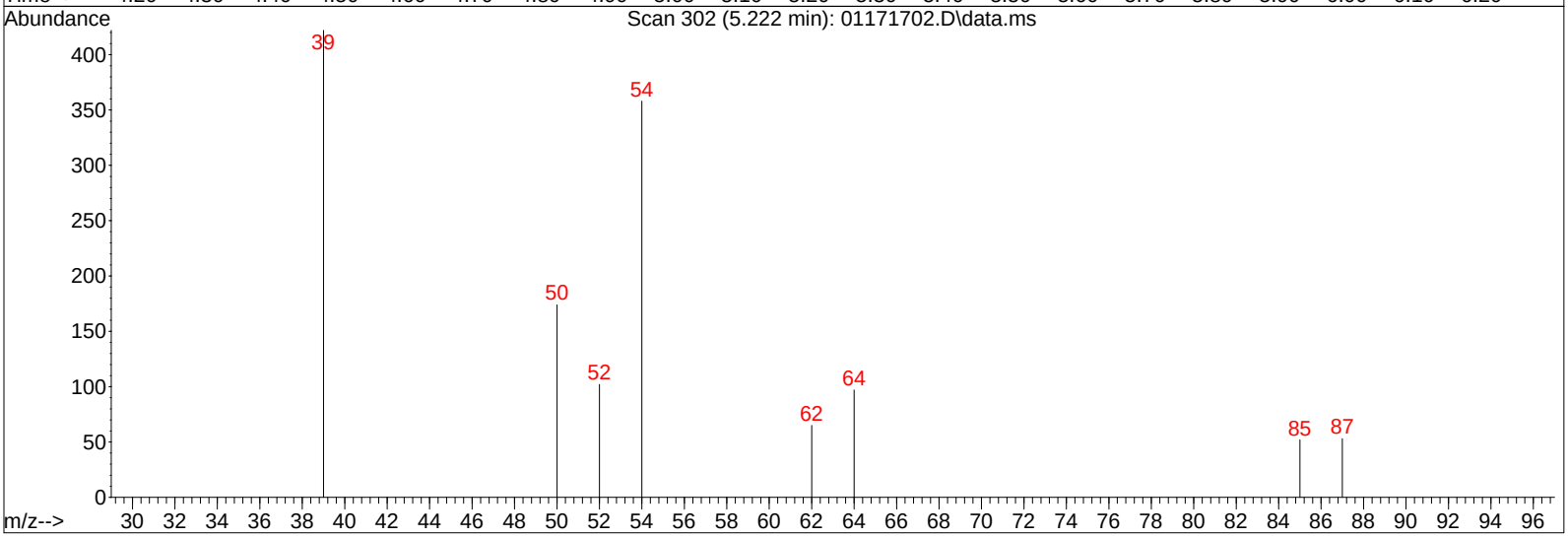
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

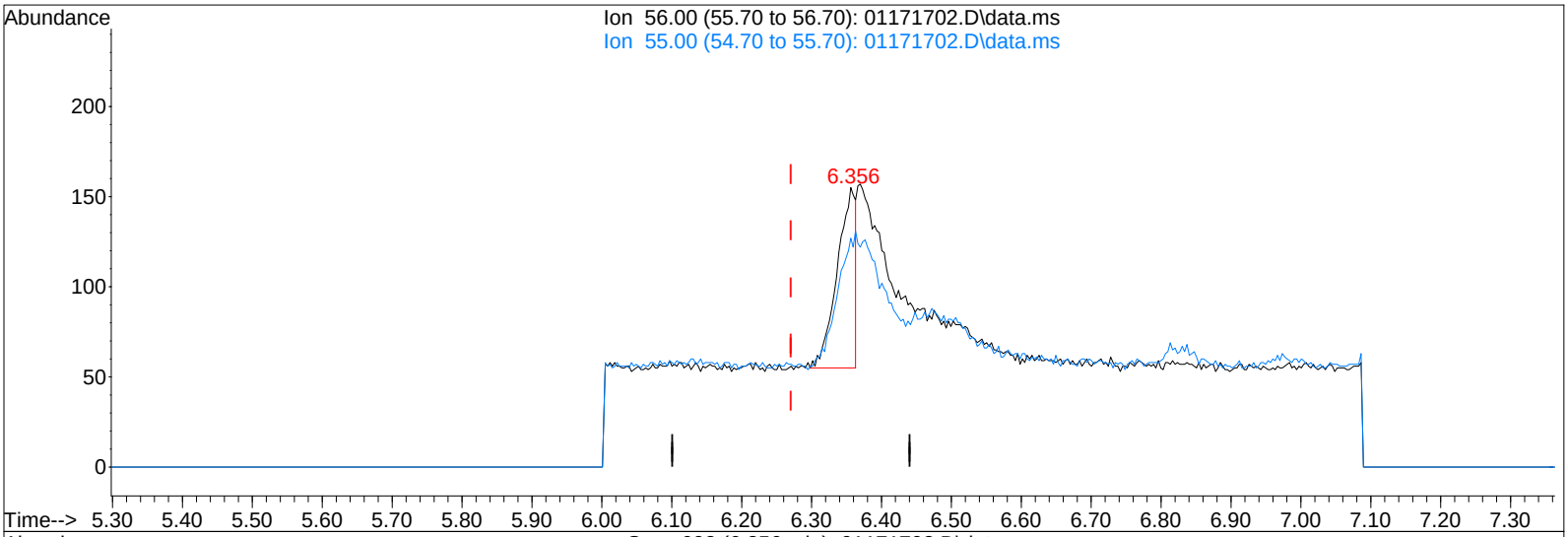
CL 1/18/17

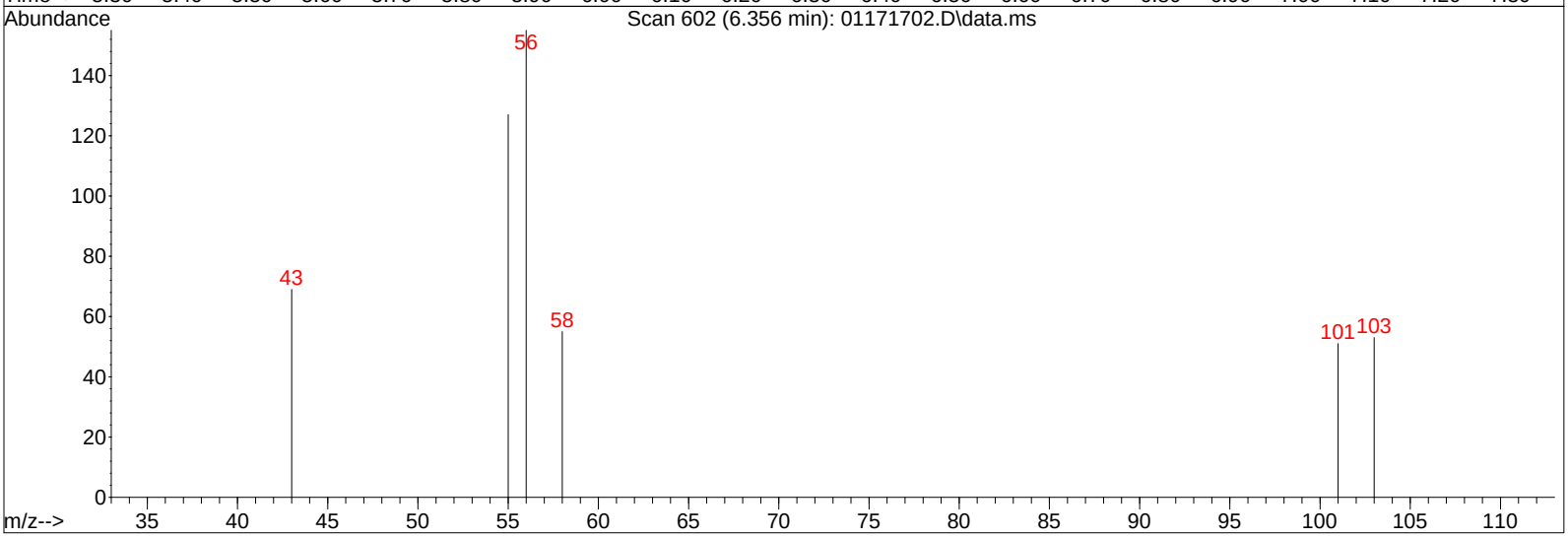
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

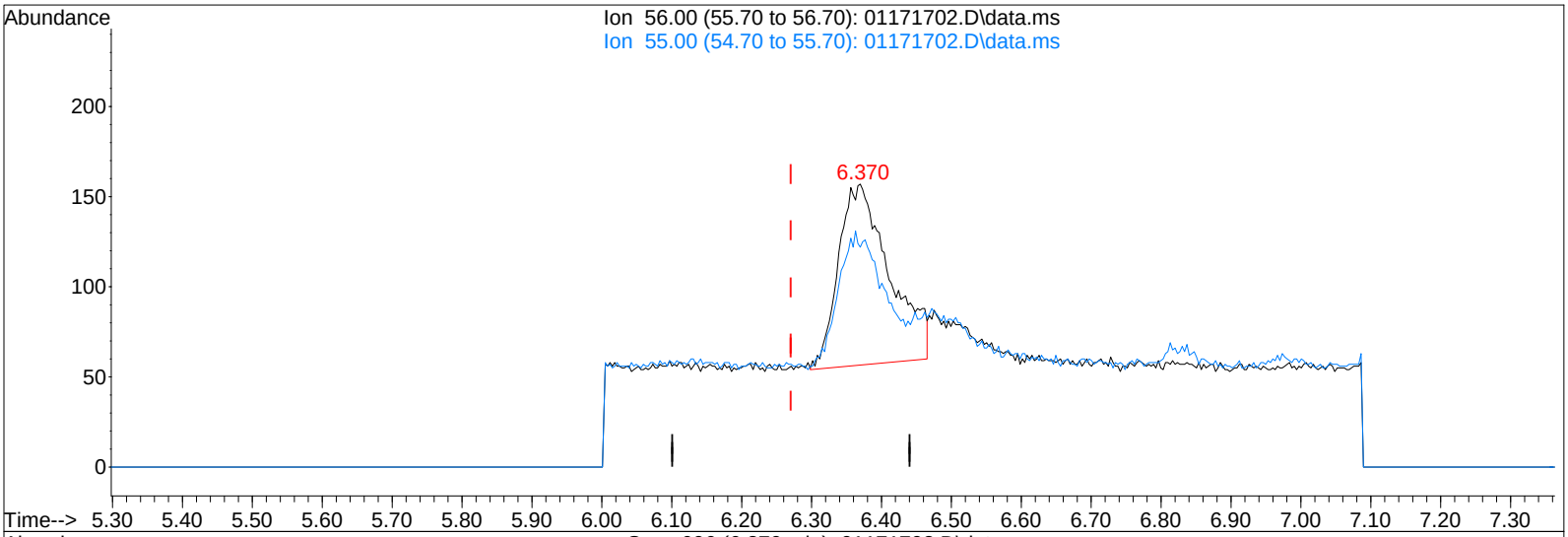
response 183

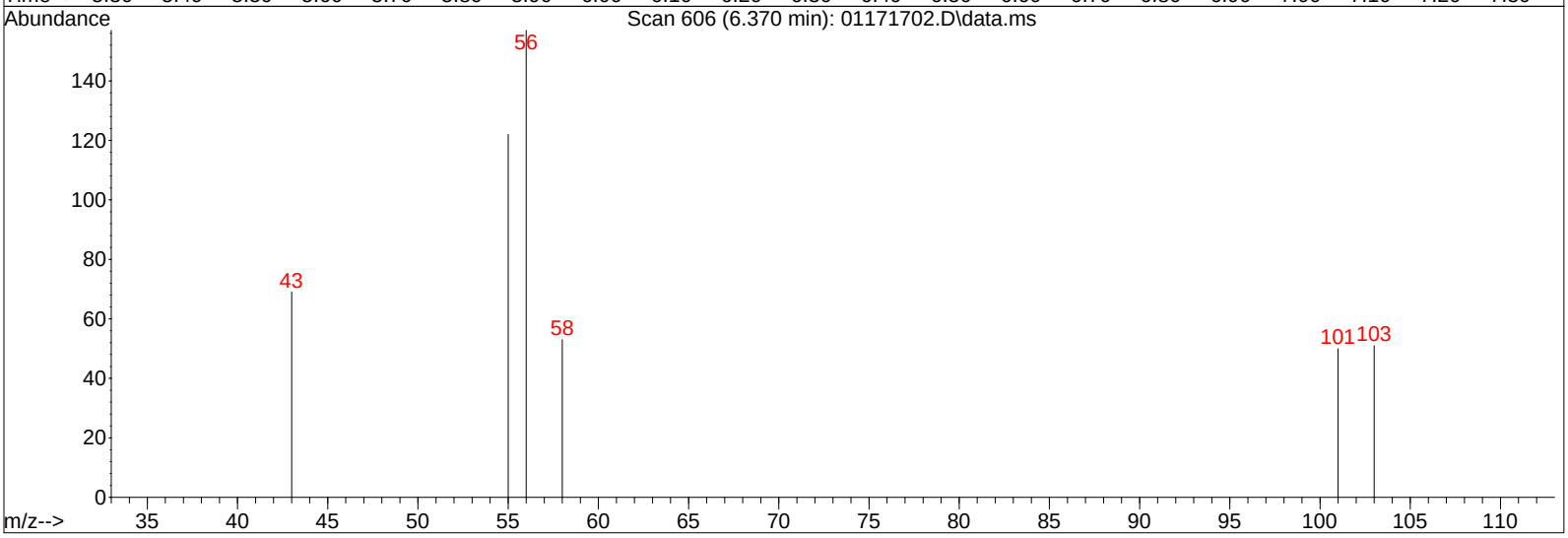
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

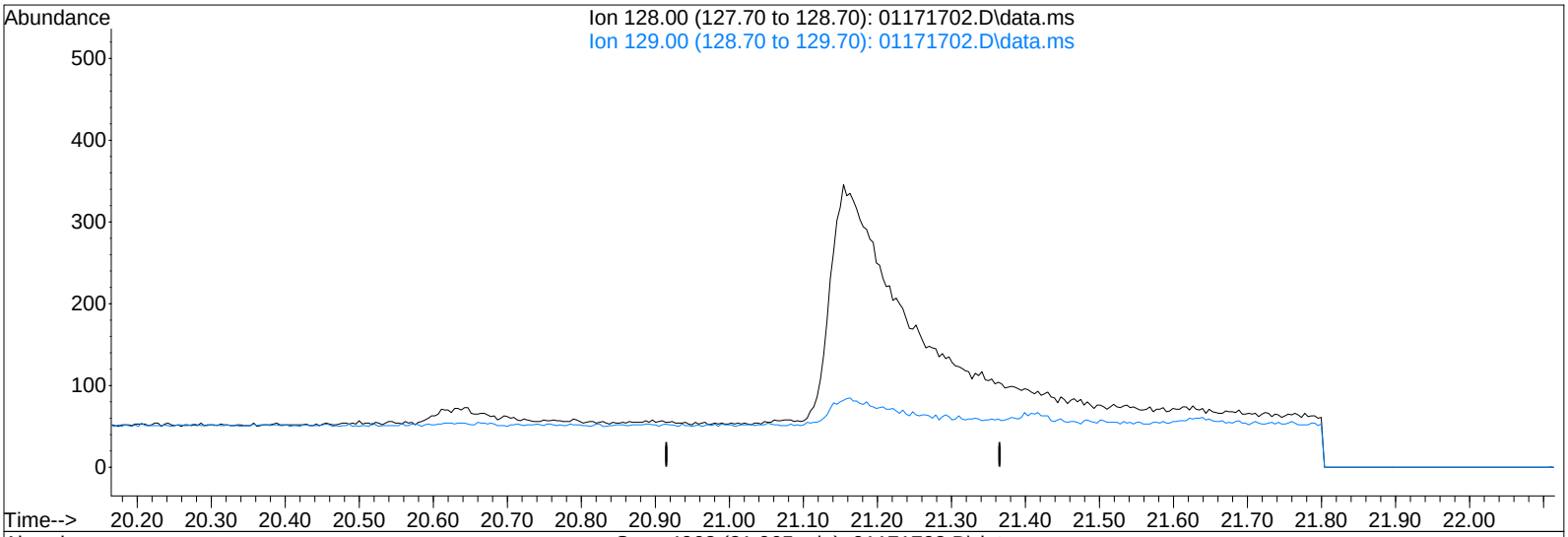
CL 1/18/17

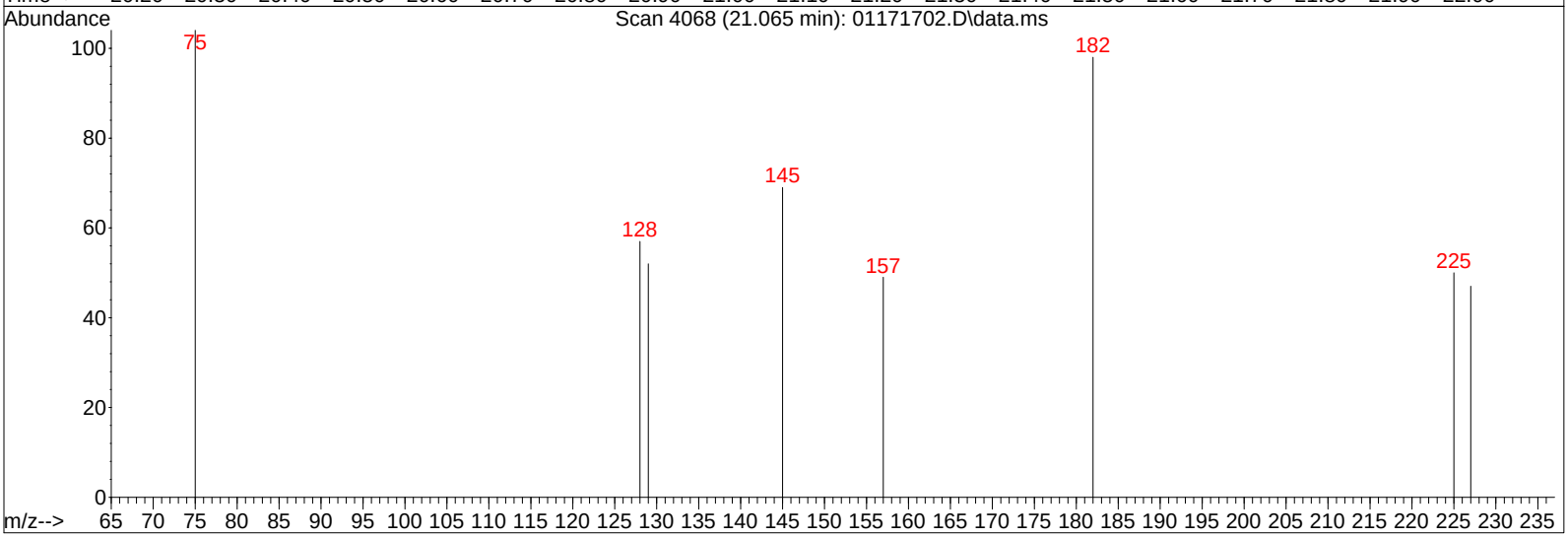
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

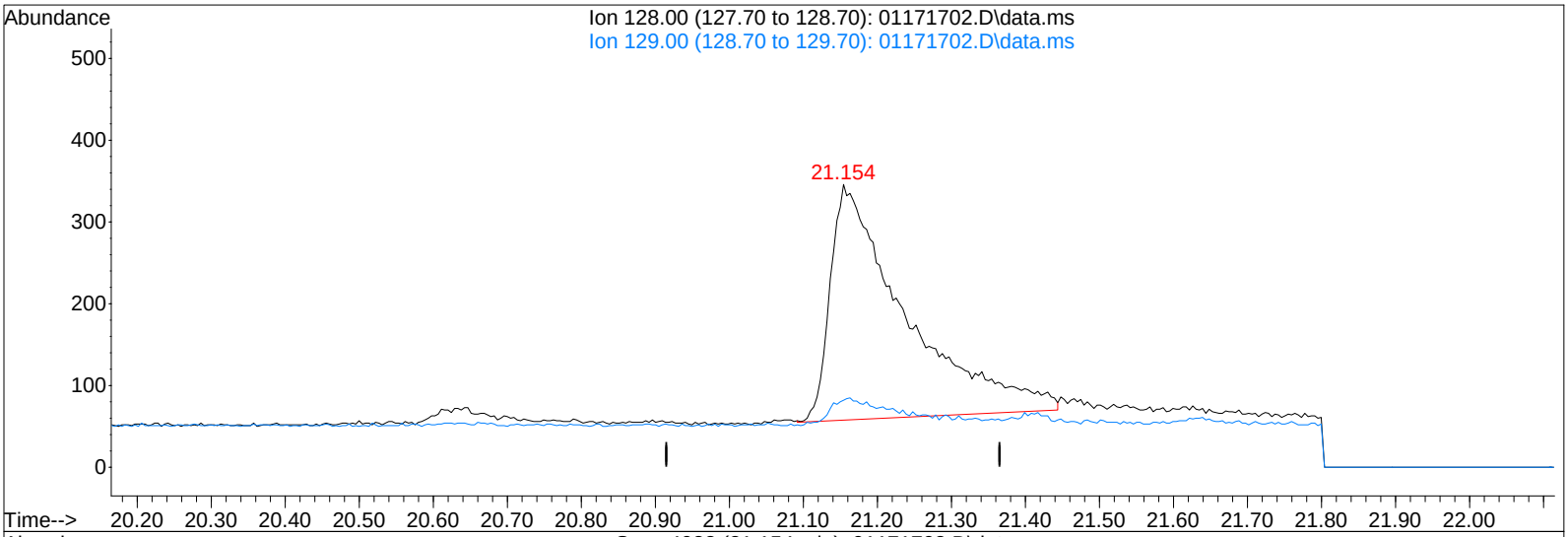
response 0

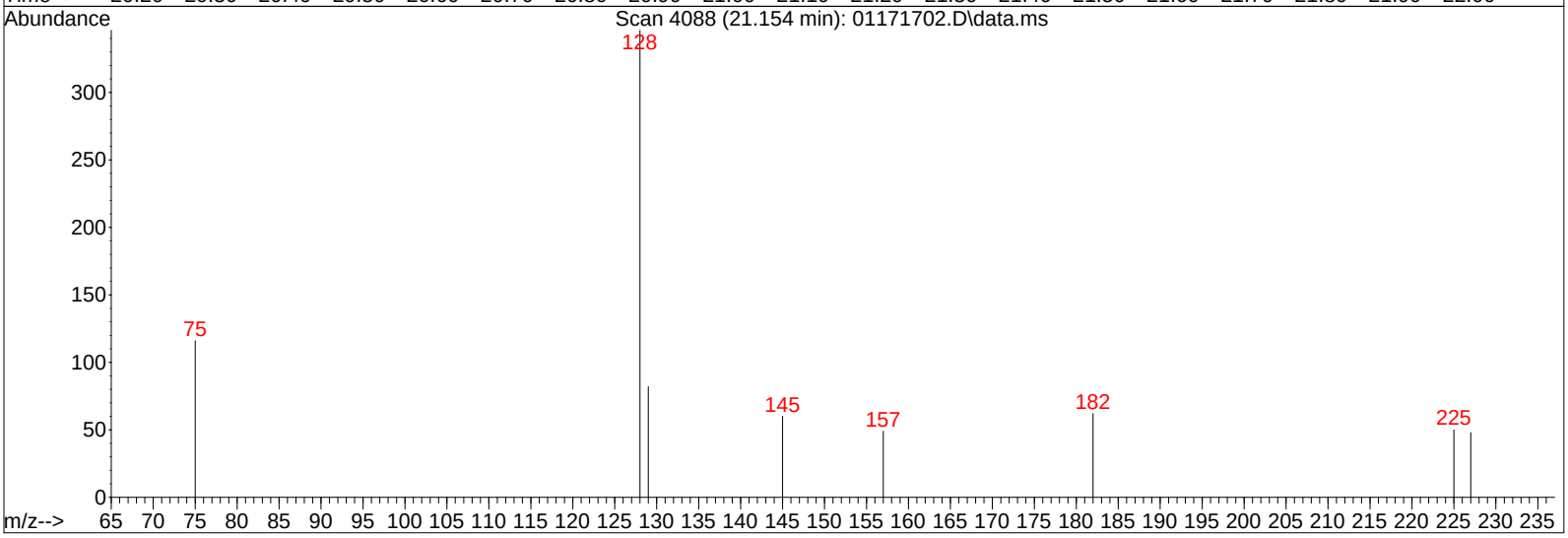
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

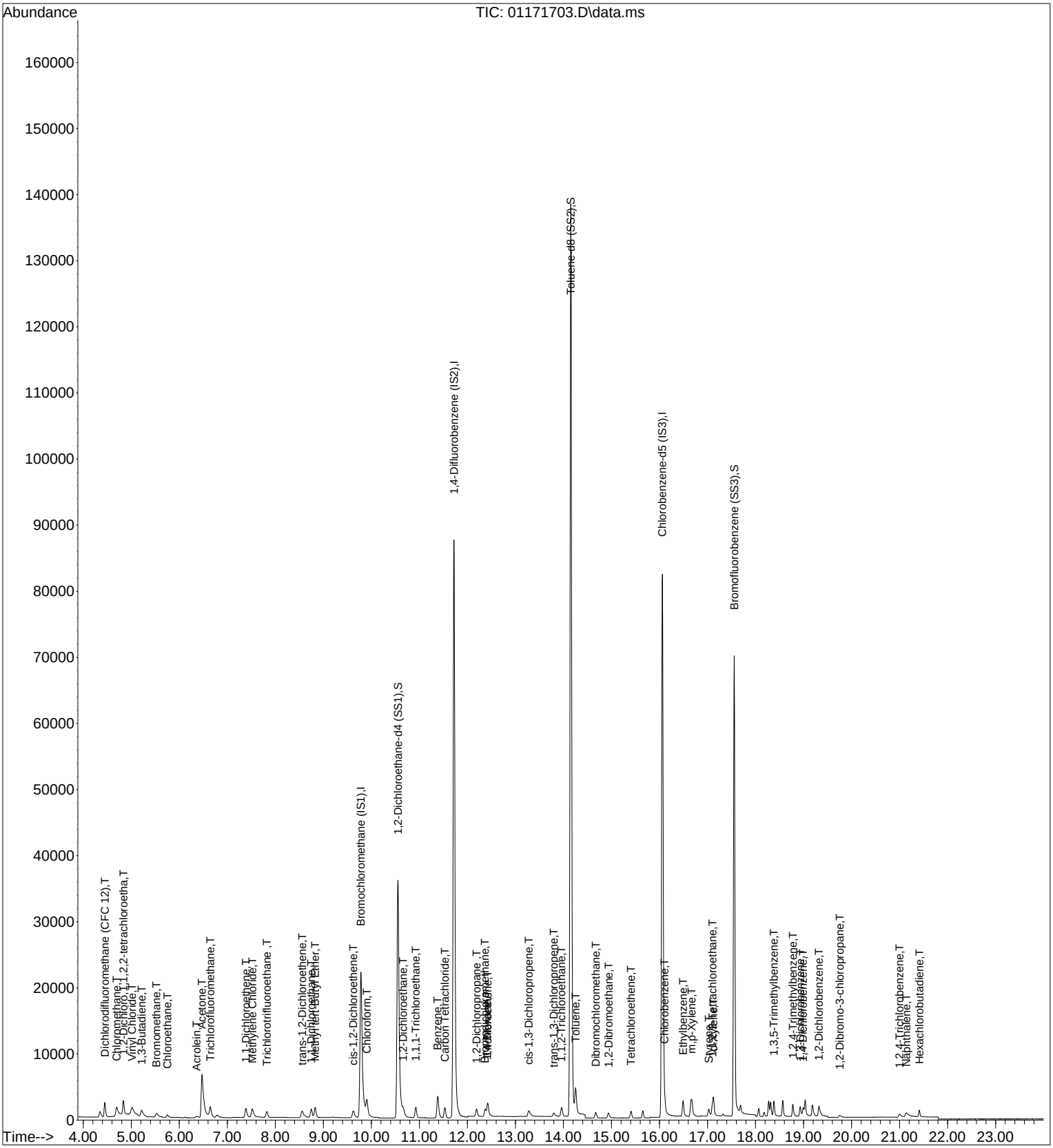
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

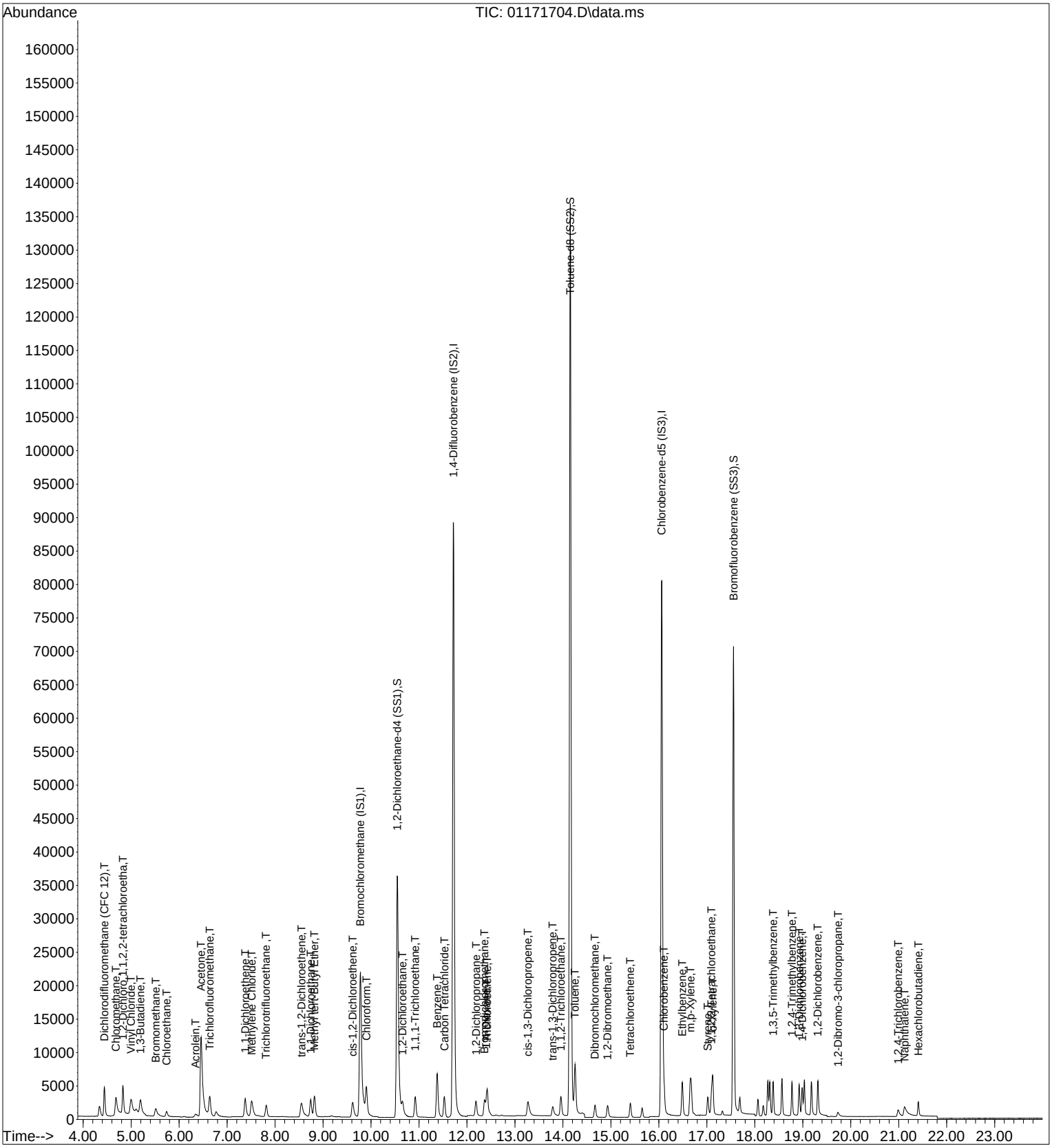
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

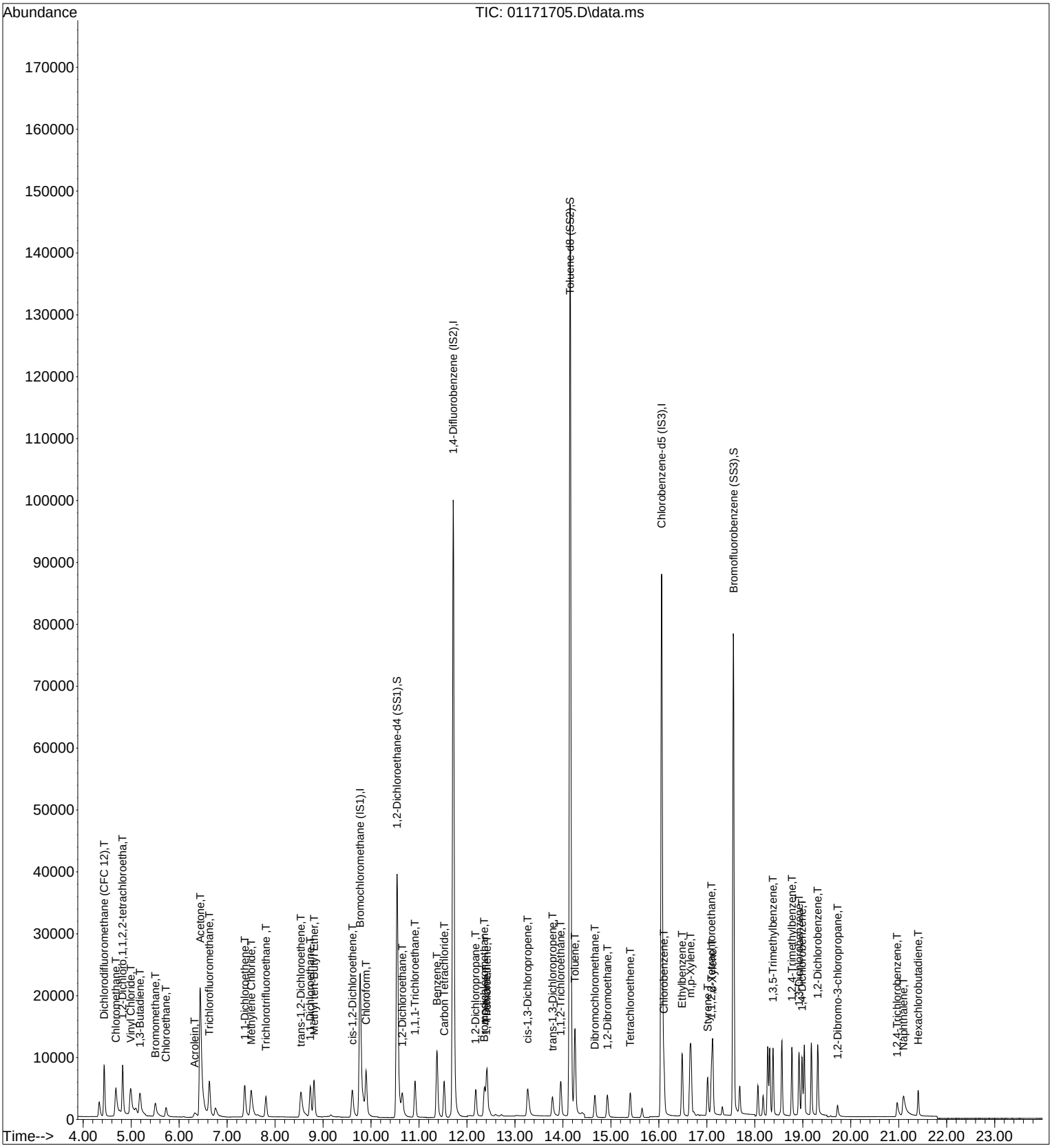
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

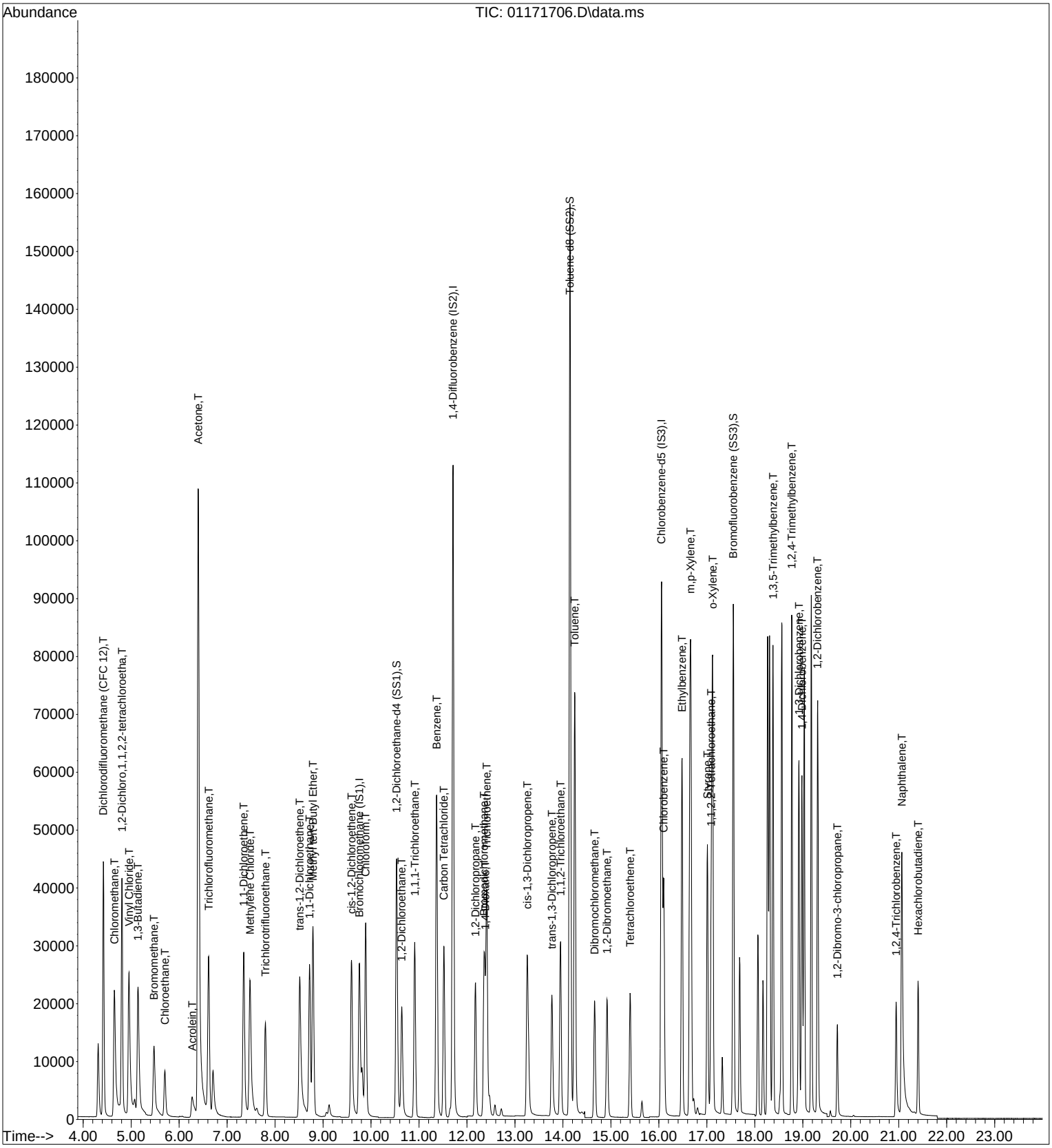
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

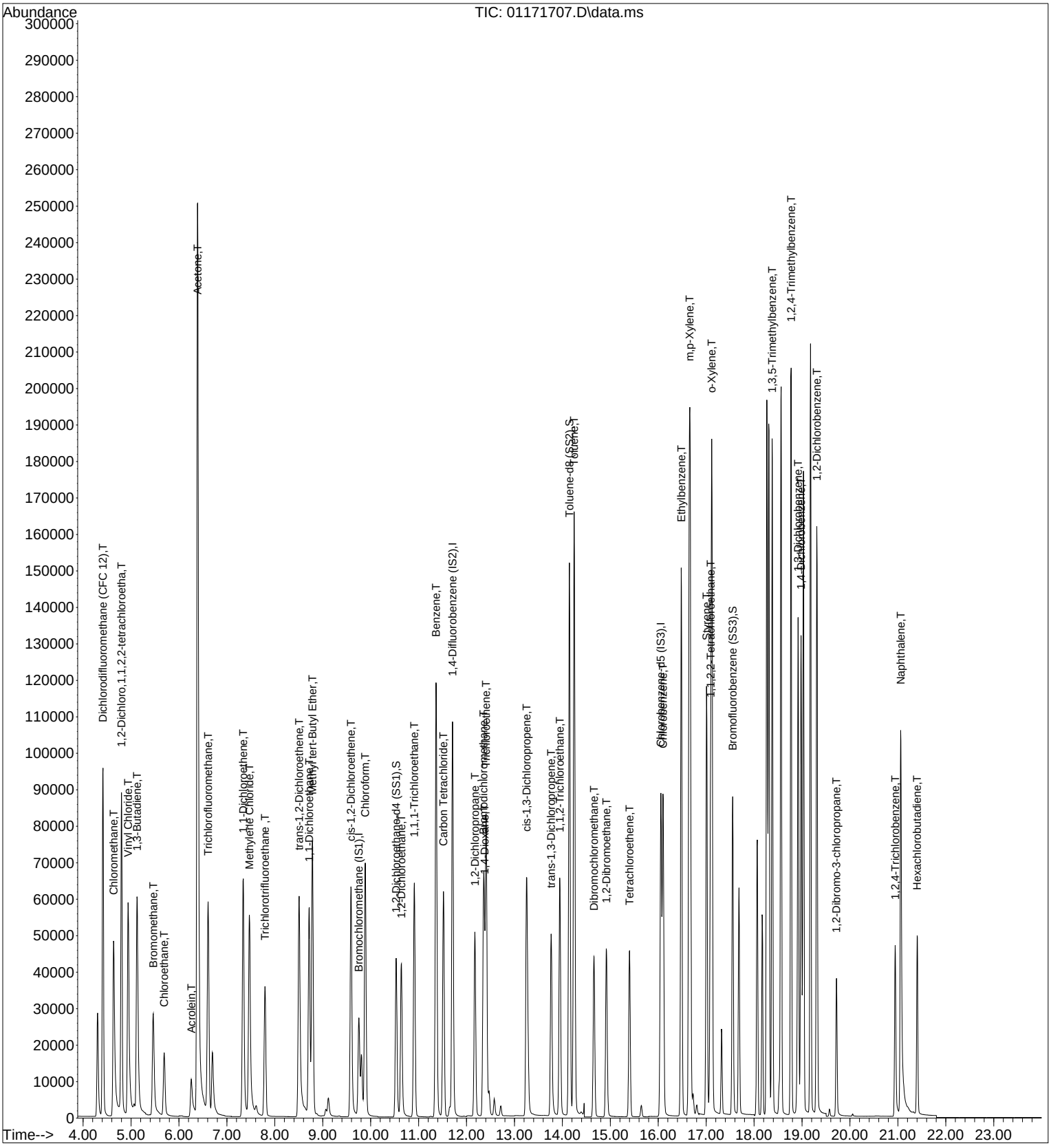
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

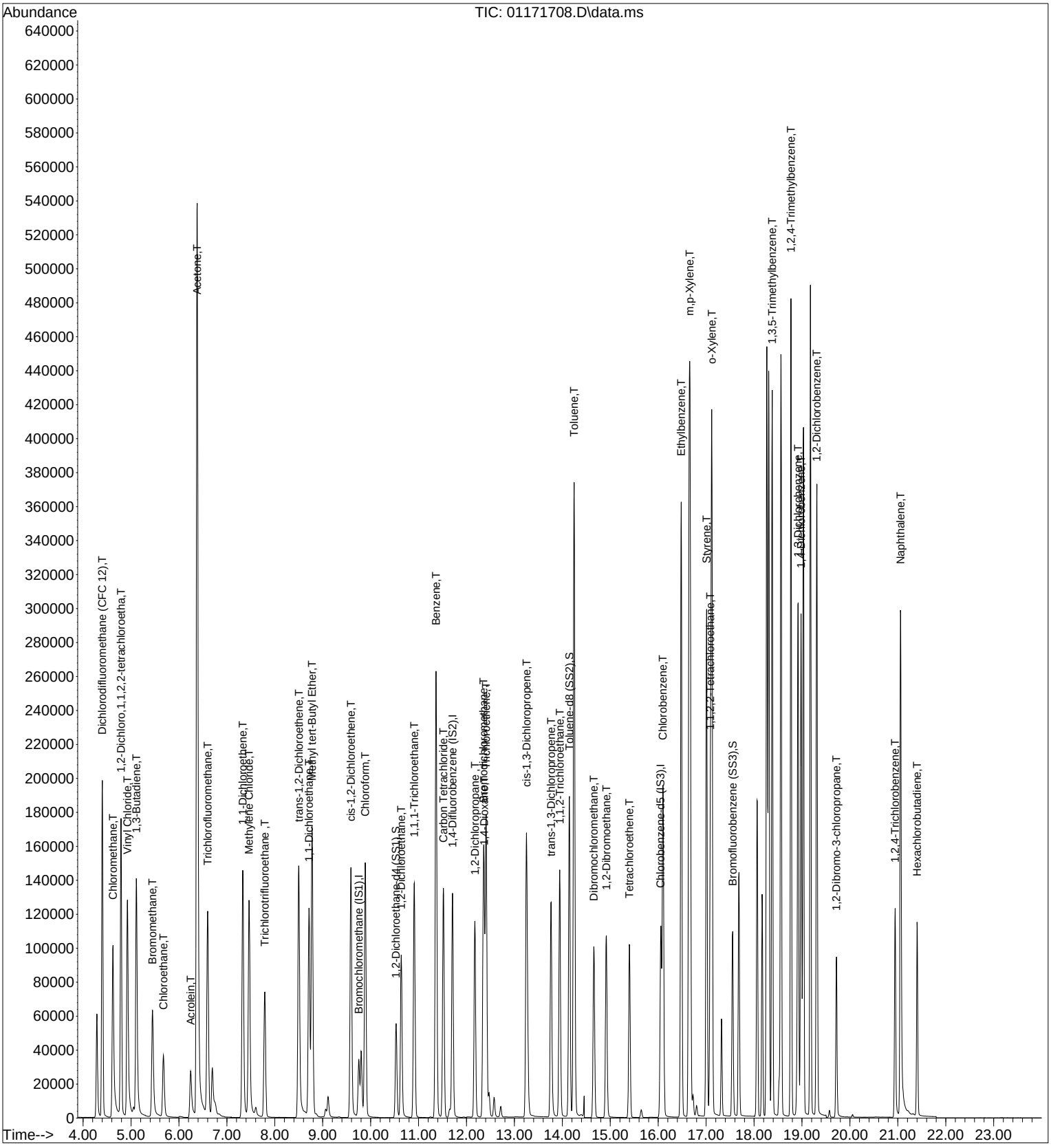
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%			
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%			
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944	pg	100
3) Chloromethane	4.61	52	162688	4785.564	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926	pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389	pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564	pg	99
7) Bromomethane	5.44	94	222851	4643.991	pg	100
8) Chloroethane	5.66	64	179461	5258.665	pg	100
9) Acrolein	6.24	56	140240	5967.932	pg	99
10) Acetone	6.38	58	838814	25814.022	pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282	pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913	pg	99
13) Methylene Chloride	7.47	84	297672	4889.177	pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498	pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436	pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227	pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907	pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430	pg	100
19) Chloroform	9.89	83	522733	4780.247	pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905	pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873	pg	100
23) Benzene	11.36	78	1167900	4536.841	pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159	pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114	pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606	pg	100
28) Trichloroethene	12.41	130	299094	4425.611	pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520	pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385	pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769	pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991	pg	99
34) Toluene	14.25	91	1167322	4708.699	pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519	pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632	pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535	pg	100
39) Chlorobenzene	16.10	112	788966	3880.853	pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214	pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622	pg	100
42) Styrene	17.01	104	851189	4927.183	pg	99
43) o-Xylene	17.12	106	518661	4234.000	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849	pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868	pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829	pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465	pg	100
53) Naphthalene	21.06	128	1434819	5185.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

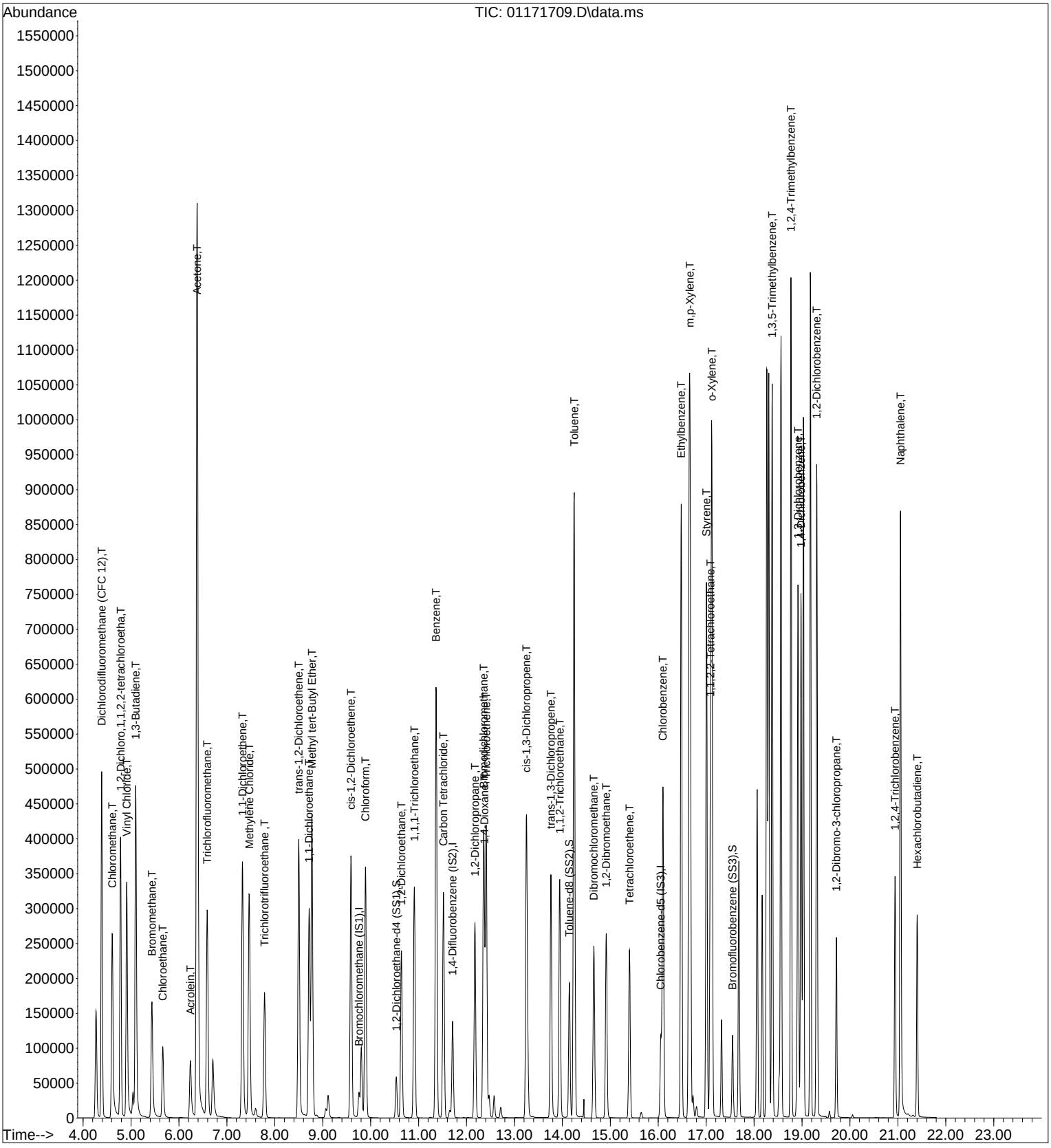
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

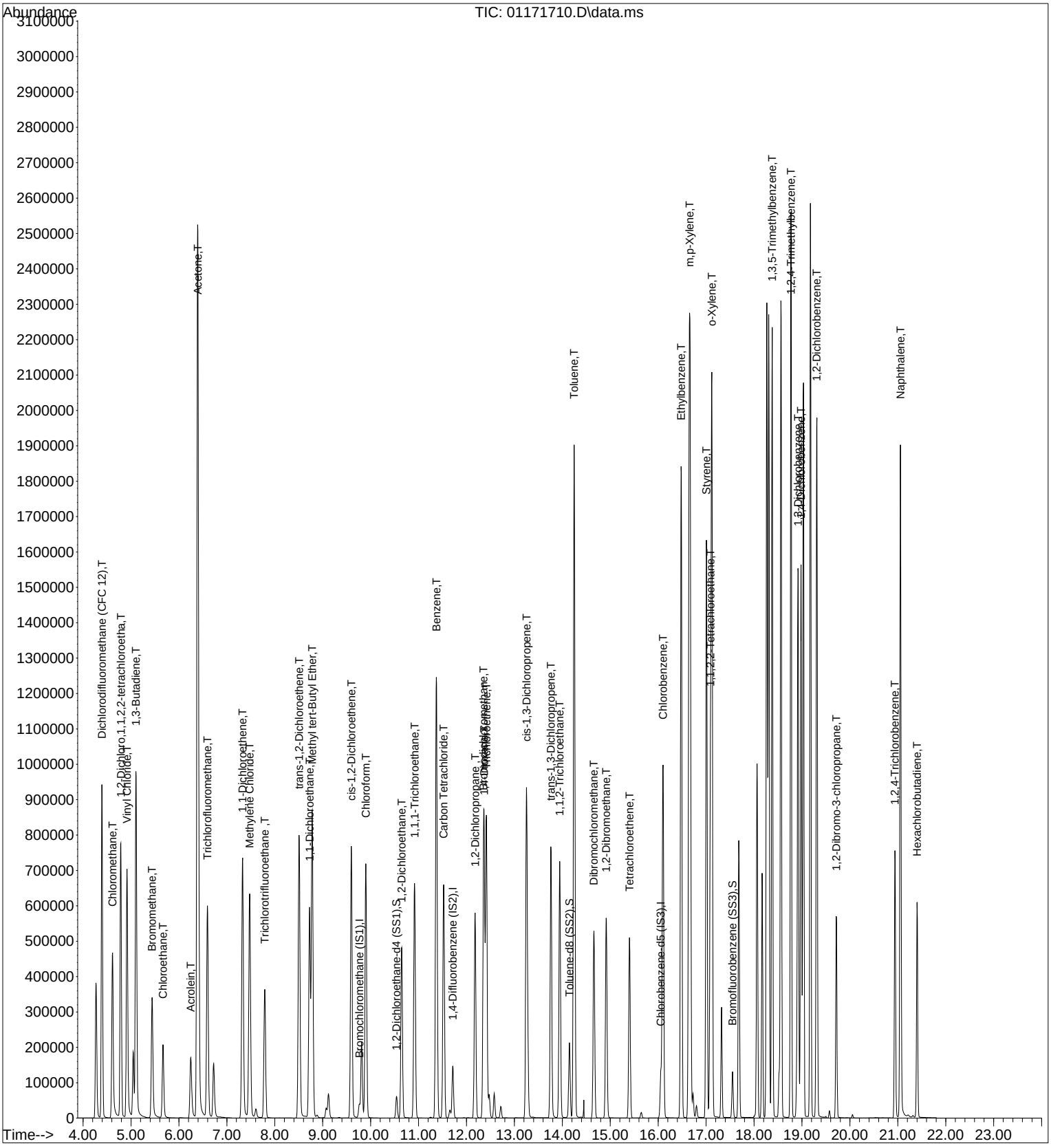
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

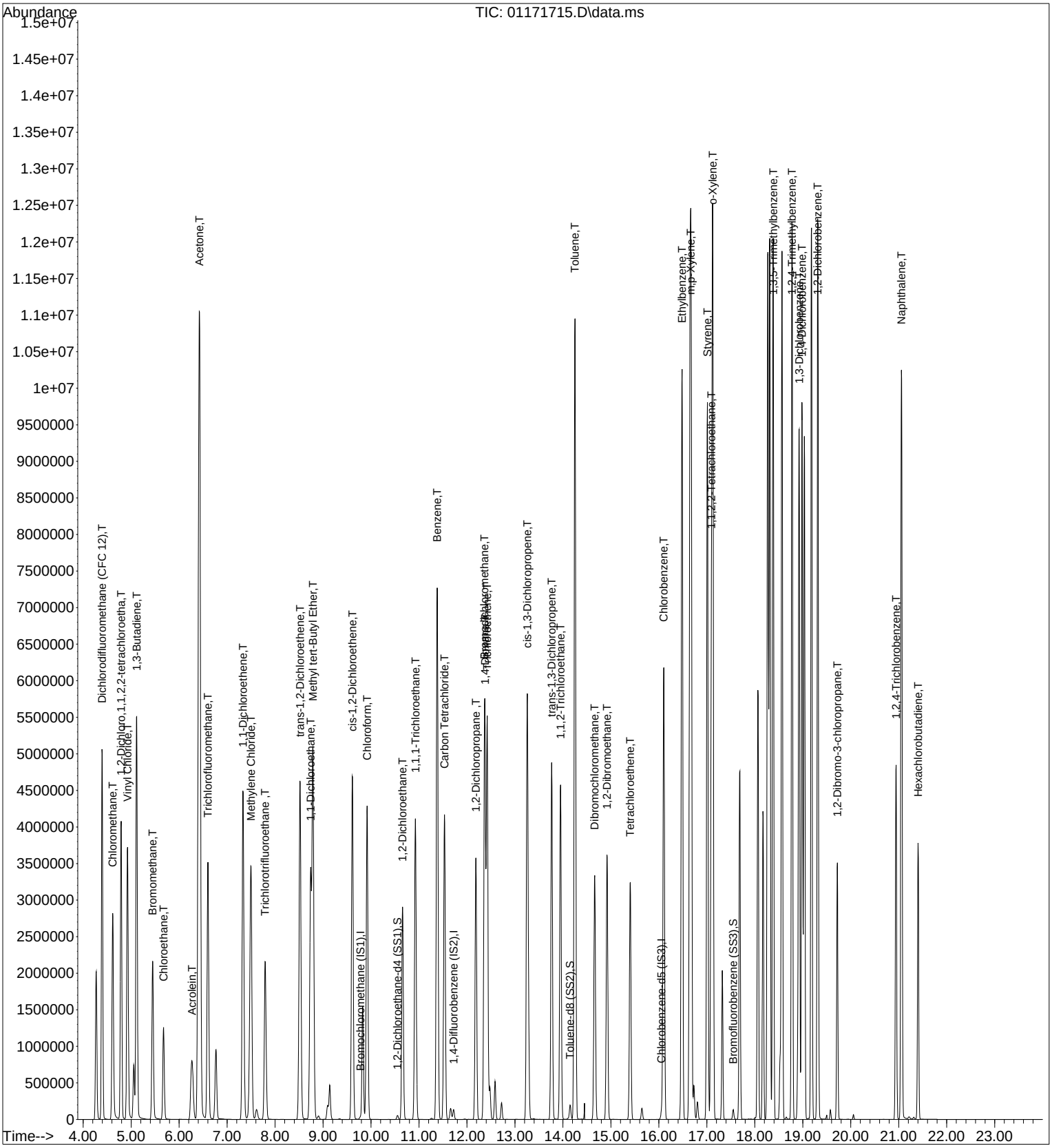
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

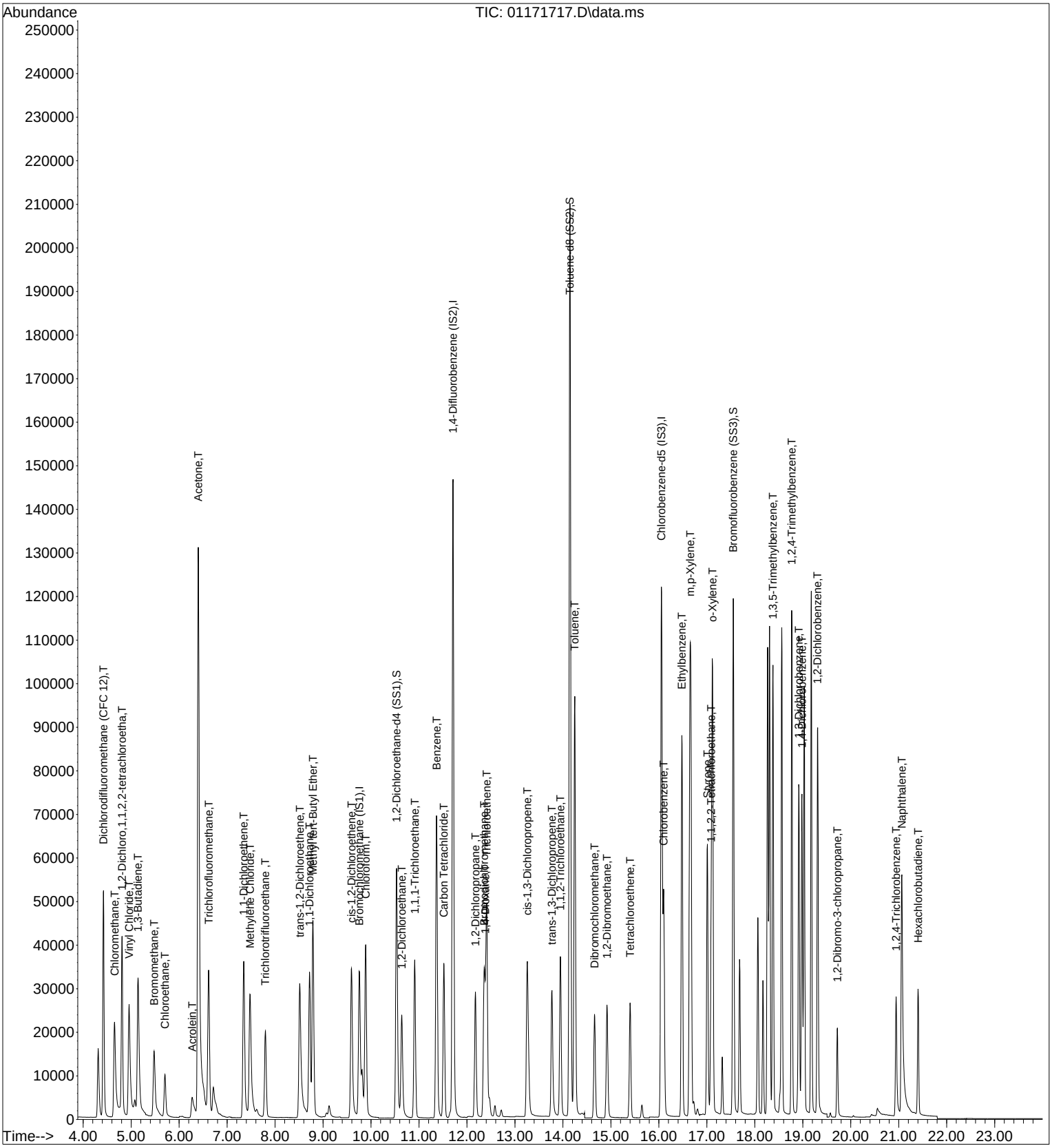
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23
Acq. Method File: TO15SIM.M

CL 1/18/17

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.297	9.1	86	0.03
3	T	Chloromethane	0.753	0.532	29.3	62	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.419	2.7	90	0.02
5	T	Vinyl Chloride	2.415	2.027	16.1	75	0.03
6	T	1,3-Butadiene	1.436	0.871	39.3#	71	0.03
7	T	Bromomethane	0.972	0.850	12.6	85	0.03
8	T	Chloroethane	0.743	0.579	22.1	76	0.03
9	T	Acrolein	0.528	0.338	36.0#	69	0.00
10	T	Acetone	0.682	0.534	21.7	74	-0.02
11	T	Trichlorofluoromethane	1.728	1.676	3.0	89	0.01
12	T	1,1-Dichloroethene	1.083	0.937	13.5	86	0.01
13	T	Methylene Chloride	1.175	1.059	9.9	84	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.982	9.1	90	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.013	13.2	87	0.00
16	T	1,1-Dichloroethane	2.070	1.658	19.9	77	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.487	19.5	82	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.073	12.4	87	-0.02
19	T	Chloroform	2.177	1.899	12.8	83	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.524	12.0	82	-0.02
21	T	1,2-Dichloroethane	1.676	1.338	20.2	79	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.687	16.5	87	-0.02
23	T	Benzene	4.797	4.100	14.5	81	-0.02
24	T	Carbon Tetrachloride	1.623	1.508	7.1	90	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	-0.02
26	T	1,2-Dichloropropane	0.255	0.184	27.8	76	0.00
27	T	Bromodichloromethane	0.352	0.281	20.2	83	0.00
28	T	Trichloroethene	0.260	0.226	13.1	88	0.00
29	T	1,4-Dioxane	0.191	0.150	21.5	83	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.274	20.1	82	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.231	17.2	83	0.00
32	T	1,1,2-Trichloroethane	0.215	0.172	20.0	83	0.00
33	S	Toluene-d8 (SS2)	0.993	0.937	5.6	88	0.00
34	T	Toluene	0.928	0.793	14.5	84	0.00
35	T	Dibromochloromethane	0.257	0.222	13.6	88	0.00
36	T	1,2-Dibromoethane	0.243	0.214	11.9	87	0.00
37	T	Tetrachloroethene	0.270	0.228	15.6	87	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	79	0.00
39	T	Chlorobenzene	3.855	3.964	-2.8	86	0.00
40	T	Ethylbenzene	5.685	5.569	2.0	85	0.00
41	T	m,p-Xylene	4.264	4.486	-5.2	84	0.00
42	T	Styrene	2.987	3.055	-2.3	83	0.00
43	T	o-Xylene	2.190	2.366	-8.0	86	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.499	0.7	82	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.149	-17.5	89	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.146	-14.0	86	0.00
47	T	1,2,4-Trimethylbenzene	4.430	5.061	-14.2	85	0.00
48	T	1,3-Dichlorobenzene	2.723	3.104	-14.0	83	0.00
49	T	1,4-Dichlorobenzene	2.835	2.988	-5.4	82	0.00
50	T	1,2-Dichlorobenzene	2.775	3.012	-8.5	84	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.890	-6.1	85	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.479	9.9	73	0.00
53	T	Naphthalene	5.215	5.143	1.4	71	0.00
54	T	Hexachlorobutadiene	1.299	1.203	7.4	79	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/25/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41272	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	202075	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	28240	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	62898	879.970	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.00%			
33) Toluene-d8 (SS2)	14.14	98	189413	943.626	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.36%			
45) Bromofluorobenzene (SS3)	17.55	174	60682	1174.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.46%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	49639	476.084	pg	100
3) Chloromethane	4.65	52	11023	354.857	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	50159	488.968	pg	99
5) Vinyl Chloride	4.95	62	42788	429.267	pg	100
6) 1,3-Butadiene	5.14	54	19005	320.693	pg	95
7) Bromomethane	5.48	94	17428	434.643	pg	100
8) Chloroethane	5.70	64	12056	393.126	pg	100
9) Acrolein	6.27	56	7254	332.977	pg	99
10) Acetone	6.40	58	58538	2078.248	pg	92
11) Trichlorofluoromethane	6.61	101	36272	508.628	pg	100
12) 1,1-Dichloroethene	7.35	96	20474	458.262	pg	92
13) Methylene Chloride	7.48	84	23105	476.556	pg	87
14) Trichlorotrifluoroethane	7.80	151	21263	477.033	pg	99
15) trans-1,2-Dichloroethene	8.51	96	22300	462.991	pg	100
16) 1,1-Dichloroethane	8.72	63	34892	408.323	pg	99
17) Methyl tert-Butyl Ether	8.79	73	54712	429.073	pg	96
18) cis-1,2-Dichloroethene	9.59	96	23556	466.052	pg	100
19) Chloroform	9.89	83	41462	461.407	pg	99
21) 1,2-Dichloroethane	10.64	62	29056	420.050	pg	100
22) 1,1,1-Trichloroethane	10.91	97	37400	448.360	pg	100
23) Benzene	11.36	78	89016	449.615	pg	100
24) Carbon Tetrachloride	11.52	117	32820	489.999	pg	100
26) 1,2-Dichloropropane	12.18	63	19703	382.795	pg	98
27) Bromodichloromethane	12.36	83	30308	426.409	pg	100
28) Trichloroethene	12.41	130	24235	461.291	pg	100
29) 1,4-Dioxane	12.38	88	16097	417.261	pg	91
30) cis-1,3-Dichloropropene	13.25	75	30913	446.520	pg	100
31) trans-1,3-Dichloropropene	13.77	75	24874	441.497	pg	100
32) 1,1,2-Trichloroethane	13.95	83	18435	423.428	pg	96
34) Toluene	14.25	91	84379	450.062	pg	100
35) Dibromochloromethane	14.66	129	23777	457.983	pg	100
36) 1,2-Dibromoethane	14.92	107	22795	464.238	pg	100
37) Tetrachloroethene	15.40	166	24390	447.738	pg	98
39) Chlorobenzene	16.10	112	59389	545.535	pg	100
40) Ethylbenzene	16.48	91	82956	516.743	pg	99
41) m,p-Xylene	16.66	91	134489	1116.915	pg	99
42) Styrene	17.01	104	45773	542.590	pg	100
43) o-Xylene	17.12	106	35215	569.290	pg	97
44) 1,1,2,2-Tetrachloroethane	17.09	83	37265	524.301	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	76222	597.994	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	75179	600.908	pg	99
48) 1,3-Dichlorobenzene	18.92	146	46368	603.008	pg	100
49) 1,4-Dichlorobenzene	18.98	146	44637	557.562	pg	100
50) 1,2-Dichlorobenzene	19.31	146	45002	574.286	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13231	558.550	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	21775	469.457	pg	98
53) Naphthalene	21.07	128	78645	533.966	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

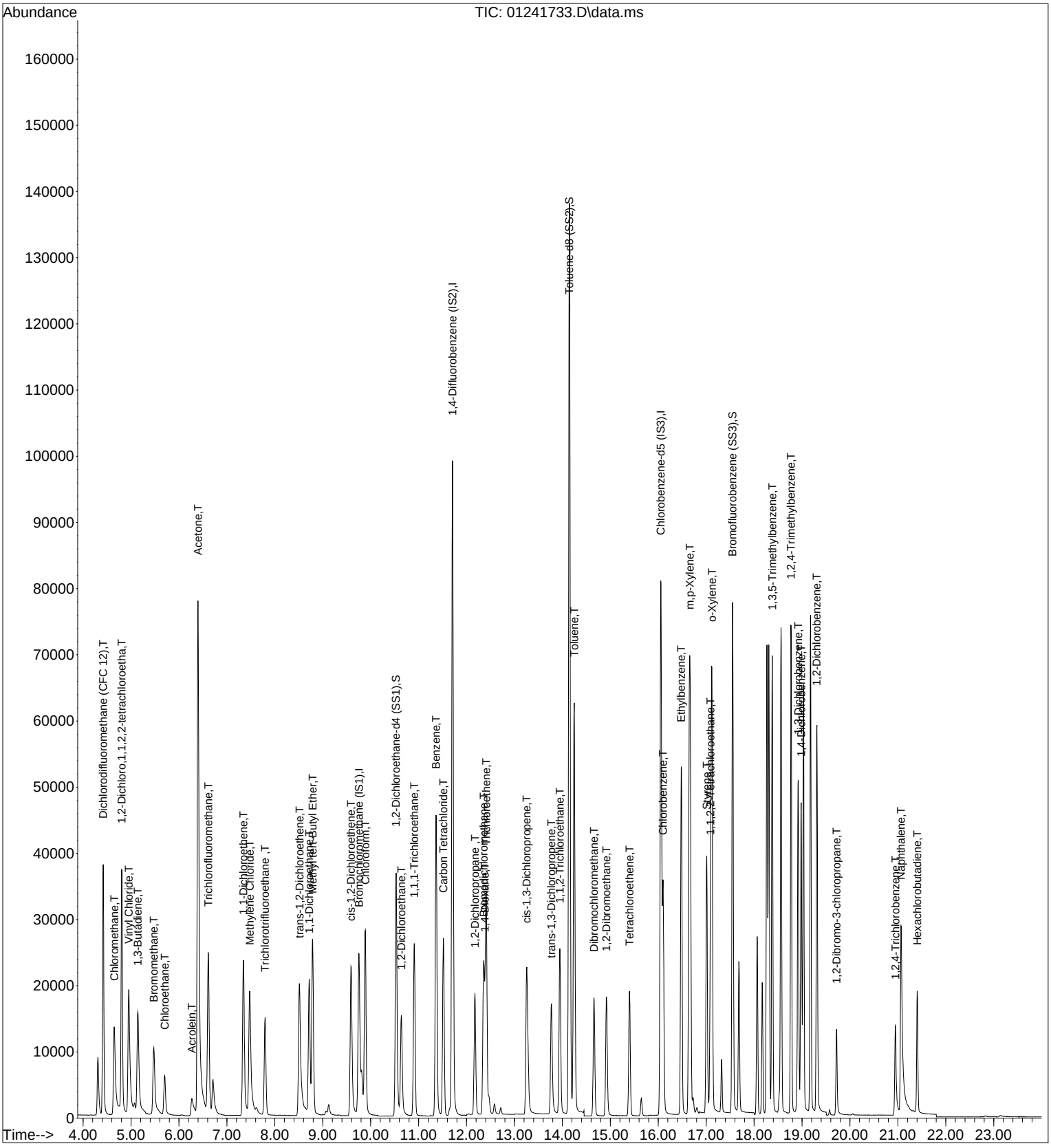
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	17994	490.358	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\24\01241733.D Vial: 16
Acq On : 24 Jan 2017 20:10 Operator: CL
Sample : CCV2 S19012417 500pg Inst : MS19
Misc : S29-12201602/S29-01171706 (1/17)

Quant Time: Jan 25 07:13:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	99	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.370	6.2	95	0.03
3	T	Chloromethane	0.753	0.553	26.6	70	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.447	1.5	97	0.02
5	T	Vinyl Chloride	2.415	2.080	13.9	82	0.03
6	T	1,3-Butadiene	1.436	0.903	37.1#	79	0.03
7	T	Bromomethane	0.972	0.866	10.9	93	0.03
8	T	Chloroethane	0.743	0.603	18.8	85	0.03
9	T	Acrolein	0.528	0.367	30.5#	81	0.00
10	T	Acetone	0.682	0.645	5.4	97	-0.02
11	T	Trichlorofluoromethane	1.728	1.700	1.6	97	0.01
12	T	1,1-Dichloroethene	1.083	0.967	10.7	96	0.01
13	T	Methylene Chloride	1.175	1.083	7.8	92	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.982	9.1	97	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.043	10.6	96	0.00
16	T	1,1-Dichloroethane	2.070	1.725	16.7	86	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.638	14.6	94	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.100	10.2	96	-0.02
19	T	Chloroform	2.177	1.923	11.7	90	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.545	10.8	90	-0.02
21	T	1,2-Dichloroethane	1.676	1.374	18.0	87	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.723	14.7	96	-0.02
23	T	Benzene	4.797	4.151	13.5	89	-0.02
24	T	Carbon Tetrachloride	1.623	1.521	6.3	98	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	98	-0.02
26	T	1,2-Dichloropropane	0.255	0.190	25.5	85	-0.01
27	T	Bromodichloromethane	0.352	0.284	19.3	91	-0.01
28	T	Trichloroethene	0.260	0.231	11.2	97	-0.01
29	T	1,4-Dioxane	0.191	0.152	20.4	92	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.285	16.9	92	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.242	13.3	94	0.00
32	T	1,1,2-Trichloroethane	0.215	0.174	19.1	90	0.00
33	S	Toluene-d8 (SS2)	0.993	0.951	4.2	97	0.00
34	T	Toluene	0.928	0.813	12.4	93	0.00
35	T	Dibromochloromethane	0.257	0.221	14.0	95	0.00
36	T	1,2-Dibromoethane	0.243	0.218	10.3	96	0.00
37	T	Tetrachloroethene	0.270	0.230	14.8	95	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	88	0.00
39	T	Chlorobenzene	3.855	3.895	-1.0	95	0.00
40	T	Ethylbenzene	5.685	5.650	0.6	96	0.00
41	T	m,p-Xylene	4.264	4.505	-5.7	95	0.00
42	T	Styrene	2.987	3.084	-3.2	94	0.00
43	T	o-Xylene	2.190	2.354	-7.5	96	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.387	5.2	87	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.164	-18.3	100	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.020	-11.2	94	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.997	-12.8	94	0.00
48	T	1,3-Dichlorobenzene	2.723	3.033	-11.4	91	0.00
49	T	1,4-Dichlorobenzene	2.835	2.969	-4.7	91	0.00
50	T	1,2-Dichlorobenzene	2.775	2.898	-4.4	90	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.799	4.8	85	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.363	17.0	76	0.00
53	T	Naphthalene	5.215	4.531	13.1	70	0.00
54	T	Hexachlorobutadiene	1.299	1.103	15.1	81	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44323	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	218293	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	31623	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	68482	892.142	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.21%			
33) Toluene-d8 (SS2)	14.15	98	207631	957.536	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.75%			
45) Bromofluorobenzene (SS3)	17.55	174	68423	1182.737	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.27%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54988	491.083	pg	100
3) Chloromethane	4.65	52	12323	369.400	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	54509	494.796	pg	99
5) Vinyl Chloride	4.95	62	47153	440.496	pg	100
6) 1,3-Butadiene	5.14	54	21153	332.368	pg	96
7) Bromomethane	5.48	94	19067	442.786	pg	100
8) Chloroethane	5.70	64	13492	409.667	pg	99
9) Acrolein	6.27	56	8475	362.245	pg	100
10) Acetone	6.40	58	75934	2510.280	pg	# 86
11) Trichlorofluoromethane	6.61	101	39518	516.000	pg	100
12) 1,1-Dichloroethene	7.35	96	22700	473.111	pg	93
13) Methylene Chloride	7.48	84	25362	487.100	pg	89
14) Trichlorotrifluoroethane	7.80	151	22820	476.723	pg	100
15) trans-1,2-Dichloroethene	8.51	96	24659	476.727	pg	100
16) 1,1-Dichloroethane	8.72	63	38992	424.894	pg	100
17) Methyl tert-Butyl Ether	8.79	73	62317	455.074	pg	97
18) cis-1,2-Dichloroethene	9.59	96	25936	477.818	pg	100
19) Chloroform	9.89	83	45085	467.189	pg	100
21) 1,2-Dichloroethane	10.64	62	32038	431.278	pg	99
22) 1,1,1-Trichloroethane	10.91	97	41000	457.684	pg	100
23) Benzene	11.37	78	96787	455.215	pg	100
24) Carbon Tetrachloride	11.52	117	35573	494.542	pg	100
26) 1,2-Dichloropropane	12.17	63	22047	396.512	pg	98
27) Bromodichloromethane	12.35	83	33101	431.104	pg	100
28) Trichloroethene	12.41	130	26689	470.259	pg	100
29) 1,4-Dioxane	12.38	88	17663	423.839	pg	91
30) cis-1,3-Dichloropropene	13.26	75	34686	463.796	pg	100
31) trans-1,3-Dichloropropene	13.77	75	28149	462.507	pg	100
32) 1,1,2-Trichloroethane	13.95	83	20191	429.307	pg	97
34) Toluene	14.25	91	93405	461.191	pg	100
35) Dibromochloromethane	14.66	129	25636	457.105	pg	100
36) 1,2-Dibromoethane	14.92	107	25127	473.712	pg	100
37) Tetrachloroethene	15.40	166	26679	453.372	pg	98
39) Chlorobenzene	16.10	112	65348	536.056	pg	100
40) Ethylbenzene	16.48	91	94254	524.311	pg	99
41) m,p-Xylene	16.66	91	151221	1121.520	pg	99
42) Styrene	17.01	104	51732	547.625	pg	100
43) o-Xylene	17.12	106	39222	566.235	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39856	500.766	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	83260	583.330	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	83111	593.241	pg	100
48) 1,3-Dichlorobenzene	18.92	146	50741	589.285	pg	100
49) 1,4-Dichlorobenzene	18.98	146	49661	553.956	pg	100
50) 1,2-Dichlorobenzene	19.31	146	48480	552.485	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13305	501.587	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	22486	432.924	pg	98
53) Naphthalene	21.07	128	77580	470.385	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

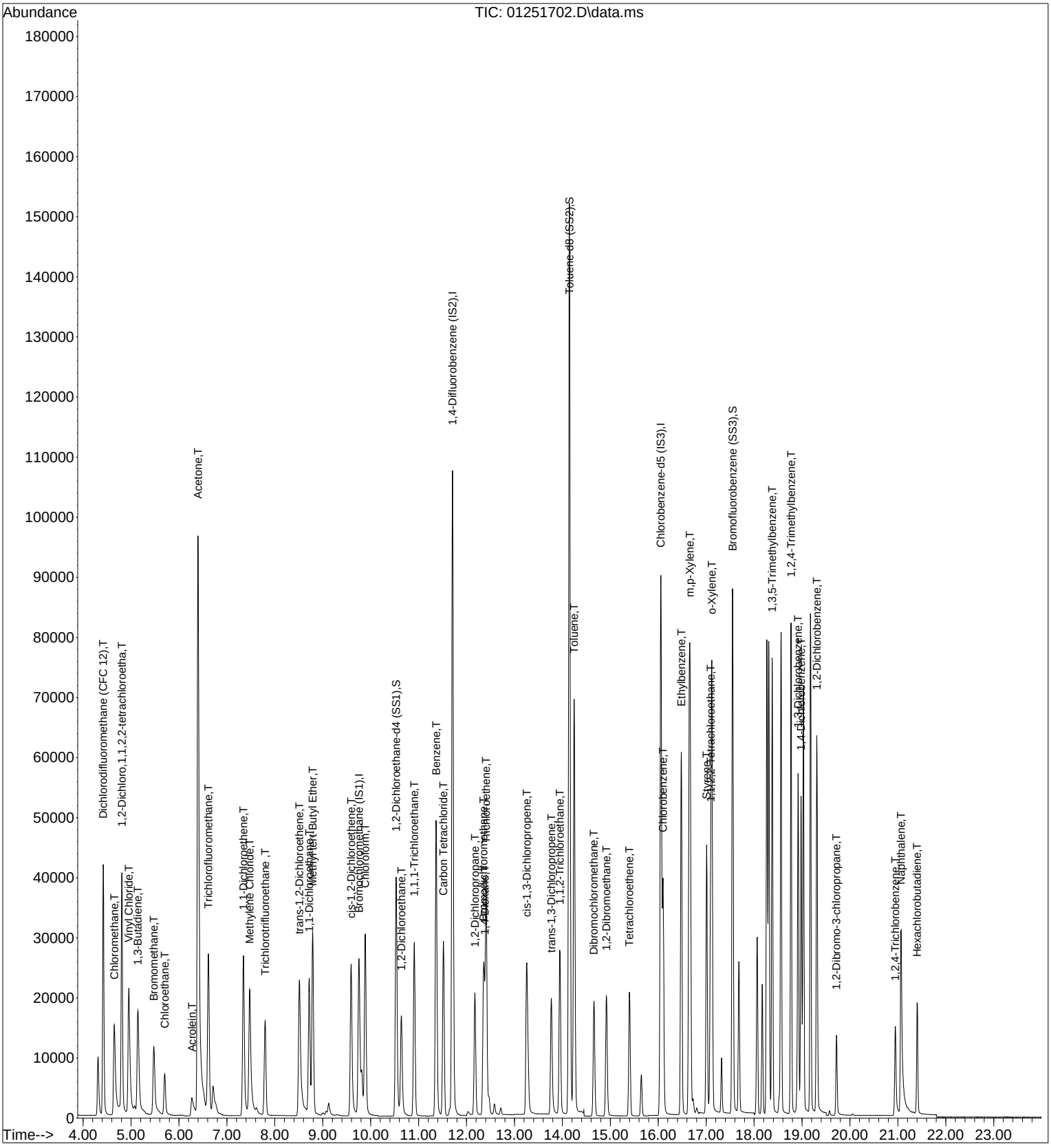
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	18471	449.508	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



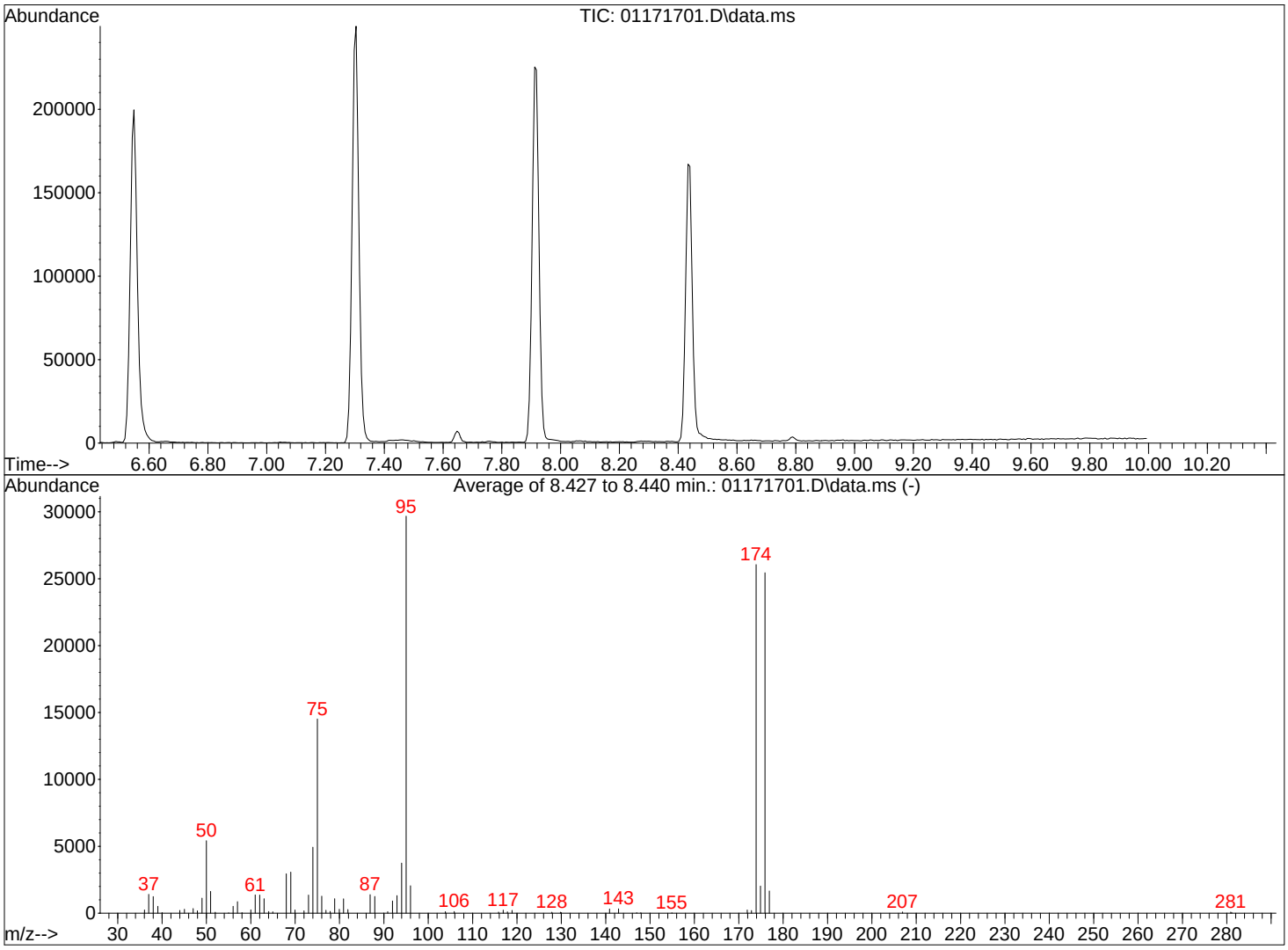
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

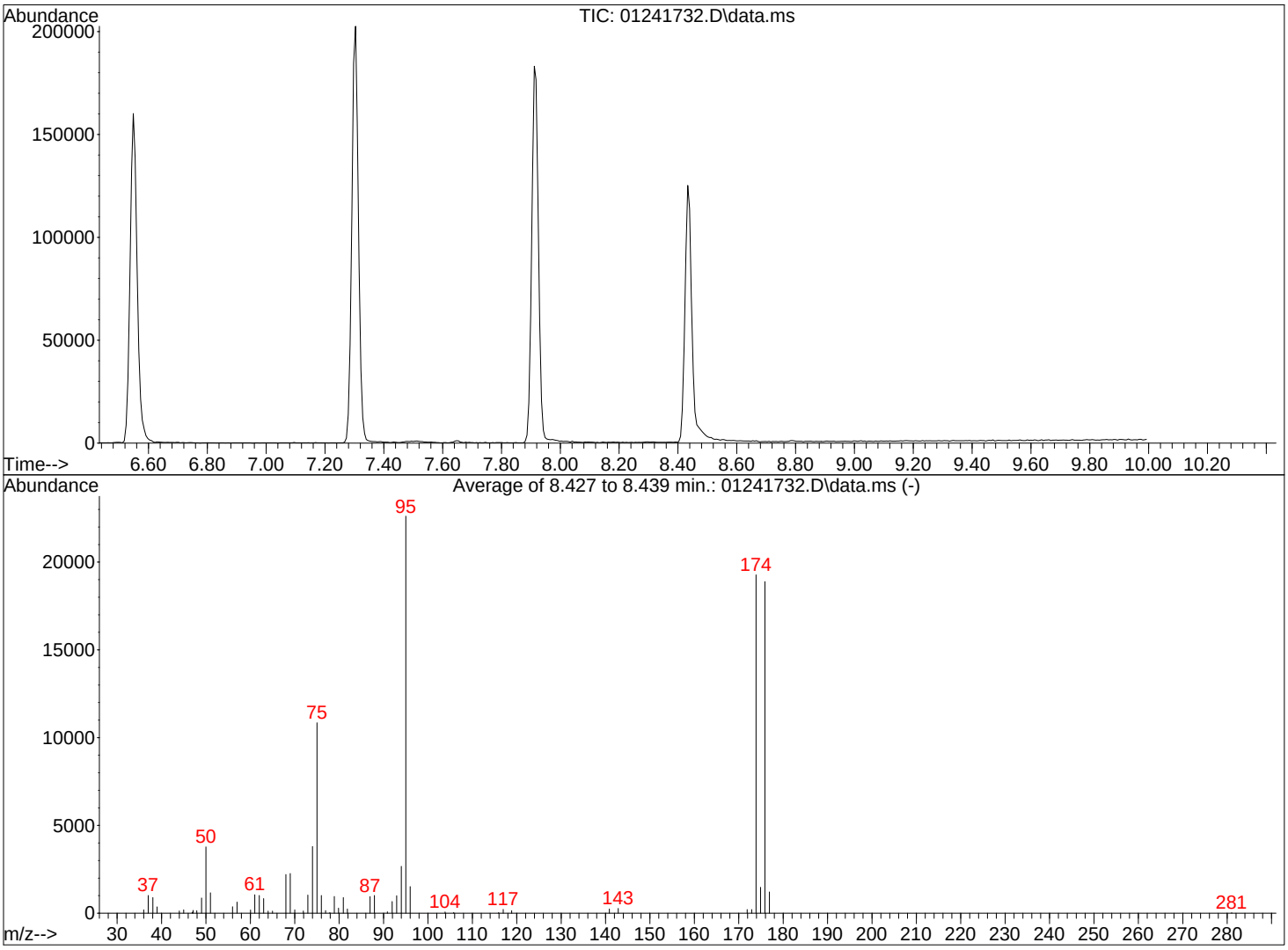
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

BFB

Data Path : I:\MS19\DATA\2017 01\24\
Data File : 01241732.D
Acq On : 24 Jan 2017 19:50
Operator : CL
Sample : BFB2 S19012417
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) CL 1/25/17
Last Update : Wed Jan 18 07:47:58 2017



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.7	3776	PASS
75	95	30	66	48.0	10851	PASS
95	95	100	100	100.0	22616	PASS
96	95	5	9	6.7	1513	PASS
173	174	0.00	2	1.1	207	PASS
174	95	50	120	85.2	19277	PASS
175	174	4	9	7.7	1479	PASS
176	174	93	101	98.0	18889	PASS
177	176	5	9	6.4	1213	PASS

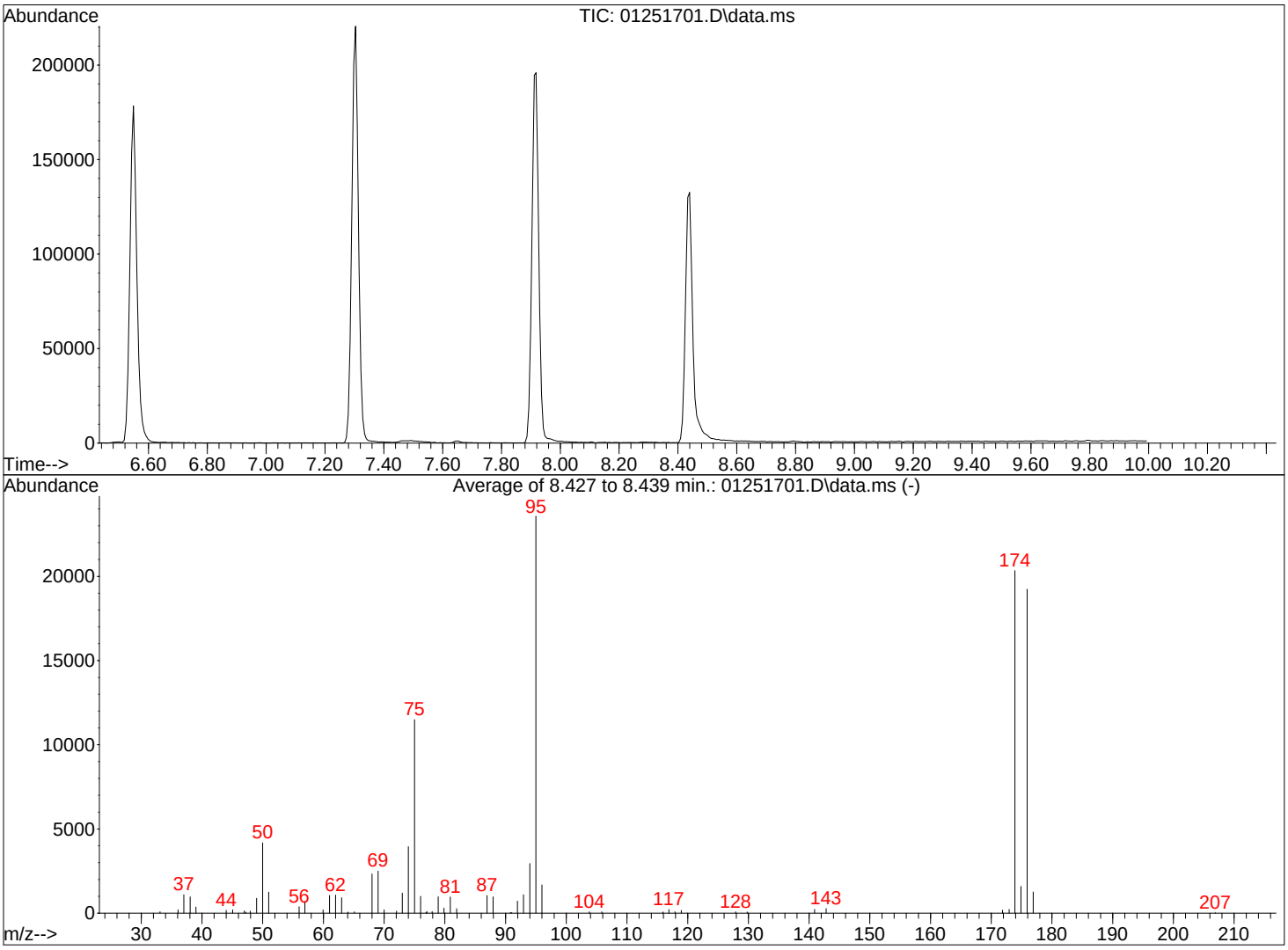
BFB

Data Path : I:\MS19\DATA\2017 01\25\
Data File : 01251701.D
Acq On : 25 Jan 2017 15:18
Operator : CL
Sample : BFB S19012517
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/25/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 702

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.7	4177	PASS
75	95	30	66	48.7	11487	PASS
95	95	100	100	100.0	23573	PASS
96	95	5	9	7.1	1681	PASS
173	174	0.00	2	1.1	225	PASS
174	95	50	120	86.3	20339	PASS
175	174	4	9	7.8	1592	PASS
176	174	93	101	94.6	19241	PASS
177	176	5	9	6.5	1260	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\24\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/24/17 19:50	01241732.D	BFB S19012417	S29-12201602	CL	2	Pass
2	1/24/17 20:10	01241733.D	CCV2 S19012417_500pg	S29-12201602/S29-01171706 (2/15)	CL	16	Pass
3	1/24/17 20:41	01241734.D	MB2 S19012417_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/24/17 21:12	01241735.D	LCS2 S19012417_500pg	S29-12201602/S29-01171714 (2/15)	CL	2	Pass
5	1/24/17 21:44	01241736.D	LCSD2 S19012417_500pg	S29-12201602/S29-01171714 (2/15)	CL	2	Pass
6	1/24/17 22:15	01241737.D	P1700234-034 (1000mL)	S29-12201602	CL	15	
7	1/24/17 22:47	01241738.D	P1700234-035 (1000mL)	S29-12201602	CL	1	
8	1/24/17 23:18	01241739.D	P1700234-036 (1000mL)	S29-12201602	CL	3	
9	1/24/17 23:50	01241740.D	P1700234-037 (1000mL)	S29-12201602	CL	4	
10	1/25/17 0:21	01241741.D	P1700260-001 (1000mL)	S29-12201602	CL	5	
11	1/25/17 0:52	01241742.D	blank	S29-12201602	CL	2	No IS
12	1/25/17 1:24	01241743.D	P1700260-002 (1000mL)	S29-12201602	CL	6	
13	1/25/17 1:55	01241744.D	P1700260-003 (1000mL)	S29-12201602	CL	7	
14	1/25/17 2:26	01241745.D	P1700260-004 (1000mL)	S29-12201602	CL	8	
15	1/25/17 2:57	01241746.D	P1700260-005 (1000mL)	S29-12201602	CL	9	
16	1/25/17 3:29	01241747.D	P1700260-006 (1000mL)	S29-12201602	CL	10	
17	1/25/17 4:00	01241748.D	P1700260-007 (1000mL)	S29-12201602	CL	11	
18	1/25/17 8:10	01241749.D	CCV Test	S29-12201602/S29-01051707 (2/3)	CL	15	
19	1/25/17 8:42	01241750.D	P1700260-012 (1000mL)	S29-12201602	CL	6	
20	1/25/17 9:13	01241751.D	CCV Test	S29-12201602/S29-01051708 (2/3)	CL	15	
21	1/25/17 9:44	01241752.D	P1700260-008 (1000mL)	S29-12201602	CL	1	
22	1/25/17 10:15	01241753.D	P1700260-009 (1000mL)	S29-12201602	CL	3	
23	1/25/17 10:47	01241754.D	P1700260-010 (1000mL)	S29-12201602	CL	4	
24	1/25/17 11:18	01241755.D	P1700260-011 (1000mL)	S29-12201602	CL	5	
25	1/25/17 11:49	01241756.D	blank	S29-12201602	CL	2	No IS
26	1/25/17 12:21	01241757.D	P1700260-013 (1000mL)	S29-12201602	CL	7	
27	1/25/17 12:52	01241758.D	P1700260-014 (1000mL)	S29-12201602	CL	8	
28	1/25/17 13:24	01241759.D	P1700260-015 (1000mL)	S29-12201602	CL	9	
29	1/25/17 13:55	01241760.D	P1700260-015dup (1000mL)	S29-12201602	CL	9	Pass for Dup
30	1/25/17 14:27	01241761.D	CCV S19012417_500pg_End	S29-12201602/S29-01051708 (2/3)	CL	16	Pass

CL 1/25/17

Injection Log

Directory: I:\MS19\DATA\2017_01\25\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/25/17 15:18	01251701.D	BFB S19012517	S29-12201602	CL	2	Pass
2	1/25/17 15:36	01251702.D	CCV S19012517_500pg	S29-12201602/S29-01051708 (2/3)	CL	16	Pass
3	1/25/17 16:08	01251703.D	MB S19012517_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/25/17 16:39	01251704.D	LCS S19012517_500pg	S29-12201602/S29-01171715 (2/17)	CL	2	Pass
5	1/25/17 17:10	01251705.D	LCSD S19012517_500pg	S29-12201602/S29-01171715 (2/17)	CL	2	Pass
6	1/25/17 17:42	01251706.D	P1700260-016 (1000mL)	S29-12201602	CL	10	
7	1/25/17 18:14	01251707.D	P1700260-017 (1000mL)	S29-12201602	CL	11	
8	1/25/17 18:45	01251708.D	P1700260-018 (1000mL)	S29-12201602	CL	12	
9	1/25/17 19:16	01251709.D	P1700260-019 (1000mL)	S29-12201602	CL	13	
10	1/25/17 19:48	01251710.D	P1700260-020 (1000mL)	S29-12201602	CL	14	
11	1/25/17 20:19	01251711.D	P1700260-021 (1000mL)	S29-12201602	CL	15	
12	1/25/17 20:50	01251712.D	blank	S29-12201602	CL	2	No IS
13	1/25/17 21:21	01251713.D	P1700260-022 (1000mL)	S29-12201602	CL	1	
14	1/25/17 21:52	01251714.D	P1700260-023 (1000mL)	S29-12201602	CL	3	
15	1/25/17 22:23	01251715.D	P1700260-024 (1000mL)	S29-12201602	CL	4	
16	1/25/17 22:54	01251716.D	P1700261-001 (1000mL)	S29-12201602	CL	6	
17	1/25/17 23:25	01251717.D	P1700261-002 (1000mL)	S29-12201602	CL	7	
18	1/25/17 23:57	01251718.D	P1700261-002dup (1000mL)	S29-12201602	CL	7	Pass for Dup
19	1/26/17 0:28	01251719.D	P1700261-003 (1000mL)	S29-12201602	CL	8	
20	1/26/17 0:59	01251720.D	P1700261-004 (1000mL)	S29-12201602	CL	9	
21	1/26/17 1:31	01251721.D	blank	S29-12201602	CL	2	No IS
22	1/26/17 2:02	01251722.D	CCV S19012517_500pg_End	S29-12201602/S29-01051708 (2/3)	CL	16	
23	1/26/17 2:34	01251723.D	P1700214-001 (500mL)	S29-12201602	CL	5	
24	1/26/17 3:05	01251724.D	P1700214-001dil (50mL)	S29-12201602	CL	5	
25	1/26/17 3:36	01251725.D	blank	S29-12201602	CL	2	No IS

CL 1/26/17

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061707.D
Acq On : 6 Jan 2017 14:52 Operator: CL
Sample : AC02074-FCA00980 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 07 15:18:30 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

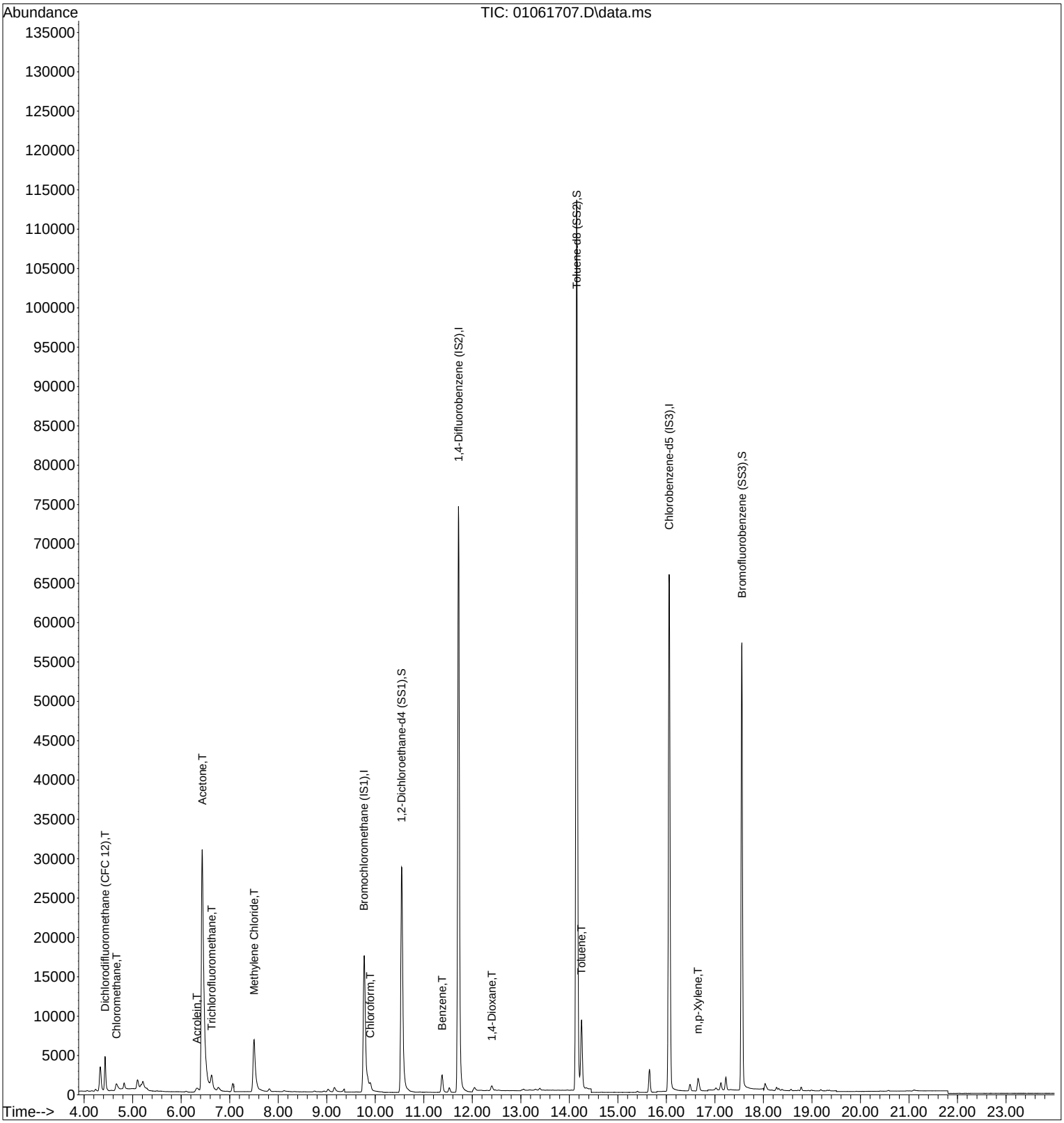
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	33034	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	156021	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	25147	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.5	65	55868	1055.869	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.59%				
33) Toluene-d8 (SS2)	14.2	98	158161	1037.833	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.78%				
45) Bromofluorobenzene (SS3)	17.6	174	44675	896.456	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.4	85	5897	73.569	pg		100
3) Chloromethane	4.7	52	758	35.328	pg	#	88
9) Acrolein	6.3	56	1597	107.898	pg		99
10) Acetone	6.4	58	31576	1599.000	pg		91
11) Trichlorofluoromethane	6.6	101	2289	39.009	pg		100
13) Methylene Chloride	7.5	84	8781	227.565	pg		88
19) Chloroform	9.9	83	1183	17.136	pg		97
23) Benzene	11.4	78	4598	28.215	pg		100
29) 1,4-Dioxane	12.4	88	981	33.937	pg		96
34) Toluene	14.3	91	11944	80.659	pg		99
41) m,p-Xylene	16.7	91	3059	21.088	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061707.D
Acq On : 6 Jan 2017 14:52 Operator: CL
Sample : AC02074-FCA00980 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 07 15:18:30 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071726.D
Acq On : 8 Jan 2017 9:24 am
Operator : JM
Sample : AC02111 FCR00066
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 09 09:41:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	43821	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	145958	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	120534	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	72653	841.839 pg		0.00
Spiked Amount 1000.000			Recovery = 84.18%			
57) Toluene-d8 (SS2)	12.63	98	128750	874.139 pg		0.00
Spiked Amount 1000.000			Recovery = 87.41%			
74) Bromofluorobenzene (SS3)	16.14	174	44344	914.141 pg		0.00
Spiked Amount 1000.000			Recovery = 91.41%			
Target Compounds						Qvalue
2) * Propene	3.52	42	6248	71.037 pg		81
3) * Dichlorodifluoromethane	3.58	85	788	4.206 pg		97
4) * Chloromethane	3.71	50	1465	10.460 pg		89
7) * 1,3-Butadiene	4.00	54	107	1.076 pg	#	1
8) * Bromomethane	4.21	94	257	3.020 pg	#	75
9) * Chloroethane	4.35	64	74	1.217 pg	#	1
10) * Ethanol	4.43	45	22579	376.394 pg		97
11) * Acetonitrile	4.60	41	2034	13.523 pg		99
12) * Acrolein	4.71	56	9965	198.283 pg		99
13) * Acetone	4.82	58	98639	1740.887 pg	#	24
14) * Trichlorofluoromethane	4.97	101	291	2.325 pg		84
15) * 2-Propanol (Isopropa...	5.01	45	23324	151.929 pg		99
16) * Acrylonitrile	5.18	53	292	3.272 pg	#	58
18) tert-Butanol	5.53	59	18867	203.901 pg	#	81
19) * Methylene Chloride	5.57	84	706	11.186 pg		95
20) * 3-Chloro-1-propene (...	5.65	41	68	0.807 pg	#	43
22) * Carbon Disulfide	5.84	76	5606	24.229 pg		99
24) * 1,1-Dichloroethane	6.57	63	140	1.309 pg	#	42
26) * Vinyl Acetate	6.70	86	11997	1009.608 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	8510	250.232 pg		82
29) DIPE	7.63	45	451	2.275 pg	#	53
30) * Ethyl Acetate	7.63	61	416	23.927 pg		84
31) * n-Hexane	7.65	57	320	3.579 pg		99
34) * Tetrahydrofuran	8.15	71	239	8.768 pg	#	1
36) * 1,2-Dichloroethane	8.49	62	116	1.240 pg	#	42
39) * Benzene	9.36	78	1525	9.060 pg		96
41) 1-Butanol	9.29	56	13886	440.078 pg	#	48
43) * Cyclohexane	9.65	84	59	1.102 pg	#	1
47) * Trichloroethene	10.62	130	98	1.826 pg		81
48) * 1,4-Dioxane	10.63	88	2932	83.521 pg		100
49) Isooctane	10.71	56	830	10.316 pg		80
51) * n-Heptane	11.04	71	445	5.149 pg	#	85
53) * 4-Methyl-2-pentanone	11.72	58	857	28.181 pg	#	87
58) * Toluene	12.74	91	1413	8.294 pg		99
59) * 2-Hexanone	13.06	58	6087	208.877 pg	#	88
62) * n-Butyl Acetate	13.80	56	118	5.662 pg	#	59
63) * n-Octane	13.92	85	202	7.601 pg	#	67
65) * Chlorobenzene	14.73	112	83	0.739 pg	#	1
66) * Ethylbenzene	15.12	91	264	1.838 pg		91
67) * m- & p-Xylenes	15.29	91	750	6.719 pg		93
69) Cyclohexanone	15.43	98	1673	134.196 pg		80
70) * Styrene	15.63	104	180	3.029 pg		91
71) * o-Xylene	15.73	91	243	2.226 pg		91
72) * n-Nonane	15.98	57	150	3.048 pg	#	56
77) * n-Propylbenzene	16.72	91	210	1.464 pg	#	56

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071726.D
Acq On : 8 Jan 2017 9:24 am
Operator : JM
Sample : AC02111 FCR00066
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

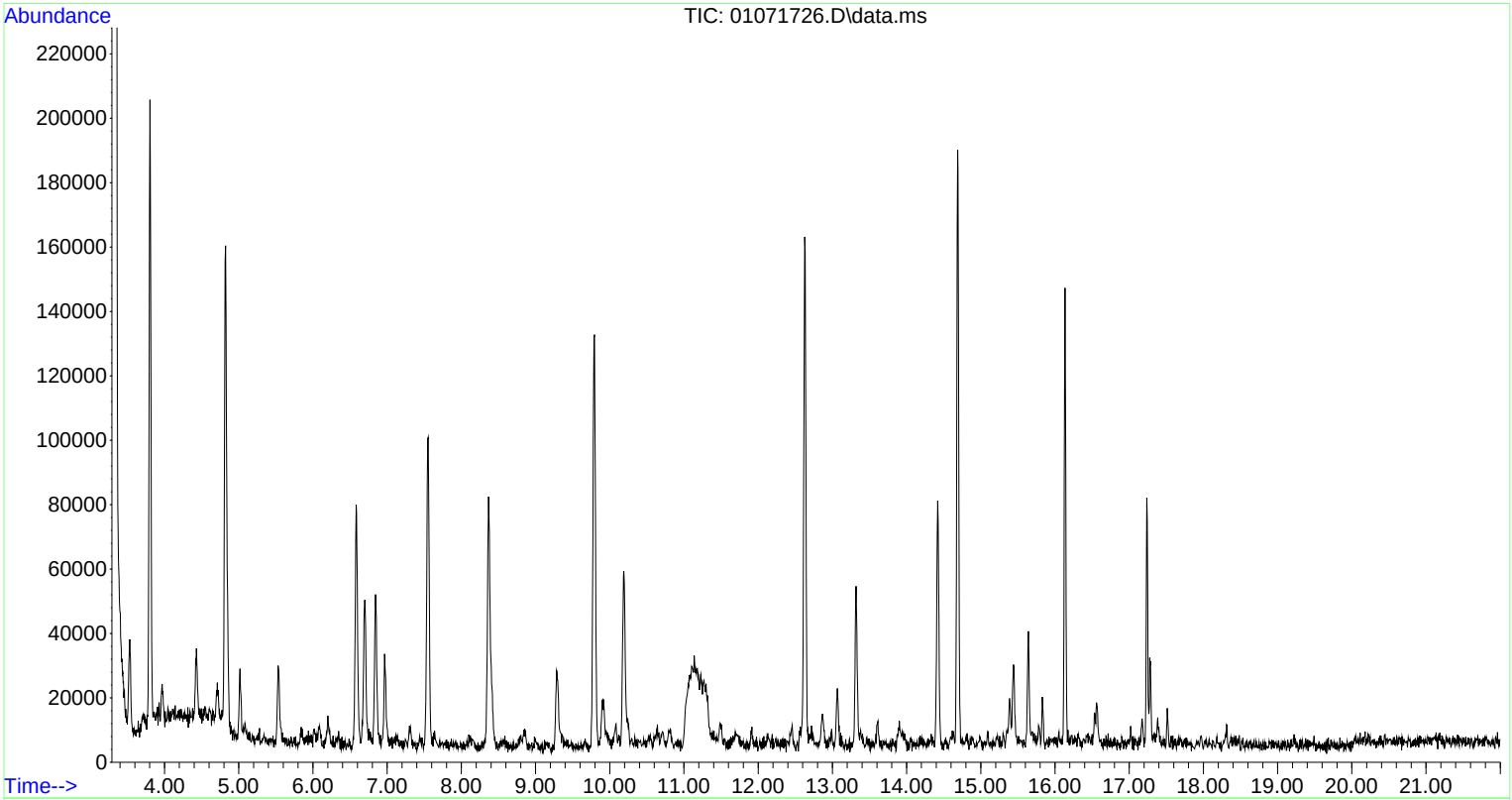
Quant Time: Jan 09 09:41:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

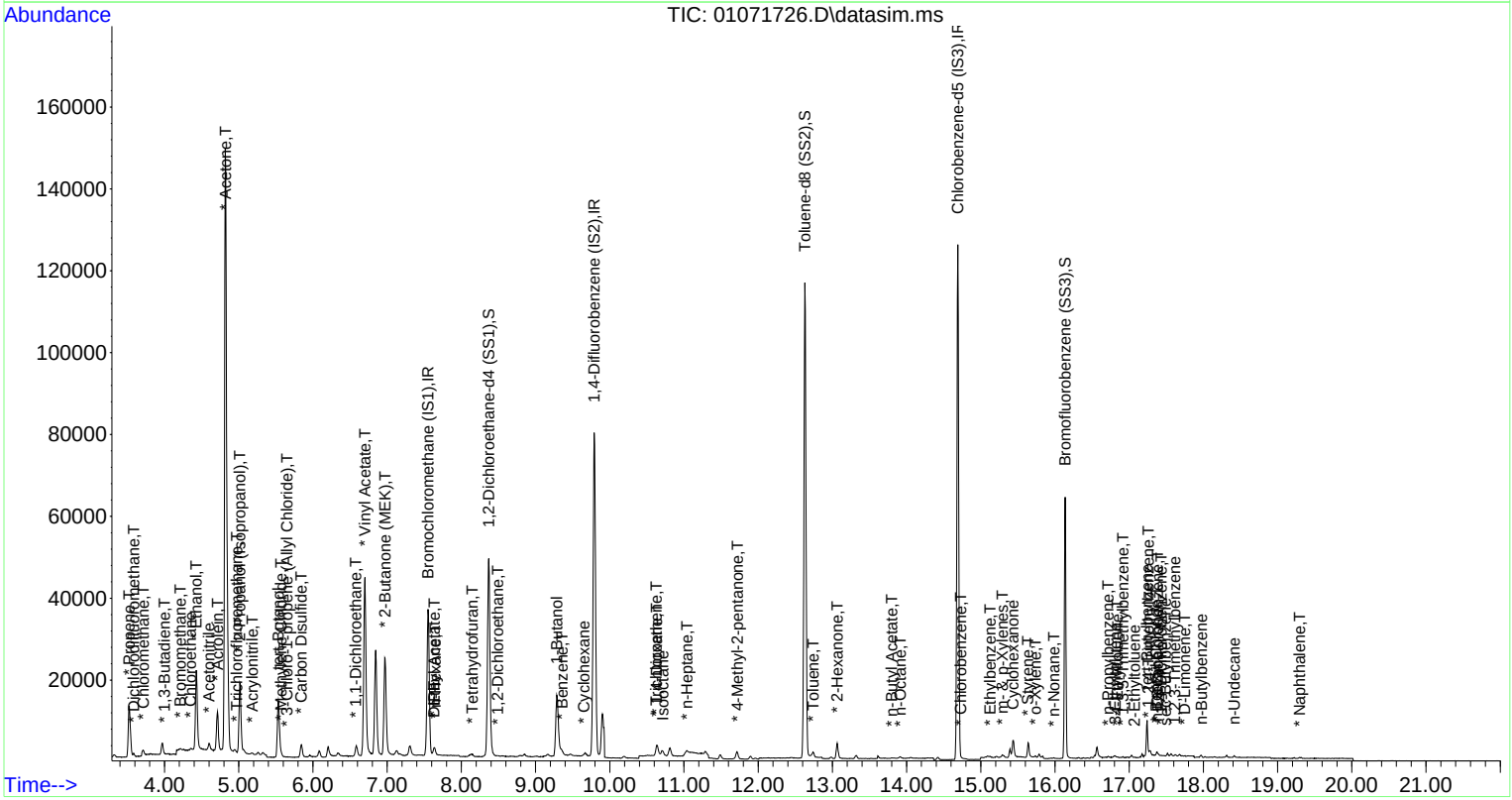
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
78) 3-Ethyltoluene	16.81	105	204	2.042	pg	#	45
79) * 4-Ethyltoluene	16.84	105	66	0.753	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	115	1.170	pg	#	29
82) 2-Ethyltoluene	17.07	105	89	0.746	pg	#	8
83) tert-Butylbenzene	17.24	134	113	5.120	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	909	10.237	pg	#	47
85) * Benzyl Chloride	17.36	126	66	7.373	pg		70
86) * 1,3-Dichlorobenzene	17.38	146	108	2.265	pg		87
87) * 1,4-Dichlorobenzene	17.43	146	83	2.049	pg	#	17
88) n-Decane	17.38	85	152	8.953	pg	#	59
89) sec-Butylbenzene	17.49	105	73	0.518	pg	#	59
90) 1,2,3-Trimethylbenzene	17.61	105	157	1.686	pg	#	66
93) * D-Limonene	17.75	68	53	1.356	pg	#	15
94) n-Butylbenzene	17.98	134	76	4.610	pg	#	1
96) n-Undecane	18.41	85	151	15.555	pg	#	27
98) * Naphthalene	19.29	128	336	8.866	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071726.D
Acq On : 8 Jan 2017 9:24 am
Operator : JM
Sample : AC02111 FCR00066
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 09 09:41:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081727.D
Acq On : 9 Jan 2017 3:57 am
Operator : JM
Sample : SC01489 FCR00149
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 09 10:27:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47975	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	156213	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	127414	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	78960	835.699 pg		0.00
Spiked Amount 1000.000			Recovery = 83.57%			
57) Toluene-d8 (SS2)	12.63	98	144799	930.017 pg		0.00
Spiked Amount 1000.000			Recovery = 93.00%			
74) Bromofluorobenzene (SS3)	16.14	174	43688	851.986 pg		0.00
Spiked Amount 1000.000			Recovery = 85.20%			
Target Compounds						Qvalue
2) * Propene	3.53	42	9910	102.917 pg		83
3) * Dichlorodifluoromethane	3.59	85	4027	19.633 pg		100
4) * Chloromethane	3.71	50	2715	17.706 pg		90
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	143	0.939 pg	#	42
7) * 1,3-Butadiene	4.00	54	342	3.141 pg	#	1
8) * Bromomethane	4.21	94	319	3.424 pg		82
9) * Chloroethane	4.36	64	549	8.250 pg	#	88
10) * Ethanol	4.43	45	298037	4538.113 pg		99
11) * Acetonitrile	4.60	41	8528	51.789 pg		100
12) * Acrolein	4.71	56	8391	152.507 pg		100
13) * Acetone	4.82	58	114943	1852.985 pg	#	48
14) * Trichlorofluoromethane	4.97	101	1563	11.406 pg		94
15) * 2-Propanol (Isopropa...	5.03	45	25442	151.376 pg		96
16) * Acrylonitrile	5.18	53	554	5.671 pg		85
17) * 1,1-Dichloroethene	5.52	96	60	1.082 pg	#	20
18) tert-Butanol	5.55	59	3517	34.718 pg		96
19) * Methylene Chloride	5.58	84	4797	69.424 pg		97
21) * Trichlorotrifluoroet...	5.83	151	304	5.660 pg	#	54
22) * Carbon Disulfide	5.85	76	41508	163.862 pg		98
26) * Vinyl Acetate	6.70	86	4627	355.670 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	7591	203.883 pg		86
29) DIPE	7.63	45	642	2.959 pg	#	53
30) * Ethyl Acetate	7.63	61	558	29.315 pg	#	78
31) * n-Hexane	7.65	57	609	6.222 pg	#	90
32) * Chloroform	7.69	83	195	1.612 pg		97
34) * Tetrahydrofuran	8.15	71	187	6.266 pg	#	76
36) * 1,2-Dichloroethane	8.49	62	67	0.654 pg	#	42
39) * Benzene	9.36	78	2784	15.454 pg		98
41) 1-Butanol	9.30	56	7004	207.400 pg	#	43
47) * Trichloroethene	10.64	130	89	1.550 pg	#	3
48) * 1,4-Dioxane	10.64	88	2663	70.878 pg		98
49) Isooctane	10.71	56	424	4.924 pg		99
51) * n-Heptane	11.04	71	649	7.016 pg	#	81
53) * 4-Methyl-2-pentanone	11.72	58	413	12.689 pg	#	78
58) * Toluene	12.74	91	4366	24.244 pg		98
59) * 2-Hexanone	13.07	58	1089	35.351 pg	#	82
63) * n-Octane	13.91	85	88	3.133 pg	#	1
64) * Tetrachloroethene	14.02	166	114	1.904 pg	#	8
65) * Chlorobenzene	14.74	112	69	0.582 pg	#	42
66) * Ethylbenzene	15.12	91	464	3.055 pg		90
67) * m- & p-Xylenes	15.29	91	1021	8.653 pg		88
69) Cyclohexanone	15.44	98	723	54.862 pg		96
70) * Styrene	15.63	104	201	3.199 pg		95
71) * o-Xylene	15.73	91	411	3.561 pg		92
72) * n-Nonane	15.98	57	151	2.903 pg	#	42

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081727.D
Acq On : 9 Jan 2017 3:57 am
Operator : JM
Sample : SC01489 FCR00149
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

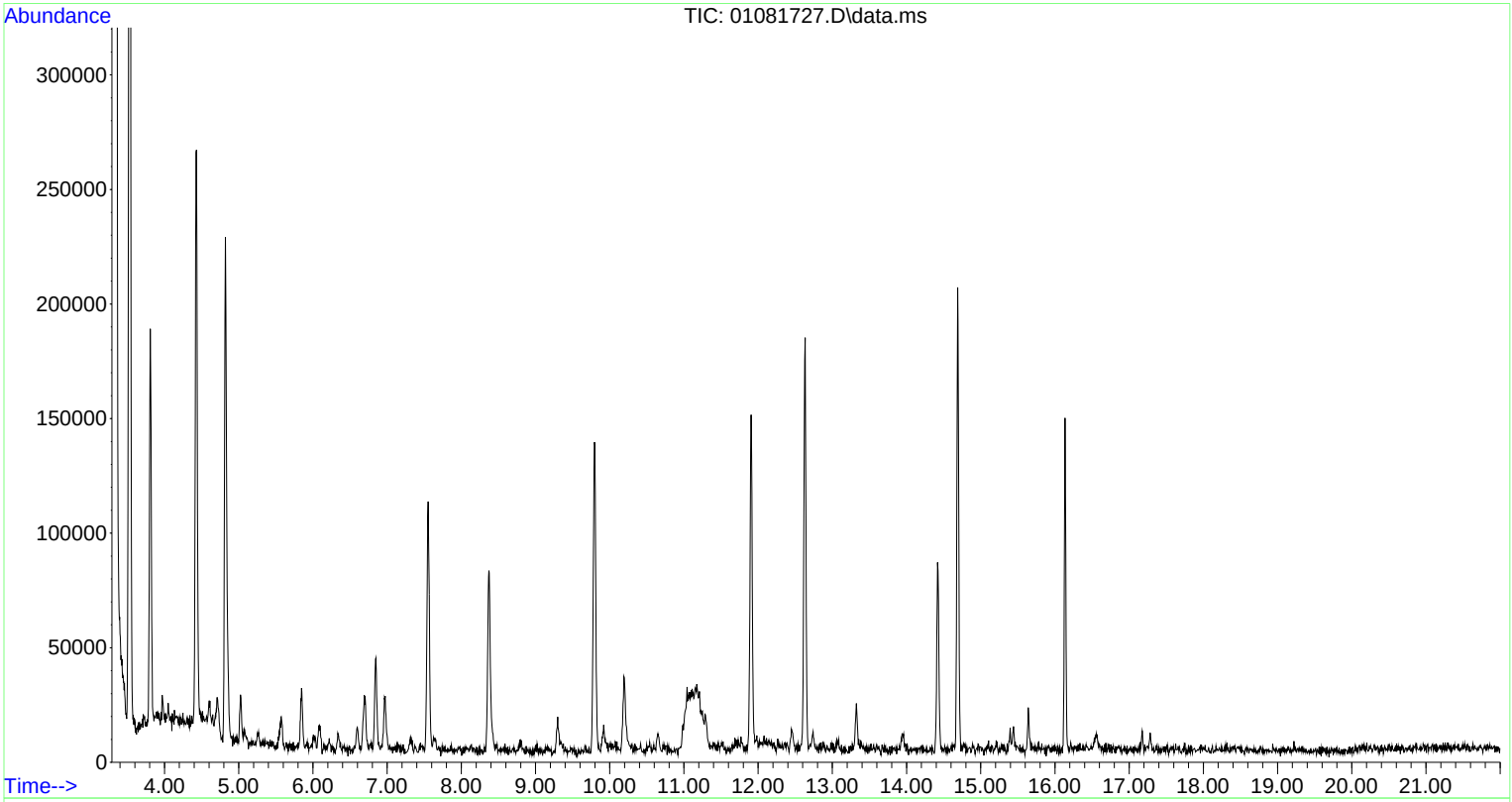
Quant Time: Jan 09 10:27:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

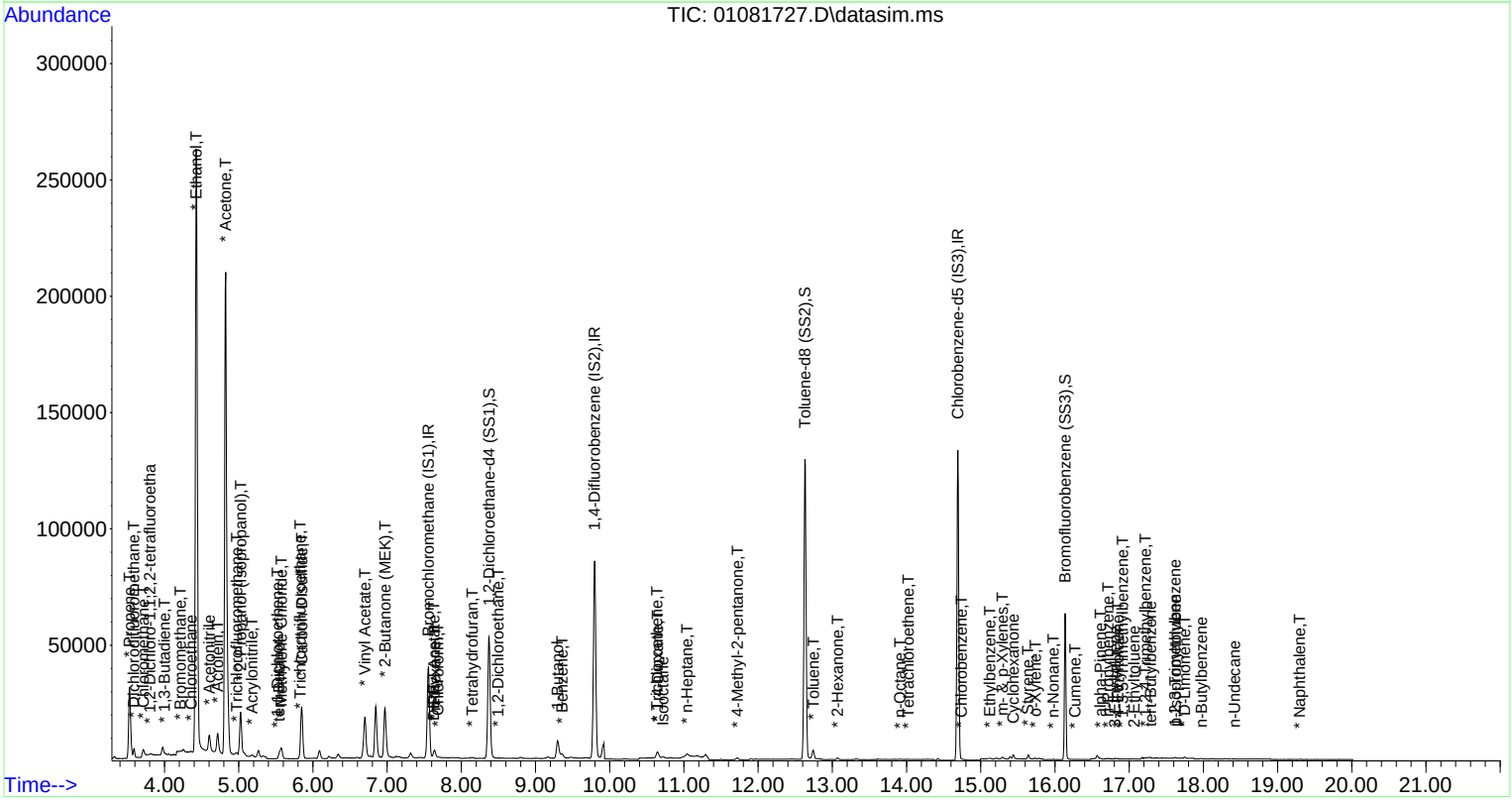
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
75) * Cumene	16.27	105	69	0.419	pg	#	49
76) * alpha-Pinene	16.62	93	114	1.524	pg		92
77) * n-Propylbenzene	16.72	91	195	1.286	pg	#	56
78) 3-Ethyltoluene	16.81	105	182	1.723	pg	#	87
79) * 4-Ethyltoluene	16.85	105	77	0.831	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	96	0.924	pg	#	29
82) 2-Ethyltoluene	17.07	105	56	0.444	pg	#	45
83) tert-Butylbenzene	17.29	134	168	7.201	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.22	105	125	1.332	pg		89
90) 1,2,3-Trimethylbenzene	17.62	105	151	1.534	pg	#	44
91) p-Isopropyltoluene	17.62	134	78	2.619	pg		72
93) * D-Limonene	17.75	68	292	7.065	pg		98
94) n-Butylbenzene	17.98	134	53	3.041	pg	#	32
96) n-Undecane	18.42	85	55	5.360	pg	#	1
98) * Naphthalene	19.30	128	112	2.796	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081727.D
Acq On : 9 Jan 2017 3:57 am
Operator : JM
Sample : SC01489 FCR00149
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 09 10:27:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061704.D
Acq On : 6 Jan 2017 13:18 Operator: CL
Sample : AC02154-FCR00242 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 07 15:18:26 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

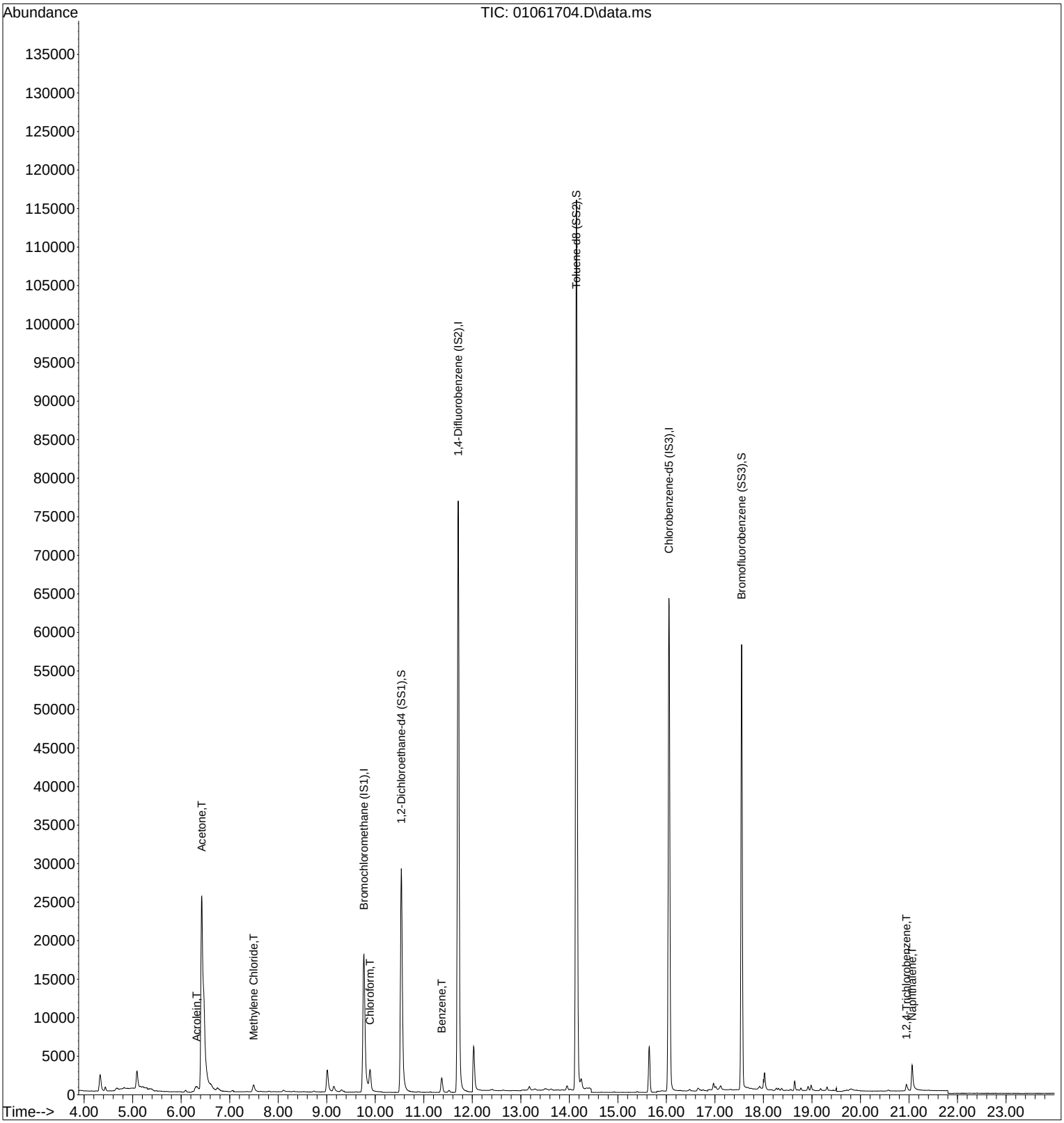
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	33484	1000.000	pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.7	114	160866	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.1	54	23576	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.5	65	54789	1021.561	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.16%				
33) Toluene-d8 (SS2)	14.1	98	162442	1033.820	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.38%				
45) Bromofluorobenzene (SS3)	17.6	174	44441	951.184	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.12%				
Target Compounds							Qvalue
9) Acrolein	6.3	56	2582	172.104	pg		95
10) Acetone	6.4	58	16689	833.768	pg	#	43
13) Methylene Chloride	7.5	84	888	22.704	pg		87
19) Chloroform	9.9	83	4165	59.521	pg		99
23) Benzene	11.4	78	3838	23.235	pg		100
52) 1,2,4-Trichlorobenzene	20.9	182	1181	27.698	pg		100
53) Naphthalene	21.1	128	7823	60.885	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061704.D
Acq On : 6 Jan 2017 13:18 Operator: CL
Sample : AC02154-FCR00242 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 07 15:18:26 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061721.D
Acq On : 6 Jan 2017 10:57 pm
Operator : JM
Sample : AC02131 FCA00856
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 09 08:38:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46880	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	148383	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	113397	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74775	809.891	pg		0.00
Spiked Amount 1000.000			Recovery = 80.99%				
57) Toluene-d8 (SS2)	12.63	98	127796	922.270	pg		0.00
Spiked Amount 1000.000			Recovery = 92.23%				
74) Bromofluorobenzene (SS3)	16.14	174	42187	924.410	pg		0.00
Spiked Amount 1000.000			Recovery = 92.44%				
Target Compounds							Qvalue
2) * Propene	3.53	42	17403	184.954	pg	#	68
3) * Dichlorodifluoromethane	3.59	85	67959	339.055	pg		100
4) * Chloromethane	3.71	50	18782	125.352	pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	2310	15.526	pg		98
7) * 1,3-Butadiene	4.01	54	242	2.274	pg	#	1
8) * Bromomethane	4.22	94	521	5.723	pg		90
9) * Chloroethane	4.35	64	186	2.860	pg	#	41
10) * Ethanol	4.43	45	44090	687.025	pg		99
11) * Acetonitrile	4.60	41	12626	78.467	pg		98
12) * Acrolein	4.71	56	6907	128.467	pg		99
13) * Acetone	4.82	58	168051	2772.412	pg	#	19
14) * Trichlorofluoromethane	4.97	101	24452	182.611	pg		100
15) * 2-Propanol (Isopropa...	5.02	45	61429	374.029	pg		94
16) * Acrylonitrile	5.19	53	327	3.426	pg		98
17) * 1,1-Dichloroethene	5.50	96	52	0.959	pg	#	17
18) tert-Butanol	5.55	59	6476	65.421	pg		89
19) * Methylene Chloride	5.58	84	31147	461.301	pg		100
20) * 3-Chloro-1-propene (...	5.67	41	63	0.698	pg	#	43
21) * Trichlorotrifluoroet...	5.82	151	4672	89.024	pg		100
22) * Carbon Disulfide	5.85	76	6982	28.207	pg		99
24) * 1,1-Dichloroethane	6.57	63	52	0.454	pg	#	42
25) * Methyl tert-Butyl Ether	6.69	73	95	0.798	pg	#	50
26) * Vinyl Acetate	6.70	86	6840	538.060	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	12151	333.980	pg		80
29) DIPE	7.63	45	1150	5.423	pg	#	90
30) * Ethyl Acetate	7.63	61	1033	55.537	pg		91
31) * n-Hexane	7.65	57	3148	32.912	pg		98
32) * Chloroform	7.69	83	1472	12.450	pg		94
34) * Tetrahydrofuran	8.15	71	176	6.035	pg	#	64
36) * 1,2-Dichloroethane	8.48	62	949	9.484	pg		96
38) * 1,1,1-Trichloroethane	8.81	97	345	4.466	pg	#	65
39) * Benzene	9.35	78	8534	49.870	pg		99
41) 1-Butanol	9.30	56	8148	254.008	pg	#	49
42) * Carbon Tetrachloride	9.54	117	6153	92.424	pg		98
43) * Cyclohexane	9.71	84	214	3.931	pg	#	1
45) * 1,2-Dichloropropane	10.34	63	354	5.575	pg		96
46) * Bromodichloromethane	10.58	83	57	0.740	pg	#	19
47) * Trichloroethene	10.63	130	103	1.888	pg		95
48) * 1,4-Dioxane	10.66	88	85	2.382	pg	#	1
49) Isooctane	10.72	56	1721	21.040	pg		76
51) * n-Heptane	11.03	71	1215	13.827	pg		93
53) * 4-Methyl-2-pentanone	11.72	58	599	19.375	pg		90
58) * Toluene	12.74	91	23473	146.457	pg		100
59) * 2-Hexanone	13.07	58	1594	58.141	pg	#	92
62) * n-Butyl Acetate	13.81	56	164	8.365	pg	#	1

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061721.D
Acq On : 6 Jan 2017 10:57 pm
Operator : JM
Sample : AC02131 FCA00856
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

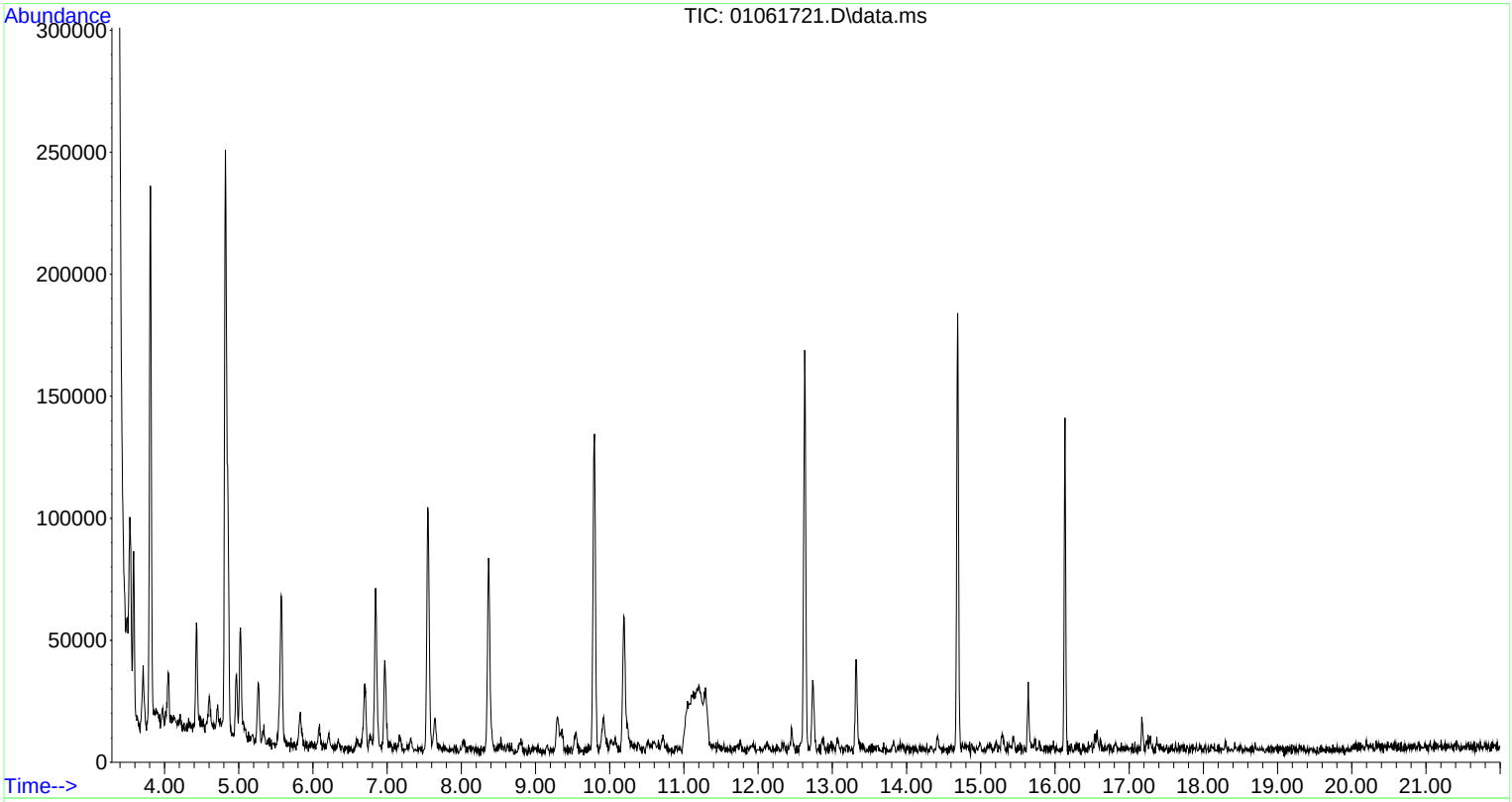
Quant Time: Jan 09 08:38:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

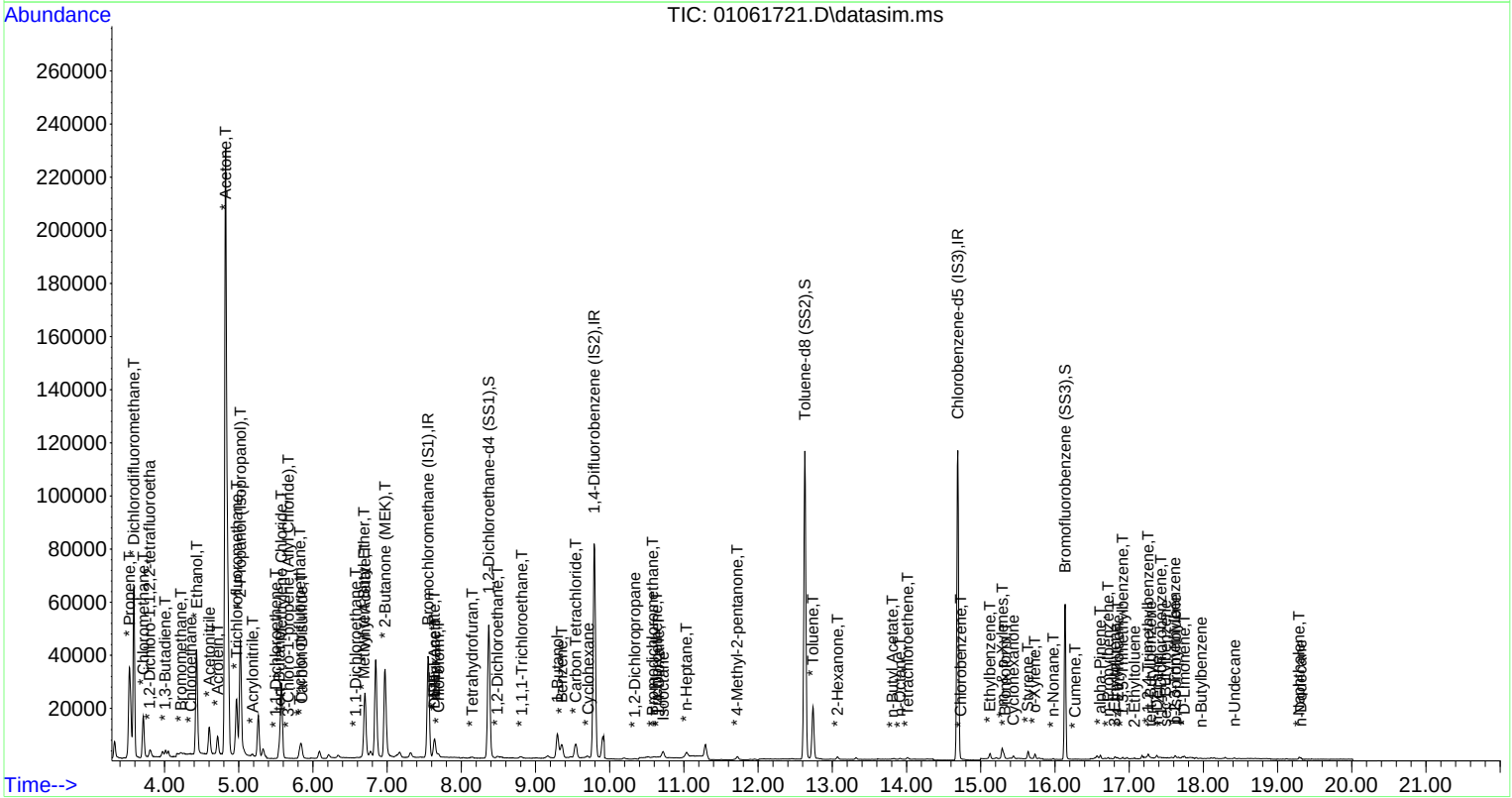
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
63) * n-Octane	13.91	85	183	7.319	pg		92
64) * Tetrachloroethene	14.01	166	602	11.295	pg		97
65) * Chlorobenzene	14.73	112	85	0.805	pg	#	48
66) * Ethylbenzene	15.12	91	2215	16.387	pg		98
67) * m- & p-Xylenes	15.29	91	5214	49.650	pg		93
68) * Bromoform	15.32	173	117	3.486	pg	#	26
69) Cyclohexanone	15.44	98	429	36.577	pg		93
70) * Styrene	15.63	104	475	8.496	pg		89
71) * o-Xylene	15.73	91	1620	15.771	pg		97
72) * n-Nonane	15.98	57	303	6.545	pg	#	83
75) * Cumene	16.27	105	142	0.969	pg	#	49
76) * alpha-Pinene	16.61	93	882	13.247	pg		92
77) * n-Propylbenzene	16.72	91	389	2.883	pg	#	89
78) 3-Ethyltoluene	16.80	105	667	7.096	pg		92
79) * 4-Ethyltoluene	16.85	105	300	3.640	pg		97
80) * 1,3,5-Trimethylbenzene	16.91	105	335	3.624	pg		88
82) 2-Ethyltoluene	17.07	105	273	2.434	pg	#	88
83) tert-Butylbenzene	17.29	134	85	4.094	pg	#	58
84) * 1,2,4-Trimethylbenzene	17.26	105	1092	13.072	pg	#	84
87) * 1,4-Dichlorobenzene	17.43	146	75	1.968	pg	#	16
88) n-Decane	17.38	85	208	13.023	pg		85
89) sec-Butylbenzene	17.49	105	58	0.437	pg	#	59
90) 1,2,3-Trimethylbenzene	17.61	105	341	3.893	pg		90
91) p-Isopropyltoluene	17.62	134	127	4.791	pg		66
93) * D-Limonene	17.74	68	380	10.331	pg		86
94) n-Butylbenzene	17.97	134	94	6.061	pg	#	4
96) n-Undecane	18.42	85	148	16.205	pg	#	14
98) * Naphthalene	19.29	128	972	27.262	pg	#	93
99) n-Dodecane	19.31	85	76	13.249	pg	#	44

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061721.D
Acq On : 6 Jan 2017 10:57 pm
Operator : JM
Sample : AC02131 FCA00856
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 09 08:38:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071706.D
Acq On : 7 Jan 2017 6:00 pm
Operator : JM
Sample : AC02159 FCR00188
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 09 09:39:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	49279	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	159963	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	126739	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	80409	828.515	pg		0.00
Spiked Amount 1000.000			Recovery = 82.85%				
57) Toluene-d8 (SS2)	12.63	98	143996	929.785	pg		0.00
Spiked Amount 1000.000			Recovery = 92.98%				
74) Bromofluorobenzene (SS3)	16.14	174	46585	913.321	pg		0.00
Spiked Amount 1000.000			Recovery = 91.33%				
Target Compounds							Qvalue
2) * Propene	3.52	42	7161	72.400	pg		83
3) * Dichlorodifluoromethane	3.58	85	1133	5.377	pg		91
4) * Chloromethane	3.71	50	961	6.102	pg	#	84
7) * 1,3-Butadiene	4.00	54	68	0.608	pg	#	1
8) * Bromomethane	4.21	94	121	1.264	pg	#	68
9) * Chloroethane	4.35	64	98	1.434	pg	#	41
10) * Ethanol	4.43	45	39470	585.094	pg		100
11) * Acetonitrile	4.60	41	818	4.836	pg		88
12) * Acrolein	4.71	56	10845	191.892	pg		97
13) * Acetone	4.85	58	166071	2606.371	pg	#	1
14) * Trichlorofluoromethane	4.97	101	479	3.403	pg		85
15) * 2-Propanol (Isopropa...	5.02	45	11224	65.014	pg		91
16) * Acrylonitrile	5.18	53	203	2.023	pg	#	81
18) tert-Butanol	5.54	59	8194	78.747	pg		86
19) * Methylene Chloride	5.58	84	2102	29.616	pg		96
22) * Carbon Disulfide	5.84	76	3116	11.976	pg		98
26) * Vinyl Acetate	6.70	86	6565	491.287	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	11437	299.052	pg		82
29) DIPE	7.63	45	489	2.194	pg	#	53
30) * Ethyl Acetate	7.63	61	459	23.476	pg		92
31) * n-Hexane	7.64	57	507	5.043	pg	#	60
34) * Tetrahydrofuran	8.16	71	51	1.664	pg	#	68
39) * Benzene	9.36	78	1161	6.293	pg	#	88
41) 1-Butanol	9.29	56	4546	131.459	pg	#	49
42) * Carbon Tetrachloride	9.55	117	52	0.725	pg	#	1
48) * 1,4-Dioxane	10.65	88	68	1.767	pg	#	79
49) Isooctane	10.71	56	431	4.888	pg		95
51) * n-Heptane	11.04	71	789	8.329	pg		93
53) * 4-Methyl-2-pentanone	11.72	58	567	17.012	pg		92
58) * Toluene	12.74	91	2029	11.327	pg		99
59) * 2-Hexanone	13.07	58	1947	63.541	pg	#	81
63) * n-Octane	13.91	85	178	6.370	pg		89
65) * Chlorobenzene	14.73	112	50	0.424	pg	#	1
66) * Ethylbenzene	15.12	91	233	1.542	pg	#	70
67) * m- & p-Xylenes	15.29	91	697	5.938	pg		96
69) Cyclohexanone	15.44	98	614	46.839	pg		96
70) * Styrene	15.64	104	142	2.272	pg		89
71) * o-Xylene	15.73	91	277	2.413	pg		87
72) * n-Nonane	15.98	57	181	3.498	pg	#	54
75) * Cumene	16.27	105	54	0.330	pg	#	1
76) * alpha-Pinene	16.61	93	94	1.263	pg		90
77) * n-Propylbenzene	16.72	91	164	1.087	pg	#	56
78) 3-Ethyltoluene	16.81	105	163	1.552	pg	#	45
79) * 4-Ethyltoluene	16.85	105	80	0.868	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	70	0.677	pg	#	29

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071706.D
Acq On : 7 Jan 2017 6:00 pm
Operator : JM
Sample : AC02159 FCR00188
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

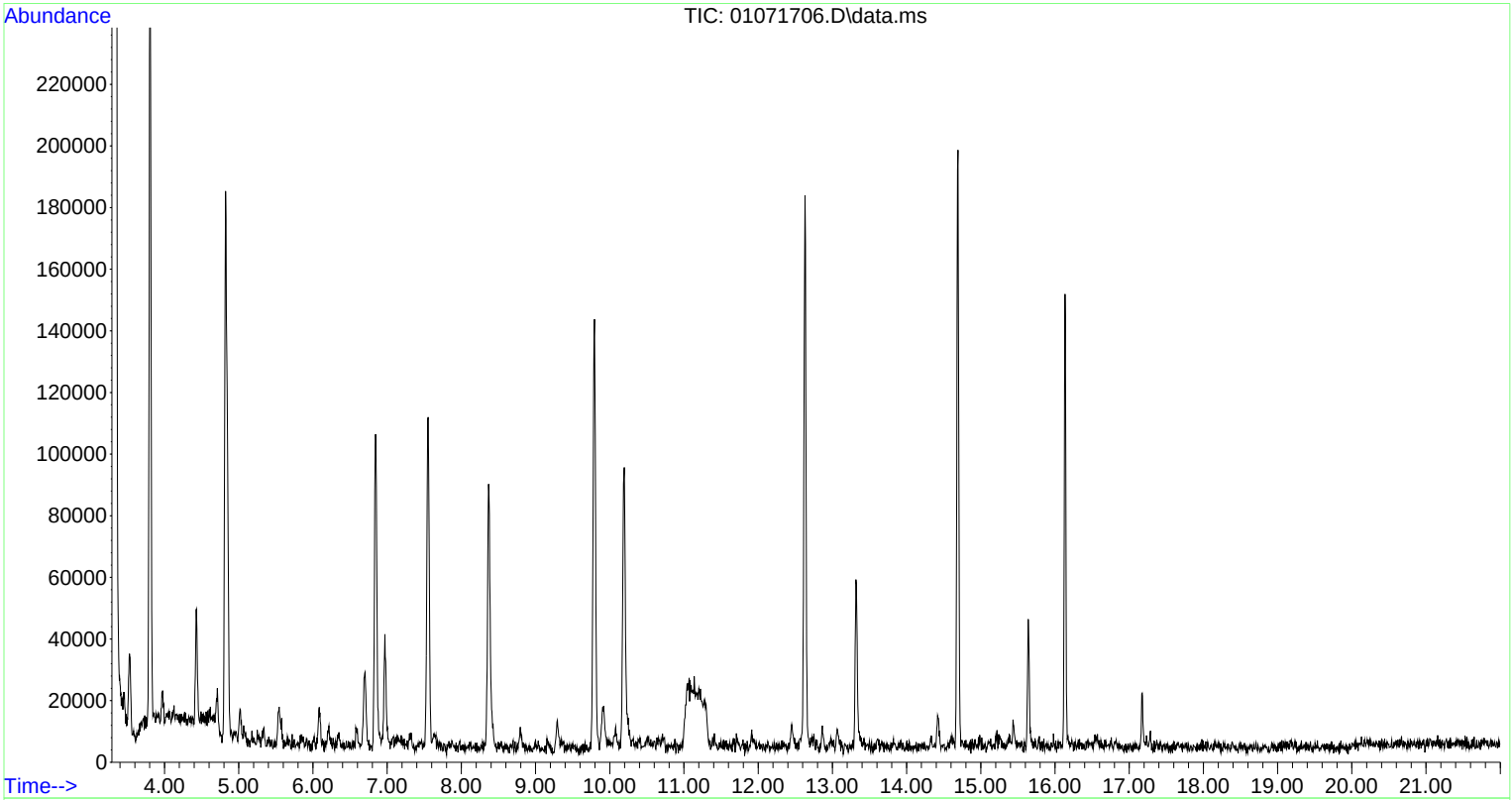
Quant Time: Jan 09 09:39:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

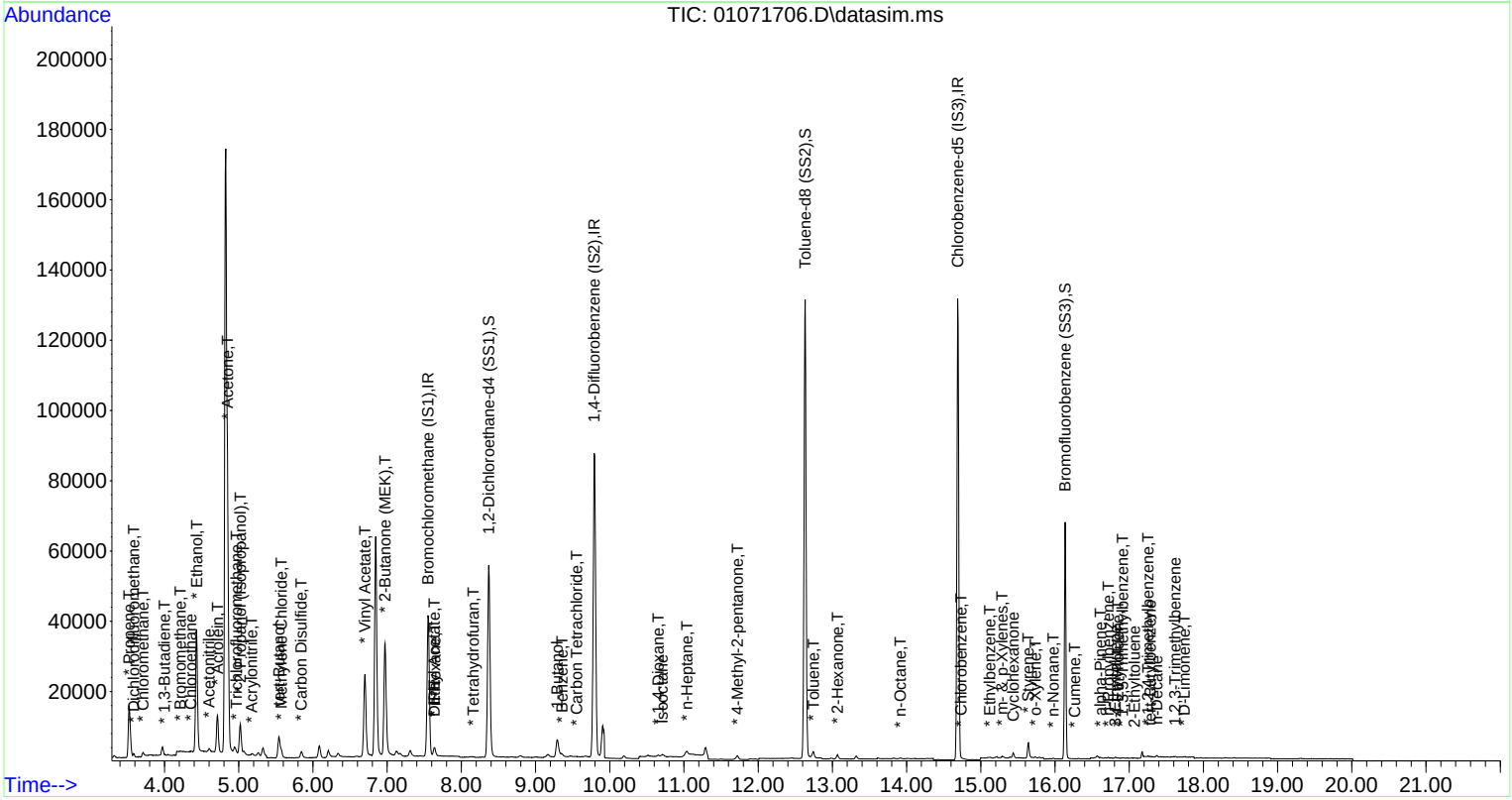
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
82) 2-Ethyltoluene	17.07	105	61	0.487	pg	#	45
83) tert-Butylbenzene	17.28	134	101	4.352	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	203	2.174	pg	#	68
88) n-Decane	17.37	85	74	4.145	pg	#	62
90) 1,2,3-Trimethylbenzene	17.62	105	52	0.531	pg	#	27
93) * D-Limonene	17.74	68	64	1.557	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071706.D
Acq On : 7 Jan 2017 6:00 pm
Operator : JM
Sample : AC02159 FCR00188
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 09 09:39:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061720.D
Acq On : 6 Jan 2017 21:39 Operator: CL
Sample : AS00991-FCA00715 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 07 15:18:43 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

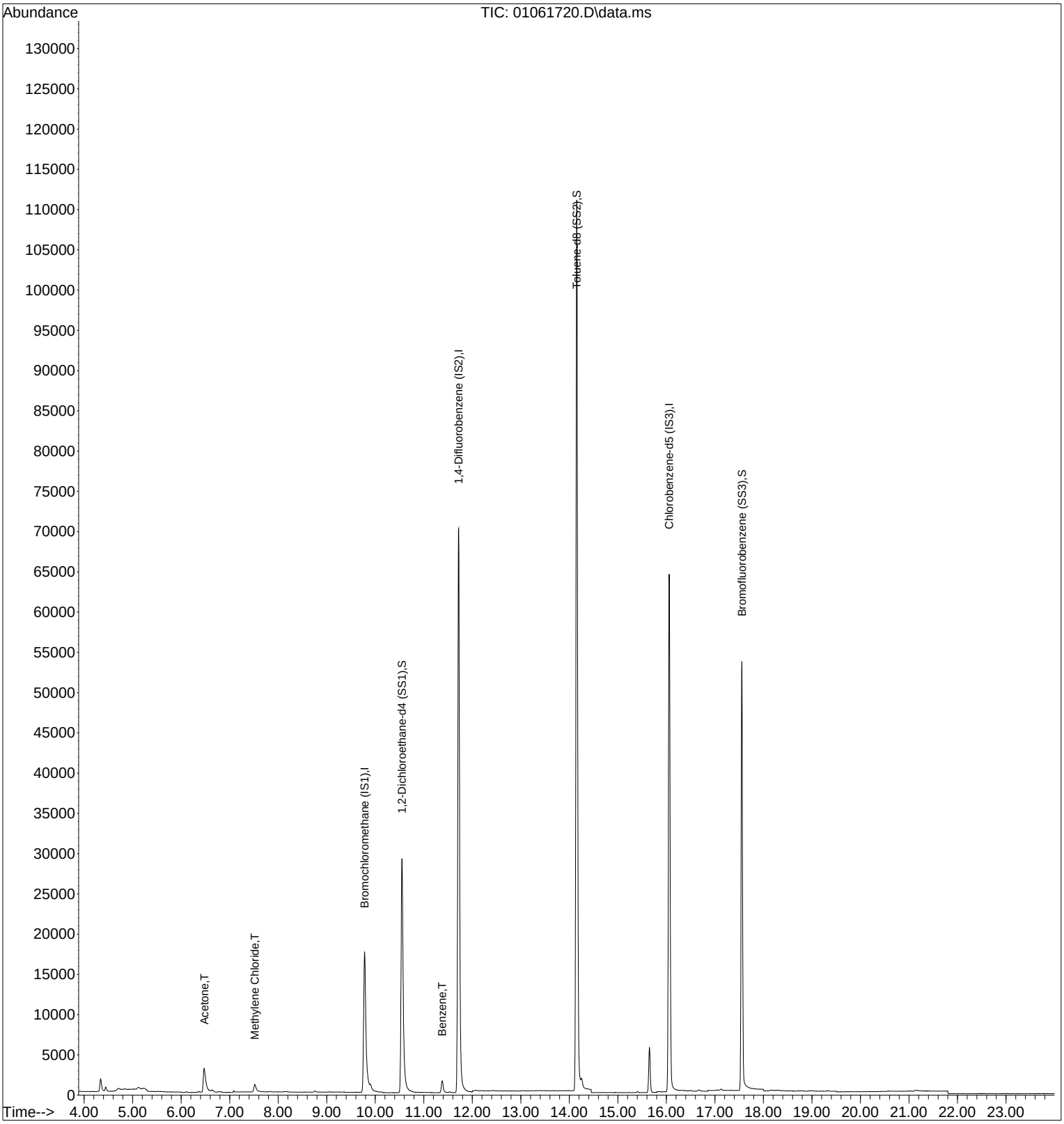
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	34107	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	151891	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	25893	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.6	65	58878	1077.749	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.78%			
33) Toluene-d8 (SS2)	14.2	98	155234	1046.323	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.63%			
45) Bromofluorobenzene (SS3)	17.6	174	43013	838.240	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.82%			
Target Compounds						Qvalue
10) Acetone	6.5	58	3054	149.788	pg	97
13) Methylene Chloride	7.5	84	1162	29.167	pg	91
23) Benzene	11.4	78	3207	19.060	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061720.D
Acq On : 6 Jan 2017 21:39 Operator: CL
Sample : AS00991-FCA00715 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 07 15:18:43 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061710.D
Acq On : 6 Jan 2017 16:26 Operator: CL
Sample : AS00435-FCA00852 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 07 15:18:33 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

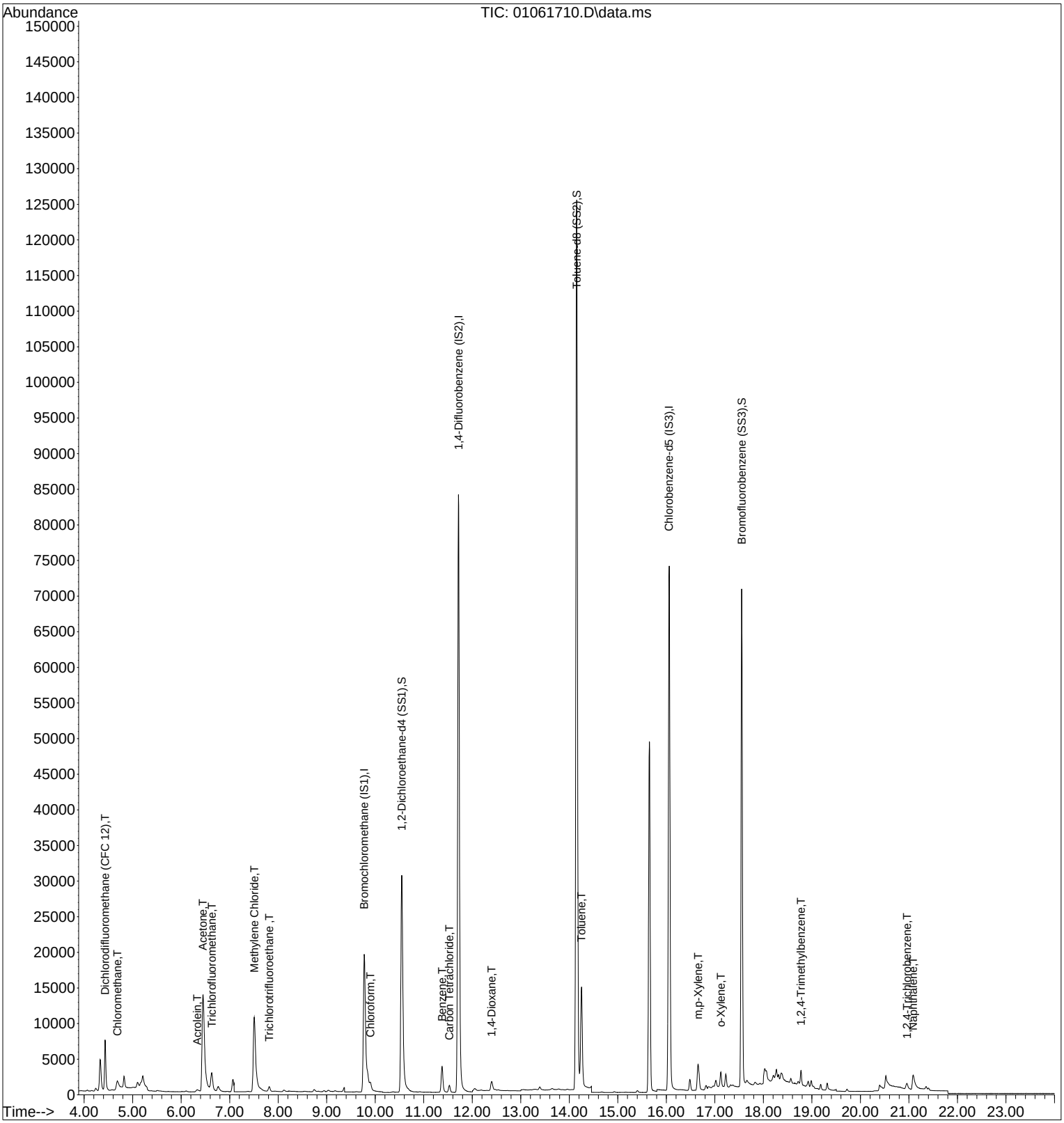
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	36666	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	177065	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	27564	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.5	65	59819	1018.554	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.85%				
33) Toluene-d8 (SS2)	14.2	98	174973	1011.694	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.17%				
45) Bromofluorobenzene (SS3)	17.6	174	53721	983.451	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.34%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.4	85	9605	107.959	pg		100
3) Chloromethane	4.7	52	1384	58.115	pg		95
9) Acrolein	6.3	56	837	50.949	pg		92
10) Acetone	6.4	58	12325	562.310	pg	#	86
11) Trichlorofluoromethane	6.6	101	3912	60.065	pg		99
13) Methylene Chloride	7.5	84	14139	330.125	pg		90
14) Trichlorotrifluoroethane	7.8	151	1002	25.150	pg		100
19) Chloroform	9.9	83	1338	17.462	pg		100
23) Benzene	11.4	78	7451	41.194	pg		100
24) Carbon Tetrachloride	11.5	117	1229	20.495	pg		99
29) 1,4-Dioxane	12.4	88	2076	63.282	pg		99
34) Toluene	14.3	91	21123	125.693	pg		93
41) m,p-Xylene	16.7	91	7273	45.742	pg		95
43) o-Xylene	17.1	106	1117	15.165	pg		97
47) 1,2,4-Trimethylbenzene	18.8	105	3262	20.576	pg	#	70
52) 1,2,4-Trichlorobenzene	21.0	182	1231	24.693	pg		94
53) Naphthalene	21.1	128	7479	49.786	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061710.D
Acq On : 6 Jan 2017 16:26 Operator: CL
Sample : AS00435-FCA00852 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 07 15:18:33 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091730.D
Acq On : 10 Jan 2017 6:09
Operator : JM
Sample : AS00642 FCR00269
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 10 07:51:47 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45180	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	130769	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105684	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72489	814.674	pg		0.00
Spiked Amount 1000.000			Recovery = 81.47%				
57) Toluene-d8 (SS2)	12.63	98	144734	1120.738	pg		0.00
Spiked Amount 1000.000			Recovery = 112.07%				
74) Bromofluorobenzene (SS3)	16.14	174	33643	790.994	pg		0.00
Spiked Amount 1000.000			Recovery = 79.10%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8018	88.419	pg		82
3) * Dichlorodifluoromethane	3.59	85	2591	13.413	pg		98
4) * Chloromethane	3.71	50	1074	7.438	pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.79	85	158	1.102	pg		98
7) * 1,3-Butadiene	4.01	54	14	0.137	pg	#	1
8) * Bromomethane	4.22	94	76	0.866	pg	#	68
10) * Ethanol	4.44	45	10277	166.165	pg		98
11) * Acetonitrile	4.61	41	1924	12.407	pg	#	69
12) * Acrolein	4.72	56	1035	19.975	pg		98
13) * Acetone	4.83	58	13679	234.160	pg	#	67
14) * Trichlorofluoromethane	4.97	101	1060	8.214	pg		93
15) * 2-Propanol (Isopropa...	5.03	45	3816	24.109	pg	#	79
16) * Acrylonitrile	5.19	53	275	2.989	pg	#	70
17) * 1,1-Dichloroethene	5.45	96	72	1.378	pg	#	17
18) tert-Butanol	5.56	59	535	5.608	pg	#	1
19) * Methylene Chloride	5.58	84	8847	135.958	pg		99
21) * Trichlorotrifluoroet...	5.82	151	165	3.262	pg		84
22) * Carbon Disulfide	5.85	76	4065	17.040	pg		96
26) * Vinyl Acetate	6.71	86	490	39.996	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	809	23.073	pg	#	61
29) DIPE	7.64	45	839	4.106	pg	#	53
30) * Ethyl Acetate	7.64	61	898	50.096	pg		97
31) * n-Hexane	7.64	57	334	3.623	pg	#	60
32) * Chloroform	7.69	83	161	1.413	pg	#	80
39) * Benzene	9.36	78	670	4.443	pg	#	52
40) Isopropyl Acetate	9.28	61	59	3.781	pg	#	28
41) 1-Butanol	9.30	56	2556	90.414	pg	#	52
42) * Carbon Tetrachloride	9.55	117	277	4.721	pg	#	38
47) * Trichloroethene	10.64	130	110	2.288	pg	#	75
49) Isooctane	10.72	56	140	1.942	pg		96
50) * Methyl Methacrylate	10.90	69	103	2.723	pg	#	42
51) * n-Heptane	11.04	71	254	3.280	pg		94
53) * 4-Methyl-2-pentanone	11.73	58	272	9.983	pg	#	81
58) * Toluene	12.74	91	7462	49.956	pg		99
59) * 2-Hexanone	13.09	58	109	4.266	pg	#	68
62) * n-Butyl Acetate	13.80	56	186	10.179	pg	#	44
63) * n-Octane	13.91	85	70	3.004	pg		83
64) * Tetrachloroethene	14.01	166	258	5.194	pg	#	79
65) * Chlorobenzene	14.73	112	138	1.402	pg	#	21
66) * Ethylbenzene	15.12	91	420	3.334	pg		98
67) * m- & p-Xylenes	15.29	91	1052	10.749	pg	#	83
69) Cyclohexanone	15.44	98	71	6.495	pg		74
70) * Styrene	15.63	104	828	15.890	pg		100
71) * o-Xylene	15.73	91	342	3.572	pg		95
72) * n-Nonane	15.98	57	83	1.924	pg	#	42

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091730.D
Acq On : 10 Jan 2017 6:09
Operator : JM
Sample : AS00642 FCR00269
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 10 07:51:47 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

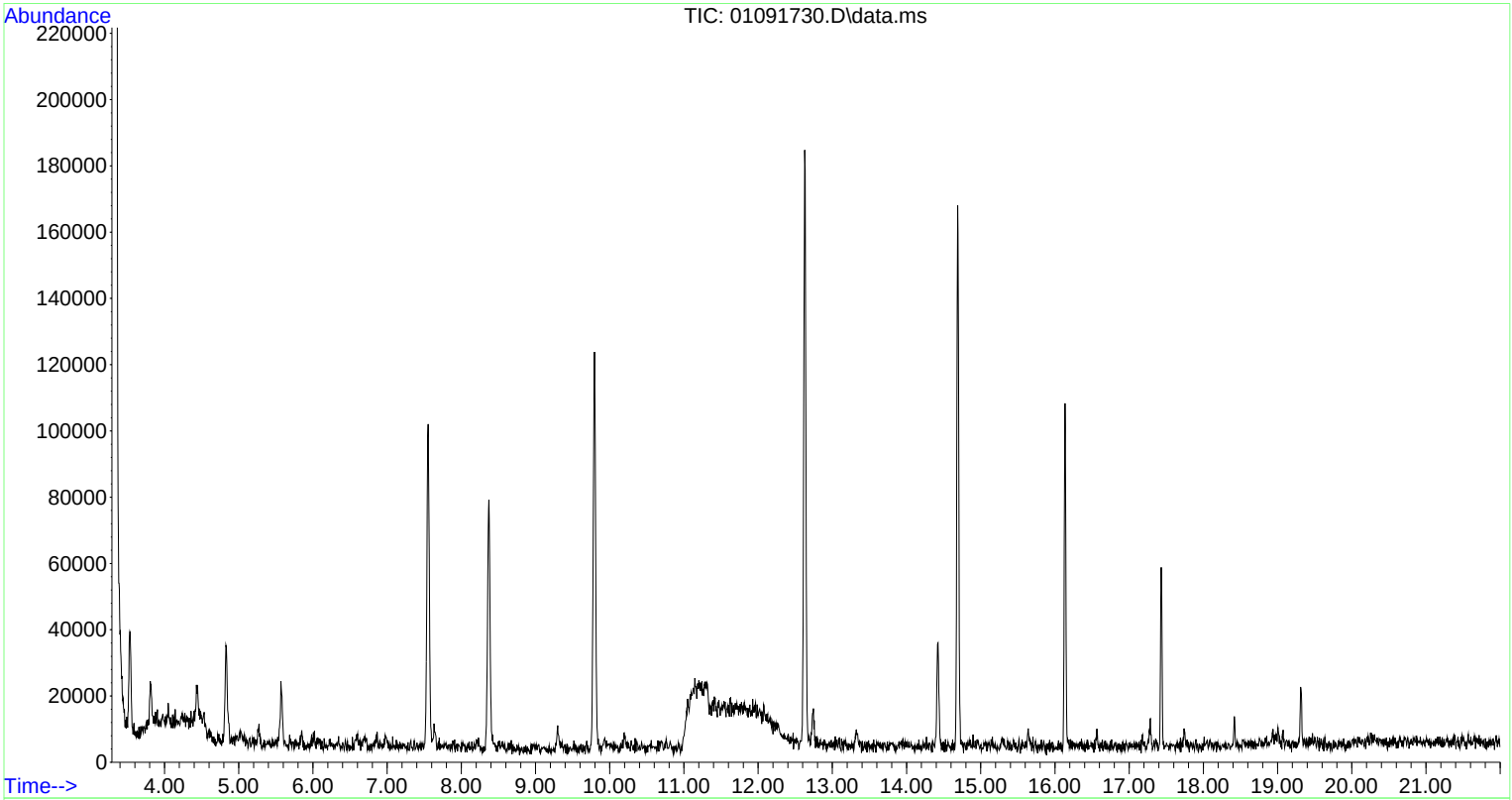
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
76) * alpha-Pinene	16.62	93	142	2.288	pg		96
77) * n-Propylbenzene	16.73	91	214	1.702	pg	#	75
78) 3-Ethyltoluene	16.81	105	396	4.521	pg		96
79) * 4-Ethyltoluene	16.81	105	396	5.156	pg		99
80) * 1,3,5-Trimethylbenzene	16.92	105	157	1.822	pg		91
81) alpha-Methylstyrene	17.04	118	163	4.673	pg	#	83
82) 2-Ethyltoluene	17.07	105	151	1.444	pg	#	45
83) tert-Butylbenzene	17.28	134	177	9.147	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	578	7.424	pg	#	81
85) * Benzyl Chloride	17.35	126	51	6.498	pg	#	47
86) * 1,3-Dichlorobenzene	17.38	146	283	6.769	pg		92
87) * 1,4-Dichlorobenzene	17.43	146	21255	598.577	pg		96
88) n-Decane	17.38	85	85	5.710	pg	#	20
90) 1,2,3-Trimethylbenzene	17.62	105	181	2.217	pg		93
92) * 1,2-Dichlorobenzene	17.72	146	525	10.928	pg		95
93) * D-Limonene	17.75	68	757	22.082	pg		94
96) n-Undecane	18.42	85	464	54.514	pg		79
98) * Naphthalene	19.29	128	609	18.327	pg	#	92
99) n-Dodecane	19.31	85	1105	206.698	pg		85

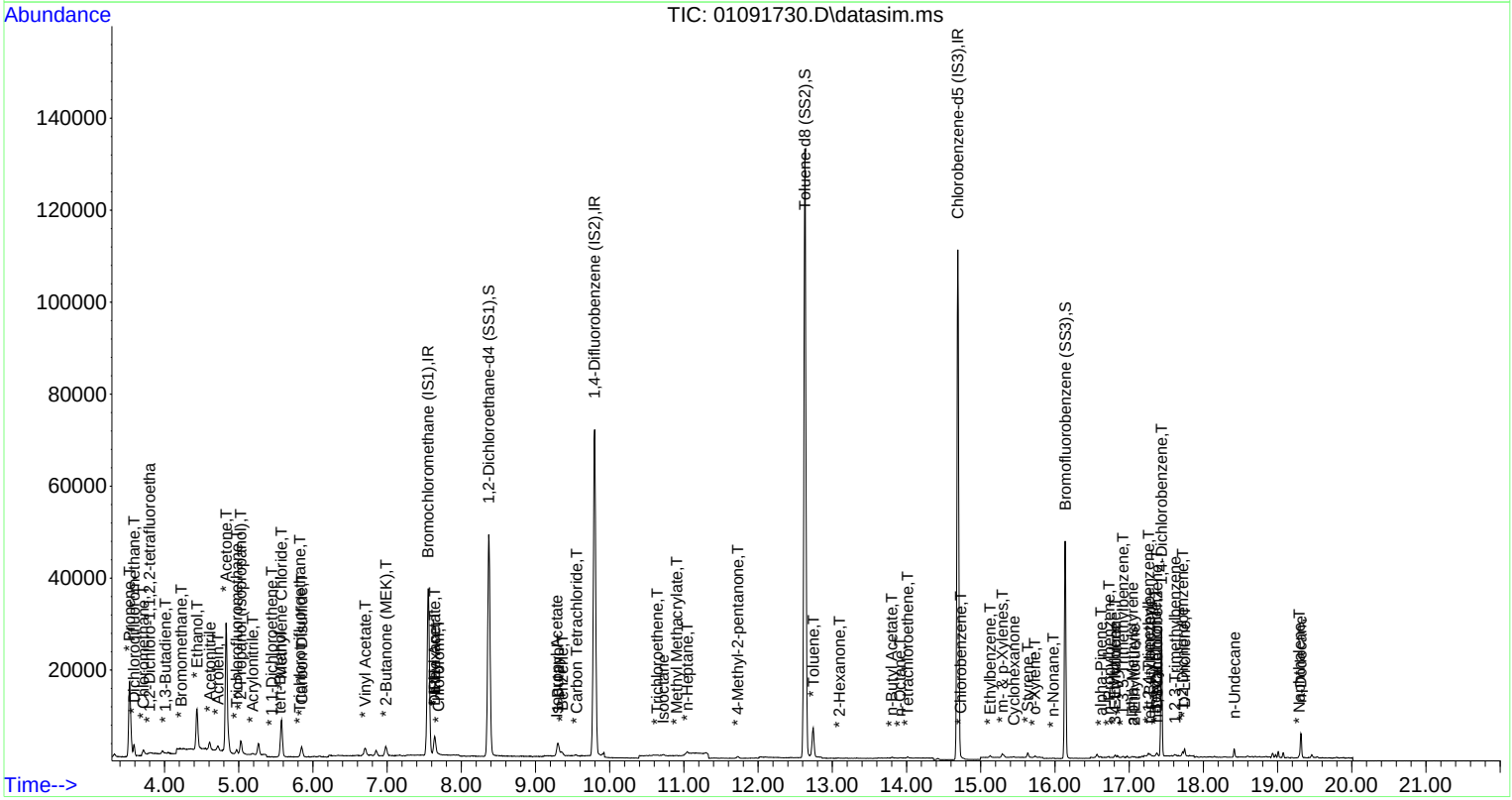
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091730.D
Acq On : 10 Jan 2017 6:09
Operator : JM
Sample : AS00642 FCR00269
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 10 07:51:47 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081714.D
Acq On : 8 Jan 2017 6:49 pm
Operator : JM
Sample : AS00855 FCR00122
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 09 10:26:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45650	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138631	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105543	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75975	845.060	pg		0.00
Spiked Amount 1000.000			Recovery = 84.51%				
57) Toluene-d8 (SS2)	12.64	98	120107	931.283	pg		0.00
Spiked Amount 1000.000			Recovery = 93.13%				
74) Bromofluorobenzene (SS3)	16.14	174	35888	844.904	pg		0.00
Spiked Amount 1000.000			Recovery = 84.49%				
Target Compounds							Qvalue
2) * Propene	3.53	42	4787	52.246	pg	#	68
3) * Dichlorodifluoromethane	3.59	85	940	4.816	pg		93
4) * Chloromethane	3.71	50	663	4.544	pg		94
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	59	0.407	pg	#	42
6) * Vinyl Chloride	3.89	62	65	0.466	pg	#	42
7) * 1,3-Butadiene	3.99	54	12	0.116	pg	#	1
8) * Bromomethane	4.22	94	88	0.993	pg	#	67
10) * Ethanol	4.44	45	2982	47.719	pg	#	83
11) * Acetonitrile	4.61	41	444	2.834	pg		97
12) * Acrolein	4.72	56	759	14.497	pg		90
13) * Acetone	4.84	58	6402	108.462	pg	#	57
14) * Trichlorofluoromethane	4.97	101	380	2.914	pg	#	71
15) * 2-Propanol (Isopropa...	5.03	45	7295	45.615	pg		95
16) * Acrylonitrile	5.19	53	261	2.808	pg	#	74
17) * 1,1-Dichloroethene	5.48	96	91	1.724	pg		99
18) tert-Butanol	5.56	59	348	3.610	pg		84
19) * Methylene Chloride	5.58	84	1277	19.423	pg		94
22) * Carbon Disulfide	5.84	76	2970	12.322	pg	#	84
26) * Vinyl Acetate	6.72	86	112	9.048	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	486	13.718	pg		64
29) DIPE	7.65	45	289	1.400	pg	#	53
30) * Ethyl Acetate	7.65	61	107	5.908	pg	#	1
31) * n-Hexane	7.65	57	180	1.933	pg	#	60
39) * Benzene	9.36	78	1038	6.492	pg	#	76
41) 1-Butanol	9.31	56	854	28.496	pg	#	49
47) * Trichloroethene	10.62	130	80	1.570	pg	#	3
48) * 1,4-Dioxane	10.65	88	55	1.650	pg	#	81
51) * n-Heptane	11.04	71	237	2.887	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	54	1.870	pg	#	1
58) * Toluene	12.74	91	3951	26.486	pg		100
59) * 2-Hexanone	13.08	58	58	2.273	pg	#	68
64) * Tetrachloroethene	14.01	166	164	3.306	pg		85
66) * Ethylbenzene	15.12	91	816	6.486	pg		93
67) * m- & p-Xylenes	15.29	91	2366	24.207	pg		91
70) * Styrene	15.63	104	134	2.575	pg		92
71) * o-Xylene	15.73	91	705	7.374	pg		91
72) * n-Nonane	15.98	57	78	1.810	pg	#	42
77) * n-Propylbenzene	16.72	91	314	2.500	pg	#	70
78) 3-Ethyltoluene	16.81	105	719	8.219	pg		97
79) * 4-Ethyltoluene	16.84	105	320	4.172	pg		89
80) * 1,3,5-Trimethylbenzene	16.92	105	207	2.406	pg		87
82) 2-Ethyltoluene	17.07	105	245	2.347	pg		96
83) tert-Butylbenzene	17.28	134	91	4.709	pg	#	54
84) * 1,2,4-Trimethylbenzene	17.26	105	1195	15.370	pg		90
87) * 1,4-Dichlorobenzene	17.43	146	353	9.954	pg		95

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081714.D
Acq On : 8 Jan 2017 6:49 pm
Operator : JM
Sample : AS00855 FCR00122
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

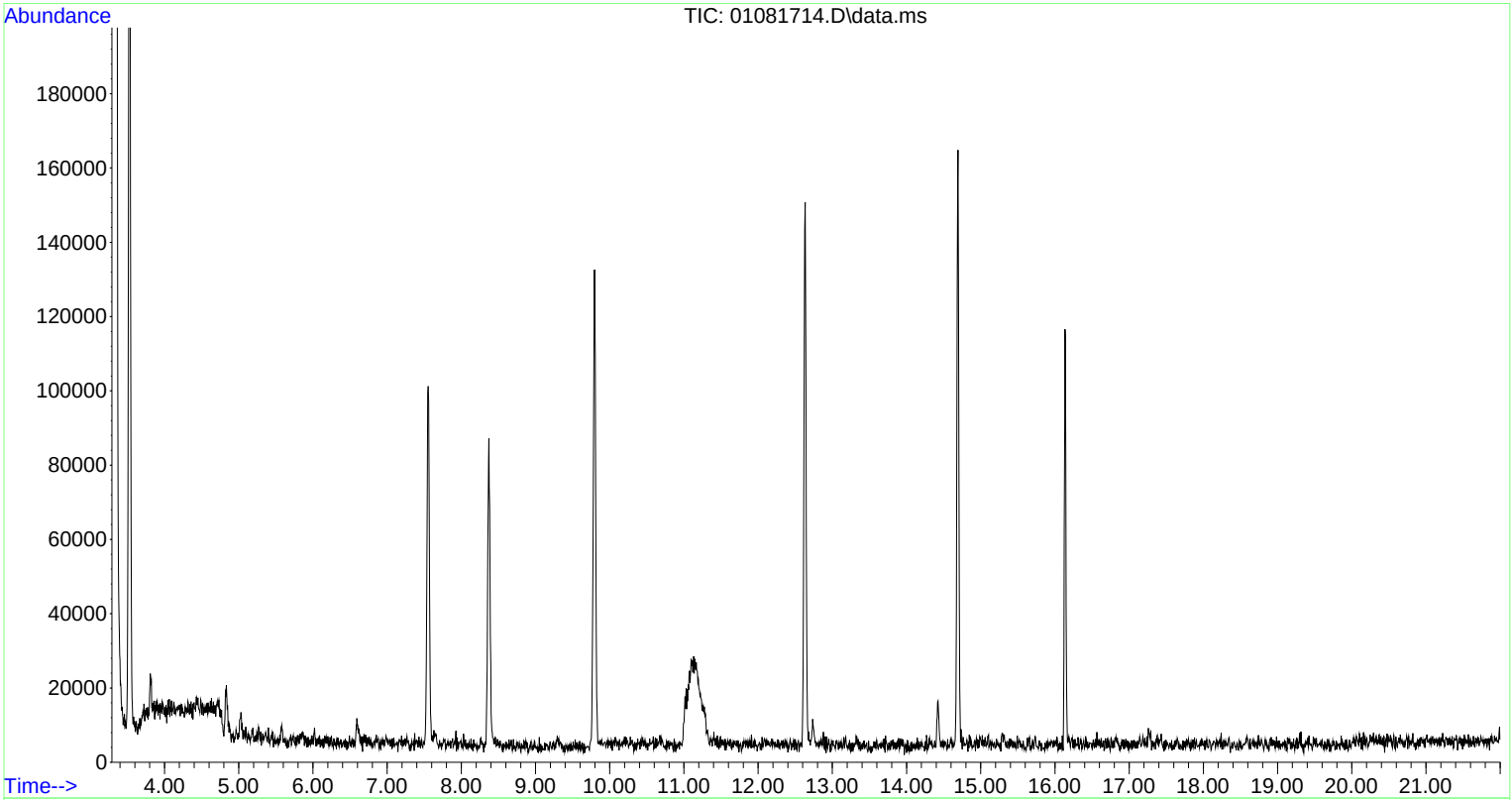
Quant Time: Jan 09 10:26:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

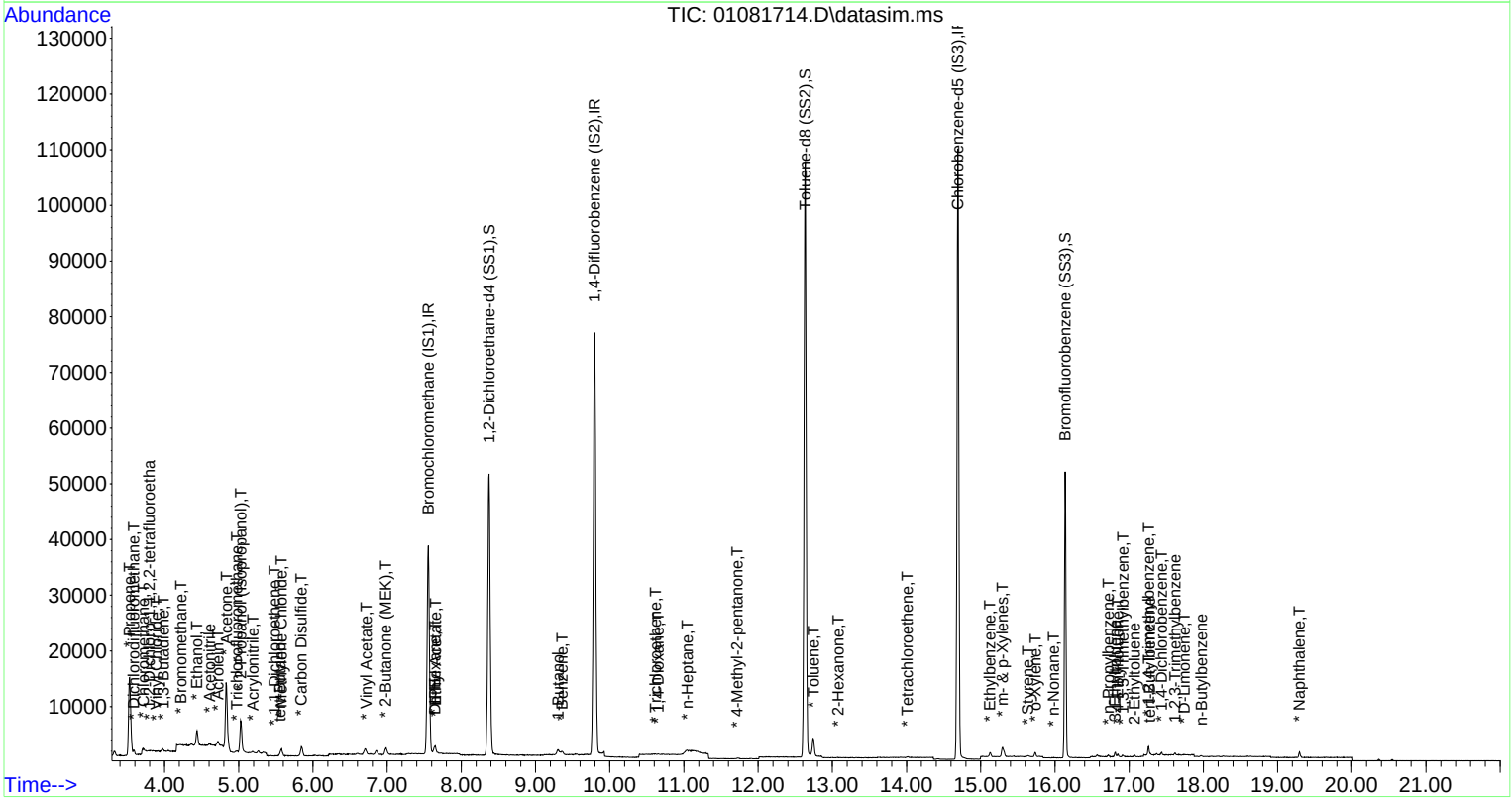
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
90) 1,2,3-Trimethylbenzene	17.62	105	237	2.907	pg		99
93) * D-Limonene	17.74	68	72	2.103	pg	#	15
94) n-Butylbenzene	17.98	134	94	6.512	pg	#	15
98) * Naphthalene	19.29	128	1136	34.232	pg		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081714.D
Acq On : 8 Jan 2017 6:49 pm
Operator : JM
Sample : AS00855 FCR00122
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 09 10:26:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051719.D Vial: 15
Acq On : 5 Jan 2017 22:48 Operator: CL
Sample : AS01030-FCR00214 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

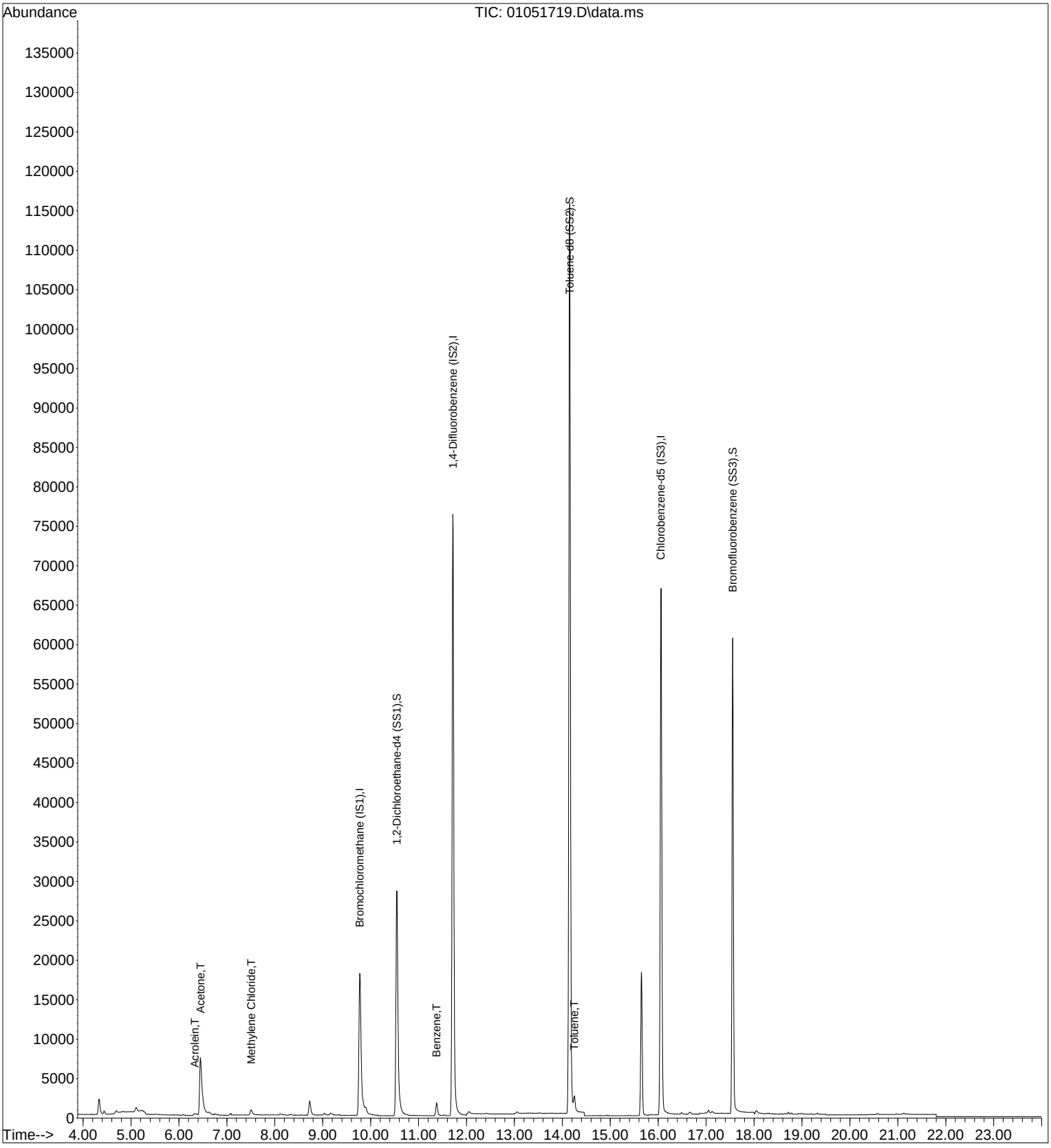
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	34774	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	162150	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	25054	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	56548	1015.245	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.53%				
33) Toluene-d8 (SS2)	14.15	98	162096	1023.449	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.35%				
45) Bromofluorobenzene (SS3)	17.55	174	46881	944.214	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.42%				
Target Compounds							Qvalue
9) Acrolein	6.33	56	697	44.735	pg	#	69
10) Acetone	6.45	58	8583	412.892	pg	#	74
13) Methylene Chloride	7.51	84	736	18.120	pg		90
23) Benzene	11.37	78	3420	19.937	pg		99
34) Toluene	14.25	91	2435	15.822	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051719.D Vial: 15
Acq On : 5 Jan 2017 22:48 Operator: CL
Sample : AS01030-FCR00214 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051718.D Vial: 14
Acq On : 5 Jan 2017 22:16 Operator: CL
Sample : AS00974-FCR00228 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

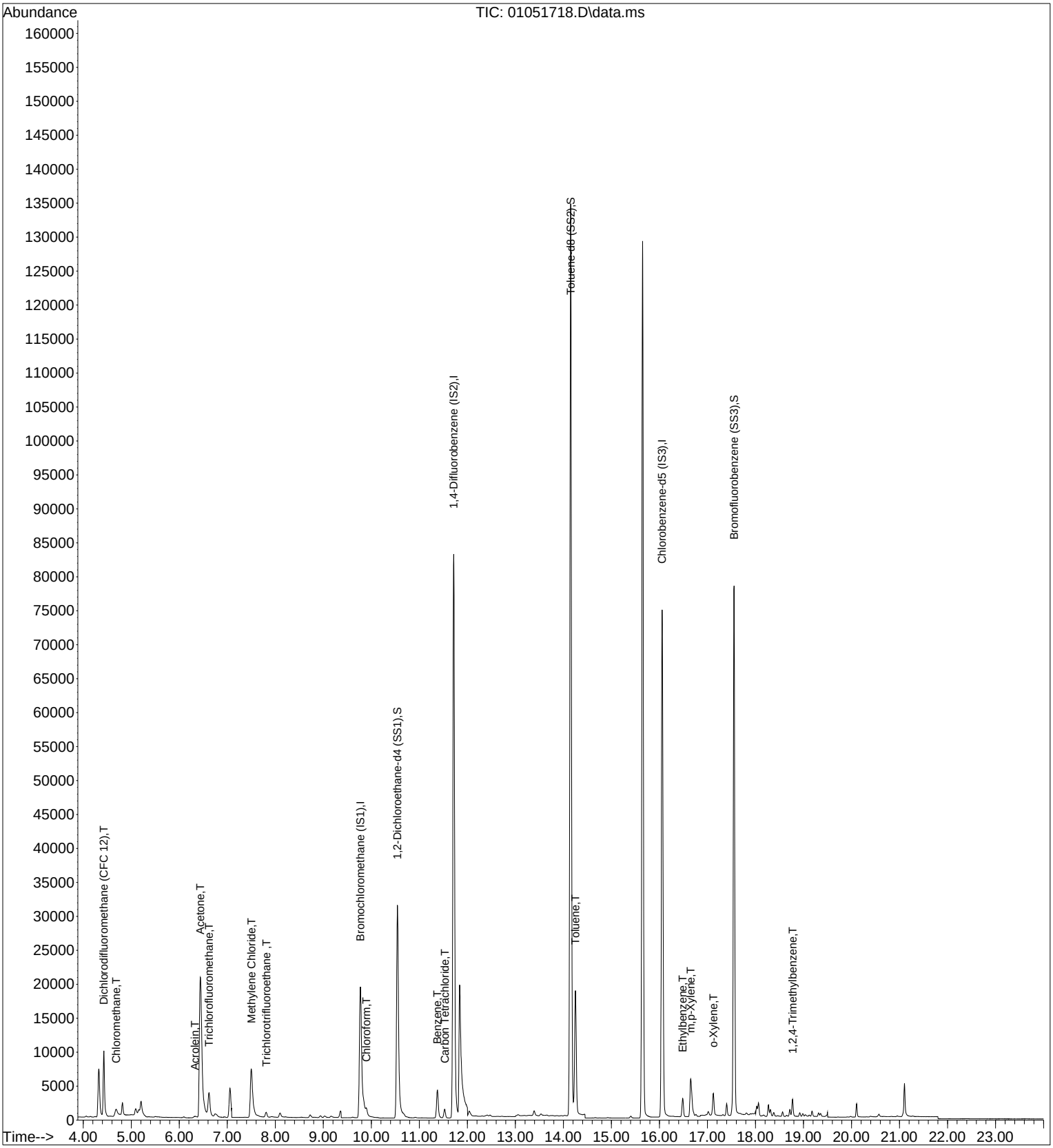
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	38252	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	177650	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	27639	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	60671	990.228	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.02%				
33) Toluene-d8 (SS2)	14.15	98	179941	1036.993	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.70%				
45) Bromofluorobenzene (SS3)	17.56	174	61338	1119.846	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.99%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	13088	141.008	pg		100
3) Chloromethane	4.69	52	1044	42.020	pg		97
9) Acrolein	6.33	56	684	39.909	pg	#	53
10) Acetone	6.43	58	18370	803.355	pg	#	82
11) Trichlorofluoromethane	6.62	101	5289	77.840	pg		100
13) Methylene Chloride	7.50	84	9678	216.598	pg		91
14) Trichlorotrifluoroethane	7.81	151	1098	26.417	pg		99
19) Chloroform	9.90	83	1370	17.138	pg		95
23) Benzene	11.38	78	8547	45.294	pg		100
24) Carbon Tetrachloride	11.53	117	1570	25.096	pg		100
34) Toluene	14.25	91	25197	149.441	pg		100
40) Ethylbenzene	16.48	91	4458	23.378	pg		100
41) m,p-Xylene	16.65	91	10416	65.331	pg		100
43) o-Xylene	17.12	106	1755	23.762	pg		93
47) 1,2,4-Trimethylbenzene	18.77	105	2593	16.312	pg		89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051718.D Vial: 14
Acq On : 5 Jan 2017 22:16 Operator: CL
Sample : AS00974-FCR00228 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061724.D
Acq On : 7 Jan 2017 1:00 am
Operator : JM
Sample : AS00982 FCR00065
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

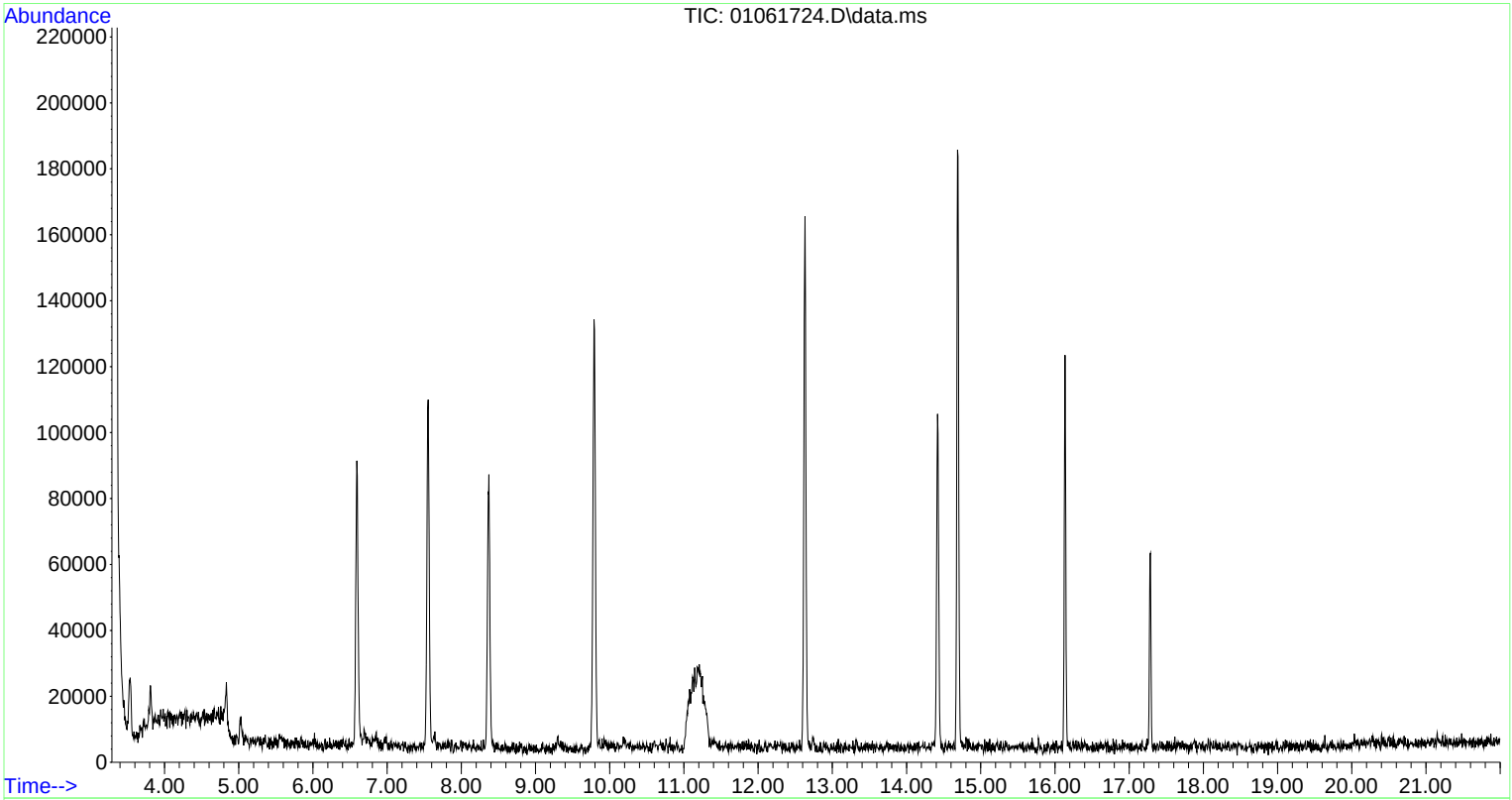
Quant Time: Jan 09 08:38:19 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

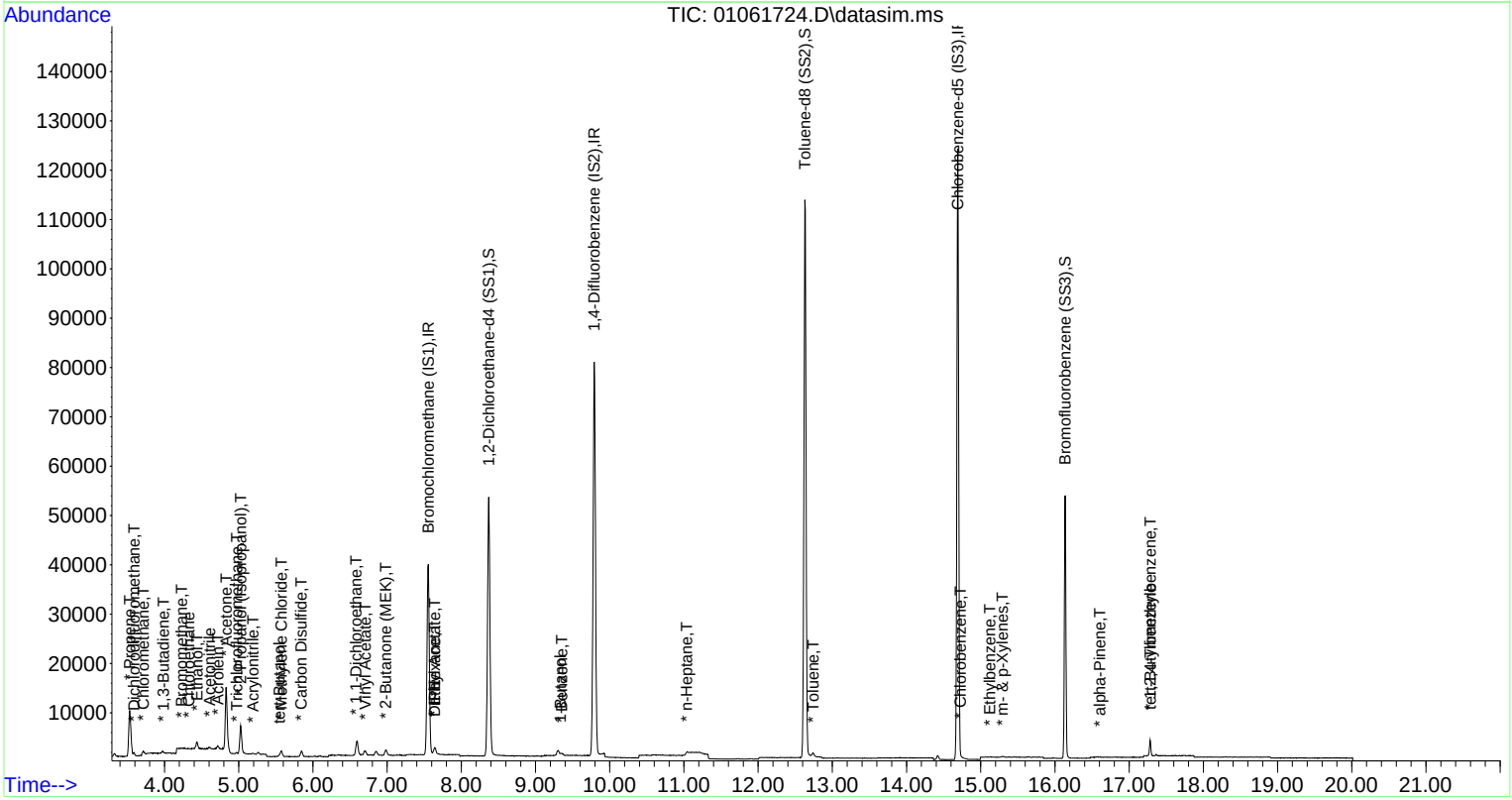
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47819	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	146767	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119270	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77551	823.464	pg		0.00
Spiked Amount 1000.000			Recovery = 82.35%				
57) Toluene-d8 (SS2)	12.63	98	126549	868.301	pg		0.00
Spiked Amount 1000.000			Recovery = 86.83%				
74) Bromofluorobenzene (SS3)	16.14	174	37259	776.225	pg		0.00
Spiked Amount 1000.000			Recovery = 77.62%				
Target Compounds							Qvalue
2) * Propene	3.53	42	4566	47.573	pg	#	74
3) * Dichlorodifluoromethane	3.59	85	699	3.419	pg		92
4) * Chloromethane	3.71	50	659	4.312	pg		95
7) * 1,3-Butadiene	3.99	54	29	0.267	pg	#	1
8) * Bromomethane	4.23	94	54	0.582	pg	#	3
9) * Chloroethane	4.33	64	57	0.859	pg	#	1
10) * Ethanol	4.44	45	1530	23.373	pg	#	75
11) * Acetonitrile	4.61	41	412	2.510	pg	#	28
12) * Acrolein	4.72	56	742	13.530	pg		95
13) * Acetone	4.83	58	7027	113.651	pg	#	49
14) * Trichlorofluoromethane	4.97	101	339	2.482	pg	#	82
15) * 2-Propanol (Isopropa...	5.03	45	7673	45.802	pg		96
16) * Acrylonitrile	5.19	53	91	0.935	pg		86
18) tert-Butanol	5.55	59	429	4.249	pg	#	54
19) * Methylene Chloride	5.58	84	1344	19.514	pg		97
22) * Carbon Disulfide	5.84	76	2039	8.076	pg	#	90
24) * 1,1-Dichloroethane	6.58	63	58	0.497	pg	#	42
26) * Vinyl Acetate	6.71	86	197	15.192	pg	#	8
27) * 2-Butanone (MEK)	6.98	72	392	10.563	pg		84
29) DIPE	7.64	45	274	1.267	pg	#	53
30) * Ethyl Acetate	7.64	61	236	12.439	pg		91
31) * n-Hexane	7.64	57	189	1.937	pg	#	60
39) * Benzene	9.35	78	744	4.396	pg		95
41) 1-Butanol	9.34	56	58	1.828	pg		100
51) * n-Heptane	11.04	71	140	1.611	pg	#	43
58) * Toluene	12.74	91	851	5.048	pg		91
65) * Chlorobenzene	14.72	112	55	0.495	pg	#	42
66) * Ethylbenzene	15.12	91	72	0.506	pg	#	45
67) * m- & p-Xylenes	15.29	91	205	1.856	pg		91
76) * alpha-Pinene	16.61	93	55	0.785	pg	#	18
83) tert-Butylbenzene	17.28	134	1249	57.193	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.28	105	394	4.484	pg		89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061724.D
Acq On : 7 Jan 2017 1:00 am
Operator : JM
Sample : AS00982 FCR00065
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 09 08:38:19 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071714.D
Acq On : 7 Jan 2017 11:56 pm
Operator : JM
Sample : AS00978 FCR00207
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 09 09:40:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47016	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	152625	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119123	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79078	854.020	pg		0.00
Spiked Amount 1000.000			Recovery = 85.40%				
57) Toluene-d8 (SS2)	12.63	98	131991	906.758	pg		0.00
Spiked Amount 1000.000			Recovery = 90.68%				
74) Bromofluorobenzene (SS3)	16.14	174	40546	845.746	pg		0.00
Spiked Amount 1000.000			Recovery = 84.58%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5528	58.580	pg	#	71
3) * Dichlorodifluoromethane	3.59	85	957	4.761	pg		93
4) * Chloromethane	3.71	50	1475	9.816	pg		94
7) * 1,3-Butadiene	3.99	54	20	0.187	pg	#	1
8) * Bromomethane	4.21	94	127	1.391	pg	#	72
9) * Chloroethane	4.35	64	55	0.843	pg	#	41
10) * Ethanol	4.44	45	4441	69.001	pg		97
11) * Acetonitrile	4.61	41	881	5.459	pg	#	71
12) * Acrolein	4.72	56	2387	44.269	pg		90
13) * Acetone	4.83	58	20101	330.656	pg	#	48
14) * Trichlorofluoromethane	4.97	101	366	2.725	pg		99
15) * 2-Propanol (Isopropa...	5.02	45	29023	176.204	pg		95
16) * Acrylonitrile	5.18	53	204	2.131	pg	#	71
18) tert-Butanol	5.55	59	2746	27.660	pg	#	83
19) * Methylene Chloride	5.58	84	940	13.882	pg		90
22) * Carbon Disulfide	5.84	76	5351	21.555	pg		98
24) * 1,1-Dichloroethane	6.59	63	94	0.819	pg	#	42
26) * Vinyl Acetate	6.71	86	706	55.376	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1355	37.136	pg		92
29) DIPE	7.65	45	434	2.041	pg	#	53
30) * Ethyl Acetate	7.65	61	482	25.839	pg		90
31) * n-Hexane	7.64	57	198	2.064	pg	#	60
36) * 1,2-Dichloroethane	8.50	62	515	5.132	pg		100
39) * Benzene	9.36	78	1633	9.278	pg	#	88
41) 1-Butanol	9.30	56	4708	142.689	pg	#	51
42) * Carbon Tetrachloride	9.55	117	56	0.818	pg	#	1
45) * 1,2-Dichloropropane	10.36	63	54	0.827	pg	#	32
48) * 1,4-Dioxane	10.63	88	21722	591.741	pg		99
49) Isooctane	10.72	56	352	4.184	pg	#	13
51) * n-Heptane	11.03	71	184	2.036	pg	#	55
53) * 4-Methyl-2-pentanone	11.72	58	85	2.673	pg	#	28
58) * Toluene	12.74	91	1139	6.765	pg		99
59) * 2-Hexanone	13.07	58	696	24.166	pg		99
62) * n-Butyl Acetate	13.82	56	68	3.302	pg	#	37
65) * Chlorobenzene	14.73	112	89	0.802	pg	#	42
66) * Ethylbenzene	15.12	91	140	0.986	pg	#	45
67) * m- & p-Xylenes	15.29	91	356	3.227	pg	#	53
69) Cyclohexanone	15.44	98	265	21.508	pg		82
70) * Styrene	15.63	104	81	1.379	pg	#	56
71) * o-Xylene	15.73	91	80	0.741	pg	#	32
72) * n-Nonane	16.00	57	660	13.572	pg	#	42
75) * Cumene	16.27	105	51	0.331	pg	#	49
77) * n-Propylbenzene	16.72	91	115	0.811	pg	#	56
78) 3-Ethyltoluene	16.81	105	67	0.679	pg	#	45
79) * 4-Ethyltoluene	16.86	105	62	0.716	pg	#	46

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071714.D
Acq On : 7 Jan 2017 11:56 pm
Operator : JM
Sample : AS00978 FCR00207
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

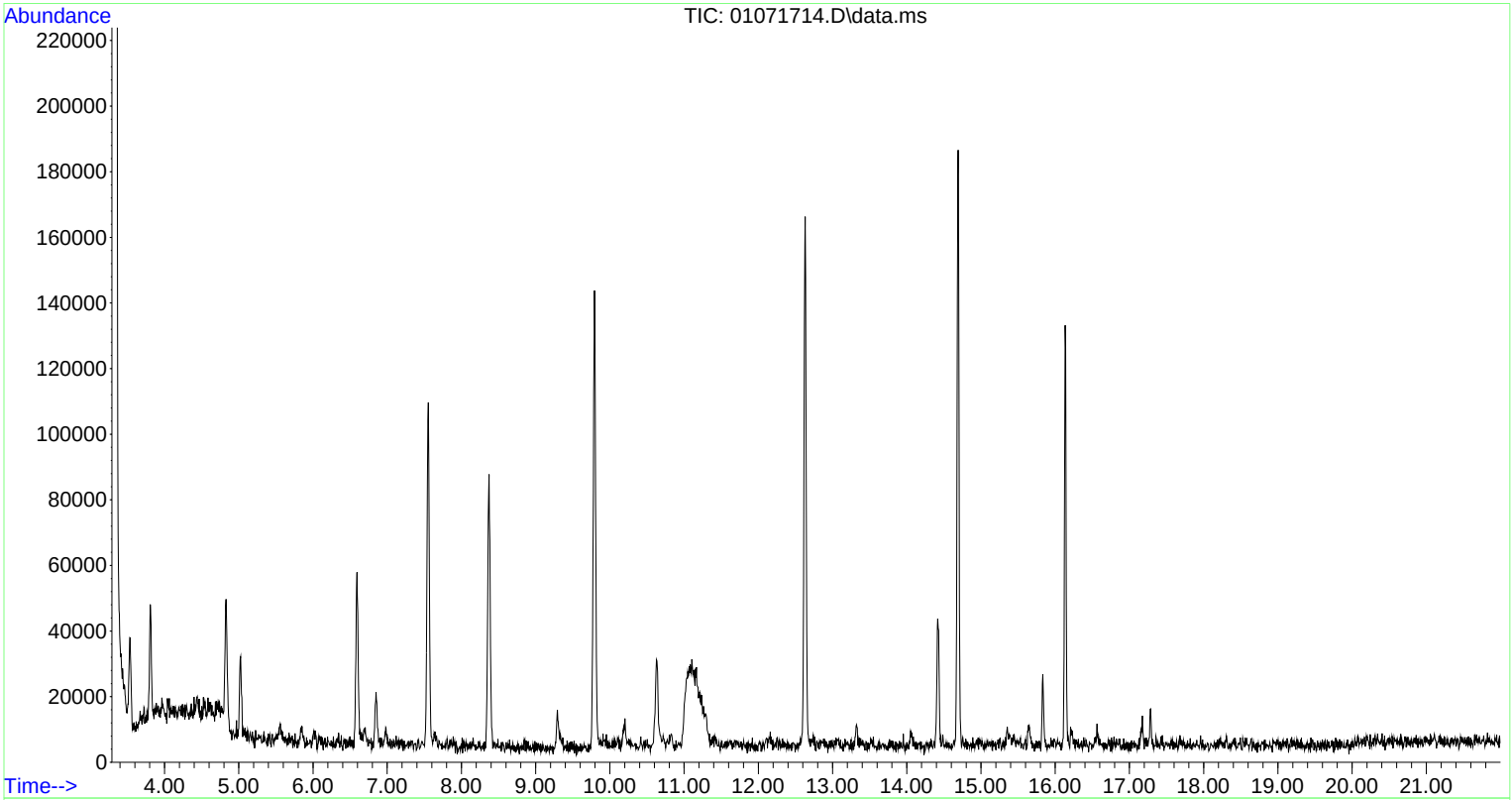
Quant Time: Jan 09 09:40:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

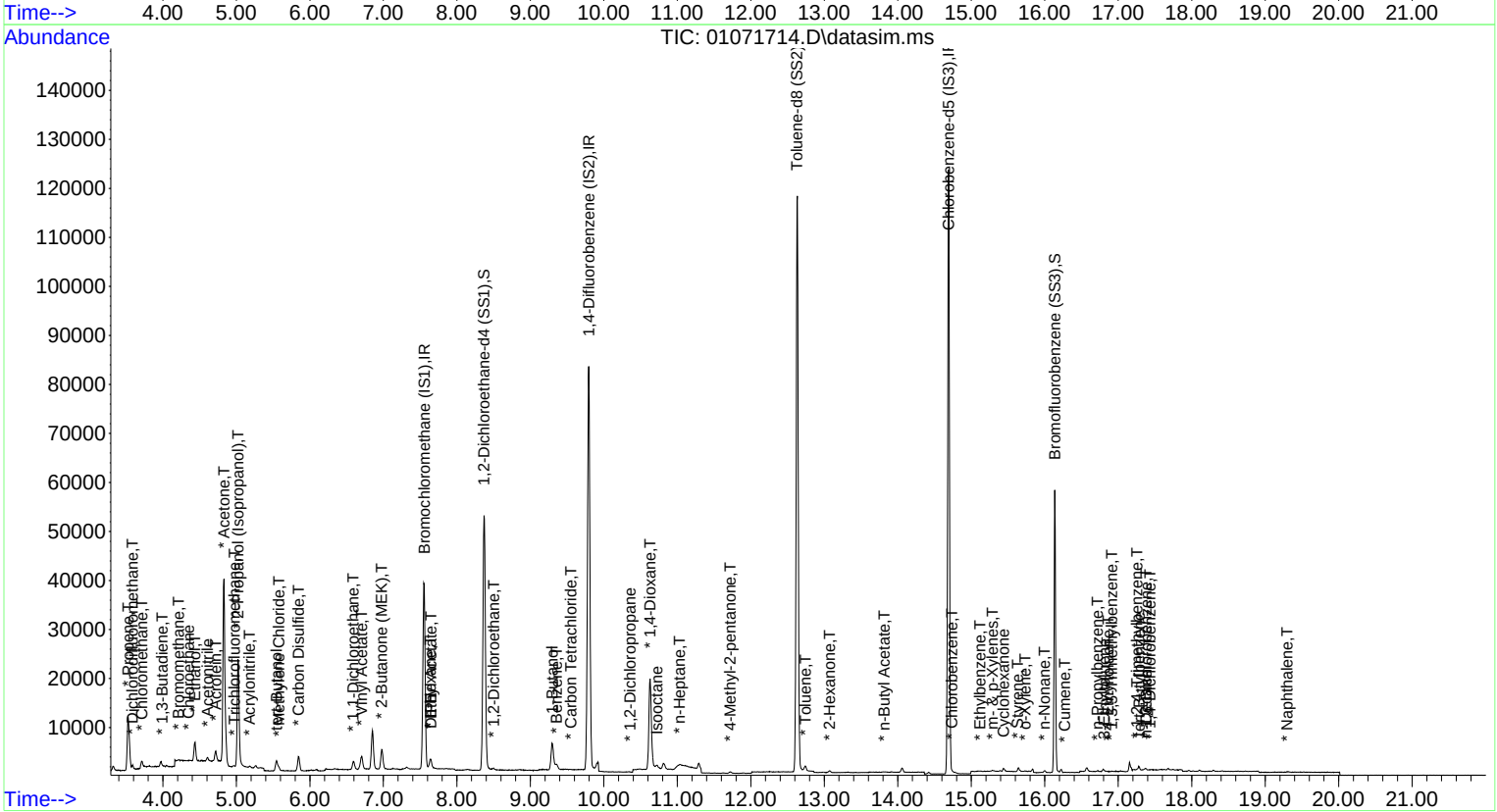
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
80) * 1,3,5-Trimethylbenzene	16.91	105	53	0.546	pg	#	29
83) tert-Butylbenzene	17.28	134	199	9.124	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	130	1.481	pg		94
86) * 1,3-Dichlorobenzene	17.38	146	54	1.146	pg	#	17
87) * 1,4-Dichlorobenzene	17.43	146	52	1.299	pg	#	51
88) n-Decane	17.38	85	81	4.828	pg	#	33
98) * Naphthalene	19.30	128	109	2.910	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071714.D
Acq On : 7 Jan 2017 11:56 pm
Operator : JM
Sample : AS00978 FCR00207
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 09 09:40:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061718.D
Acq On : 6 Jan 2017 8:30 pm
Operator : JM
Sample : AC02190 FCS00290
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

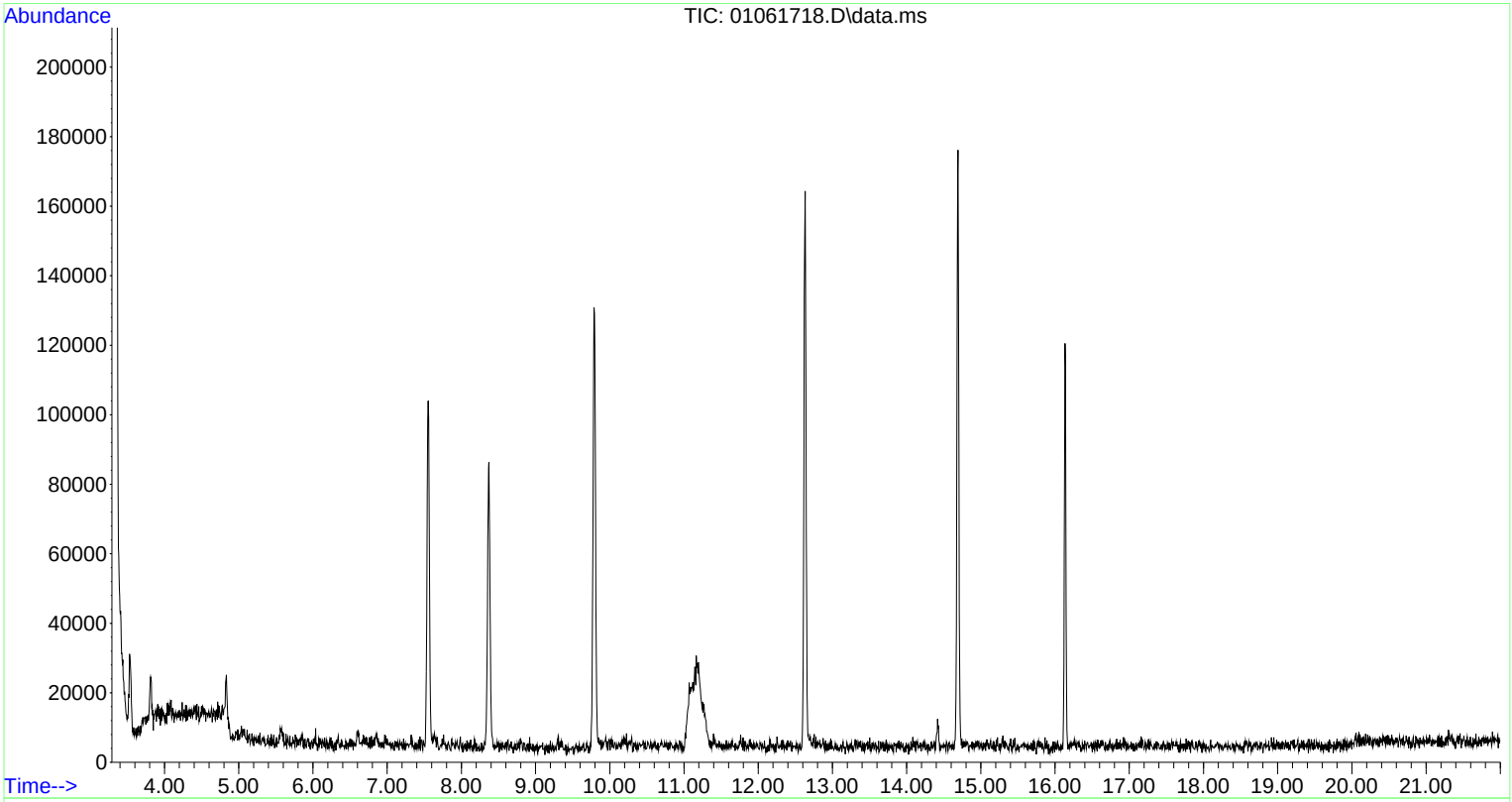
Quant Time: Jan 09 08:37:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

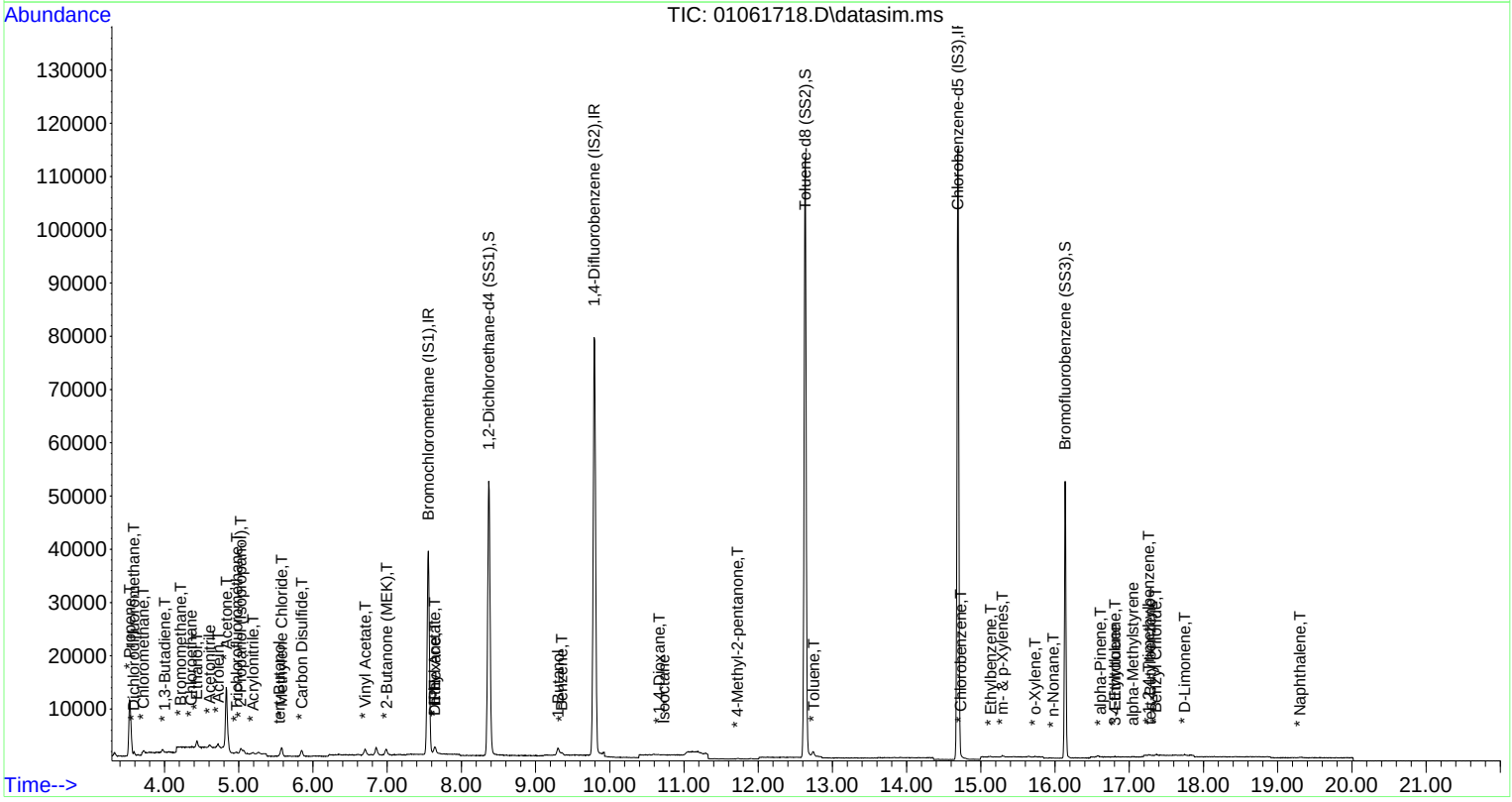
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47238	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	146464	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109981	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77092	828.659	pg		0.00
Spiked Amount 1000.000			Recovery = 82.87%				
57) Toluene-d8 (SS2)	12.63	98	127160	946.184	pg		0.00
Spiked Amount 1000.000			Recovery = 94.62%				
74) Bromofluorobenzene (SS3)	16.14	174	36536	825.450	pg		0.00
Spiked Amount 1000.000			Recovery = 82.55%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5024	52.989	pg	#	69
3) * Dichlorodifluoromethane	3.59	85	597	2.956	pg		91
4) * Chloromethane	3.71	50	582	3.855	pg	#	86
7) * 1,3-Butadiene	4.00	54	32	0.298	pg	#	1
8) * Bromomethane	4.22	94	93	1.014	pg	#	3
9) * Chloroethane	4.36	64	108	1.648	pg	#	41
10) * Ethanol	4.44	45	1396	21.588	pg	#	71
11) * Acetonitrile	4.61	41	567	3.497	pg	#	64
12) * Acrolein	4.72	56	751	13.862	pg		85
13) * Acetone	4.84	58	6798	111.300	pg	#	39
14) * Trichlorofluoromethane	4.97	101	286	2.120	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	2000	12.085	pg	#	85
16) * Acrylonitrile	5.19	53	231	2.402	pg	#	80
18) tert-Butanol	5.55	59	144	1.444	pg		85
19) * Methylene Chloride	5.58	84	1812	26.633	pg		93
22) * Carbon Disulfide	5.85	76	2099	8.416	pg		97
26) * Vinyl Acetate	6.71	86	227	17.721	pg	#	2
27) * 2-Butanone (MEK)	6.99	72	432	11.784	pg	#	54
29) DIPE	7.64	45	212	0.992	pg	#	53
30) * Ethyl Acetate	7.64	61	212	11.311	pg	#	62
31) * n-Hexane	7.65	57	163	1.691	pg	#	60
39) * Benzene	9.35	78	709	4.197	pg	#	86
41) 1-Butanol	9.31	56	1072	33.857	pg	#	42
48) * 1,4-Dioxane	10.67	88	108	3.066	pg	#	9
49) Isooctane	10.73	56	63	0.780	pg	#	19
53) * 4-Methyl-2-pentanone	11.72	58	69	2.261	pg	#	47
58) * Toluene	12.75	91	1007	6.478	pg		96
65) * Chlorobenzene	14.73	112	53	0.518	pg	#	42
66) * Ethylbenzene	15.14	91	136	1.037	pg	#	45
67) * m- & p-Xylenes	15.29	91	300	2.945	pg		98
71) * o-Xylene	15.73	91	95	0.954	pg	#	57
72) * n-Nonane	15.98	57	54	1.203	pg	#	42
76) * alpha-Pinene	16.61	93	59	0.914	pg	#	18
78) 3-Ethyltoluene	16.81	105	59	0.647	pg	#	45
79) * 4-Ethyltoluene	16.81	105	59	0.738	pg	#	46
81) alpha-Methylstyrene	17.05	118	100	2.755	pg		86
83) tert-Butylbenzene	17.28	134	54	2.682	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	86	1.061	pg	#	24
85) * Benzyl Chloride	17.36	126	70	8.570	pg	#	32
93) * D-Limonene	17.75	68	90	2.523	pg	#	36
98) * Naphthalene	19.30	128	99	2.863	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061718.D
Acq On : 6 Jan 2017 8:30 pm
Operator : JM
Sample : AC02190 FCS00290
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 09 08:37:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061712.D
Acq On : 6 Jan 2017 17:28 Operator: CL
Sample : AS01023-FCA00353 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 07 15:18:35 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

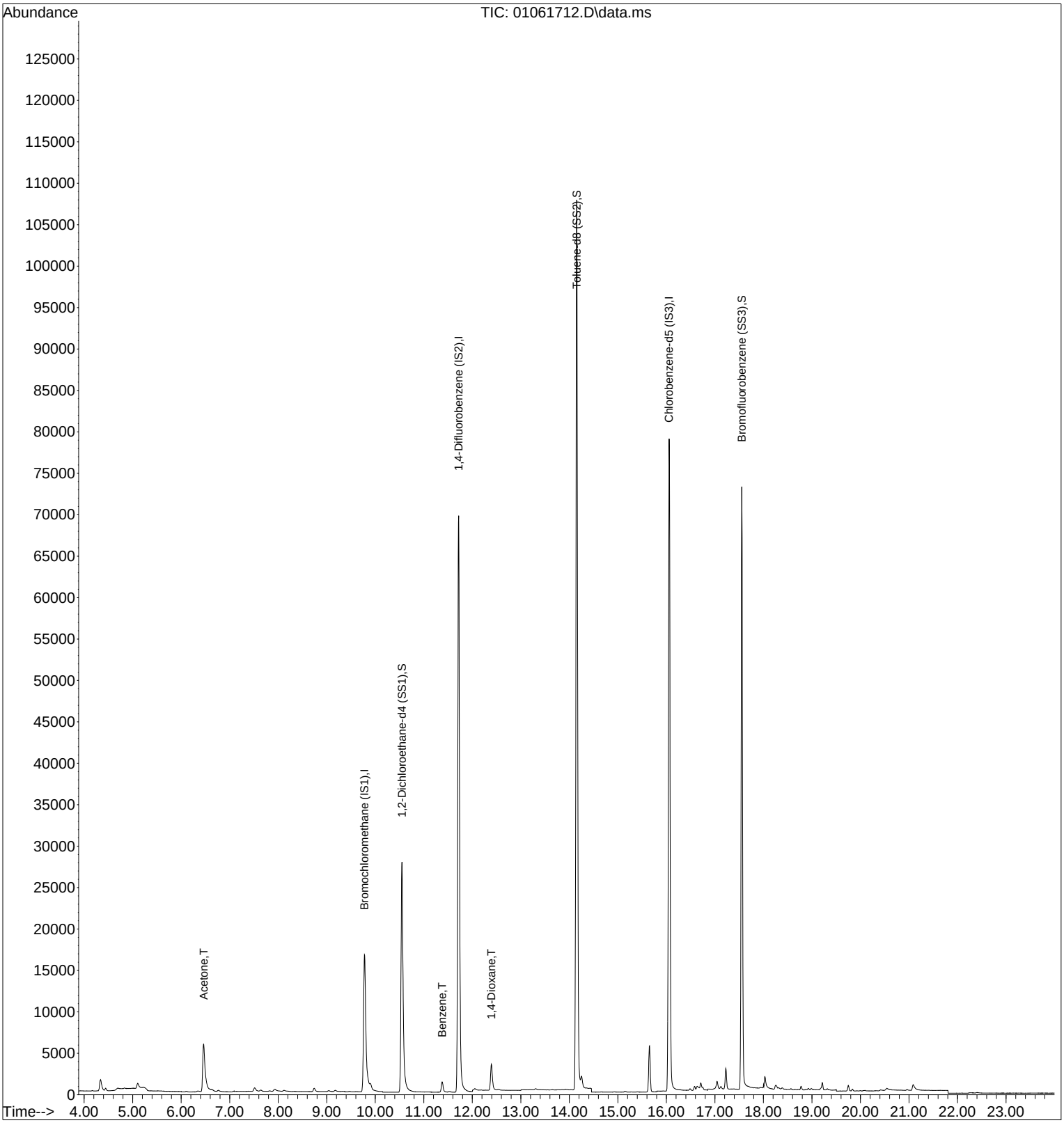
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	31919	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	148663	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	31123	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.5	65	55213	1079.942	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.99%				
33) Toluene-d8 (SS2)	14.2	98	151048	1040.215	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.02%				
45) Bromofluorobenzene (SS3)	17.6	174	56397	914.377	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.44%				
Target Compounds							Qvalue
10) Acetone	6.5	58	5969	312.827	pg	#	85
23) Benzene	11.4	78	2635	16.734	pg		99
29) 1,4-Dioxane	12.4	88	5204	188.938	pg		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061712.D
Acq On : 6 Jan 2017 17:28 Operator: CL
Sample : AS01023-FCA00353 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 07 15:18:35 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081724.D
Acq On : 9 Jan 2017 1:54 am
Operator : JM
Sample : AS00823 FCR00248
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 09 10:27:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45965	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144851	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111574	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77114	851.851	pg		0.00
Spiked Amount 1000.000			Recovery = 85.19%				
57) Toluene-d8 (SS2)	12.63	98	124830	915.585	pg		0.00
Spiked Amount 1000.000			Recovery = 91.56%				
74) Bromofluorobenzene (SS3)	16.14	174	36197	806.115	pg		0.00
Spiked Amount 1000.000			Recovery = 80.61%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5080	55.064	pg	#	72
3) * Dichlorodifluoromethane	3.59	85	738	3.755	pg		91
4) * Chloromethane	3.72	50	734	4.996	pg		96
7) * 1,3-Butadiene	4.00	54	49	0.470	pg	#	1
8) * Bromomethane	4.22	94	88	0.986	pg	#	3
9) * Chloroethane	4.34	64	68	1.067	pg	#	31
10) * Ethanol	4.44	45	3167	50.332	pg		89
11) * Acetonitrile	4.60	41	1361	8.627	pg		98
12) * Acrolein	4.72	56	1318	25.002	pg		88
13) * Acetone	4.83	58	28560	480.546	pg	#	66
14) * Trichlorofluoromethane	4.97	101	299	2.277	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	9165	56.915	pg		98
16) * Acrylonitrile	5.19	53	285	3.045	pg	#	49
18) tert-Butanol	5.56	59	865	8.912	pg		86
19) * Methylene Chloride	5.58	84	467	7.054	pg	#	82
22) * Carbon Disulfide	5.85	76	3501	14.425	pg		98
23) * trans-1,2-Dichloroet...	6.44	96	57	1.010	pg	#	18
26) * Vinyl Acetate	6.71	86	770	61.777	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	1599	44.825	pg		90
29) DIPE	7.64	45	289	1.390	pg	#	53
30) * Ethyl Acetate	7.65	61	275	15.079	pg		100
31) * n-Hexane	7.65	57	164	1.749	pg	#	67
39) * Benzene	9.35	78	1352	8.093	pg		99
41) 1-Butanol	9.30	56	1590	50.776	pg	#	46
42) * Carbon Tetrachloride	9.54	117	54	0.831	pg	#	1
45) * 1,2-Dichloropropane	10.35	63	51	0.823	pg	#	32
48) * 1,4-Dioxane	10.65	88	177	5.081	pg	#	74
49) Isooctane	10.73	56	108	1.353	pg		71
51) * n-Heptane	11.04	71	241	2.810	pg	#	85
53) * 4-Methyl-2-pentanone	11.73	58	149	4.937	pg	#	47
58) * Toluene	12.74	91	852	5.403	pg		100
59) * 2-Hexanone	13.07	58	101	3.744	pg	#	68
63) * n-Octane	13.91	85	169	6.870	pg	#	77
66) * Ethylbenzene	15.12	91	183	1.376	pg	#	45
67) * m- & p-Xylenes	15.30	91	310	3.000	pg		94
69) Cyclohexanone	15.44	98	102	8.839	pg	#	47
71) * o-Xylene	15.73	91	115	1.138	pg		91
72) * n-Nonane	15.98	57	115	2.525	pg	#	42
76) * alpha-Pinene	16.62	93	59	0.901	pg	#	18
77) * n-Propylbenzene	16.72	91	76	0.572	pg	#	56
83) tert-Butylbenzene	17.29	134	615	30.104	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.28	105	169	2.056	pg		99
93) * D-Limonene	17.75	68	161	4.449	pg		98
99) n-Dodecane	19.35	85	51	9.036	pg	#	1

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081724.D
Acq On : 9 Jan 2017 1:54 am
Operator : JM
Sample : AS00823 FCR00248
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

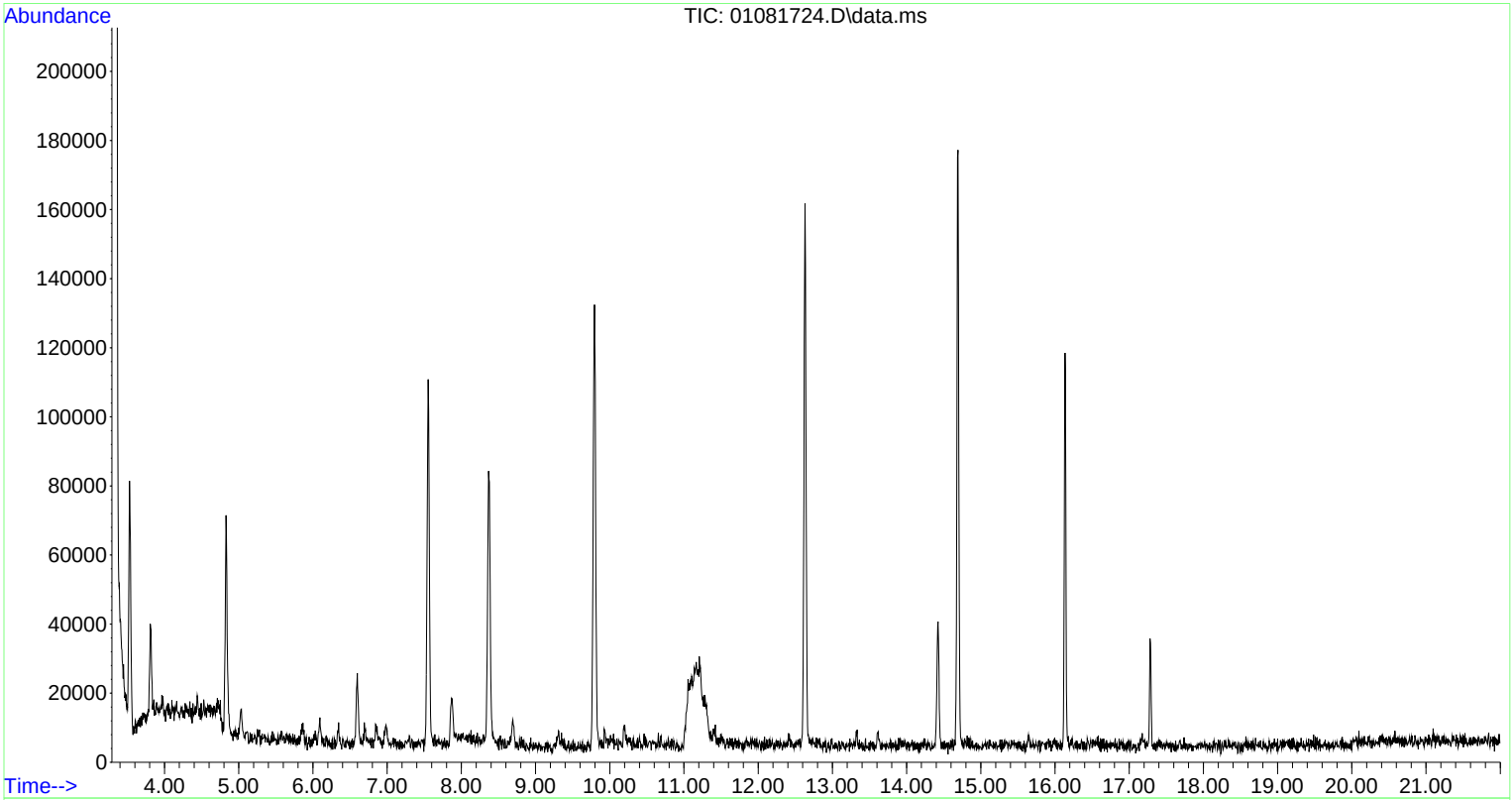
Quant Time: Jan 09 10:27:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

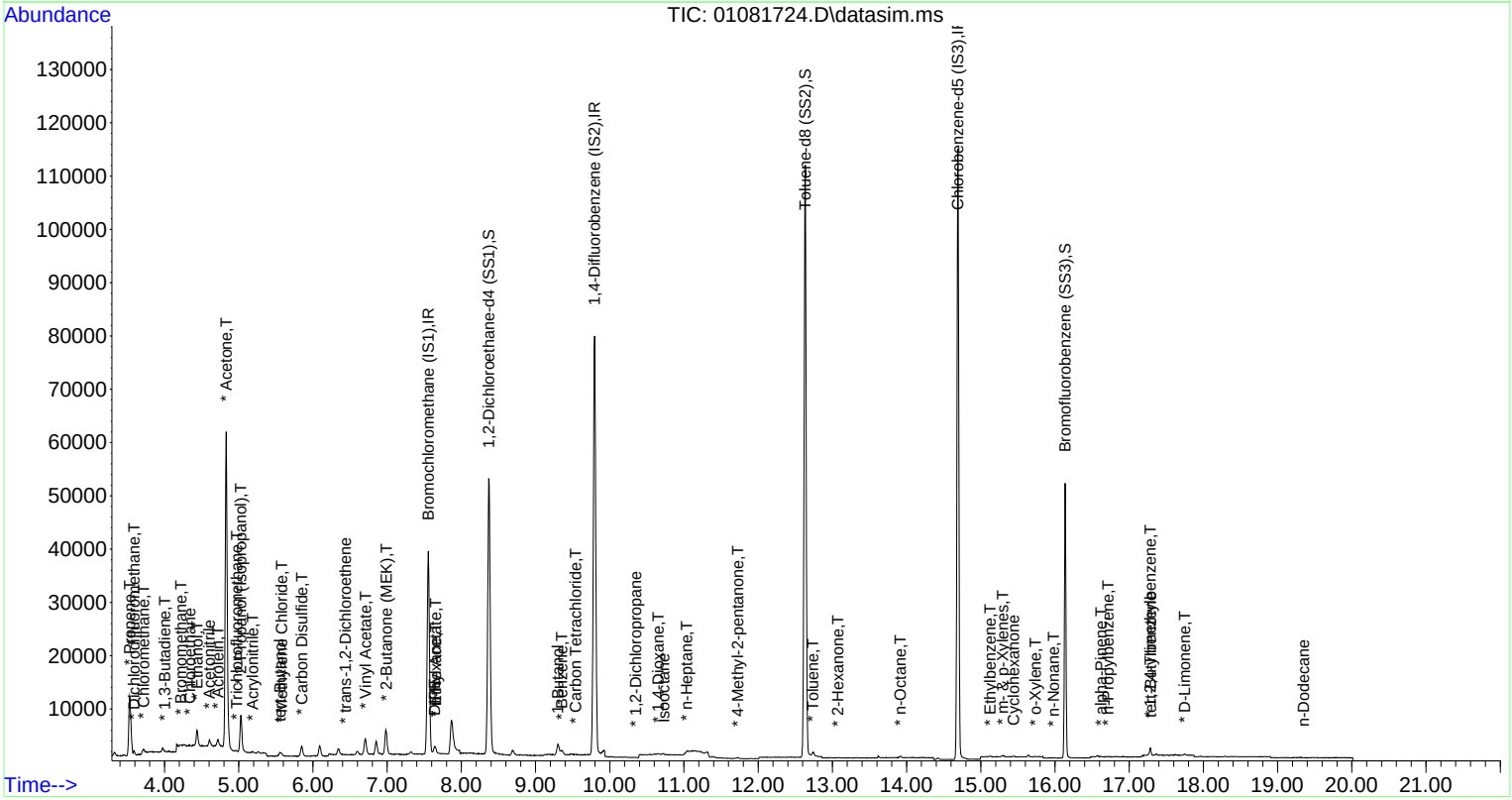
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081724.D
Acq On : 9 Jan 2017 1:54 am
Operator : JM
Sample : AS00823 FCR00248
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 09 10:27:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081708.D
Acq On : 8 Jan 2017 2:44 pm
Operator : JM
Sample : SC01745 FCR00272
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 09 10:25:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48178	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	167226	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119207	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	78460	826.908 pg		0.00
Spiked Amount 1000.000			Recovery = 82.69%			
57) Toluene-d8 (SS2)	12.63	98	136287	935.611 pg		0.00
Spiked Amount 1000.000			Recovery = 93.56%			
74) Bromofluorobenzene (SS3)	16.14	174	42322	882.170 pg		0.00
Spiked Amount 1000.000			Recovery = 88.22%			
Target Compounds						Qvalue
2) * Propene	3.53	42	7136	73.796 pg		82
3) * Dichlorodifluoromethane	3.59	85	832	4.039 pg		95
4) * Chloromethane	3.71	50	1174	7.624 pg		96
7) * 1,3-Butadiene	4.00	54	38	0.348 pg	#	1
8) * Bromomethane	4.21	94	61	0.652 pg		95
9) * Chloroethane	4.35	64	180	2.694 pg	#	85
10) * Ethanol	4.43	45	172735	2619.098 pg		99
11) * Acetonitrile	4.60	41	2304	13.933 pg		87
12) * Acrolein	4.71	56	4842	87.633 pg		97
13) * Acetone	4.83	58	40105	643.804 pg	#	39
14) * Trichlorofluoromethane	4.96	101	145	1.054 pg	#	18
15) * 2-Propanol (Isopropa...	5.03	45	11009	65.226 pg		94
16) * Acrylonitrile	5.18	53	317	3.231 pg	#	76
17) * 1,1-Dichloroethene	5.53	96	64	1.149 pg	#	17
18) tert-Butanol	5.55	59	2150	21.134 pg	#	82
19) * Methylene Chloride	5.58	84	556	8.013 pg		98
20) * 3-Chloro-1-propene (...	5.67	41	57	0.615 pg	#	43
22) * Carbon Disulfide	5.85	76	404333	1589.472 pg		97
26) * Vinyl Acetate	6.71	86	1460	111.755 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	5038	134.743 pg		85
29) DIPE	7.64	45	338	1.551 pg	#	53
30) * Ethyl Acetate	7.64	61	420	21.972 pg	#	62
31) * n-Hexane	7.65	57	457	4.649 pg	#	60
39) * Benzene	9.36	78	1563	8.105 pg	#	75
40) Isopropyl Acetate	9.28	61	52	2.606 pg	#	28
41) 1-Butanol	9.29	56	45309	1253.317 pg	#	46
48) * 1,4-Dioxane	10.64	88	14706	365.636 pg		96
49) Isooctane	10.71	56	383	4.155 pg		98
51) * n-Heptane	11.03	71	364	3.676 pg	#	43
53) * 4-Methyl-2-pentanone	11.76	58	1192	34.211 pg	#	60
58) * Toluene	12.74	91	1025	6.084 pg		98
59) * 2-Hexanone	13.07	58	524	18.181 pg		98
63) * n-Octane	13.91	85	274	10.425 pg	#	78
66) * Ethylbenzene	15.12	91	490	3.448 pg		89
67) * m- & p-Xylenes	15.29	91	1005	9.104 pg		88
69) Cyclohexanone	15.44	98	289	23.440 pg		79
70) * Styrene	15.64	104	99	1.684 pg	#	28
71) * o-Xylene	15.73	91	470	4.352 pg	#	82
72) * n-Nonane	15.98	57	112	2.301 pg	#	42
75) * Cumene	16.28	105	67	0.435 pg	#	49
76) * alpha-Pinene	16.61	93	92	1.314 pg		89
77) * n-Propylbenzene	16.72	91	185	1.304 pg	#	56
78) 3-Ethyltoluene	16.81	105	317	3.208 pg	#	87
79) * 4-Ethyltoluene	16.85	105	139	1.604 pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	160	1.646 pg		98

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081708.D
Acq On : 8 Jan 2017 2:44 pm
Operator : JM
Sample : SC01745 FCR00272
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

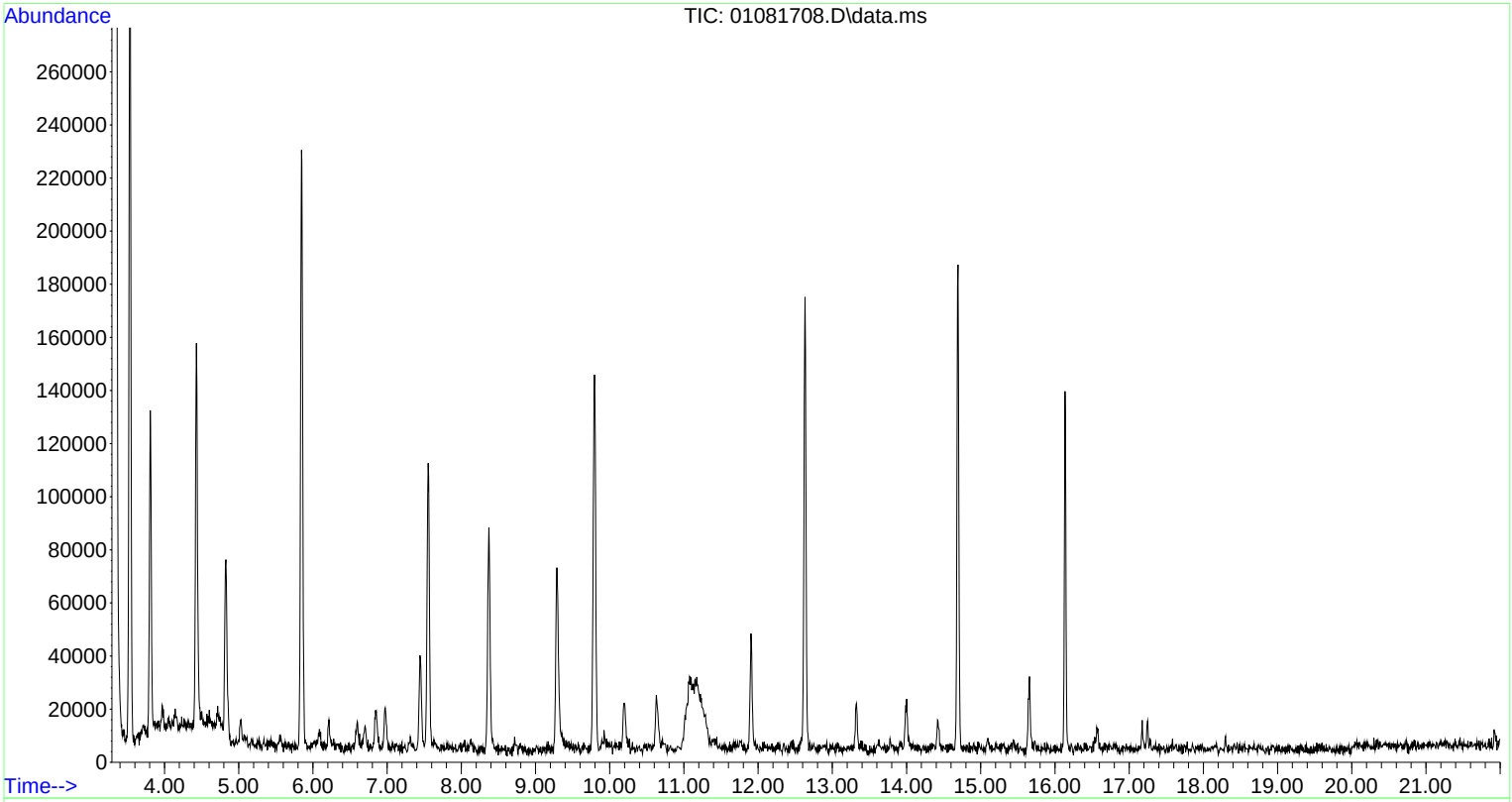
Quant Time: Jan 09 10:25:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

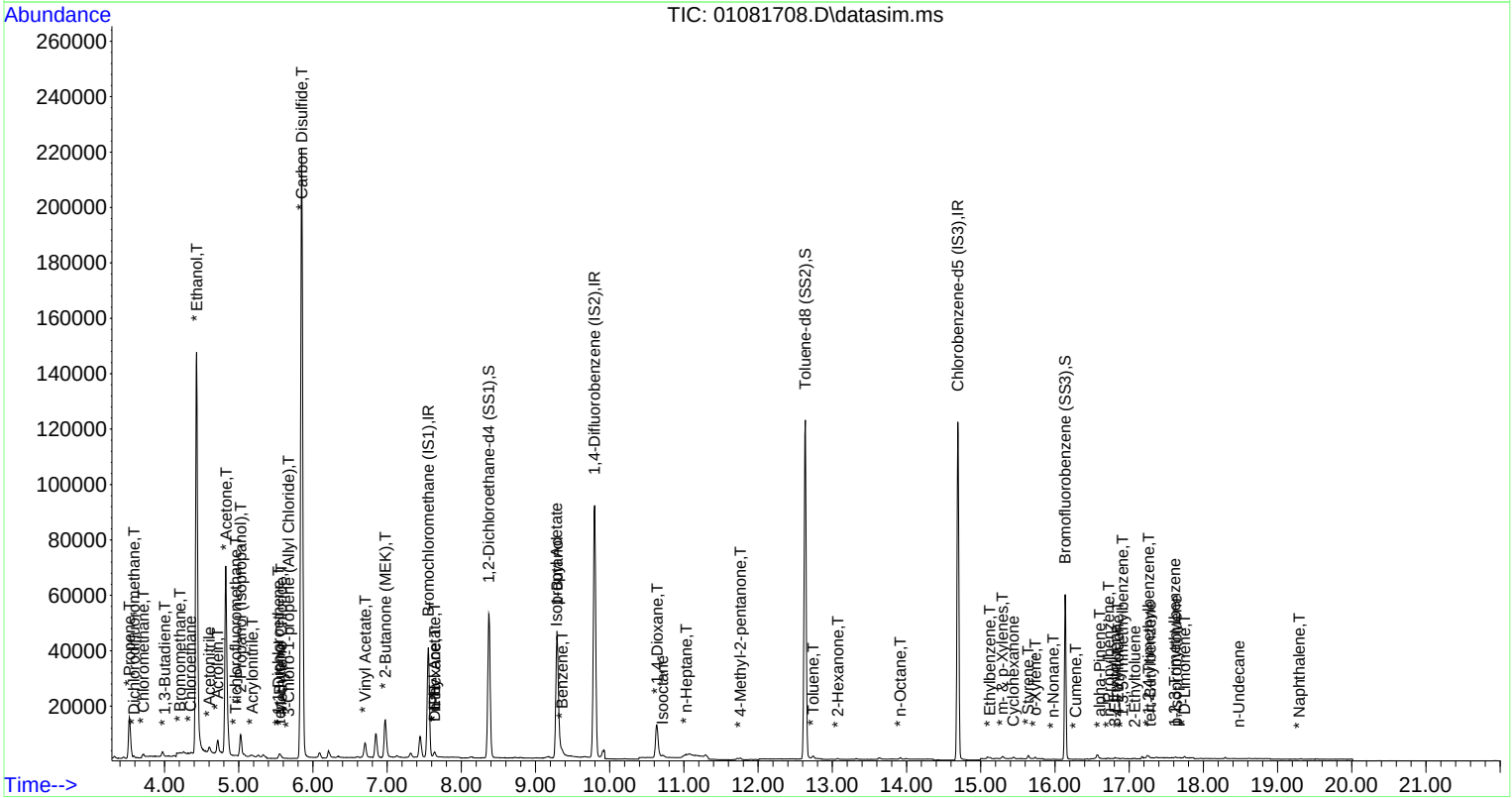
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
82) 2-Ethyltoluene	17.08	105	176	1.493	pg		95
83) tert-Butylbenzene	17.28	134	76	3.482	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	484	5.511	pg		95
90) 1,2,3-Trimethylbenzene	17.61	105	163	1.770	pg		93
91) p-Isopropyltoluene	17.63	134	74	2.656	pg	#	10
93) * D-Limonene	17.75	68	243	6.284	pg	#	74
96) n-Undecane	18.48	85	61	6.354	pg	#	1
98) * Naphthalene	19.29	128	132	3.522	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081708.D
Acq On : 8 Jan 2017 2:44 pm
Operator : JM
Sample : SC01745 FCR00272
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 09 10:25:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061719.D
Acq On : 6 Jan 2017 9:11 pm
Operator : JM
Sample : AC02182 FCR00079
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 09 08:37:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47759	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147723	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	111308	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77656	825.615	pg		0.00
Spiked Amount 1000.000			Recovery = 82.56%				
57) Toluene-d8 (SS2)	12.63	98	126798	932.242	pg		0.00
Spiked Amount 1000.000			Recovery = 93.22%				
74) Bromofluorobenzene (SS3)	16.14	174	36946	824.762	pg		0.00
Spiked Amount 1000.000			Recovery = 82.48%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6715	70.052	pg	#	69
3) * Dichlorodifluoromethane	3.59	85	6249	30.603	pg		98
4) * Chloromethane	3.71	50	2213	14.498	pg		91
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	258	1.702	pg	#	64
6) * Vinyl Chloride	3.89	62	72	0.494	pg	#	42
7) * 1,3-Butadiene	4.01	54	71	0.655	pg	#	1
8) * Bromomethane	4.22	94	172	1.855	pg	#	54
9) * Chloroethane	4.35	64	60	0.906	pg	#	41
10) * Ethanol	4.44	45	5805	88.791	pg		96
11) * Acetonitrile	4.60	41	2464	15.031	pg		92
12) * Acrolein	4.72	56	946	17.271	pg		100
13) * Acetone	4.83	58	12168	197.046	pg	#	63
14) * Trichlorofluoromethane	4.97	101	2288	16.773	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	6108	36.506	pg		98
16) * Acrylonitrile	5.19	53	123	1.265	pg	#	54
18) tert-Butanol	5.56	59	335	3.322	pg	#	54
19) * Methylene Chloride	5.58	84	7535	109.543	pg		99
20) * 3-Chloro-1-propene (...	5.69	41	58	0.631	pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	390	7.295	pg		92
22) * Carbon Disulfide	5.84	76	2900	11.500	pg		99
26) * Vinyl Acetate	6.70	86	180	13.899	pg		93
27) * 2-Butanone (MEK)	6.98	72	605	16.323	pg		64
28) * cis-1,2-Dichloroethene	7.43	96	52	0.873	pg	#	17
29) DIPE	7.63	45	1116	5.166	pg	#	62
30) * Ethyl Acetate	7.65	61	1043	55.043	pg		99
31) * n-Hexane	7.65	57	1059	10.868	pg		100
32) * Chloroform	7.69	83	158	1.312	pg		99
36) * 1,2-Dichloroethane	8.49	62	66	0.647	pg	#	42
39) * Benzene	9.36	78	1886	11.071	pg	#	85
41) 1-Butanol	9.31	56	1427	44.684	pg	#	61
42) * Carbon Tetrachloride	9.54	117	519	7.831	pg	#	62
43) * Cyclohexane	9.71	84	56	1.033	pg		86
49) Isooctane	10.71	56	383	4.703	pg		82
51) * n-Heptane	11.04	71	417	4.767	pg	#	73
53) * 4-Methyl-2-pentanone	11.73	58	53	1.722	pg	#	47
58) * Toluene	12.74	91	4989	31.713	pg		100
59) * 2-Hexanone	13.07	58	52	1.932	pg	#	68
63) * n-Octane	13.92	85	62	2.526	pg	#	1
66) * Ethylbenzene	15.12	91	499	3.761	pg		97
67) * m- & p-Xylenes	15.29	91	1156	11.215	pg		96
70) * Styrene	15.63	104	85	1.549	pg	#	28
71) * o-Xylene	15.73	91	386	3.828	pg		92
72) * n-Nonane	15.98	57	132	2.905	pg	#	56
76) * alpha-Pinene	16.61	93	219	3.351	pg	#	72
77) * n-Propylbenzene	16.72	91	115	0.868	pg	#	56

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061719.D
Acq On : 6 Jan 2017 9:11 pm
Operator : JM
Sample : AC02182 FCR00079
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 09 08:37:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

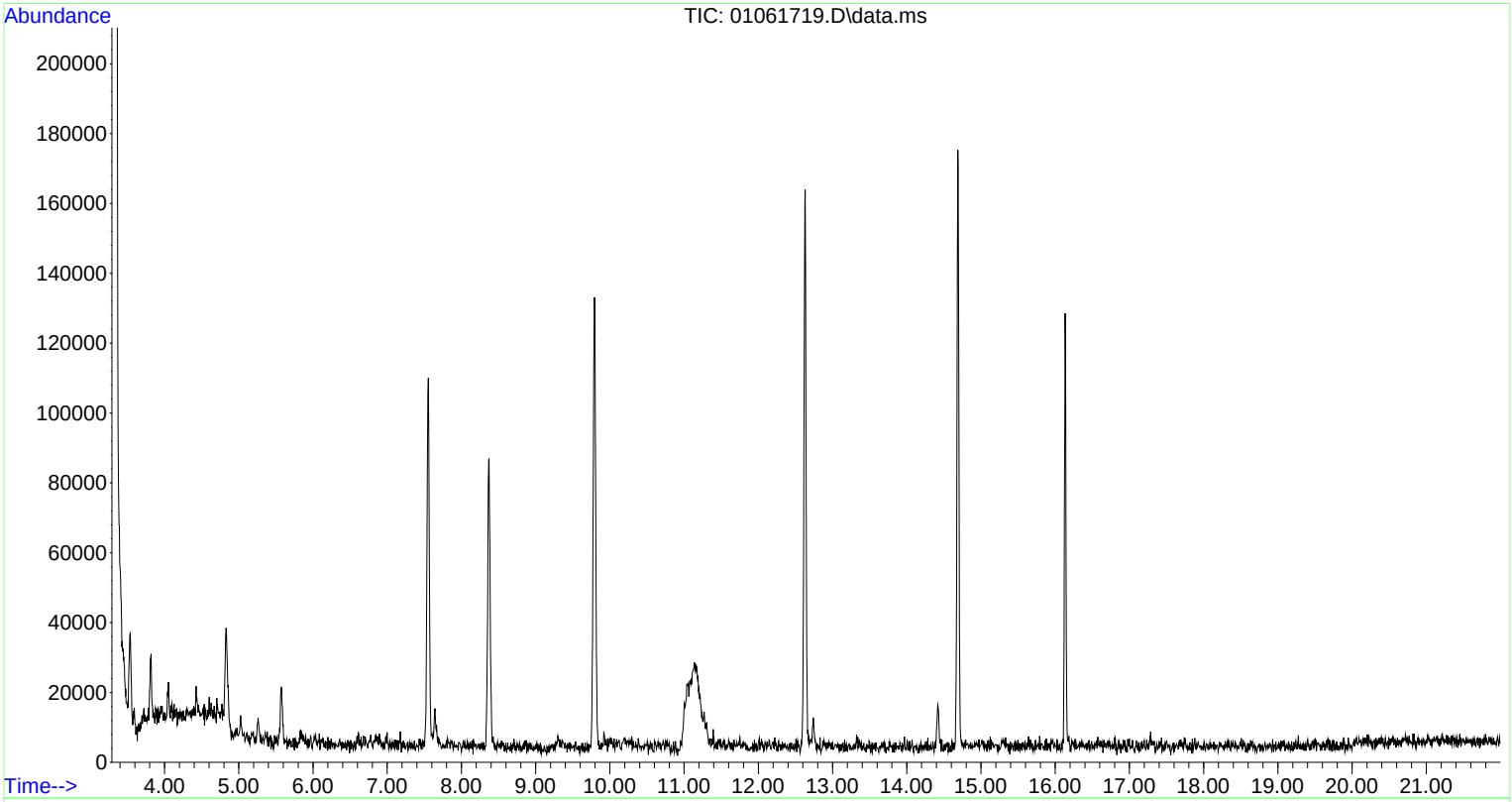
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
78) 3-Ethyltoluene	16.81	105	161	1.745	pg	#	45
79) * 4-Ethyltoluene	16.84	105	65	0.803	pg	#	46
82) 2-Ethyltoluene	17.07	105	101	0.917	pg	#	45
83) tert-Butylbenzene	17.28	134	64	3.140	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	247	3.012	pg	#	76
93) * D-Limonene	17.75	68	146	4.044	pg		85
99) n-Dodecane	19.31	85	53	9.413	pg	#	17

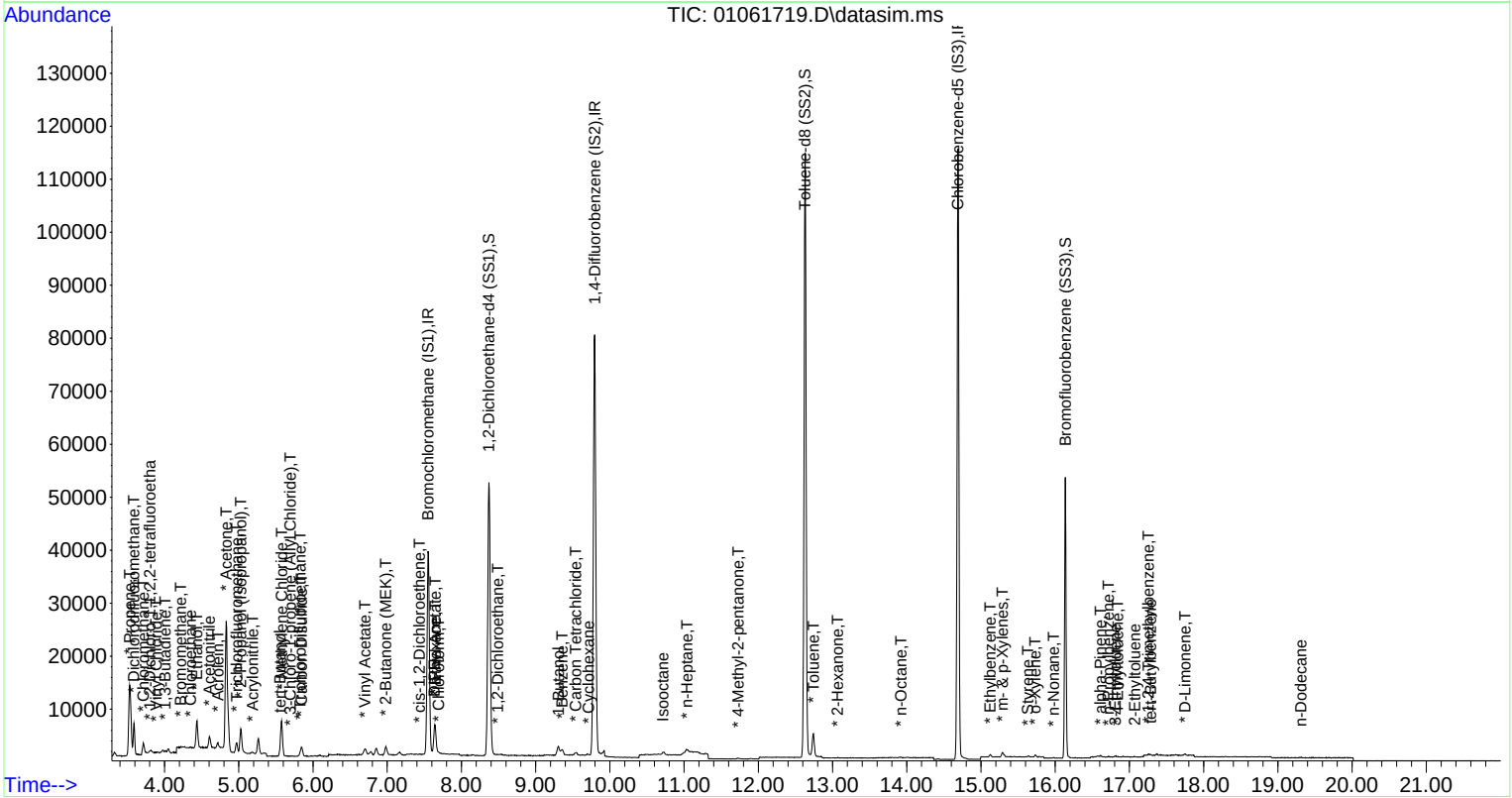
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061719.D
Acq On : 6 Jan 2017 9:11 pm
Operator : JM
Sample : AC02182 FCR00079
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 09 08:37:49 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071708.D
Acq On : 7 Jan 2017 7:21 pm
Operator : JM
Sample : AS00917 FCR00141
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

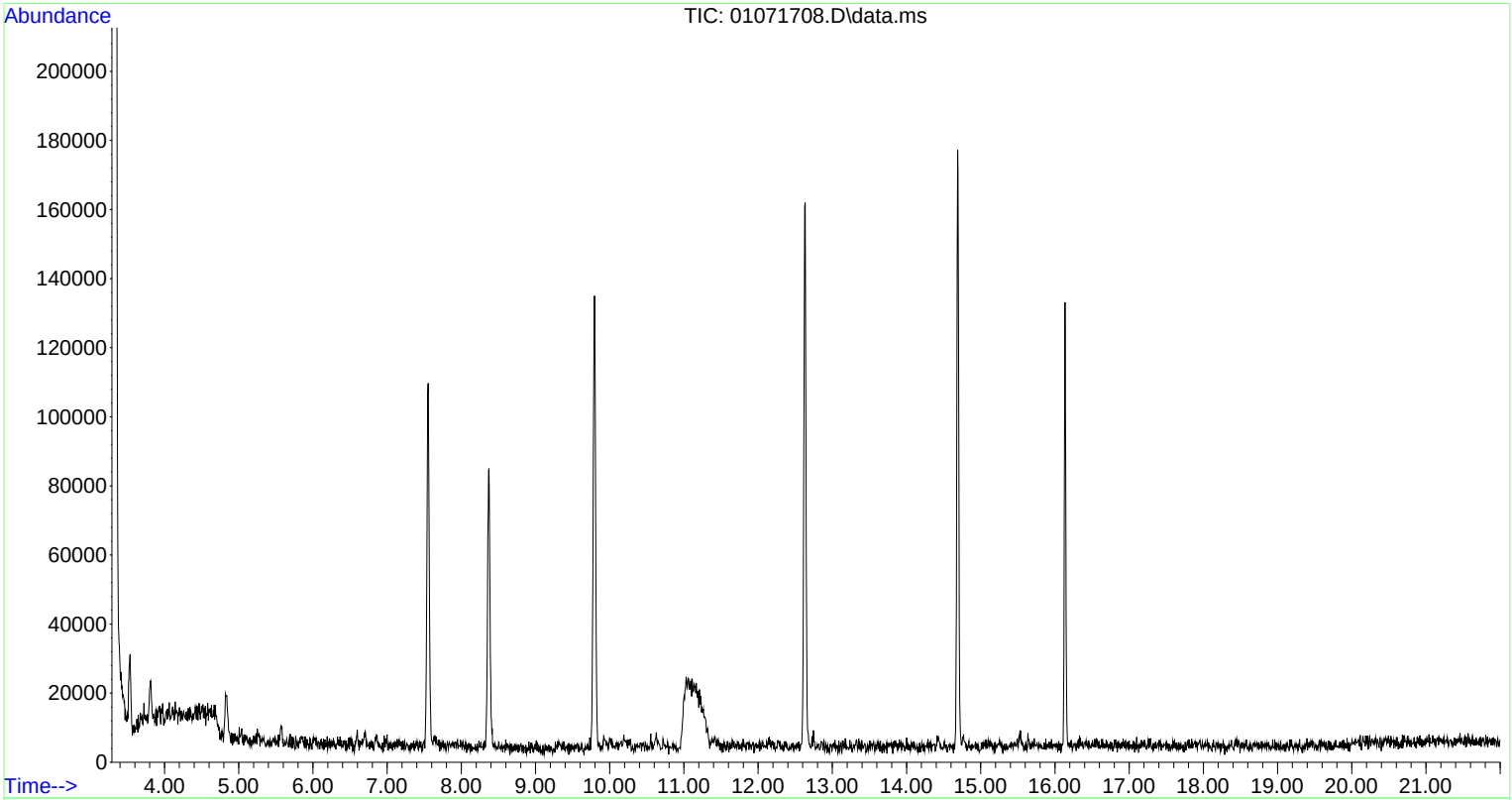
Quant Time: Jan 09 09:39:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

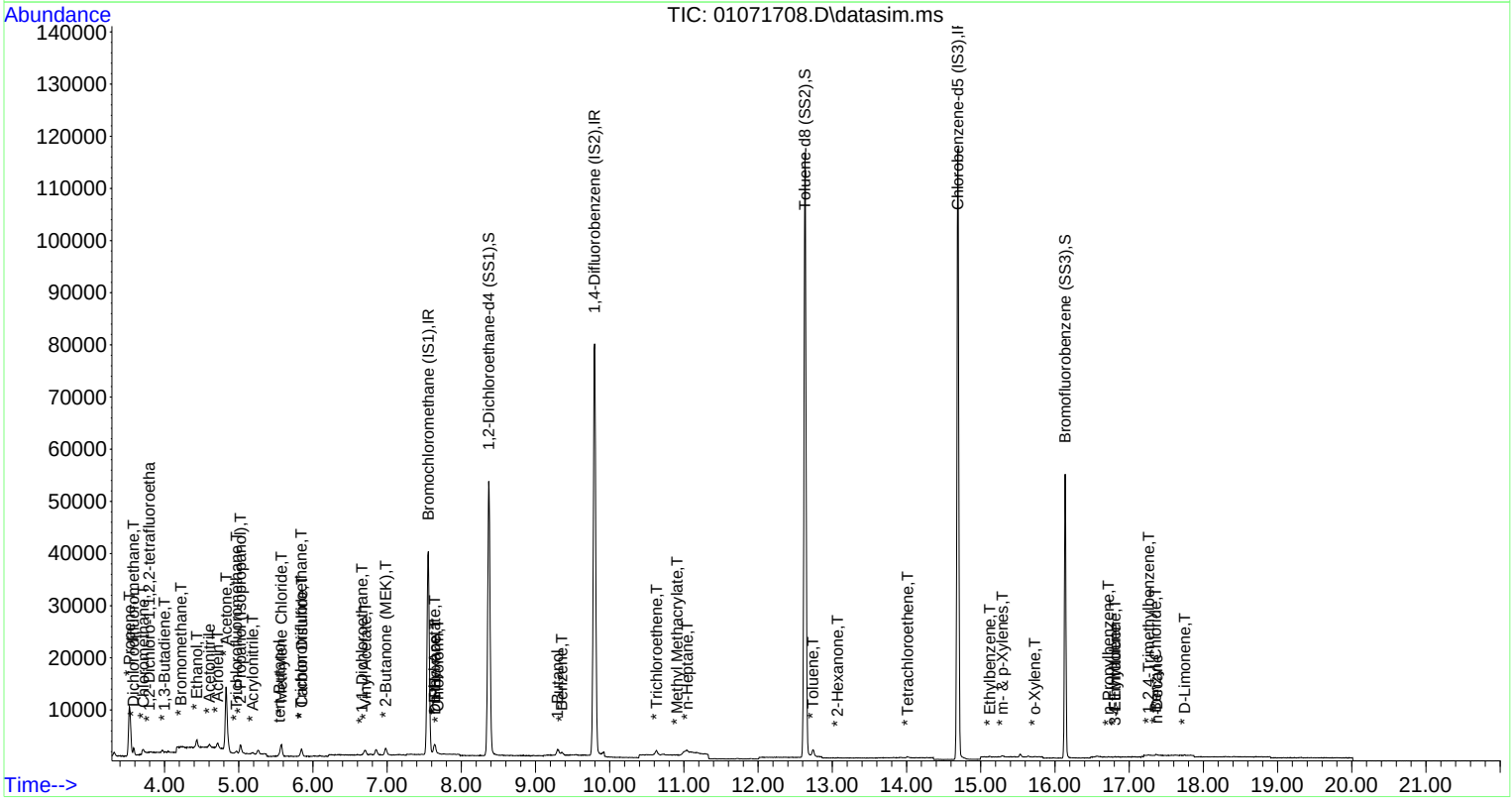
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47945	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150467	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112761	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78485	831.192	pg		0.00
Spiked Amount 1000.000			Recovery = 83.12%				
57) Toluene-d8 (SS2)	12.63	98	130368	946.138	pg		0.00
Spiked Amount 1000.000			Recovery = 94.61%				
74) Bromofluorobenzene (SS3)	16.14	174	38001	837.382	pg		0.00
Spiked Amount 1000.000			Recovery = 83.74%				
Target Compounds							Qvalue
2) * Propene	3.53	42	4787	49.745	pg	#	71
3) * Dichlorodifluoromethane	3.58	85	1448	7.064	pg		100
4) * Chloromethane	3.71	50	773	5.044	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.79	85	97	0.637	pg	#	42
7) * 1,3-Butadiene	4.00	54	43	0.395	pg	#	1
8) * Bromomethane	4.22	94	99	1.063	pg	#	65
10) * Ethanol	4.43	45	1681	25.612	pg		90
11) * Acetonitrile	4.60	41	782	4.752	pg		93
12) * Acrolein	4.71	56	995	18.095	pg		94
13) * Acetone	4.83	58	6780	109.368	pg	#	54
14) * Trichlorofluoromethane	4.97	101	524	3.826	pg		90
15) * 2-Propanol (Isopropa...	5.02	45	2245	13.366	pg		99
16) * Acrylonitrile	5.19	53	157	1.608	pg		95
18) tert-Butanol	5.55	59	523	5.166	pg		92
19) * Methylene Chloride	5.58	84	2480	35.914	pg		97
21) * Trichlorotrifluoroet...	5.84	151	50	0.932	pg	#	19
22) * Carbon Disulfide	5.85	76	2381	9.405	pg		97
24) * 1,1-Dichloroethane	6.66	63	54	0.461	pg	#	1
26) * Vinyl Acetate	6.71	86	233	17.922	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	478	12.846	pg		68
29) DIPE	7.65	45	431	1.987	pg	#	53
30) * Ethyl Acetate	7.64	61	388	20.397	pg	#	66
31) * n-Hexane	7.65	57	217	2.218	pg	#	60
32) * Chloroform	7.68	83	145	1.199	pg	#	72
39) * Benzene	9.35	78	948	5.463	pg		97
41) 1-Butanol	9.30	56	864	26.562	pg	#	50
47) * Trichloroethene	10.63	130	919	16.611	pg		97
50) * Methyl Methacrylate	10.91	69	52	1.195	pg	#	42
51) * n-Heptane	11.04	71	202	2.267	pg	#	55
58) * Toluene	12.74	91	1519	9.531	pg		98
59) * 2-Hexanone	13.07	58	117	4.292	pg	#	68
64) * Tetrachloroethene	14.01	166	208	3.925	pg		82
66) * Ethylbenzene	15.12	91	148	1.101	pg	#	45
67) * m- & p-Xylenes	15.29	91	316	3.026	pg		96
71) * o-Xylene	15.73	91	140	1.371	pg		91
77) * n-Propylbenzene	16.72	91	53	0.395	pg	#	56
78) 3-Ethyltoluene	16.81	105	59	0.631	pg	#	1
79) * 4-Ethyltoluene	16.81	105	59	0.720	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	96	1.156	pg	#	24
85) * Benzyl Chloride	17.36	126	51	6.090	pg		69
88) n-Decane	17.38	85	65	4.093	pg	#	1
93) * D-Limonene	17.75	68	67	1.832	pg	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071708.D
Acq On : 7 Jan 2017 7:21 pm
Operator : JM
Sample : AS00917 FCR00141
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 09 09:39:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081712.D
Acq On : 8 Jan 2017 5:27 pm
Operator : JM
Sample : AC01507 FCR00101
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 09 10:26:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47240	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147787	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	114246	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78153	840.028	pg		0.00
Spiked Amount 1000.000			Recovery = 84.00%				
57) Toluene-d8 (SS2)	12.64	98	127696	914.700	pg		0.00
Spiked Amount 1000.000			Recovery = 91.47%				
74) Bromofluorobenzene (SS3)	16.14	174	38537	838.155	pg		0.00
Spiked Amount 1000.000			Recovery = 83.82%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5519	58.207	pg	#	73
3) * Dichlorodifluoromethane	3.59	85	838	4.149	pg		98
4) * Chloromethane	3.71	50	737	4.881	pg		92
7) * 1,3-Butadiene	4.00	54	16	0.149	pg	#	1
8) * Bromomethane	4.21	94	83	0.905	pg	#	75
9) * Chloroethane	4.34	64	80	1.221	pg	#	41
10) * Ethanol	4.44	45	7339	113.487	pg		97
11) * Acetonitrile	4.61	41	409	2.522	pg	#	61
12) * Acrolein	4.72	56	2441	45.056	pg		100
13) * Acetone	4.83	58	36138	591.641	pg	#	50
14) * Trichlorofluoromethane	4.97	101	235	1.742	pg	#	65
15) * 2-Propanol (Isopropa...	5.03	45	16945	102.389	pg		100
16) * Acrylonitrile	5.19	53	255	2.651	pg		97
18) tert-Butanol	5.55	59	1652	16.561	pg	#	82
19) * Methylene Chloride	5.58	84	1123	16.505	pg		96
22) * Carbon Disulfide	5.84	76	3269	13.106	pg		97
26) * Vinyl Acetate	6.71	86	1121	87.510	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1848	50.407	pg		85
29) DIPE	7.63	45	390	1.825	pg	#	53
30) * Ethyl Acetate	7.65	61	346	18.460	pg	#	77
31) * n-Hexane	7.65	57	106	1.100	pg	#	1
39) * Benzene	9.36	78	1177	6.906	pg	#	72
41) 1-Butanol	9.30	56	3718	116.373	pg	#	48
46) * Bromodichloromethane	10.51	83	55	0.717	pg	#	19
49) Isooctane	10.72	56	86	1.056	pg	#	40
50) * Methyl Methacrylate	10.89	69	7108	166.278	pg		97
51) * n-Heptane	11.03	71	253	2.891	pg	#	86
53) * 4-Methyl-2-pentanone	11.72	58	123	3.995	pg	#	47
58) * Toluene	12.74	91	1244	7.704	pg		99
59) * 2-Hexanone	13.07	58	401	14.518	pg		95
62) * n-Butyl Acetate	13.81	56	425	21.515	pg	#	1
66) * Ethylbenzene	15.13	91	178	1.307	pg	#	45
67) * m- & p-Xylenes	15.29	91	402	3.800	pg		97
69) Cyclohexanone	15.44	98	83	7.024	pg		98
70) * Styrene	15.63	104	100	1.775	pg	#	65
71) * o-Xylene	15.73	91	97	0.937	pg	#	84
72) * n-Nonane	15.97	57	75	1.608	pg	#	42
78) 3-Ethyltoluene	16.82	105	85	0.898	pg	#	31
79) * 4-Ethyltoluene	16.82	105	85	1.024	pg	#	27
82) 2-Ethyltoluene	17.07	105	70	0.619	pg	#	45
83) tert-Butylbenzene	17.28	134	90	4.302	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	203	2.412	pg	#	77
88) n-Decane	17.37	85	71	4.412	pg	#	1
90) 1,2,3-Trimethylbenzene	17.61	105	89	1.009	pg	#	27
93) * D-Limonene	17.75	68	96	2.591	pg	#	68

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081712.D
Acq On : 8 Jan 2017 5:27 pm
Operator : JM
Sample : AC01507 FCR00101
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

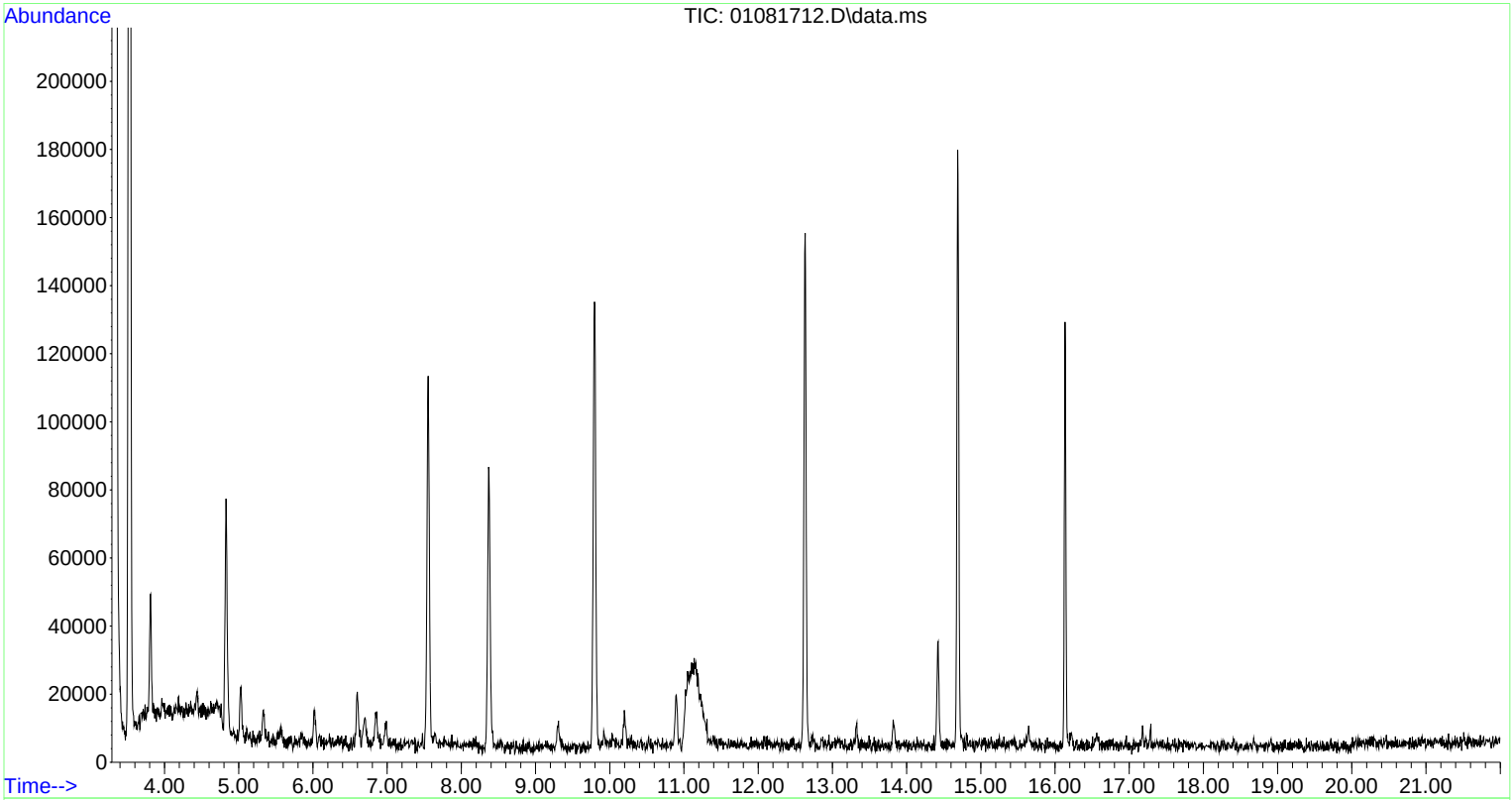
Quant Time: Jan 09 10:26:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

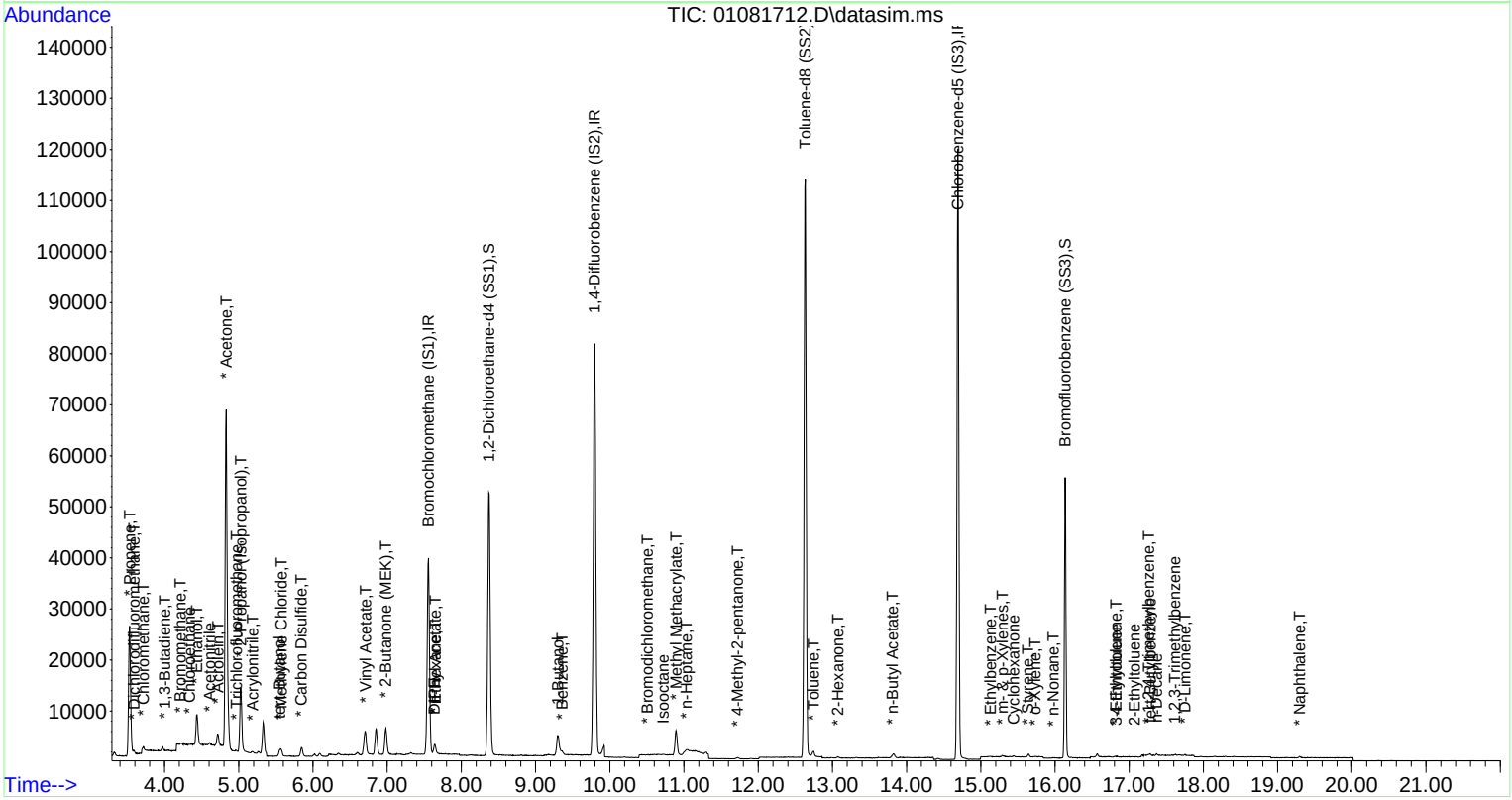
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
98) * Naphthalene	19.29	128	327	9.103	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081712.D
Acq On : 8 Jan 2017 5:27 pm
Operator : JM
Sample : AC01507 FCR00101
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 09 10:26:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071716.D
Acq On : 8 Jan 2017 1:17 am
Operator : JM
Sample : AS00841 FCR00247
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 09 09:40:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46325	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	148953	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	112270	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77730	851.983	pg		0.00
Spiked Amount 1000.000			Recovery = 85.20%				
57) Toluene-d8 (SS2)	12.63	98	128483	936.536	pg		0.00
Spiked Amount 1000.000			Recovery = 93.65%				
74) Bromofluorobenzene (SS3)	16.14	174	37969	840.336	pg		0.00
Spiked Amount 1000.000			Recovery = 84.03%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8427	90.633	pg	#	72
3) * Dichlorodifluoromethane	3.58	85	14242	71.906	pg		100
4) * Chloromethane	3.71	50	4918	33.216	pg		96
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	507	3.449	pg	#	88
7) * 1,3-Butadiene	4.00	54	123	1.170	pg	#	1
8) * Bromomethane	4.21	94	138	1.534	pg	#	41
9) * Chloroethane	4.35	64	127	1.977	pg	#	41
10) * Ethanol	4.43	45	10625	167.546	pg		98
11) * Acetonitrile	4.60	41	4789	30.119	pg		94
12) * Acrolein	4.71	56	1522	28.648	pg		92
13) * Acetone	4.82	58	21711	362.467	pg	#	66
14) * Trichlorofluoromethane	4.97	101	5199	39.292	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	13224	81.483	pg		94
16) * Acrylonitrile	5.18	53	222	2.353	pg		87
18) tert-Butanol	5.55	59	861	8.802	pg	#	1
19) * Methylene Chloride	5.58	84	19703	295.306	pg		99
21) * Trichlorotrifluoroet...	5.82	151	972	18.743	pg		93
22) * Carbon Disulfide	5.84	76	11703	47.846	pg		98
26) * Vinyl Acetate	6.71	86	395	31.444	pg	#	23
27) * 2-Butanone (MEK)	6.98	72	1105	30.736	pg		80
29) DIPE	7.64	45	2020	9.641	pg	#	53
30) * Ethyl Acetate	7.64	61	1982	107.835	pg		95
31) * n-Hexane	7.65	57	1122	11.871	pg		93
32) * Chloroform	7.69	83	333	2.850	pg		94
36) * 1,2-Dichloroethane	8.49	62	171	1.729	pg	#	42
39) * Benzene	9.35	78	4466	25.998	pg		99
41) 1-Butanol	9.30	56	2228	69.190	pg	#	44
42) * Carbon Tetrachloride	9.55	117	1355	20.275	pg		97
43) * Cyclohexane	9.71	84	99	1.812	pg	#	61
45) * 1,2-Dichloropropane	10.34	63	179	2.808	pg	#	32
48) * 1,4-Dioxane	10.65	88	423	11.807	pg		96
49) Isooctane	10.71	56	736	8.963	pg		76
50) * Methyl Methacrylate	10.89	69	63	1.462	pg	#	42
51) * n-Heptane	11.04	71	633	7.176	pg	#	76
53) * 4-Methyl-2-pentanone	11.73	58	88	2.836	pg	#	47
58) * Toluene	12.74	91	11428	72.020	pg		99
59) * 2-Hexanone	13.08	58	87	3.205	pg	#	68
63) * n-Octane	13.91	85	213	8.605	pg	#	75
64) * Tetrachloroethene	14.01	166	265	5.022	pg		94
65) * Chlorobenzene	14.73	112	72	0.689	pg	#	1
66) * Ethylbenzene	15.12	91	744	5.560	pg		98
67) * m- & p-Xylenes	15.29	91	1798	17.293	pg		98
70) * Styrene	15.63	104	248	4.480	pg		93
71) * o-Xylene	15.73	91	545	5.359	pg		98
72) * n-Nonane	15.98	57	136	2.967	pg	#	42

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071716.D
Acq On : 8 Jan 2017 1:17 am
Operator : JM
Sample : AS00841 FCR00247
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

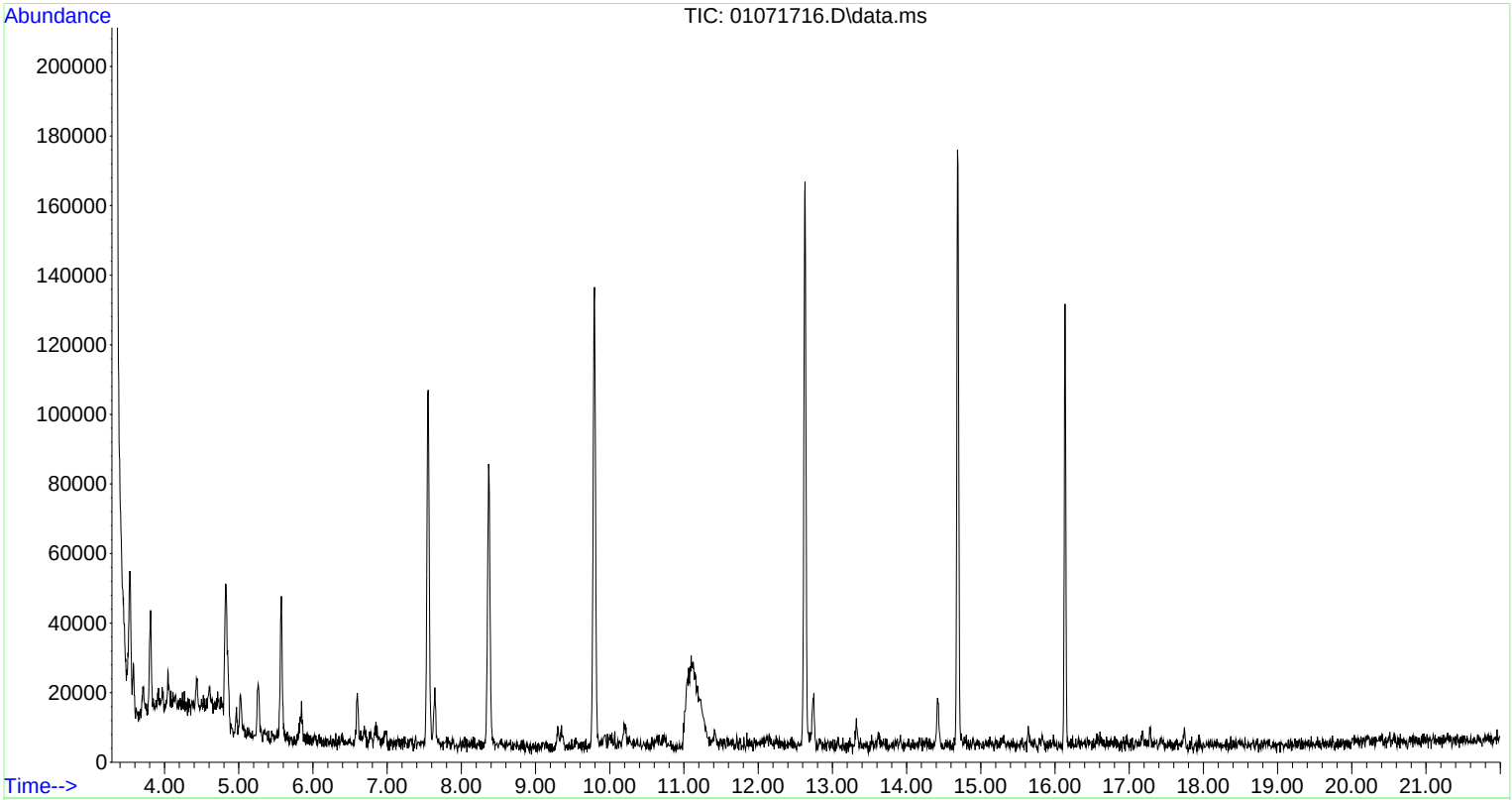
Quant Time: Jan 09 09:40:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

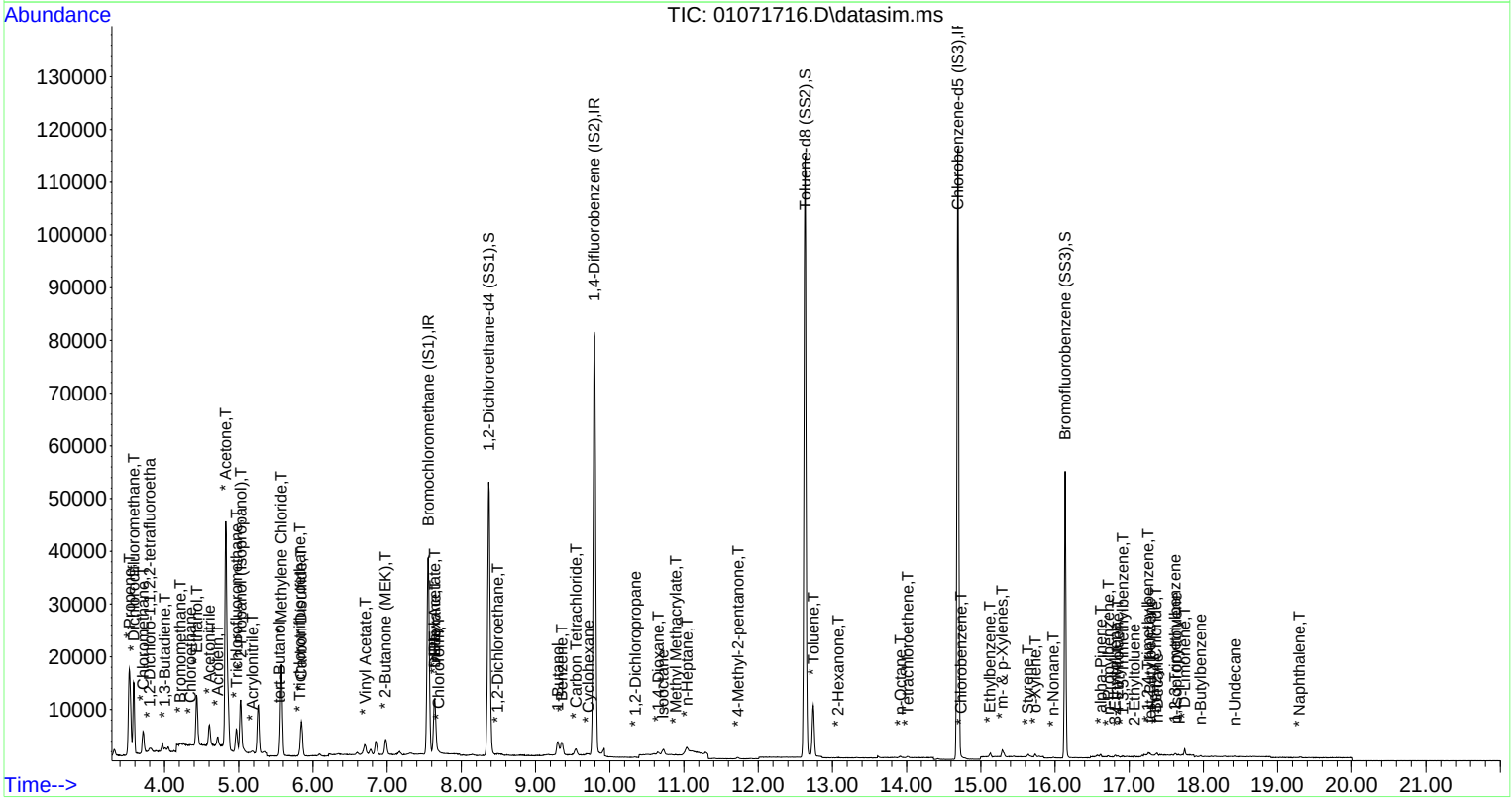
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
76) * alpha-Pinene	16.61	93	329	4.991	pg		86
77) * n-Propylbenzene	16.72	91	200	1.497	pg	#	74
78) 3-Ethyltoluene	16.81	105	281	3.020	pg	#	82
79) * 4-Ethyltoluene	16.84	105	117	1.434	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	133	1.453	pg	#	29
82) 2-Ethyltoluene	17.07	105	163	1.468	pg	#	45
83) tert-Butylbenzene	17.28	134	114	5.546	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	394	4.764	pg		85
85) * Benzyl Chloride	17.36	126	93	11.154	pg	#	3
88) n-Decane	17.38	85	79	4.996	pg		100
90) 1,2,3-Trimethylbenzene	17.62	105	122	1.407	pg		89
91) p-Isopropyltoluene	17.63	134	58	2.210	pg		79
93) * D-Limonene	17.75	68	585	16.064	pg		89
94) n-Butylbenzene	17.96	134	54	3.517	pg		65
96) n-Undecane	18.42	85	90	9.954	pg	#	12
98) * Naphthalene	19.29	128	127	3.598	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071716.D
Acq On : 8 Jan 2017 1:17 am
Operator : JM
Sample : AS00841 FCR00247
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 09 09:40:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091713.D Vial: 2
Acq On : 9 Jan 2017 16:39 Operator: CL
Sample : AC02204_FCR00151 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:25 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/10/17

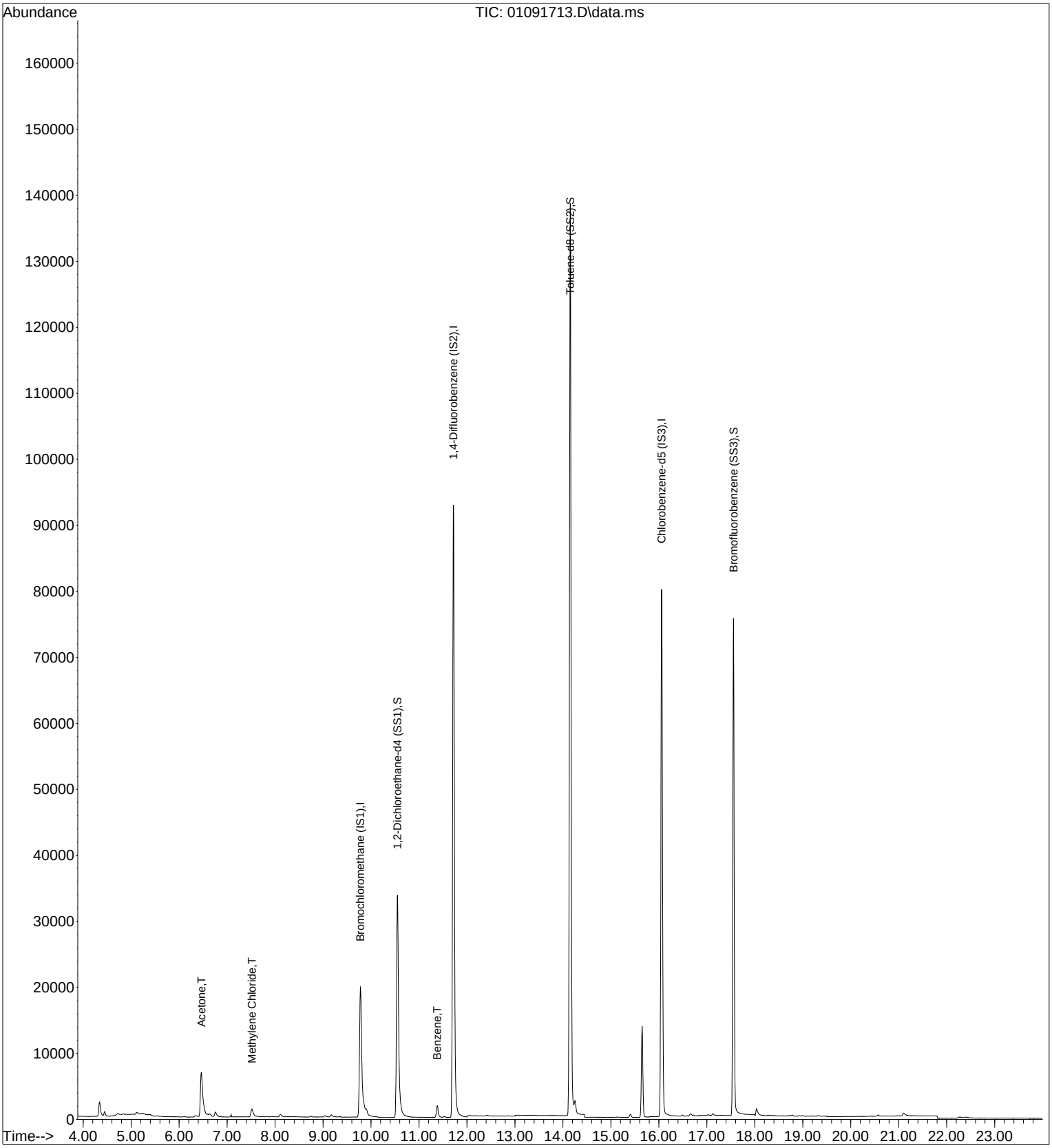
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	38800	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	197102	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	31686	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	67221	1086.270	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.63%				
33) Toluene-d8 (SS2)	14.15	98	192410	1034.620	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.46%				
45) Bromofluorobenzene (SS3)	17.56	174	59041	973.026	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.30%				
Target Compounds							Qvalue
10) Acetone	6.47	58	6782	276.872	pg		98
13) Methylene Chloride	7.52	84	1471	32.051	pg	#	76
23) Benzene	11.38	78	3876	19.974	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091713.D Vial: 2
Acq On : 9 Jan 2017 16:39 Operator: CL
Sample : AC02204_FCR00151 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:25 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051714.D Vial: 11
Acq On : 5 Jan 2017 20:12 Operator: CL
Sample : AC02228-FCR00119 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

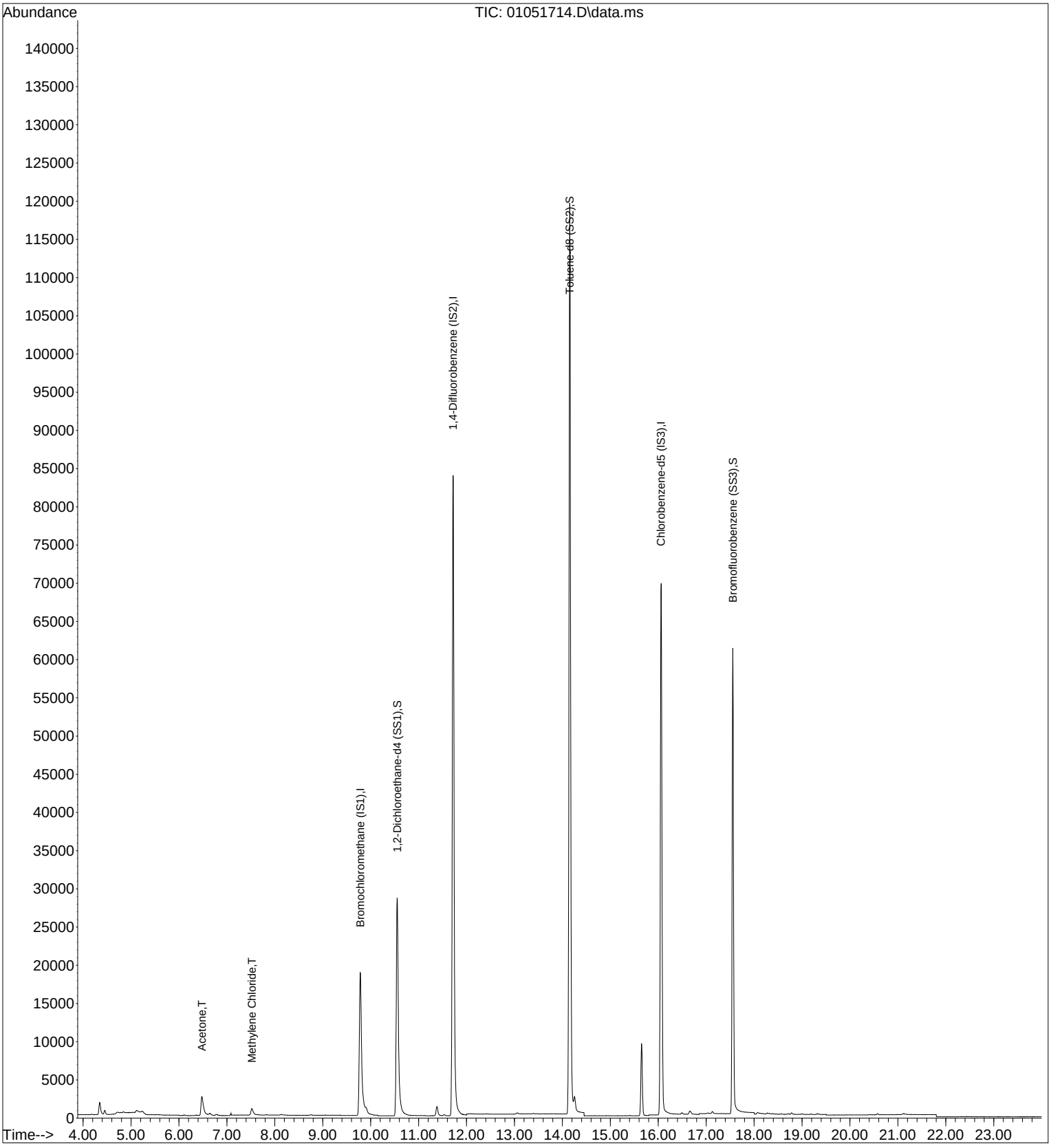
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	36713	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	183247	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	25636	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	58016	986.589	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.66%			
33) Toluene-d8 (SS2)	14.15	98	167694	936.897	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.69%			
45) Bromofluorobenzene (SS3)	17.56	174	48488	954.410	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.44%			
Target Compounds						Qvalue
10) Acetone	6.48	58	2417	110.131	pg	98
13) Methylene Chloride	7.52	84	1034	24.111	pg	86

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051714.D Vial: 11
Acq On : 5 Jan 2017 20:12 Operator: CL
Sample : AC02228-FCR00119 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



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LABORATORY REPORT

January 31, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 20, 2017. For your reference, these analyses have been assigned our service request number P1700261.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 5:02 pm, Jan 31, 2017
Sue Anderson
Project Manager

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www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700261

CASE NARRATIVE

The samples were received intact under chain of custody on January 20, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1700261-014, -016, -017	1,1-Dichloroethane

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700261
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/20/2017
Time Received: 09:35

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC SIM
17N239A-B-01-F	P1700261-001	Air	1/15/2017	11:09	AC01013	-0.71	3.60			X
17N239A-1-09-F	P1700261-002	Air	1/15/2017	11:29	AS01020	-2.48	3.68			X
17N239A-1-03-F	P1700261-003	Air	1/15/2017	11:13	SSC00024	-1.58	3.92			X
17N239A-1-05-F	P1700261-004	Air	1/15/2017	11:12	AS01108	-1.77	3.97			X
17N239A-1-06-F	P1700261-005	Air	1/15/2017	11:10	SC01846	-0.93	3.75	0.78	2.27	X
17N239A-1-08-F	P1700261-006	Air	1/15/2017	11:28	AC00985	-1.73	3.60			X
17N239A-1-10-F	P1700261-007	Air	1/15/2017	11:30	AS00750	-2.10	3.80			X
17N239A-1-11-F	P1700261-008	Air	1/15/2017	11:11	AS00030	-1.19	3.82			X
17M339A-1-10-F	P1700261-009	Air	1/15/2017	11:31	AS01135	-1.66	3.60	0.64	2.15	X
17N243-B-02-F	P1700261-010	Air	1/15/2017	09:55	AS00864	-2.67	3.80			X
17N243-B-03-F	P1700261-011	Air	1/15/2017	10:53	AC02218	-0.79	3.56			X
17N243-B-04-F	P1700261-012	Air	1/15/2017	09:49	AS00824	-3.17	3.68			X
17N243-B-06-F	P1700261-013	Air	1/15/2017	10:47	AS00970	-1.41	3.62			X
17N243-B-07-F	P1700261-014	Air	1/15/2017	10:50	AS00958	-1.07	3.70	0.46	2.10	X
17N243-1-01-F	P1700261-015	Air	1/15/2017	09:51	AC02060	-1.79	3.76			X
17N243-1-02-F	P1700261-016	Air	1/15/2017	09:53	AS01160	-1.95	3.80	-1.23	2.21	X
17M343-B-07-F	P1700261-017	Air	1/15/2017	10:57	AC02102	-1.70	3.79			X
17N243-A-01-F	P1700261-018	Air	1/15/2017	10:16	AS00928	-1.45	3.86			X
17N243-A-02-F	P1700261-019	Air	1/15/2017	10:17	AS00984	-1.81	3.87			X

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005 D1700261
PAGE 7 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17N239A-B-01-F	AC01013	FCR00254	1/15/17	1109	-30.62	-2.82	6L	24hr	X				X
2	17N239A-1-09-F	AS01020	FCR00078	1/15/17	1129	-30.61	-6.7	6L	24hr	X				
3	17N239A-1-03-F	SSC00024	FCR00264	1/15/17	1113	-30.21	-4.37	6L	24hr	X				
4	17N239A-1-05-F	AS01108	FCR00182	1/15/17	1112	-30.23	-5.17	6L	24hr	X				
5	17N239A-1-06-F	SC01846	FCR00241	1/15/17	1110	-30.36	-3.68	6L	24hr	X				
6	17N239A-1-08-F	AC00985	FCR00256	1/15/17	1128	-30.36	-5.24	6L	24hr	X				
7	17N239A-1-10-F	AS00750	FCR00269	1/15/17	1130	-29.73	-6.05	6L	24hr	X				X
8	17N239A-1-11-F	AS00030	FCR000258	1/15/17	1111	-30.39	-3.6	6L	24hr	X				
9	17M339A-1-10-F	AS01135	FCR00261	1/15/17	1131	-30.57	-5.09	6L	24hr	X				
10	17N243-B-02-F	AS00864	FCR00214	1/15/17	0955	-30.49	-7.24	6L	24hr	X				X
11	17N243-B-03-F	AC02218	FCR00170	1/15/17	1053	-29.3	-3.56	6L	24hr	X				
12	17N243-B-04-F	AS00824	FCR00151	1/15/17	0949	-30.59	-8.22	6L	24hr	X				

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Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature)	Date 1/20/17
Company NOREAS	Time 1300	Company	Time 0935
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005 P1700261
PAGE 8 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.** 16104	**Laboratory SDG No:**	
Project Location: Moffett Field IR Site 28	**Laboratory Name:** ALS Simi Valley Laboratory	**ANALYSES REQUIRED**	
Company Name: NOREAS	**Laboratory Contact:** Sue Anderson		
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:** 2655 Park Center Drive, Suite A Simi Valley, CA 93065		
Project Manager: Luis Rivero	**Laboratory Phone:** (805) 526-7161		
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.** FedEx		
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17N243-B-06-F	AS00970	FCR00281	1/15/17	1047	-30.52	-4.79	6L	24hr	X				
14	17N243-B-07-F	AS00958	FCR00141	1/15/17	1050	-30.26	-5.79	6L	24hr	X				X
15	17N243-1-01-F	AC02060	FCR00122	1/15/17	0951	-30.53	-5.75	6L	24hr	X				
16	17N243-1-02-F	AS01160	FCR00188	1/15/17	0953	-30.21	-5.68	6L	24hr	X				
17	17M343-B-07-F	AC02102	FCR00190	1/15/17	1057	-30.58	-5.24	6L	24hr	X				
18	17N243-A-01-F	AS00928	FCR00226	1/15/17	1016	-29.79	-4.74	6L	24hr	X				
19	17N243-A-02-F	AS00984	7/1/1900	1/15/17	1017	-30.28	-5.46	6L	24hr	X				
								6L	24hr	X				
								6L	24hr	X				
								6L	24hr	X				
								6L	24hr	X				
								6L	24hr	X				

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Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: □ 24 HR □ 48 HR □ 72 HR X STANDARD
OR □ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature) 1/20/17 0935	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: □ Intact □ Broken
Custody Seal: □ Intact □ Broken □ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700261

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700261-001.01	6.0 L Ambient Can					
P1700261-002.01	6.0 L Silonite Can					
P1700261-003.01	6.0 L Silonite Can					
P1700261-004.01	6.0 L Silonite Can					
P1700261-005.01	6.0 L Source Can					
P1700261-006.01	6.0 L Ambient Can					
P1700261-007.01	6.0 L Silonite Can					
P1700261-008.01	6.0 L Silonite Can					
P1700261-009.01	6.0 L Silonite Can					
P1700261-010.01	6.0 L Silonite Can					
P1700261-011.01	6.0 L Ambient Can					
P1700261-012.01	6.0 L Silonite Can					
P1700261-013.01	6.0 L Silonite Can					
P1700261-014.01	6.0 L Silonite Can					
P1700261-015.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700261

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700261-016.01	6.0 L Silonite Can					
P1700261-017.01	6.0 L Ambient Can					
P1700261-018.01	6.0 L Silonite Can					
P1700261-019.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-B-01-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-001

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01013
Initial Pressure (psig): -0.71 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.041**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	**0.0091**	0.033	0.026	0.0080	**J**
156-59-2	cis-1,2-Dichloroethene	**0.035**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**0.29**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.088**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-09-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-002

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01020

Initial Pressure (psig): -2.48 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030		0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032		0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.067**		0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	0.030		0.038	0.030	0.0092	**U**
156-59-2	cis-1,2-Dichloroethene	**0.12**		0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.51**		0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.082**		0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-03-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-003

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/26/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00024
Initial Pressure (psig): -1.58 Final Pressure (psig): 3.92

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.066**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.036	0.028	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	**0.076**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.47**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-05-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-004

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/26/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01108
Initial Pressure (psig): -1.77 Final Pressure (psig): 3.97

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.080**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.024**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.071**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.054**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-06-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-005

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01846

Initial Pressure (psig): -0.93 Final Pressure (psig): 3.75
Initial Pressure 2 (psig): 0.78 Final Pressure 2 (psig): 2.27

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.013**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.081**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.018**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.042**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.095**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.075**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-08-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-006

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00985
Initial Pressure (psig): -1.73 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.035	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.085**	0.035	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.015**	0.035	0.028	0.0086	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.035	0.030	0.013	
79-01-6	Trichloroethene	**10**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.035	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-10-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-007

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00750
Initial Pressure (psig): -2.10 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.015**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.013**	0.037	0.031	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.080**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.013**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.24**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.95**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239A-1-11-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-008

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00030
Initial Pressure (psig): -1.19 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.034	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.080**	0.034	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.0099**	0.034	0.027	0.0084	**J**
156-59-2	cis-1,2-Dichloroethene	**0.15**	0.034	0.029	0.013	
79-01-6	Trichloroethene	**0.68**	0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M339A-1-10-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-009

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01135

Initial Pressure (psig): -1.66 Final Pressure (psig): 3.60
Initial Pressure 2 (psig): 0.64 Final Pressure 2 (psig): 2.15

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.012**	0.039	0.031	0.012	**J**
75-35-4	1,1-Dichloroethene	0.032	0.039	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.085**	0.039	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.012**	0.039	0.031	0.0094	**J**
156-59-2	cis-1,2-Dichloroethene	**0.21**	0.039	0.032	0.014	
79-01-6	Trichloroethene	**0.85**	0.039	0.032	0.013	
127-18-4	Tetrachloroethene	**0.12**	0.039	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-02-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-010

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00864
Initial Pressure (psig): -2.67 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.031	0.039	0.031	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032	0.039	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.060**	0.039	0.032	0.011	
75-34-3	1,1-Dichloroethane	0.031	0.039	0.031	0.0094	**U**
156-59-2	cis-1,2-Dichloroethene	**0.033**	0.039	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.077**	0.039	0.032	0.013	
127-18-4	Tetrachloroethene	**0.083**	0.039	0.032	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-03-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-011

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02218

Initial Pressure (psig): -0.79 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.060**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	**0.0081**	0.033	0.026	0.0080	**J**
156-59-2	cis-1,2-Dichloroethene	**0.021**	0.033	0.028	0.012	**J**
79-01-6	Trichloroethene	**0.050**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.075**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-04-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-012

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00824

Initial Pressure (psig): -3.17 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.021**	0.040	0.032	0.012	**J**
75-35-4	1,1-Dichloroethene	0.033	0.040	0.033	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.061**	0.040	0.033	0.012	
75-34-3	1,1-Dichloroethane	**0.016**	0.040	0.032	0.0097	**J**
156-59-2	cis-1,2-Dichloroethene	**0.20**	0.040	0.033	0.015	
79-01-6	Trichloroethene	**0.68**	0.040	0.033	0.014	
127-18-4	Tetrachloroethene	**0.87**	0.040	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-06-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-013

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00970
Initial Pressure (psig): -1.41 Final Pressure (psig): 3.62

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.021**	0.035	0.028	0.010	**J**
75-35-4	1,1-Dichloroethene	**0.025**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.21**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.021**	0.035	0.028	0.0084	**J**
156-59-2	cis-1,2-Dichloroethene	**0.31**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**1.2**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.59**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-07-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-014

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00958

Initial Pressure (psig): -1.07 Final Pressure (psig): 3.70
Initial Pressure 2 (psig): 0.46 Final Pressure 2 (psig): 2.10

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.017**	0.038	0.030	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.014**	0.038	0.032	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.063**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.016**	0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	**0.25**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.75**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.44**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-1-01-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-015

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02060

Initial Pressure (psig): -1.79 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.015**	0.036	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.064**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.013**	0.036	0.029	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.18**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.38**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.28**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-1-02-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-016

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01160

Initial Pressure (psig): -1.95 Final Pressure (psig): 3.80
Initial Pressure 2 (psig): -1.23 Final Pressure 2 (psig): 2.21

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.047**	0.046	0.036	0.014	
75-35-4	1,1-Dichloroethene	**0.032**	0.046	0.038	0.016	**J**
156-60-5	trans-1,2-Dichloroethene	**0.068**	0.046	0.038	0.013	
75-34-3	1,1-Dichloroethane	**0.035**	0.046	0.036	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.53**	0.046	0.038	0.017	
79-01-6	Trichloroethene	**1.9**	0.046	0.038	0.015	
127-18-4	Tetrachloroethene	**1.2**	0.046	0.038	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M343-B-07-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-017

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02102
Initial Pressure (psig): -1.70 Final Pressure (psig): 3.79

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.020**	0.036	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.016**	0.036	0.030	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.10**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.017**	0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.28**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.81**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.44**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-A-01-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-018

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00928

Initial Pressure (psig): -1.45 Final Pressure (psig): 3.86

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.070**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0085	**U**
156-59-2	cis-1,2-Dichloroethene	**0.026**	0.035	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.053**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.066**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-A-02-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-019

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00984
Initial Pressure (psig): -1.81 Final Pressure (psig): 3.87

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.081**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.021**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.049**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.076**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170125-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170127-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700261

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/15/17
Analyst: Cory Lewis Date(s) Received: 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/25 - 1/27/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170125-MB	**91**	**101**	**106**	70-130	
Method Blank	P170127-MB	**90**	**99**	**98**	70-130	
Lab Control Sample	P170125-LCS	**90**	**96**	**117**	70-130	
Lab Control Sample	P170127-LCS	**93**	**94**	**111**	70-130	
17N239A-B-01-F	P1700261-001	**88**	**101**	**123**	70-130	
17N239A-1-09-F	P1700261-002	**88**	**97**	**120**	70-130	
17N239A-1-09-F	P1700261-002DUP	**89**	**97**	**118**	70-130	
17N239A-1-03-F	P1700261-003	**88**	**101**	**118**	70-130	
17N239A-1-05-F	P1700261-004	**91**	**100**	**117**	70-130	
17N239A-1-06-F	P1700261-005	**92**	**104**	**113**	70-130	
17N239A-1-08-F	P1700261-006	**91**	**102**	**116**	70-130	
17N239A-1-10-F	P1700261-007	**90**	**101**	**115**	70-130	
17N239A-1-11-F	P1700261-008	**91**	**102**	**114**	70-130	
17M339A-1-10-F	P1700261-009	**91**	**101**	**113**	70-130	
17N243-B-02-F	P1700261-010	**91**	**102**	**115**	70-130	
17N243-B-03-F	P1700261-011	**89**	**102**	**112**	70-130	
17N243-B-04-F	P1700261-012	**91**	**101**	**111**	70-130	
17N243-B-06-F	P1700261-013	**88**	**102**	**106**	70-130	
17N243-B-07-F	P1700261-014	**89**	**102**	**108**	70-130	
17N243-1-01-F	P1700261-015	**91**	**102**	**114**	70-130	
17N243-1-01-F	P1700261-015DUP	**91**	**102**	**115**	70-130	
17N243-1-02-F	P1700261-016	**92**	**101**	**114**	70-130	
17M343-B-07-F	P1700261-017	**88**	**102**	**108**	70-130	
17N243-A-01-F	P1700261-018	**92**	**102**	**108**	70-130	
17N243-A-02-F	P1700261-019	**92**	**102**	**109**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170125-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.42**	**81**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.54**	**83**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.58**	**84**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.32**	**78**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.59**	**85**	70-121	
79-01-6	Trichloroethene	4.25	**3.56**	**84**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.42**	**80**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170127-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.89**	**93**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.09**	**96**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.10**	**96**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.84**	**90**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.12**	**97**	70-121	
79-01-6	Trichloroethene	4.25	**4.04**	**95**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.91**	**92**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17N239A-1-09-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-002DUP

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01020

Initial Pressure (psig): -2.48 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.50

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	-	25	
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
156-60-5	trans-1,2-Dichloroethene	0.0672	0.0170	0.0657	0.0166	0.06645	**2**	25	
75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
156-59-2	cis-1,2-Dichloroethene	0.118	0.0297	0.118	0.0297	0.118	**0**	25	
79-01-6	Trichloroethene	0.512	0.0953	0.512	0.0953	0.512	**0**	25	
127-18-4	Tetrachloroethene	0.0823	0.0121	0.0823	0.0121	0.0823	**0**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17N243-1-01-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-015DUP

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02060
Initial Pressure (psig): -1.79 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.43

CAS #	Compound	Sample Result µg/m³	Sample Result ppbV	**Duplicate Sample Result µg/m³**	**Duplicate Sample Result** ppbV	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
75-01-4	Vinyl Chloride	0.0148	0.00580	0.0167	0.00652	0.01575	**12**	25	**J**
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	**-**	25	
156-60-5	trans-1,2-Dichloroethene	0.0641	0.0162	0.0619	0.0156	0.063	**3**	25	
75-34-3	1,1-Dichloroethane	0.0133	0.00329	0.0135	0.00334	0.0134	**1**	25	**J**
156-59-2	cis-1,2-Dichloroethene	0.176	0.0444	0.178	0.0450	0.177	**1**	25	
79-01-6	Trichloroethene	0.381	0.0710	0.384	0.0715	0.3825	**0.8**	25	
127-18-4	Tetrachloroethene	0.285	0.0420	0.287	0.0423	0.286	**0.7**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700261

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01251703.D
Analyst: Cory Lewis Date Analyzed: 1/25/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 16:08
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170125-LCS	01251704.D	16:39
17N239A-B-01-F	P1700261-001	01251716.D	22:54
17N239A-1-09-F	P1700261-002	01251717.D	23:25
17N239A-1-09-F (Lab Duplicate)	P1700261-002DUP	01251718.D	23:57
17N239A-1-03-F	P1700261-003	01251719.D	00:28
17N239A-1-05-F	P1700261-004	01251720.D	00:59

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700261

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01271706.D
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 10:02
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170127-LCS	01271707.D	10:32
17N239A-1-06-F	P1700261-005	01271709.D	11:57
17N239A-1-08-F	P1700261-006	01271710.D	12:28
17N239A-1-10-F	P1700261-007	01271711.D	12:59
17N239A-1-11-F	P1700261-008	01271712.D	13:30
17M339A-1-10-F	P1700261-009	01271713.D	14:02
17N243-B-02-F	P1700261-010	01271714.D	14:33
17N243-B-03-F	P1700261-011	01271716.D	15:36
17N243-B-04-F	P1700261-012	01271717.D	16:07
17N243-B-06-F	P1700261-013	01271719.D	17:22
17N243-B-07-F	P1700261-014	01271720.D	17:53
17N243-1-01-F	P1700261-015	01271721.D	18:25
17N243-1-01-F (Lab Duplicate)	P1700261-015DUP	01271722.D	18:56
17N243-1-02-F	P1700261-016	01271723.D	19:28
17M343-B-07-F	P1700261-017	01271724.D	20:00
17N243-A-01-F	P1700261-018	01271726.D	21:02
17N243-A-02-F	P1700261-019	01271727.D	21:34

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700261

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01251702.D

Analyst: Cory Lewis Date Analyzed: 1/25/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 15:36

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	44323		9.76	218293		11.71		31623		16.05	
	Upper Limit	62052		10.09	305610		12.04		44272		16.38	
	Lower Limit	26594		9.43	130976		11.38		18974		15.72	
	Client Sample ID											
01	Method Blank	42360		9.79	187253		11.72		28915		16.06	
02	Lab Control Sample	43243		9.76	212725		11.71		30868		16.05	
03	17N239A-B-01-F	47179		9.75	225174		11.71		34003		16.05	
04	17N239A-1-09-F	46109		9.75	224574		11.71		32145		16.05	
05	17N239A-1-09-F (Lab Duplicate)	44861		9.75	219189		11.71		31869		16.05	
06	17N239A-1-03-F	44686		9.75	210583		11.71		31014		16.05	
07	17N239A-1-05-F	43841		9.76	207957		11.71		30745		16.05	
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700261

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01271705.D

Analyst: Cory Lewis Date Analyzed: 1/27/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 09:30

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	51625		9.75	255804		11.71		35048		16.05	
	Upper Limit	72275		10.08	358126		12.04		49067		16.38	
	Lower Limit	30975		9.42	153482		11.38		21029		15.72	
	Client Sample ID											
01	Method Blank	49310		9.78	214885		11.72		31834		16.06	
02	Lab Control Sample	48731		9.76	241793		11.71		33444		16.05	
03	17N239A-1-06-F	50524		9.75	244147		11.71		40153		16.05	
04	17N239A-1-08-F	51935		9.76	250859		11.71		38510		16.05	
05	17N239A-1-10-F	52115		9.76	249466		11.71		37680		16.05	
06	17N239A-1-11-F	52202		9.75	249570		11.71		37972		16.05	
07	17M339A-1-10-F	51263		9.76	244395		11.71		36889		16.05	
08	17N243-B-02-F	50725		9.76	242728		11.71		36783		16.05	
09	17N243-B-03-F	51221		9.77	242448		11.71		36773		16.05	
10	17N243-B-04-F	49864		9.76	240148		11.71		36602		16.05	
11	17N243-B-06-F	50873		9.76	239184		11.71		39208		16.05	
12	17N243-B-07-F	50384		9.76	235478		11.71		37264		16.05	
13	17N243-1-01-F	49982		9.76	247230		11.71		37335		16.05	
14	17N243-1-01-F (Lab Duplicate)	50333		9.75	247993		11.71		37347		16.05	
15	17N243-1-02-F	50541		9.75	246718		11.71		37052		16.05	
16	17M343-B-07-F	52303		9.76	247785		11.71		38847		16.05	
17	17N243-A-01-F	48816		9.76	229418		11.71		35104		16.05	
18	17N243-A-02-F	49379		9.76	231497		11.71		35568		16.05	
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 09:29:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	47179	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	225174	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	34003	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	72052	881.828 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.18%		
33) Toluene-d8 (SS2)	14.14	98	225167	1006.675 pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.67%		
45) Bromofluorobenzene (SS3)	17.55	174	76659	1232.353 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 123.23%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	248413	2084.213 pg	100
3) Chloromethane	4.64	52	9216	259.539 pg	93
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	9065	77.305 pg	100
5) Vinyl Chloride	4.96	62	208	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.47	94	1238	27.009 pg	94
8) Chloroethane	5.68	64	279	7.959 pg	93
9) Acrolein	6.26	56	6676	268.077 pg	98
10) Acetone	6.39	58	258453	8026.900 pg	93
11) Trichlorofluoromethane	6.59	101	82205	1008.402 pg	100
12) 1,1-Dichloroethene	7.33	96	101	N.D.	
13) Methylene Chloride	7.47	84	92430	1667.737 pg	95
14) Trichlorotrifluoroethane	7.80	151	19045	373.776 pg	100
15) trans-1,2-Dichloroethene	8.51	96	1744	31.675 pg	100
16) 1,1-Dichloroethane	8.72	63	682	6.982 pg	93
17) Methyl tert-Butyl Ether	8.79	73	1146	7.862 pg	97
18) cis-1,2-Dichloroethene	9.59	96	1559	26.983 pg	100
19) Chloroform	9.89	83	30774	299.588 pg	100
21) 1,2-Dichloroethane	10.64	62	10879	137.582 pg	100
22) 1,1,1-Trichloroethane	10.91	97	1479	15.511 pg	98
23) Benzene	11.36	78	117672	519.940 pg	99
24) Carbon Tetrachloride	11.52	117	26432	345.218 pg	99
26) 1,2-Dichloropropane	12.18	63	1045	18.220 pg	95
27) Bromodichloromethane	12.36	83	8212	103.684 pg	84
28) Trichloroethene	12.41	130	12881	220.027 pg	98
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.26	75	119	N.D.	
31) trans-1,3-Dichloropropene	13.77	75	60	N.D.	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d	
34) Toluene	14.25	91	295632	1415.090 pg	99
35) Dibromochloromethane	14.66	129	1391	24.044 pg	98
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	4096	67.479 pg	99
39) Chlorobenzene	16.05	112	556	N.D.	
40) Ethylbenzene	16.48	91	48717	252.032 pg	99
41) m,p-Xylene	16.65	91	116391	802.787 pg	99
42) Styrene	17.01	104	12198	120.088 pg	99
43) o-Xylene	17.12	106	22856	306.869 pg	97
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	11948	77.850 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	46117	306.140 pg	88
48) 1,3-Dichlorobenzene	18.92	146	155	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	14454	149.946 pg	100
50) 1,2-Dichlorobenzene	19.31	146	180	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	65	N.D.	
53) Naphthalene	21.06	128	12233	68.980 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 09:29:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

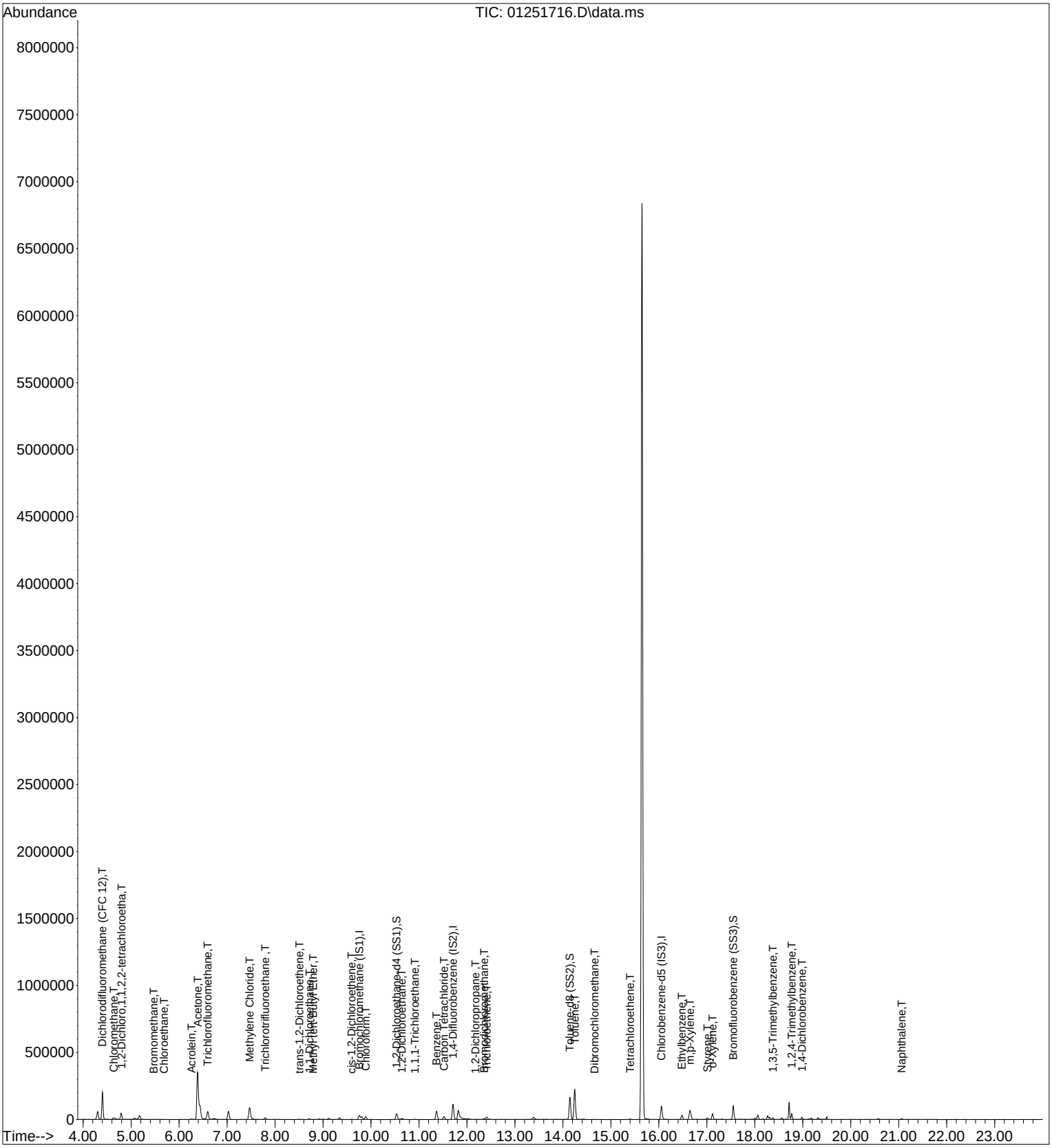
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

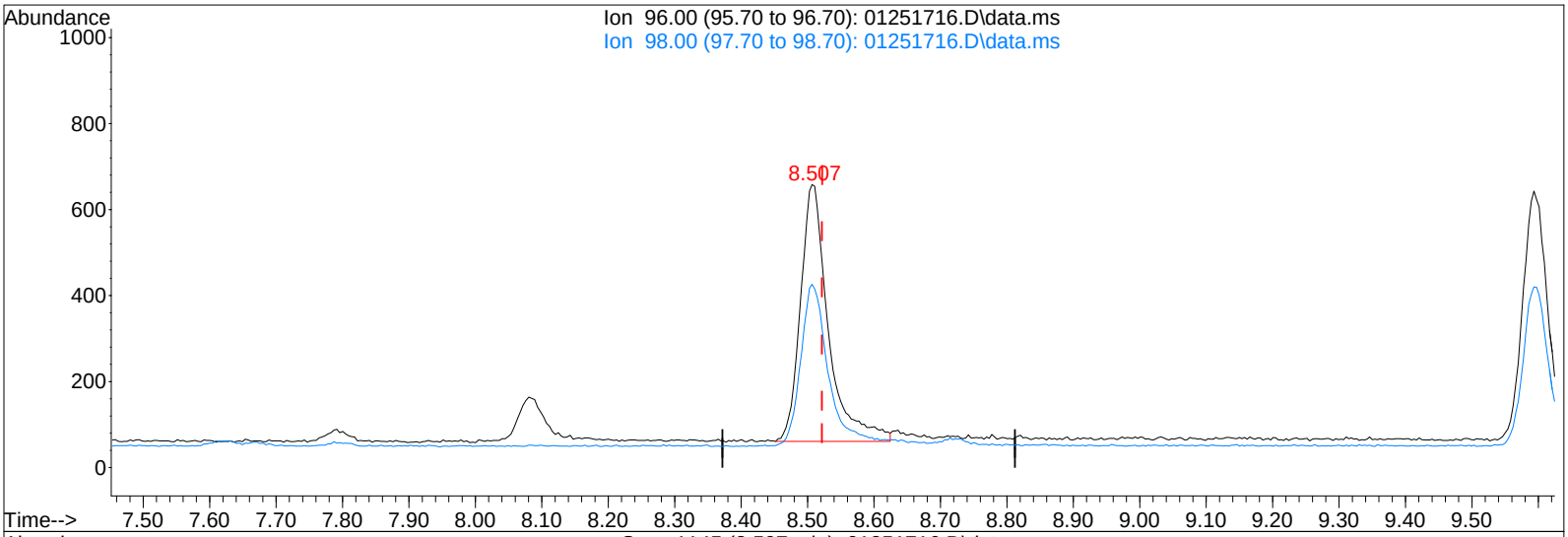
Quant Time: Jan 26 09:29:20 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

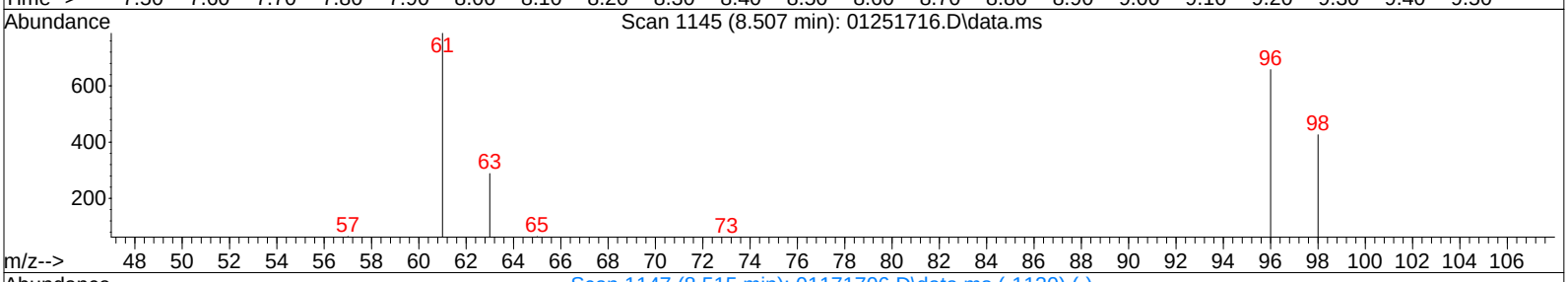


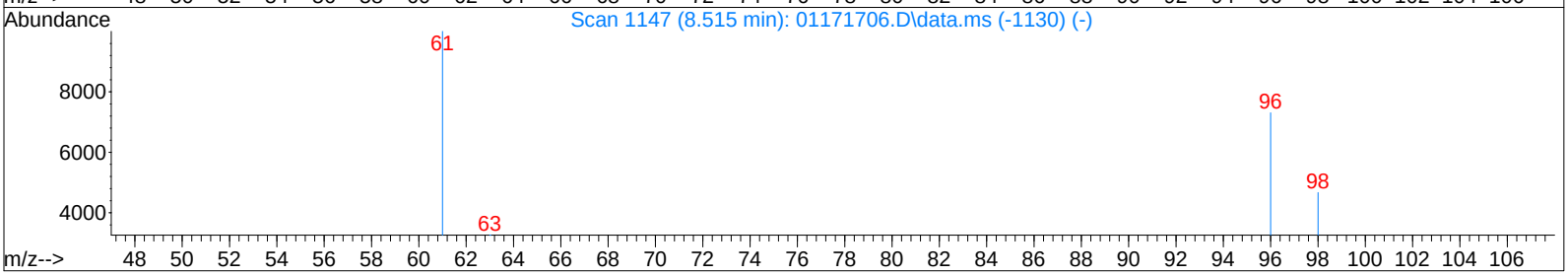
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01251716.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 31.68pg

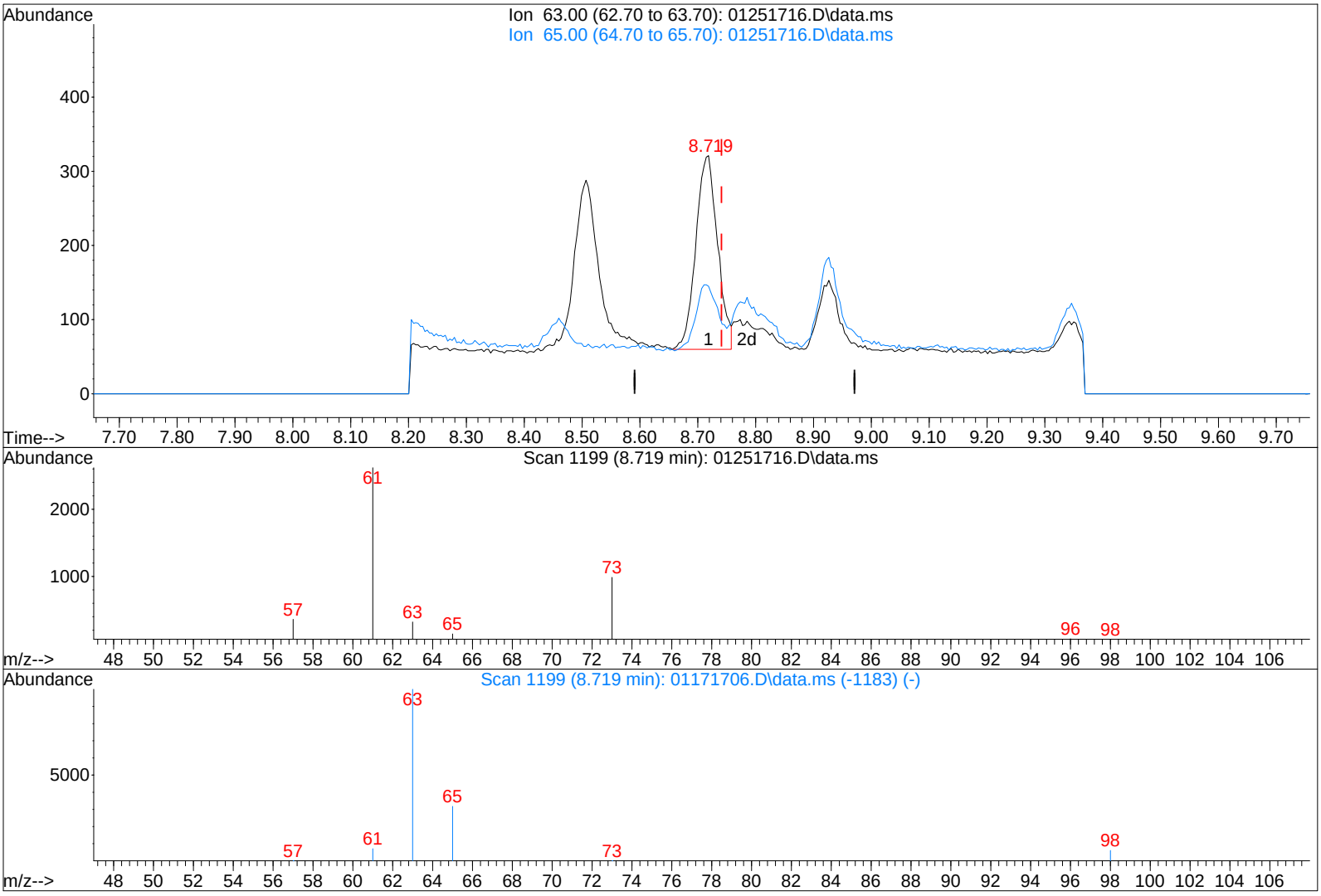
response 1744

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	62.10
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251716.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 6.98pg

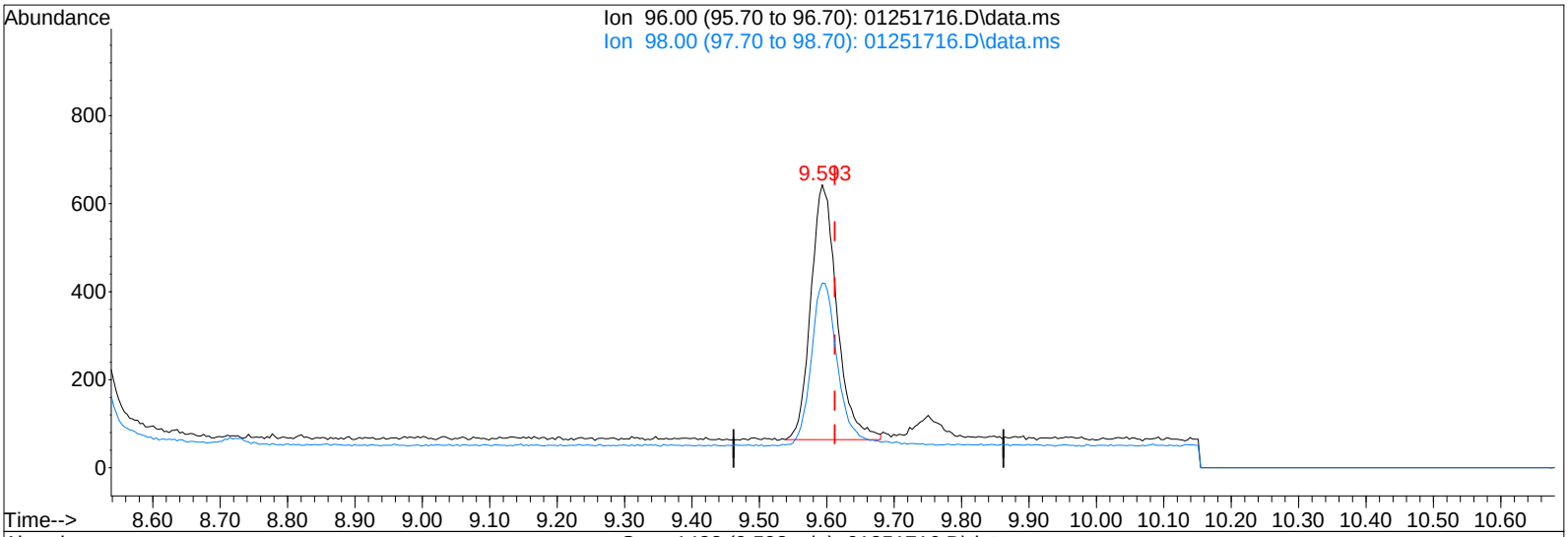
response 682

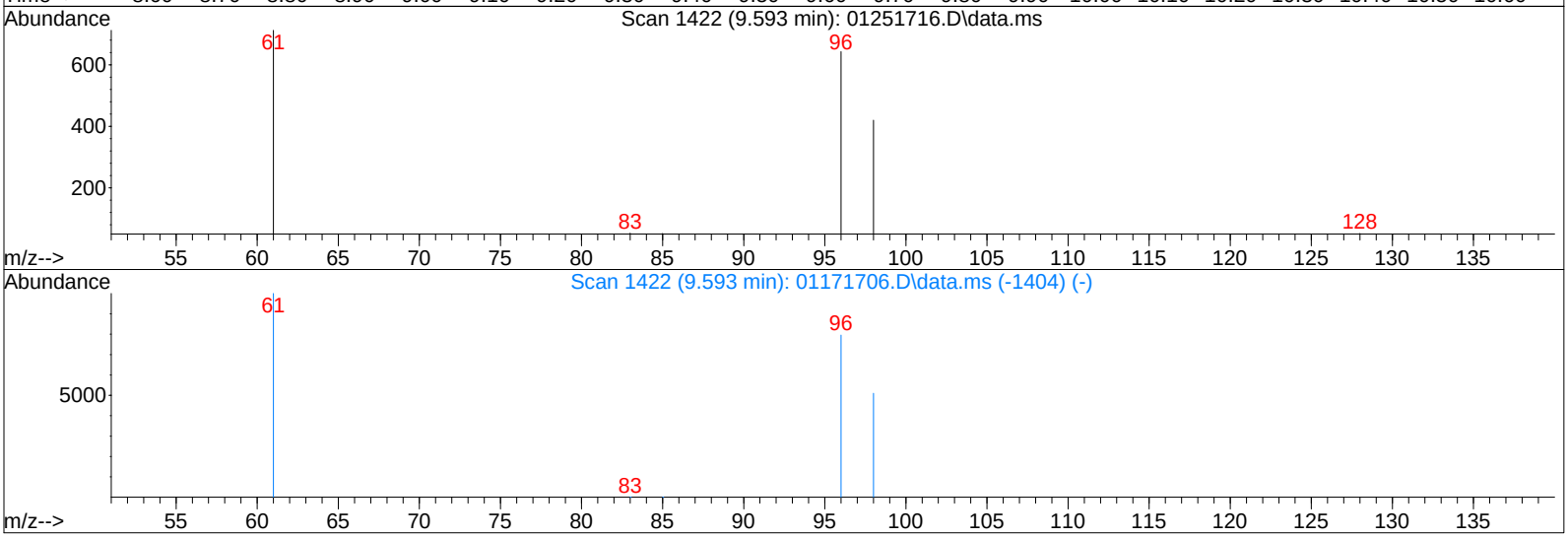
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	35.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01251716.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.593min (-0.019) 26.98pg

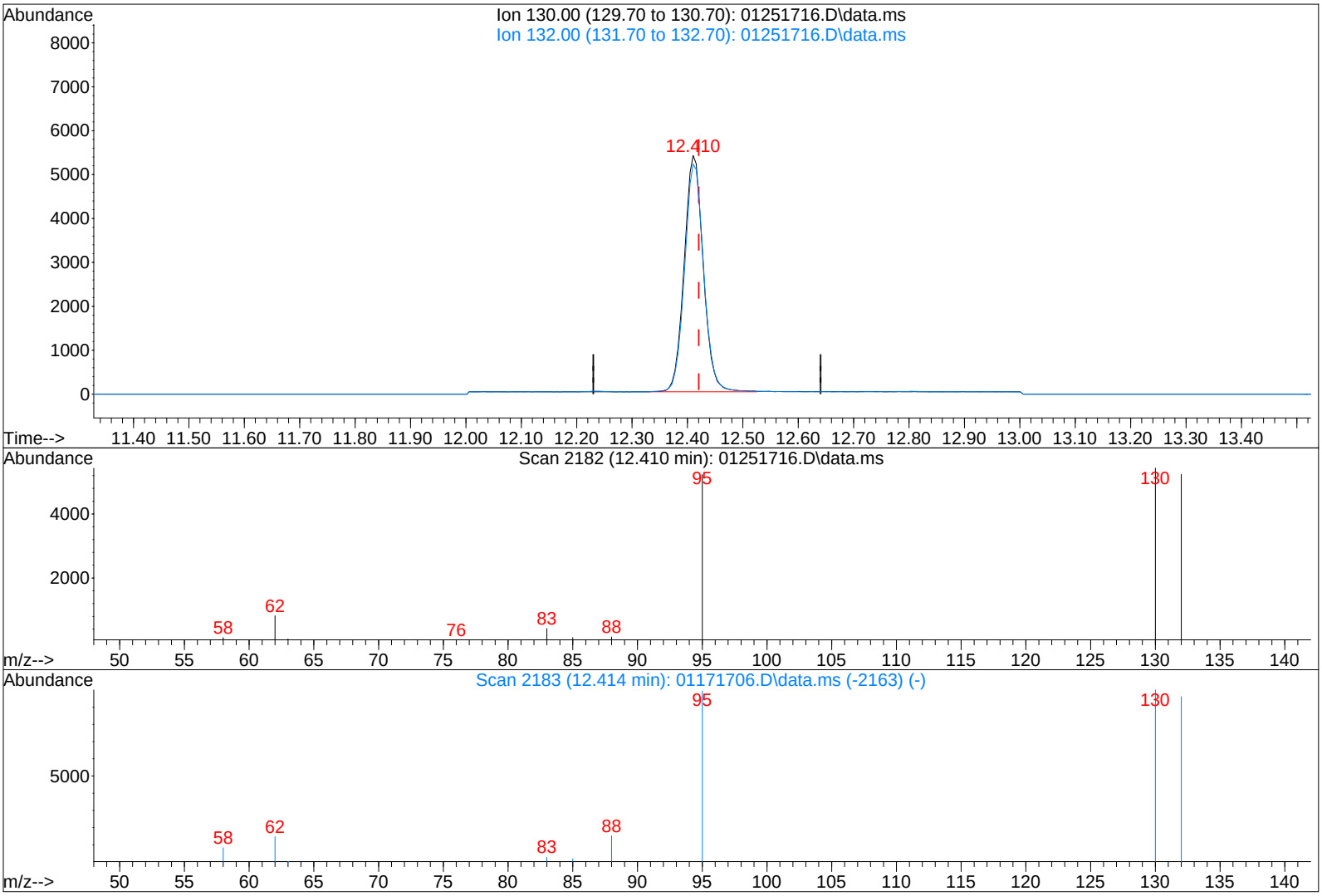
response 1559

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.50
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251716.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 220.03pg

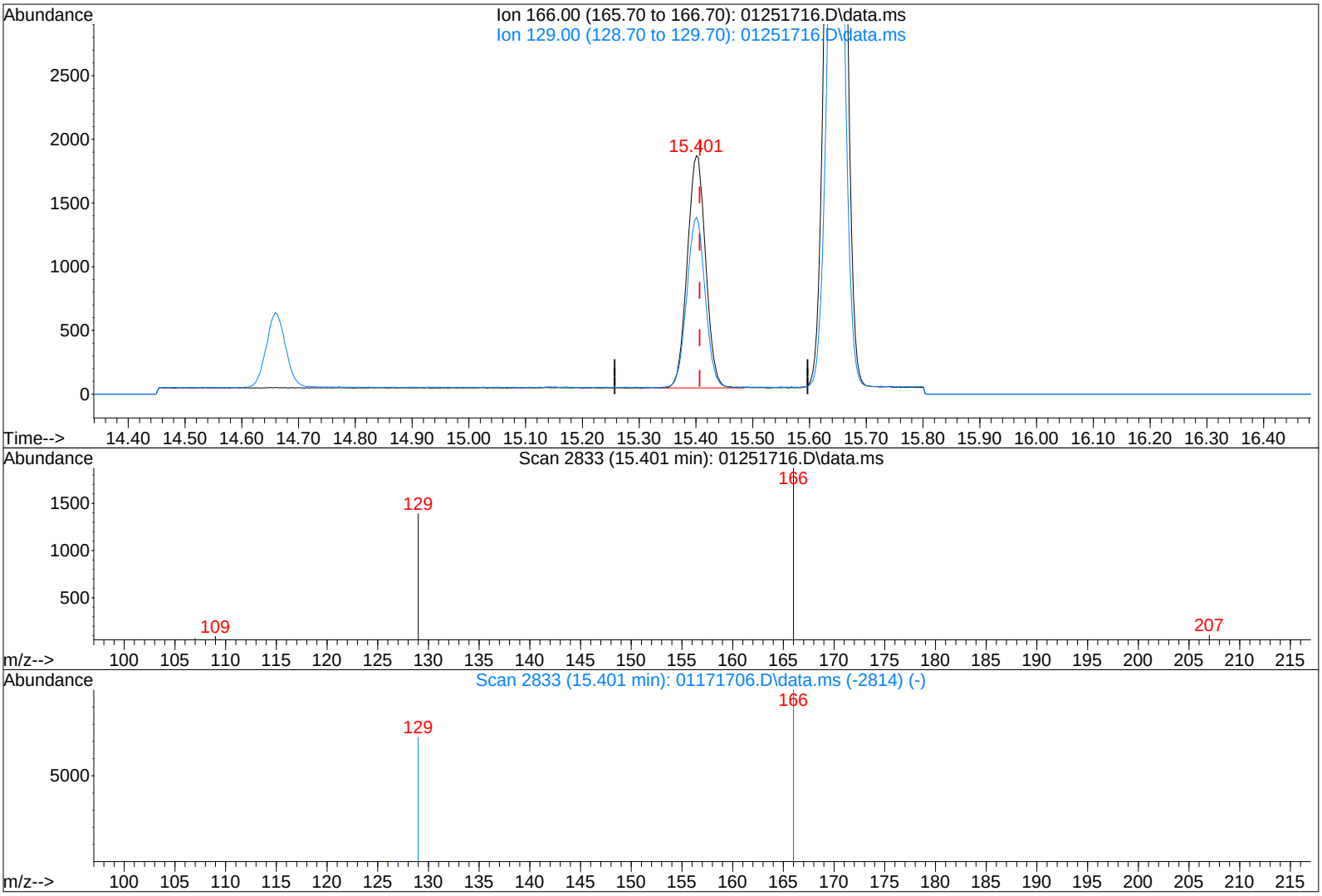
response 12881

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.23
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\25\01251716.D Vial: 6
Acq On : 25 Jan 2017 22:54 Operator: CL
Sample : P1700261-001 (1000mL) Inst : MS19
Misc : S29-12201602

Quant Time: Jan 26 07:19:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01251716.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 67.48pg

response 4096

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.29
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:31:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/30/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	52115	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	249466	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	37680	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	81166	899.286 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.93%		
33) Toluene-d8 (SS2)	14.14	98	251116	1013.365 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.34%		
45) Bromofluorobenzene (SS3)	17.55	174	79024	1146.403 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.64%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	325623	2473.255 pg	100
3) Chloromethane	4.64	52	9520	242.708 pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	10095	77.935 pg	99
5) Vinyl Chloride	4.96	62	1269	10.082 pg	75
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	1055	20.837 pg	98
8) Chloroethane	5.69	64	263	6.792 pg	83
9) Acrolein	6.26	56	6323	229.854 pg	98
10) Acetone	6.39	58	409940	11525.839 pg	99
11) Trichlorofluoromethane	6.60	101	96026	1066.375 pg	100
12) 1,1-Dichloroethene	7.34	96	504	8.934 pg #	87
13) Methylene Chloride	7.47	84	108354	1769.887 pg	98
14) Trichlorotrifluoroethane	7.80	151	20906	371.439 pg	100
15) trans-1,2-Dichloroethene	8.51	96	3306	54.358 pg	100
16) 1,1-Dichloroethane	8.72	63	976	9.045 pg	99
17) Methyl tert-Butyl Ether	8.79	73	888	5.515 pg	83
18) cis-1,2-Dichloroethene	9.59	96	10525	164.910 pg	97
19) Chloroform	9.89	83	78044	687.807 pg	99
21) 1,2-Dichloroethane	10.64	62	5552	63.563 pg	100
22) 1,1,1-Trichloroethane	10.91	97	2136	20.279 pg	99
23) Benzene	11.36	78	164855	659.429 pg	99
24) Carbon Tetrachloride	11.52	117	29398	347.590 pg	100
26) 1,2-Dichloropropane	12.18	63	1034	16.273 pg	97
27) Bromodichloromethane	12.36	83	20113	229.217 pg	98
28) Trichloroethene	12.41	130	41978	647.224 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.25	75	82	N.D.	
31) trans-1,3-Dichloropropene	13.73	75	90	N.D.	
32) 1,1,2-Trichloroethane	13.95	83	210	N.D.	
34) Toluene	14.25	91	280359	1211.306 pg	99
35) Dibromochloromethane	14.66	129	4414	68.869 pg	100
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	5129	76.269 pg	98
39) Chlorobenzene	16.05	112	419	N.D.	
40) Ethylbenzene	16.48	91	51228	239.160 pg	99
41) m,p-Xylene	16.65	91	123591	769.261 pg	100
42) Styrene	17.01	104	9575	85.066 pg	98
43) o-Xylene	17.12	106	23849	288.954 pg	99
44) 1,1,2,2-Tetrachloroethane	17.12	83	454	N.D.	
46) 1,3,5-Trimethylbenzene	18.38	105	11578	68.078 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	42427	254.160 pg	88
48) 1,3-Dichlorobenzene	18.92	146	131	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	9410	88.093 pg	99
50) 1,2-Dichlorobenzene	19.31	146	218	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	170	N.D.	
53) Naphthalene	21.06	128	19472	99.085 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:31:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

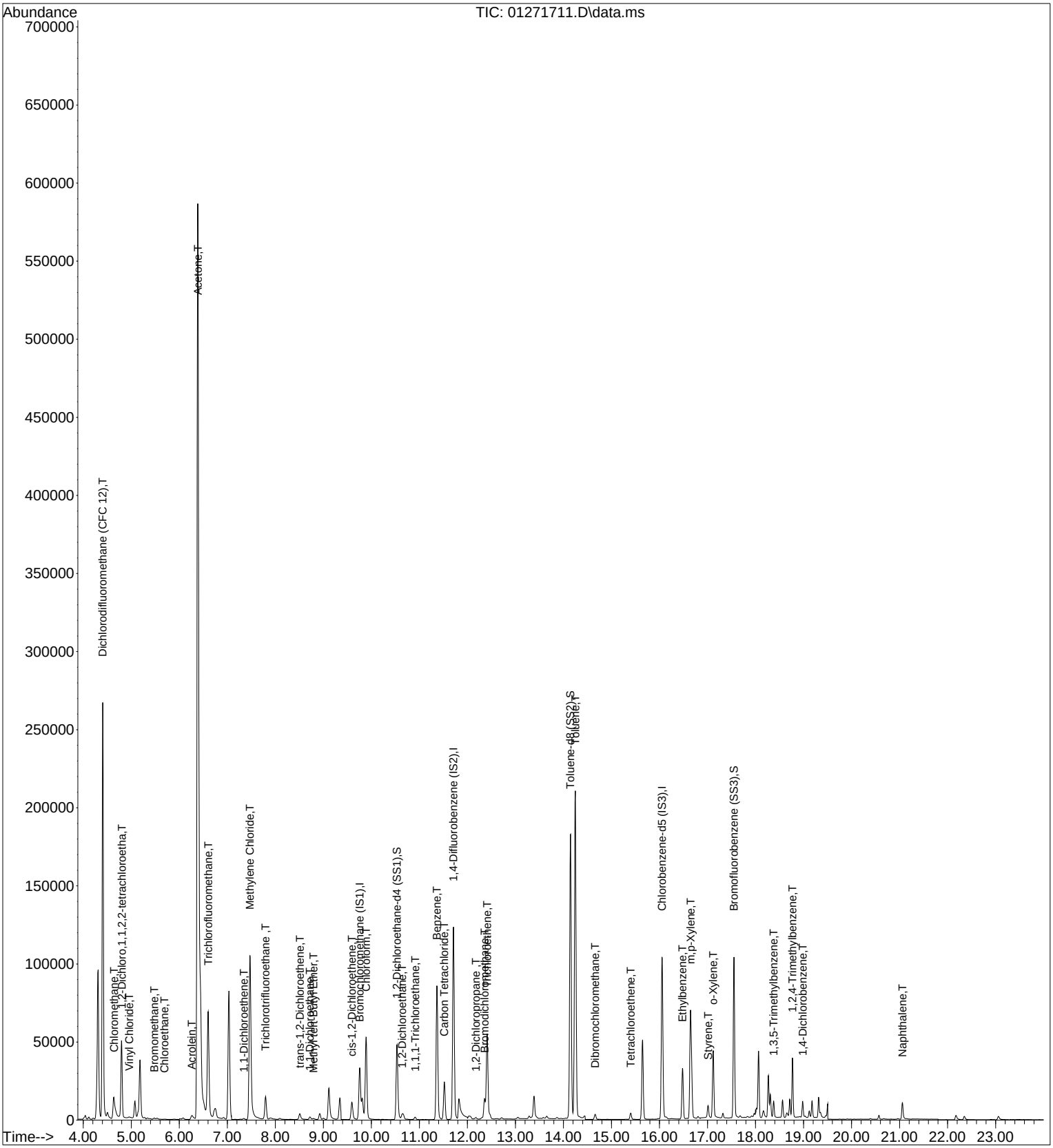
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

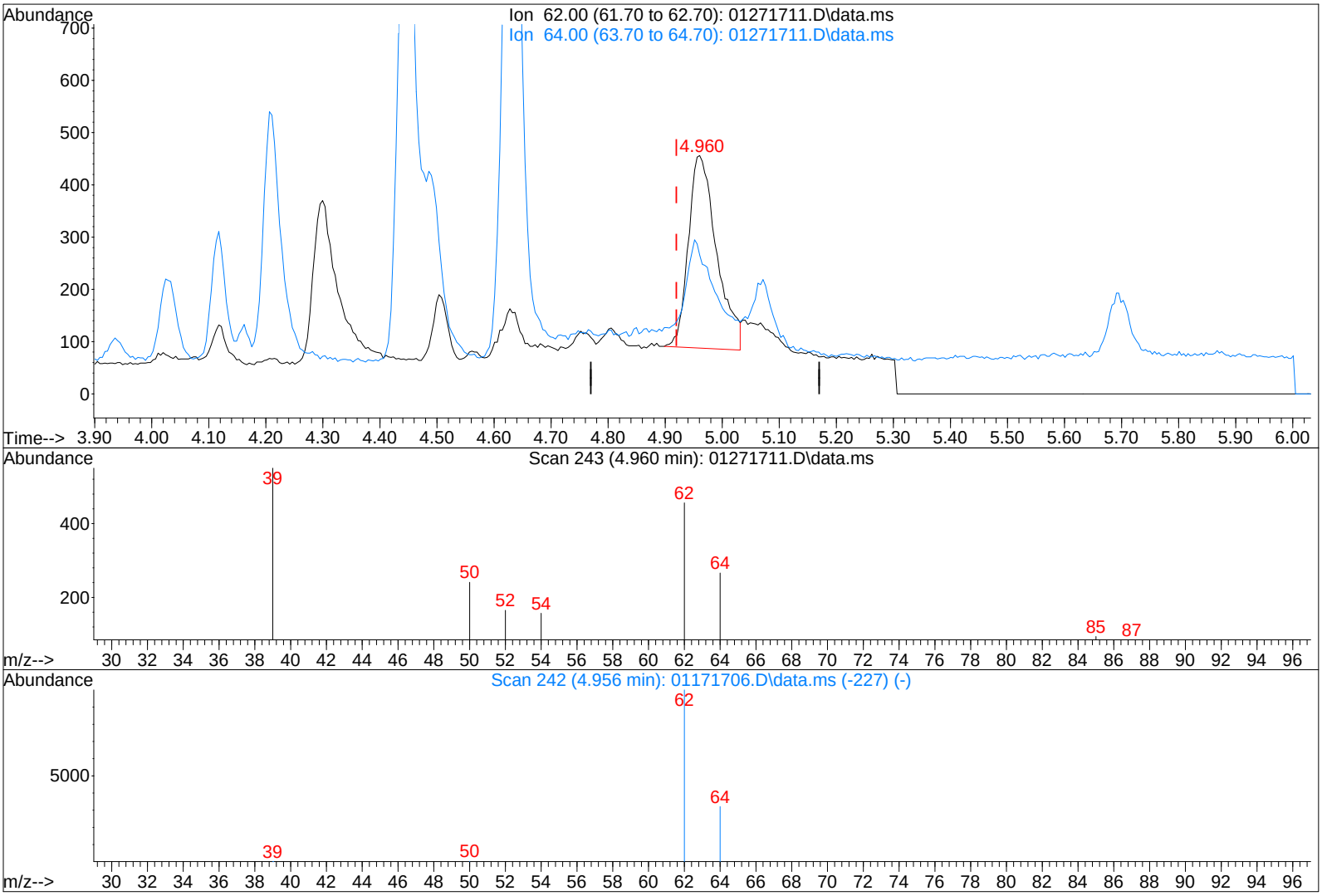
Quant Time: Jan 30 09:31:55 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271711.D\data.ms

(5) Vinyl Chloride (T)

4.960min (+0.040) 10.08pg

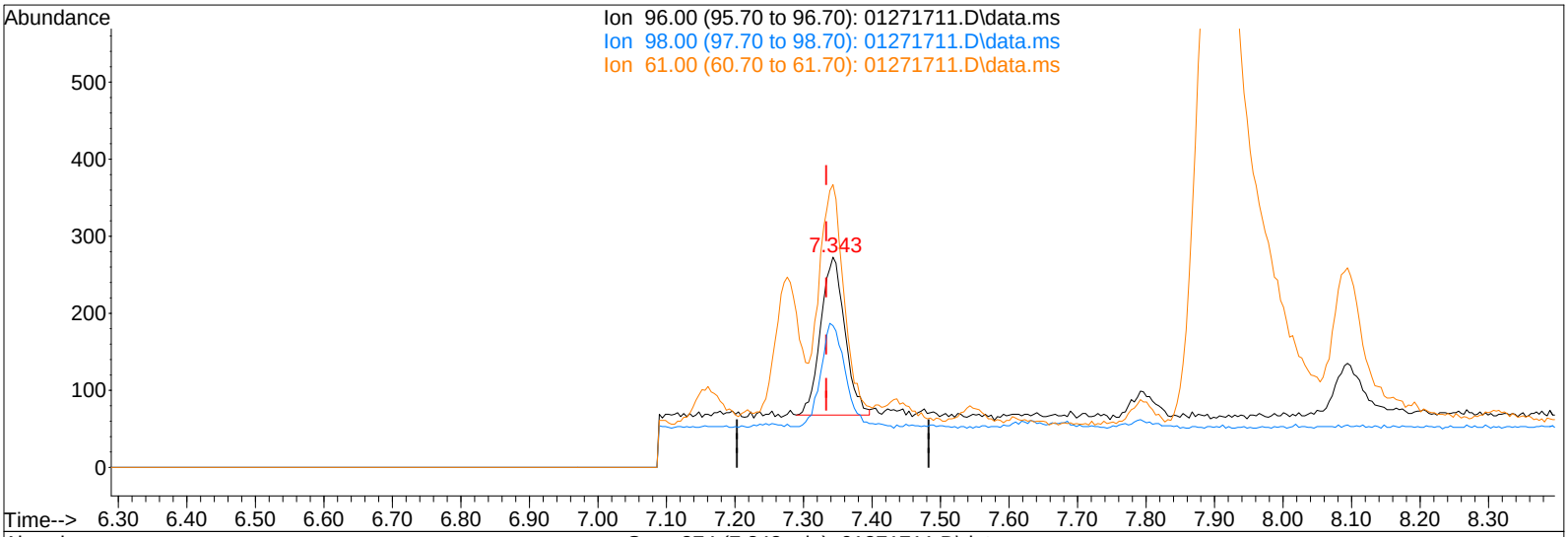
response 1269

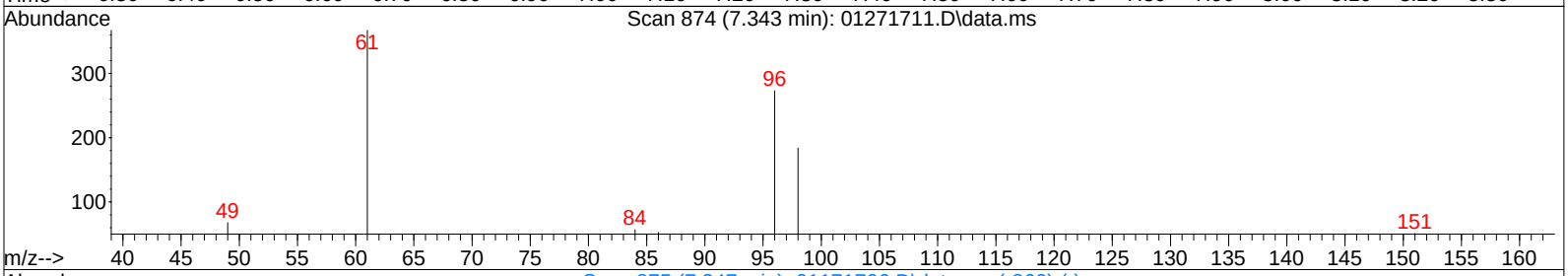
Ion	Exp%	Act%
62.00	100	100
64.00	31.80	45.71
0.00	0.00	0.00
0.00	0.00	0.00

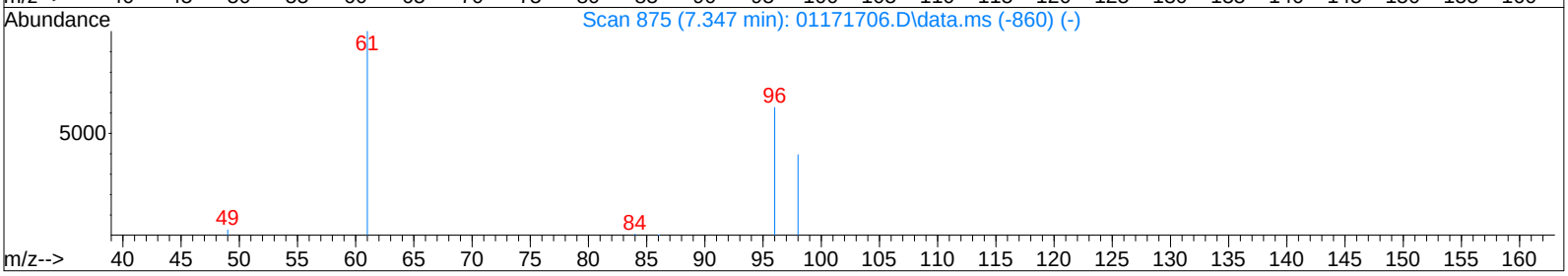
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271711.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 8.93pg

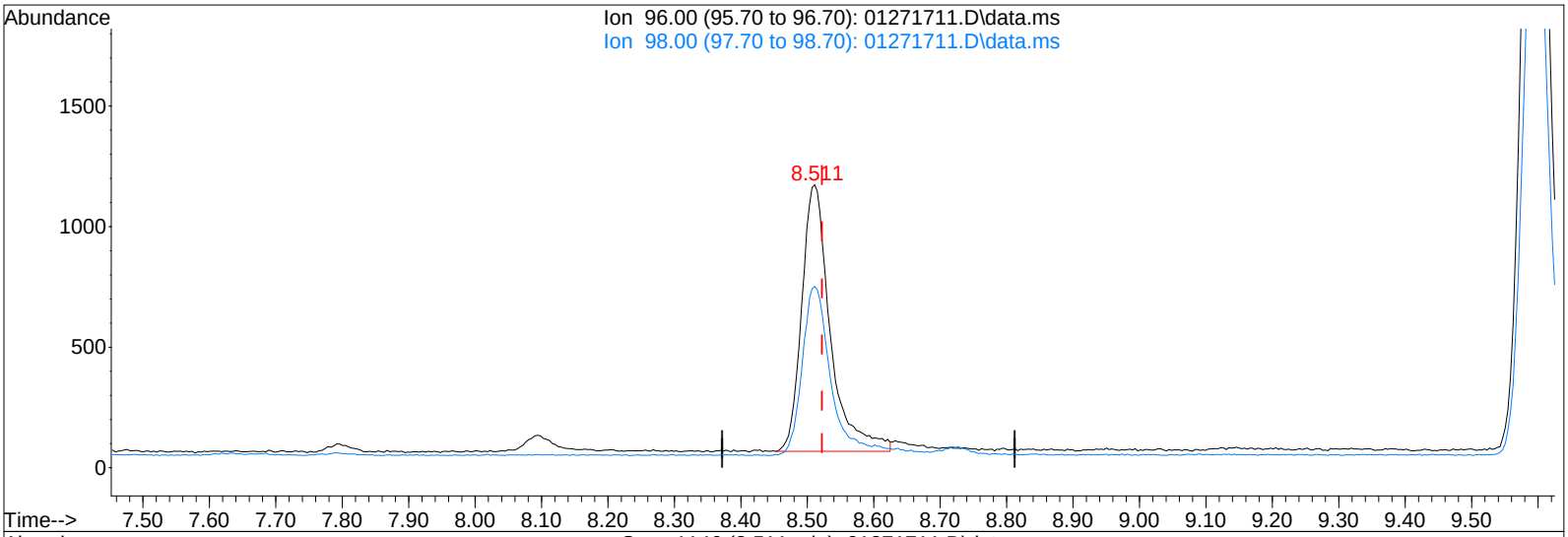
response 504

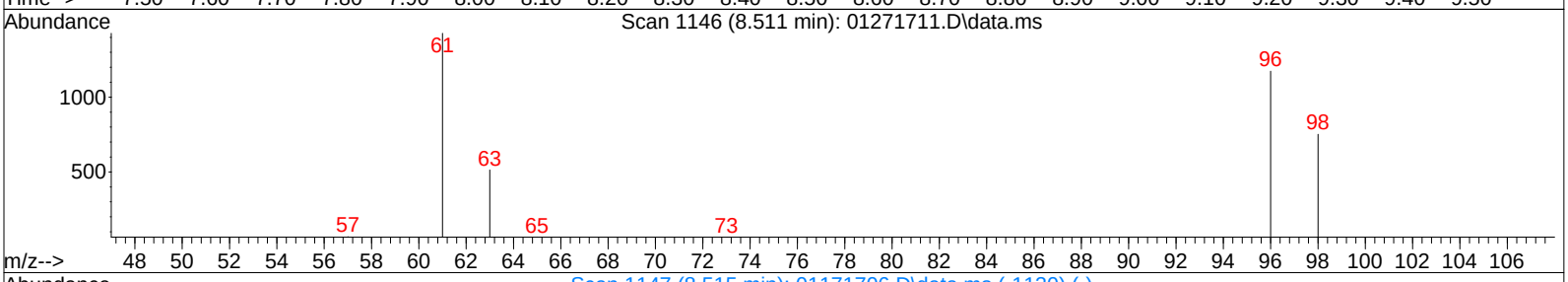
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	68.85
61.00	162.10	141.27#
0.00	0.00	0.00

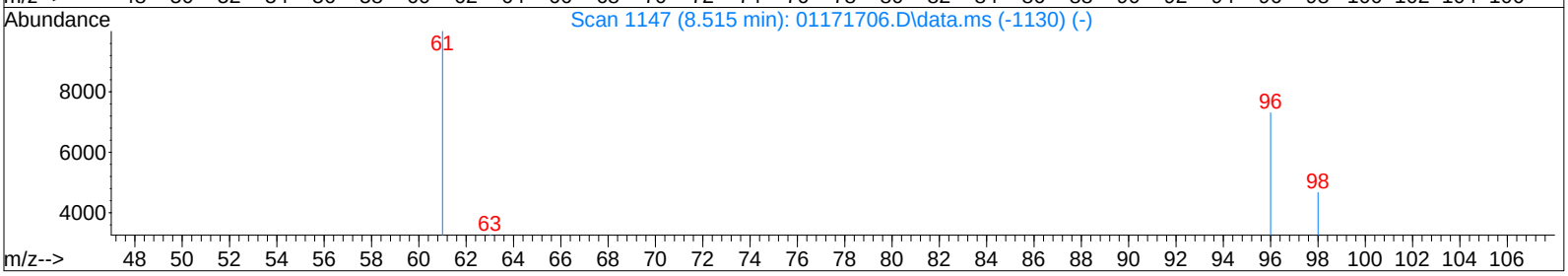
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271711.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 54.36pg

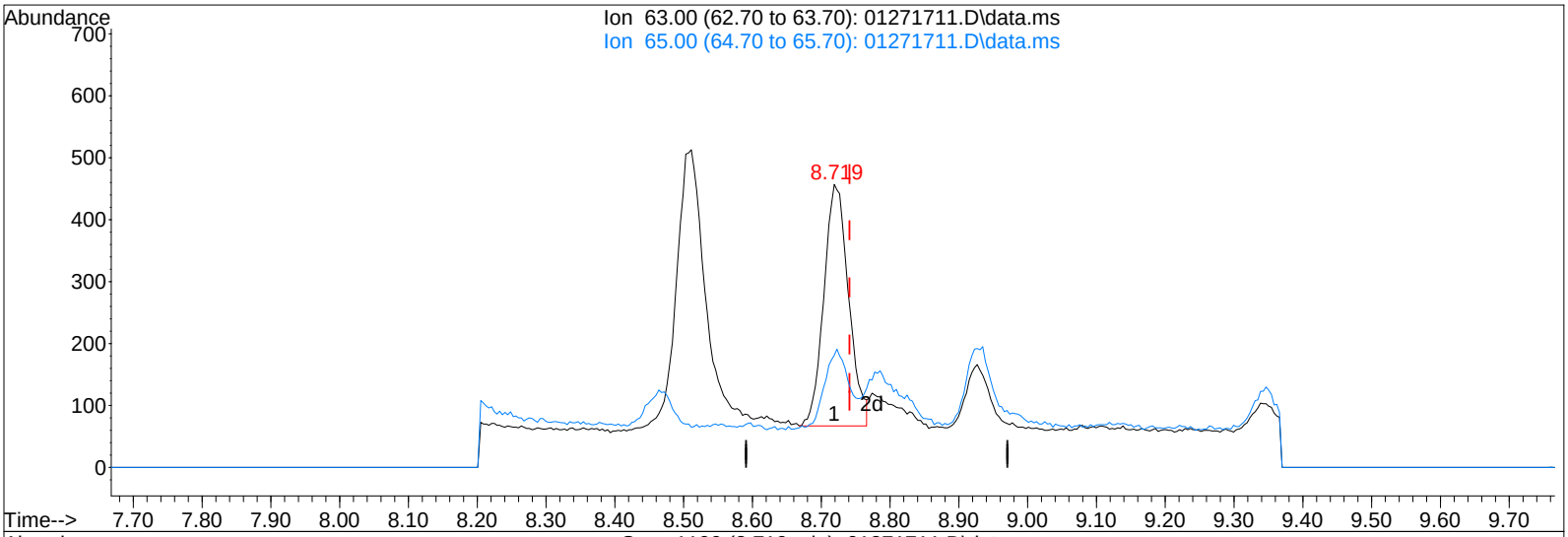
response 3306

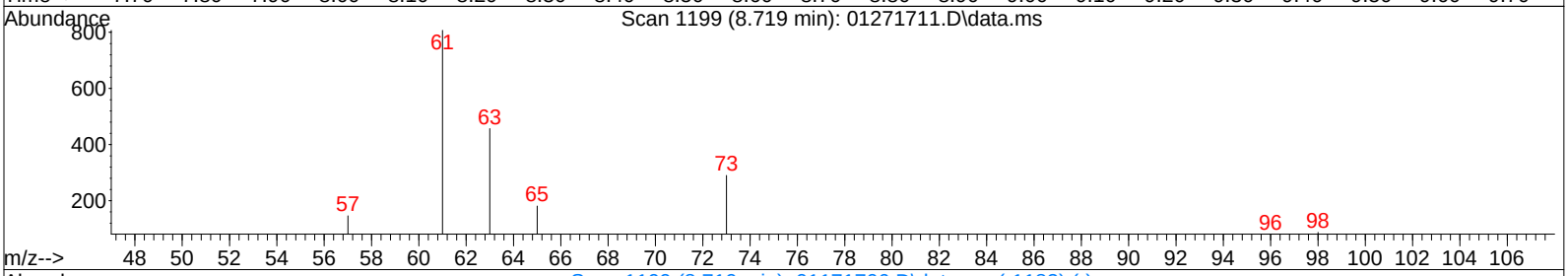
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	61.74
0.00	0.00	0.00
0.00	0.00	0.00

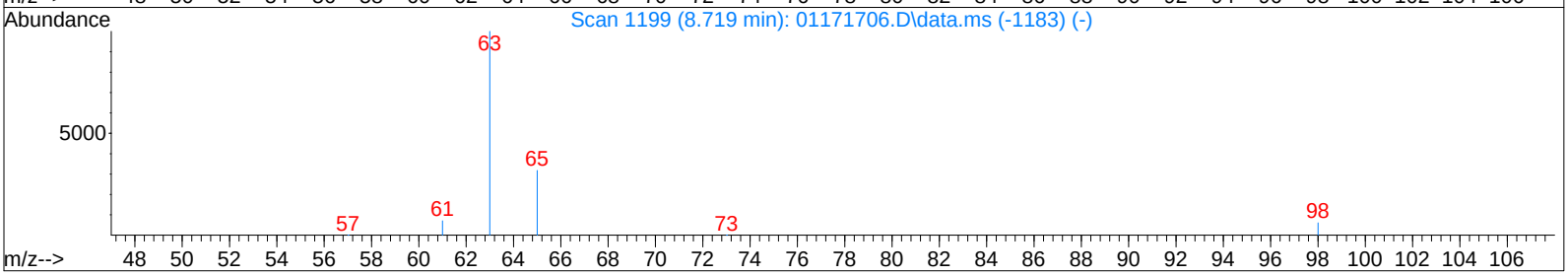
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271711.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 9.05pg

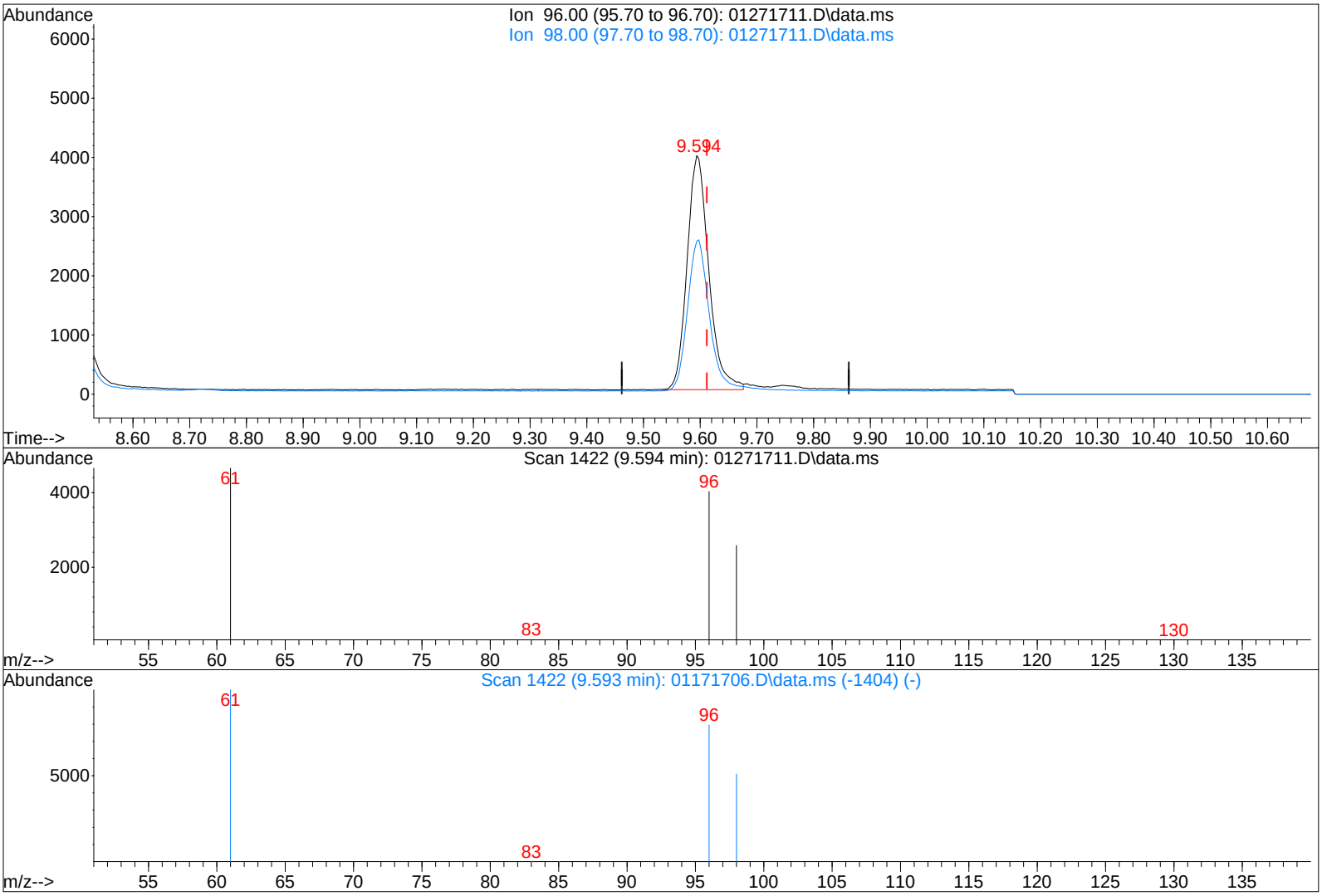
response 976

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	31.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271711.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 164.91pg

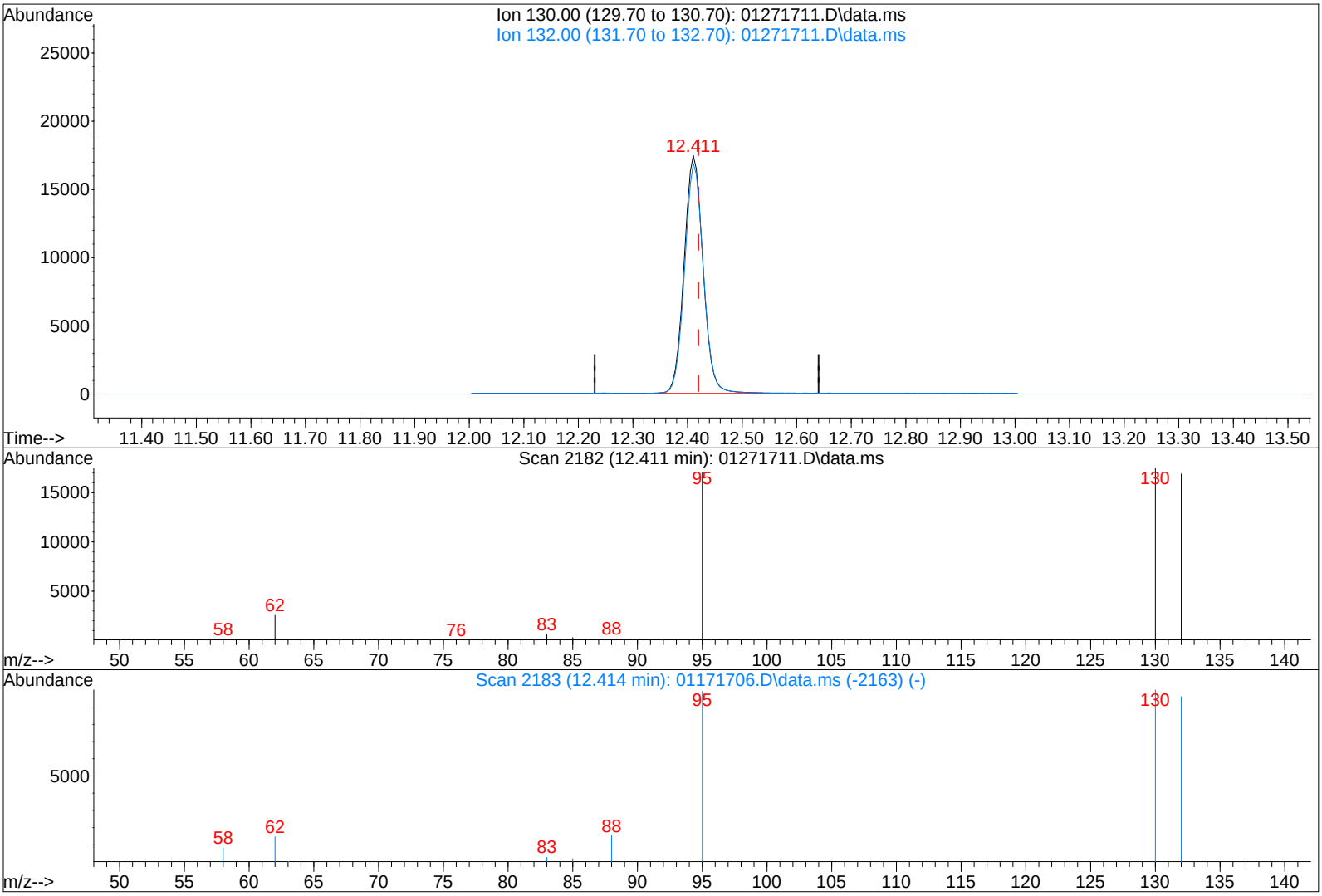
response 10525

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	66.28
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271711.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 647.22pg

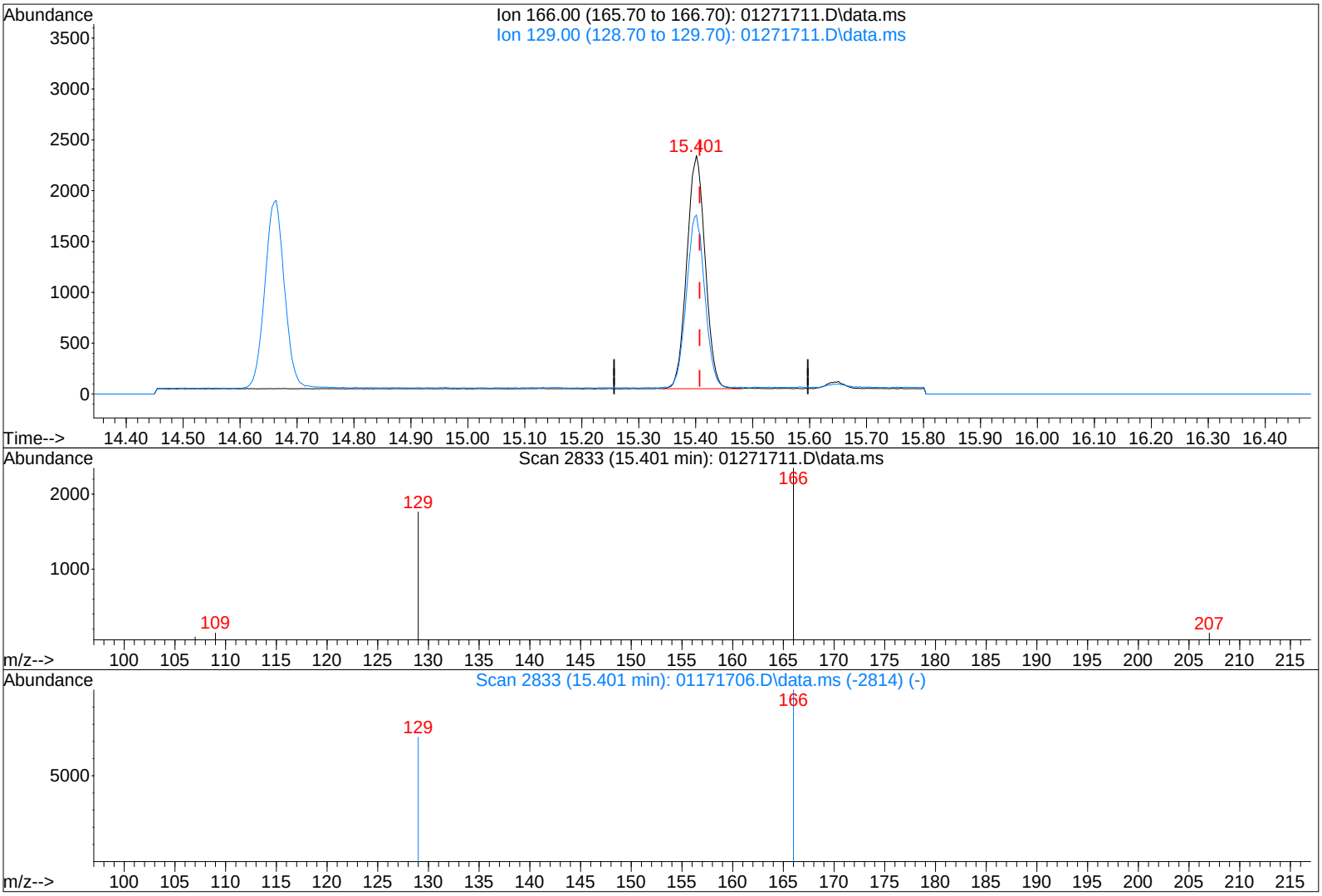
response 41978

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.11
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271711.D Vial: 4
Acq On : 27 Jan 2017 12:59 Operator: CL
Sample : P1700261-007 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 27 13:35:48 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271711.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 76.27pg

response 5129

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.17
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/30/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50725	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	242728	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	36783	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	79668	906.877	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.69%				
33) Toluene-d8 (SS2)	14.15	98	244994	1016.104	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.61%				
45) Bromofluorobenzene (SS3)	17.55	174	77368	1149.750	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.98%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.41	85	216136	1686.637	pg		100
3) Chloromethane	4.64	52	8395	219.891	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	9546	75.716	pg		100
5) Vinyl Chloride	4.96	62	492	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.48	94	1264	25.649	pg		97
8) Chloroethane	5.70	64	301	7.986	pg		75
9) Acrolein	6.28	56	5598	209.075	pg		100
10) Acetone	6.40	58	147034	4247.278	pg	#	80
11) Trichlorofluoromethane	6.60	101	81161	925.996	pg		100
12) 1,1-Dichloroethene	7.34	96	91	N.D.			
13) Methylene Chloride	7.48	84	17556	294.623	pg		97
14) Trichlorotrifluoroethane	7.80	151	19351	353.233	pg		100
15) trans-1,2-Dichloroethene	8.52	96	2324	39.259	pg		99
16) 1,1-Dichloroethane	8.72	63	620	5.903	pg		98
17) Methyl tert-Butyl Ether	8.81	73	752	N.D.			
18) cis-1,2-Dichloroethene	9.60	96	1342	21.603	pg		100
19) Chloroform	9.89	83	12848	116.333	pg		98
21) 1,2-Dichloroethane	10.64	62	3802	44.721	pg		98
22) 1,1,1-Trichloroethane	10.91	97	1847	18.016	pg		98
23) Benzene	11.37	78	132714	545.410	pg		99
24) Carbon Tetrachloride	11.52	117	27630	335.638	pg		100
26) 1,2-Dichloropropane	12.18	63	1003	16.223	pg		95
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	3146	49.852	pg		97
29) 1,4-Dioxane	12.39	88	171	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	166	N.D.			
34) Toluene	14.25	91	223601	992.898	pg		100
35) Dibromochloromethane	14.66	129	329	5.276	pg		99
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	3537	54.056	pg		98
39) Chlorobenzene	16.10	112	853	6.016	pg		94
40) Ethylbenzene	16.48	91	41085	196.484	pg		99
41) m,p-Xylene	16.65	91	89889	573.136	pg		99
42) Styrene	17.01	104	7035	64.024	pg		97
43) o-Xylene	17.12	106	19138	237.531	pg		98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	7206	43.404	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	32826	201.440	pg		88
48) 1,3-Dichlorobenzene	18.92	146	119	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	702823	6740.024	pg		100
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.	d		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.94	182	117	N.D.			
53) Naphthalene	21.06	128	15453	80.551	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

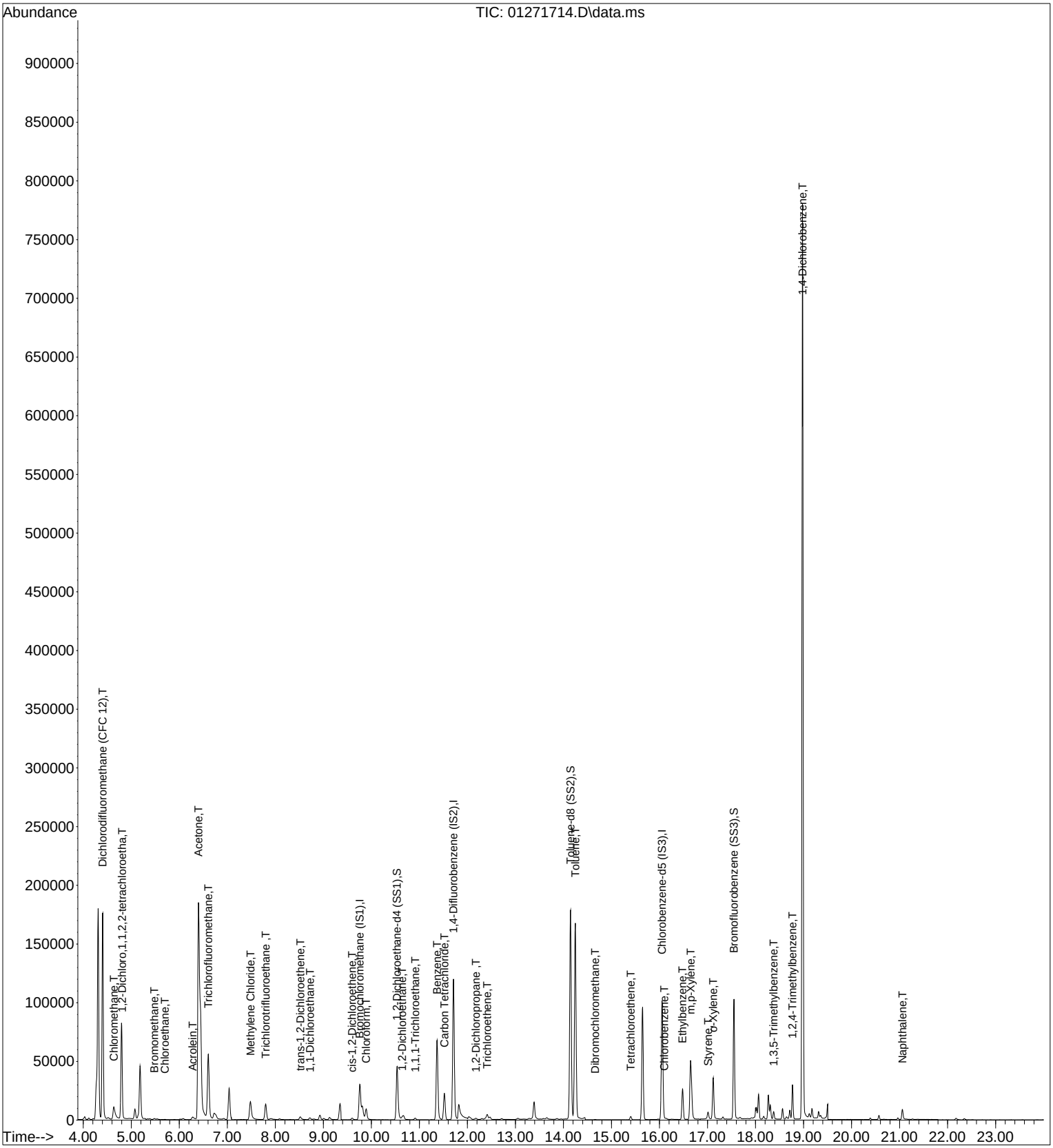
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

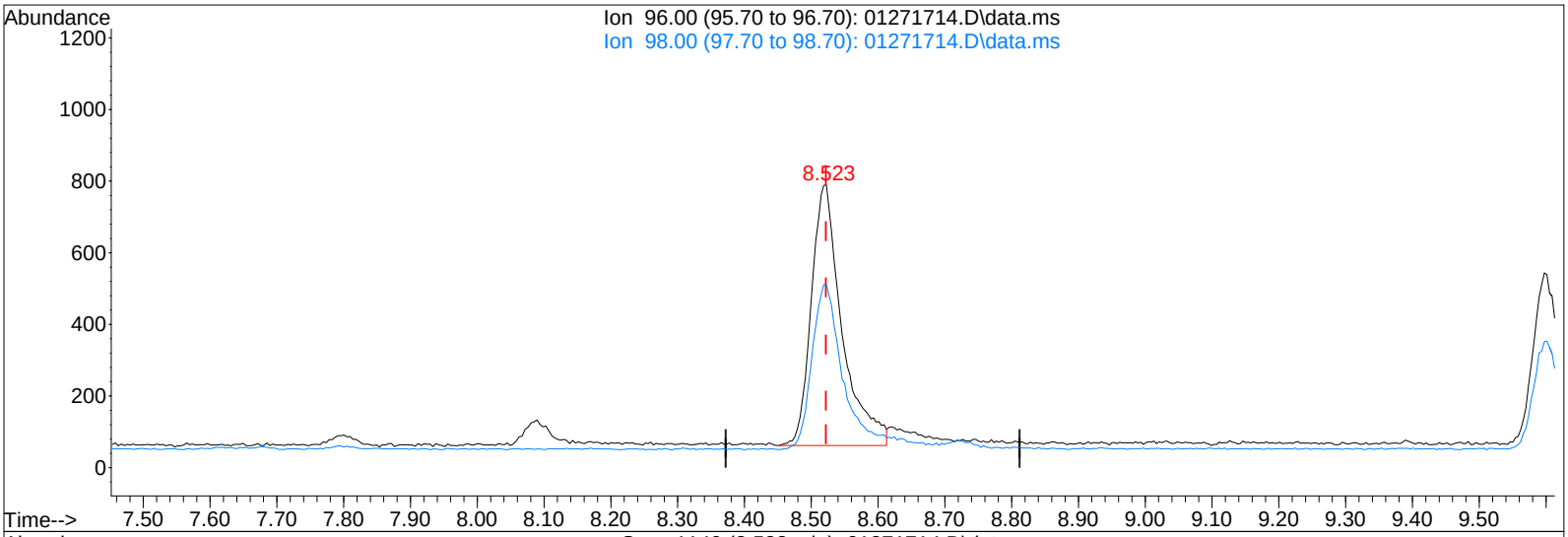
Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

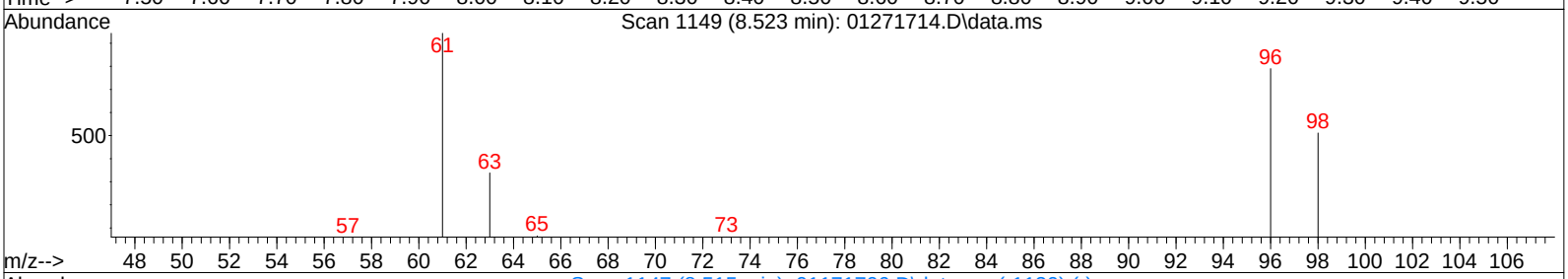


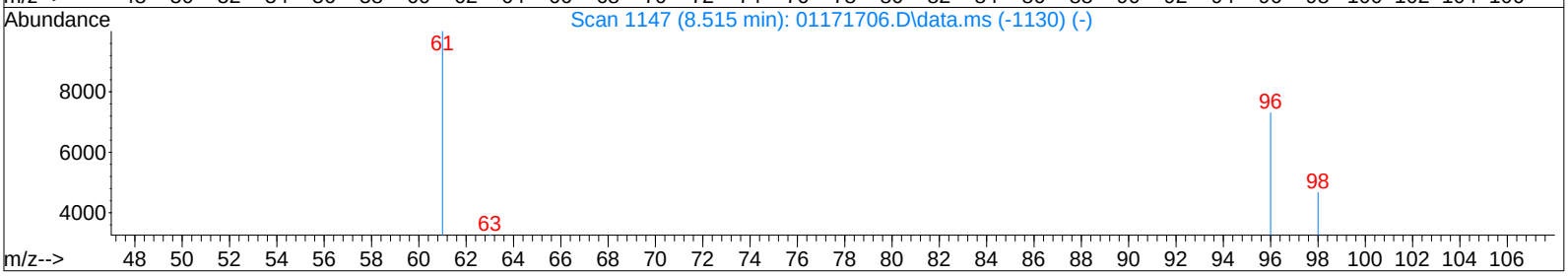
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271714.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.523min (+0.001) 39.26pg

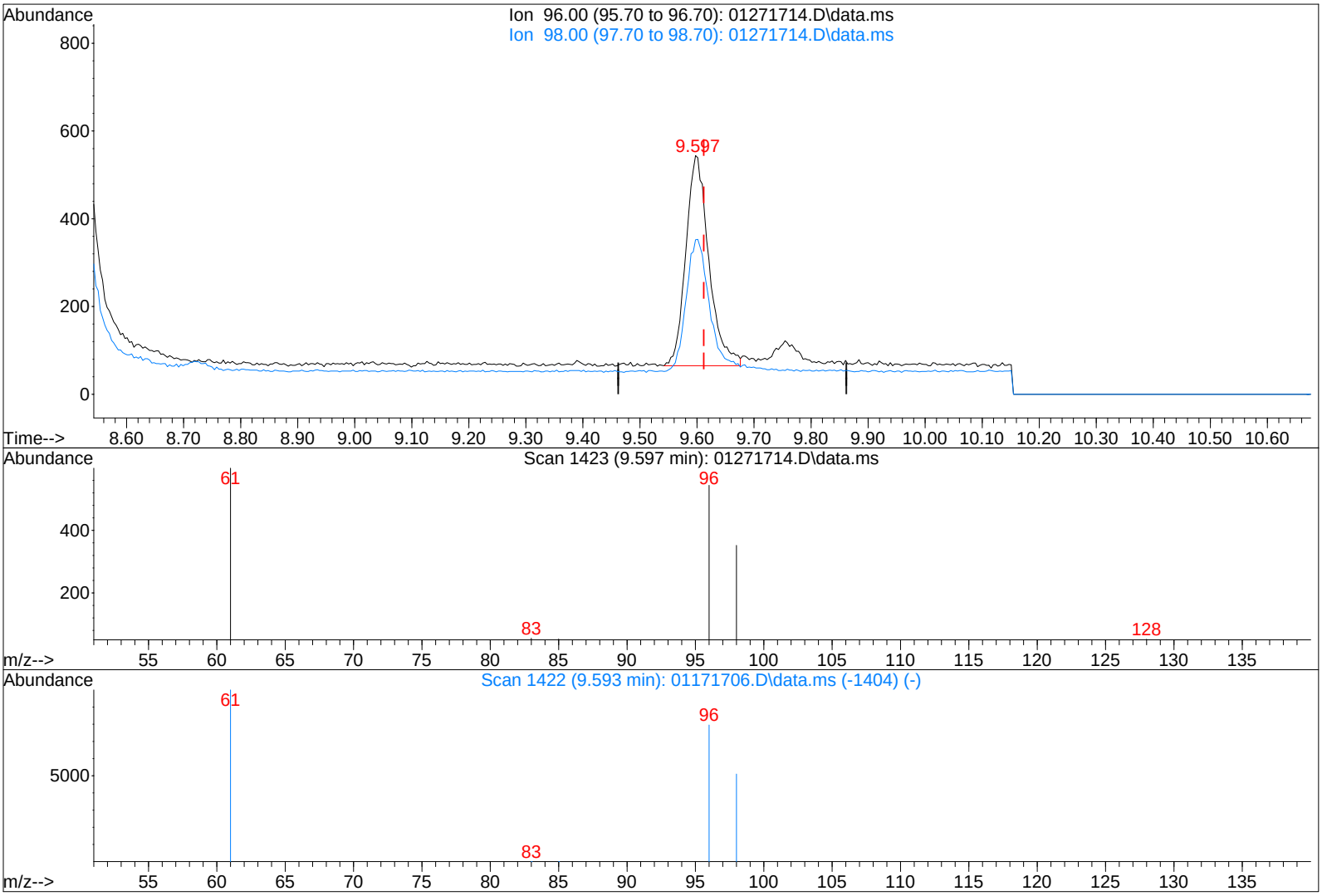
response 2324

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	62.44
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271714.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.597min (-0.015) 21.60pg

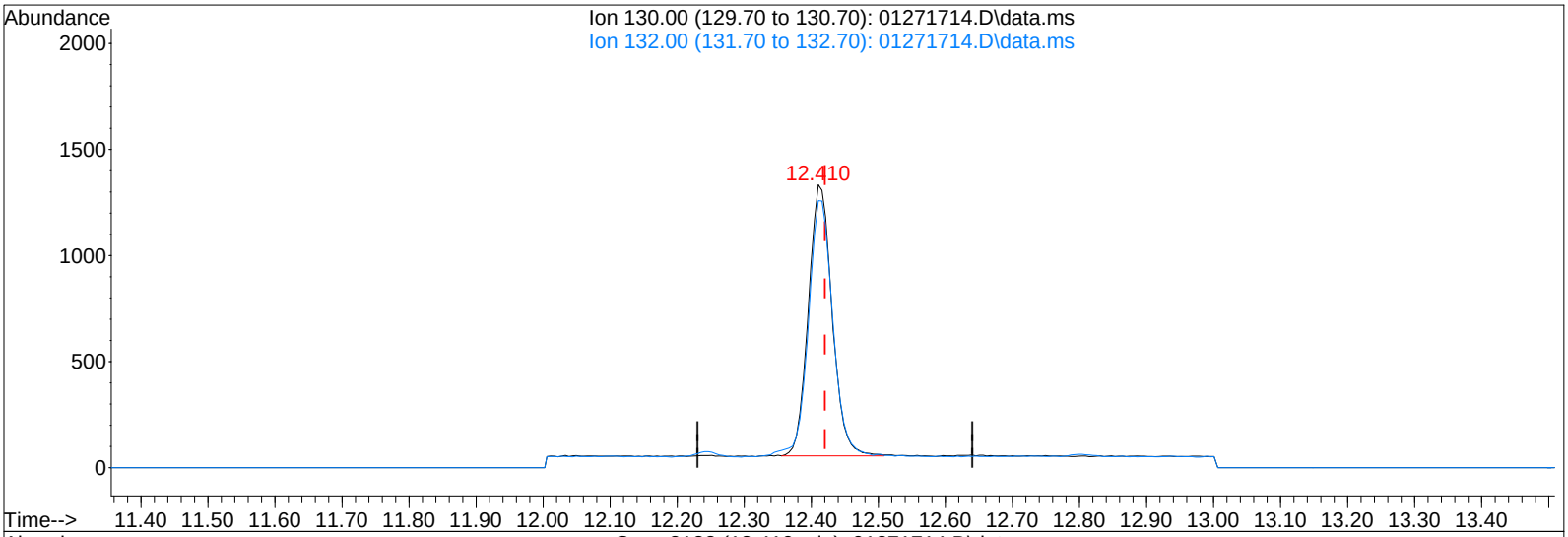
response 1342

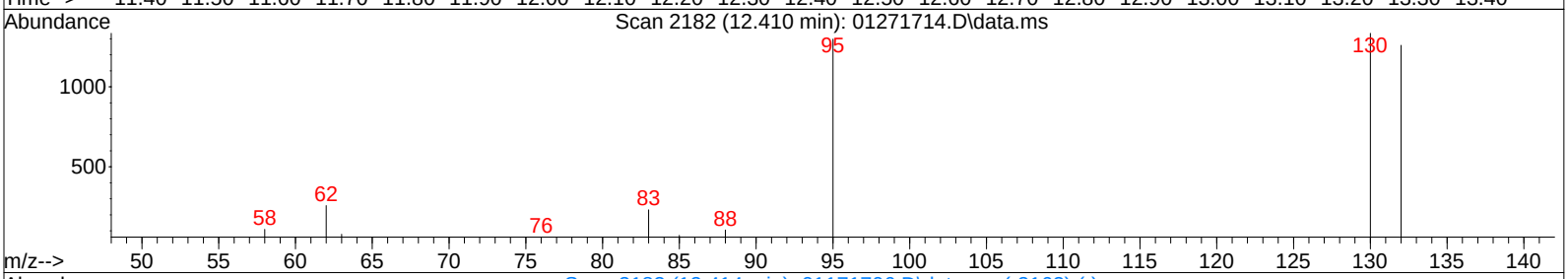
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	64.01
0.00	0.00	0.00
0.00	0.00	0.00

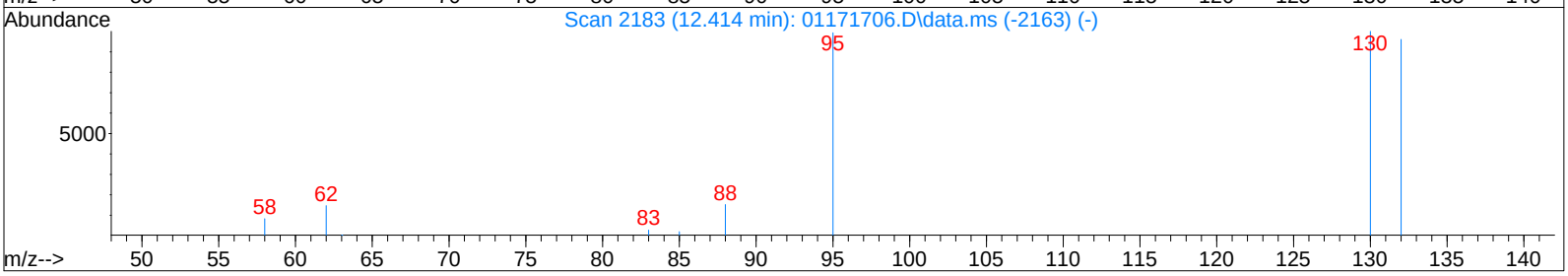
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271714.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 49.85pg

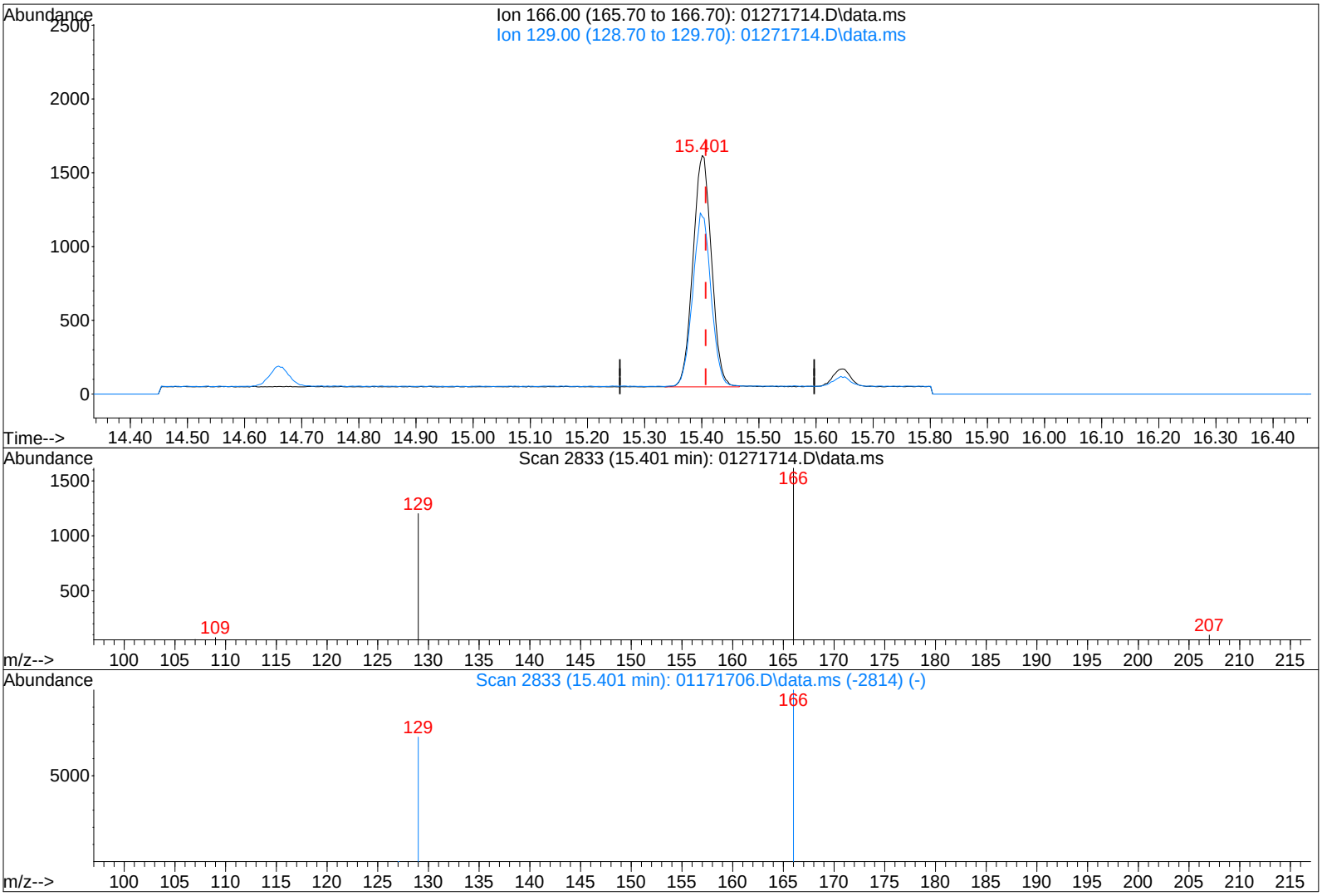
response 3146

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.93
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271714.D Vial: 7
Acq On : 27 Jan 2017 14:33 Operator: CL
Sample : P1700261-010 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:37:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271714.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 54.06pg

response 3537

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.50
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:42:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/30/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50384	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	235478	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	37264	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	77556	888.811 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.88%		
33) Toluene-d8 (SS2)	14.15	98	238106	1017.941 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.79%		
45) Bromofluorobenzene (SS3)	17.55	174	73661	1080.531 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.05%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	218123	1713.663 pg	100
3) Chloromethane	4.63	52	9054	238.758 pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	9707	77.514 pg	100
5) Vinyl Chloride	4.96	62	1346	11.061 pg	79
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	1020	20.838 pg	94
8) Chloroethane	5.69	64	273	7.292 pg	98
9) Acrolein	6.27	56	4439	166.911 pg	96
10) Acetone	6.39	58	190288	5533.931 pg #	84
11) Trichlorofluoromethane	6.60	101	83199	955.673 pg	100
12) 1,1-Dichloroethene	7.34	96	518	9.497 pg #	88
13) Methylene Chloride	7.47	84	104436	1764.497 pg	98
14) Trichlorotrifluoroethane	7.80	151	19799	363.856 pg	100
15) trans-1,2-Dichloroethene	8.51	96	2470	42.008 pg	93
16) 1,1-Dichloroethane	8.72	63	1096m	10.506 pg	
17) Methyl tert-Butyl Ether	8.80	73	817	5.248 pg	75
18) cis-1,2-Dichloroethene	9.60	96	10464	169.587 pg	98
19) Chloroform	9.89	83	12714	115.899 pg	98
21) 1,2-Dichloroethane	10.64	62	3696	43.768 pg	99
22) 1,1,1-Trichloroethane	10.91	97	14684	144.199 pg	100
23) Benzene	11.37	78	145573	602.305 pg	100
24) Carbon Tetrachloride	11.52	117	27923	341.493 pg	100
26) 1,2-Dichloropropane	12.17	63	989	16.489 pg	96
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	30592	499.692 pg	99
29) 1,4-Dioxane	12.40	88	211	N.D.	
30) cis-1,3-Dichloropropene	13.26	75	55	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.95	83	138	N.D.	
34) Toluene	14.25	91	623847	2855.476 pg	99
35) Dibromochloromethane	14.67	129	312	5.157 pg	97
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	18658	293.927 pg	98
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	53443	252.286 pg	99
41) m,p-Xylene	16.65	91	113112	711.897 pg	100
42) Styrene	17.01	104	4080	36.652 pg	96
43) o-Xylene	17.12	106	23727	290.686 pg	99
44) 1,1,2,2-Tetrachloroethane	17.05	83	260	N.D.	
46) 1,3,5-Trimethylbenzene	18.38	105	9876	58.718 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	47576	288.187 pg	87
48) 1,3-Dichlorobenzene	18.92	146	122	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	16594	157.081 pg	99
50) 1,2-Dichlorobenzene	19.31	146	223	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	113	N.D.	
53) Naphthalene	21.06	128	13605	70.003 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 30 09:42:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

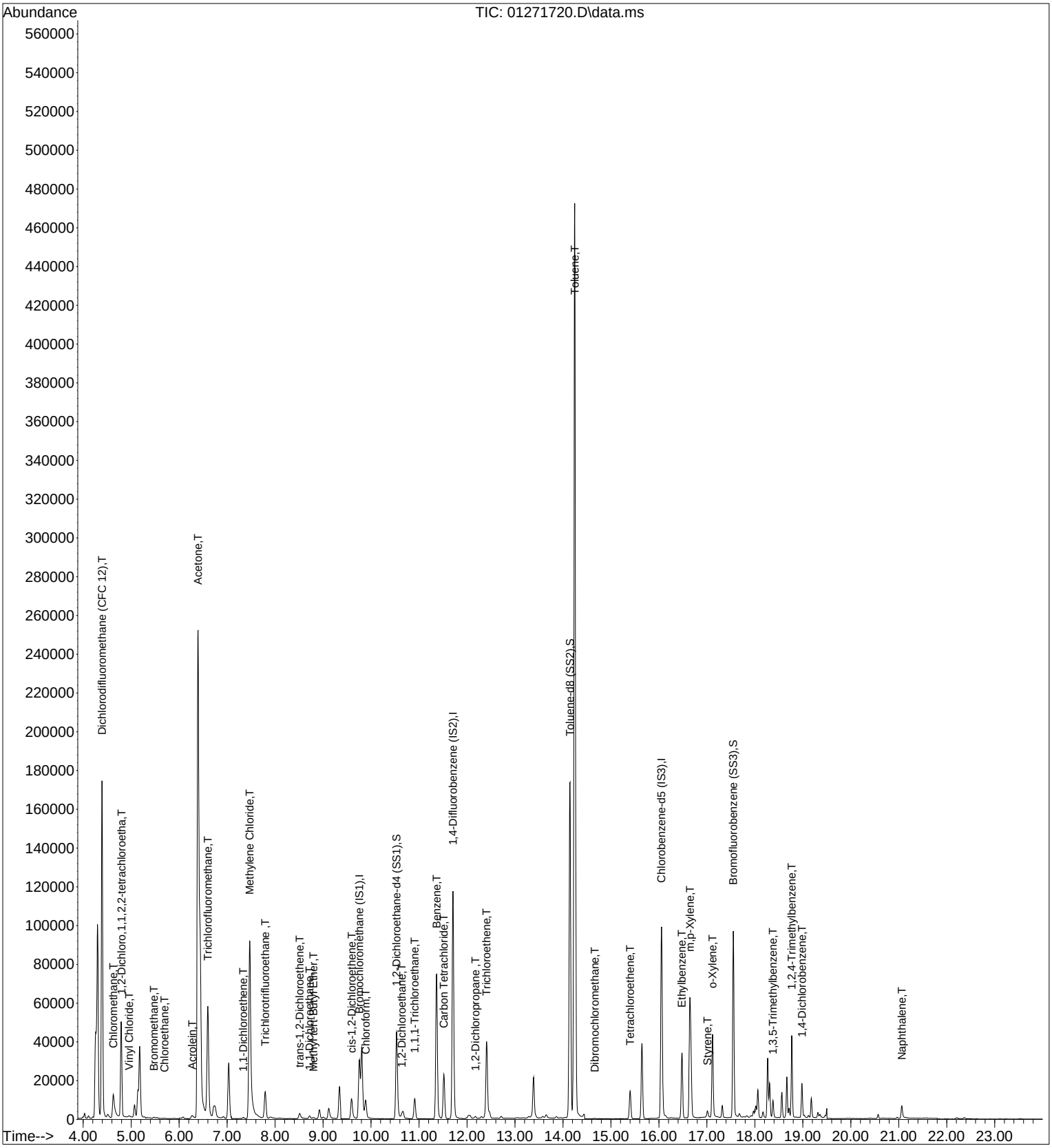
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

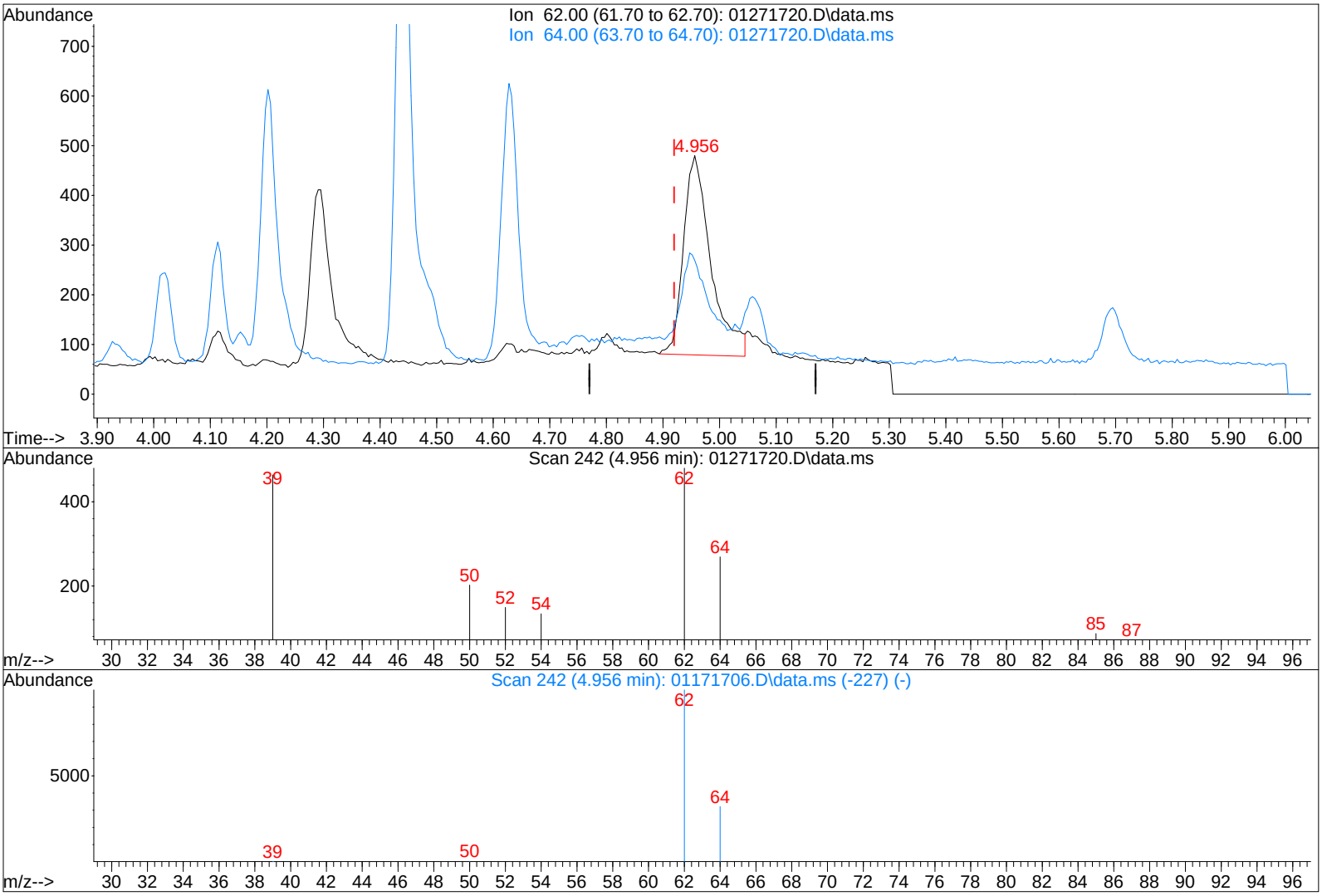
Quant Time: Jan 30 09:42:57 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271720.D\data.ms

(5) Vinyl Chloride (T)

4.956min (+0.036) 11.06pg

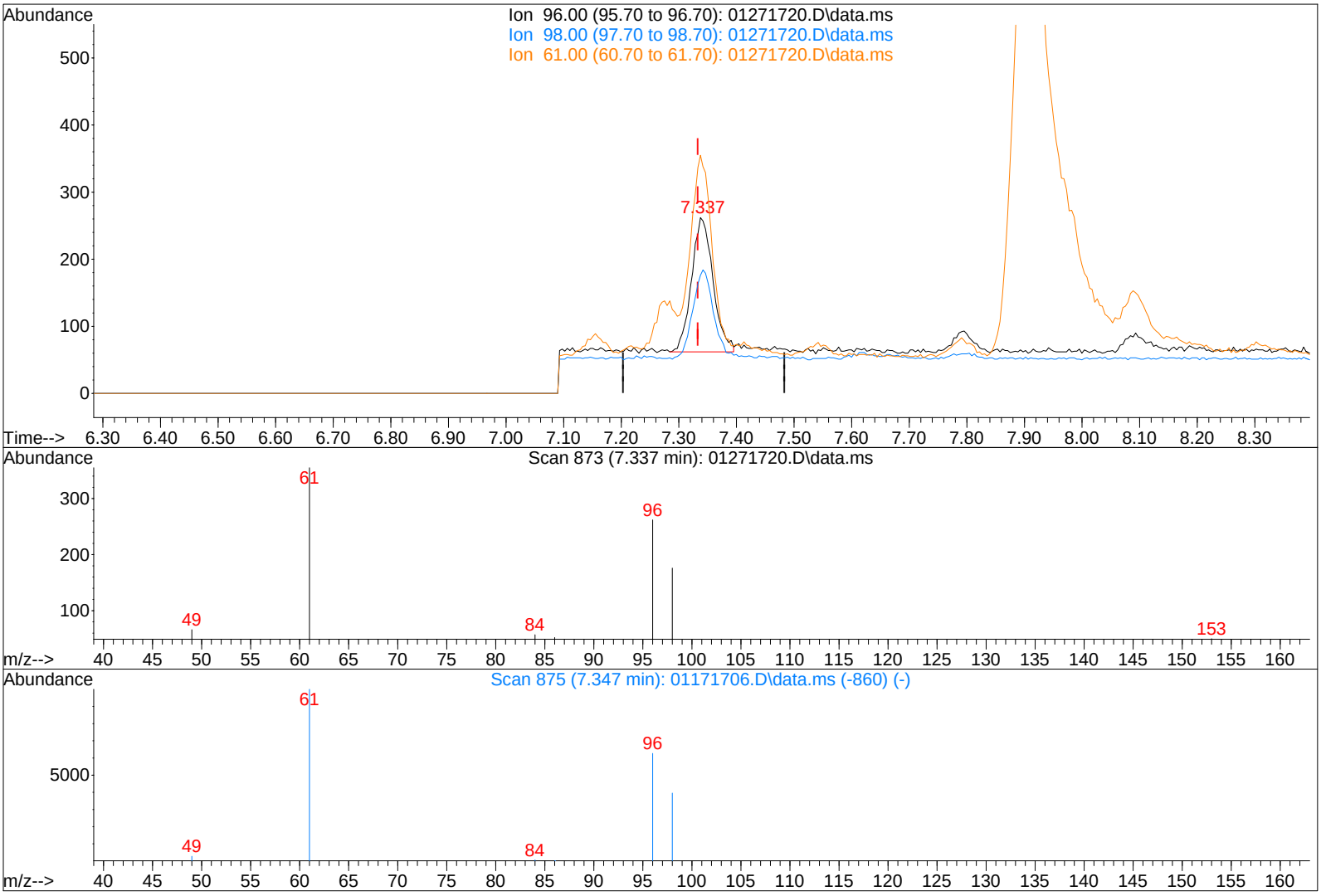
response 1346

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	43.46
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271720.D\data.ms

(12) 1,1-Dichloroethene (T)

7.337min (+0.004) 9.50pg

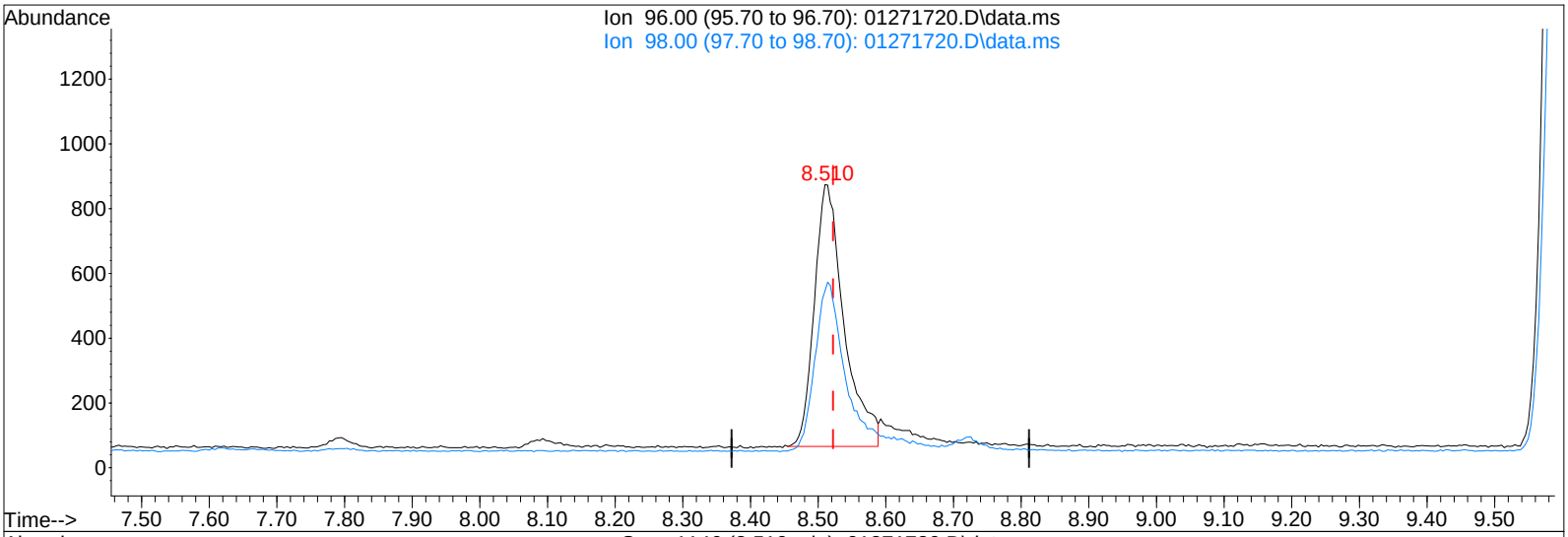
response 518

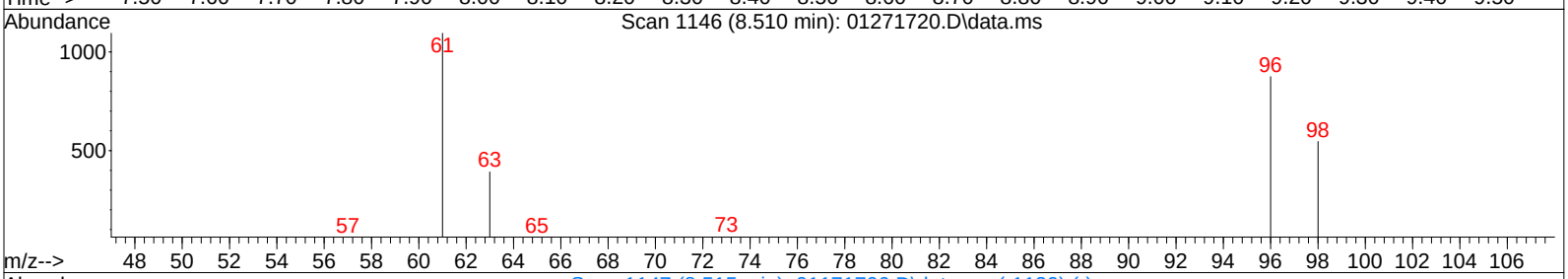
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	63.90
61.00	162.10	139.96#
0.00	0.00	0.00

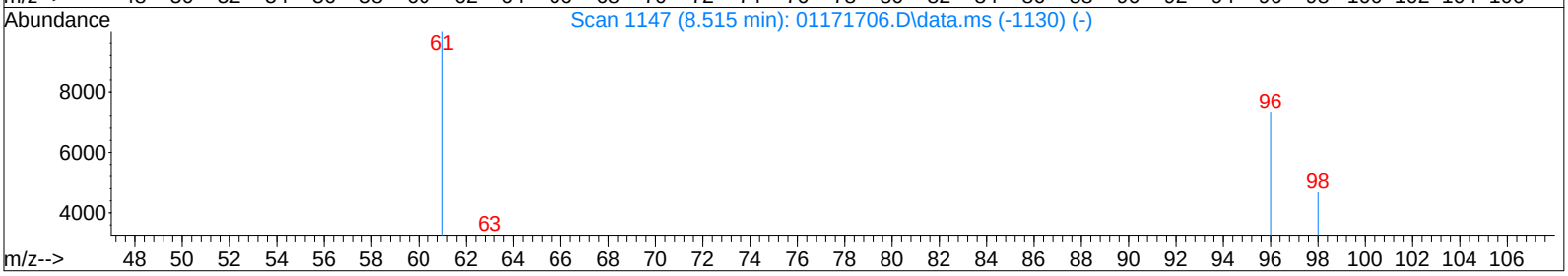
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271720.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.510min (-0.012) 42.01pg

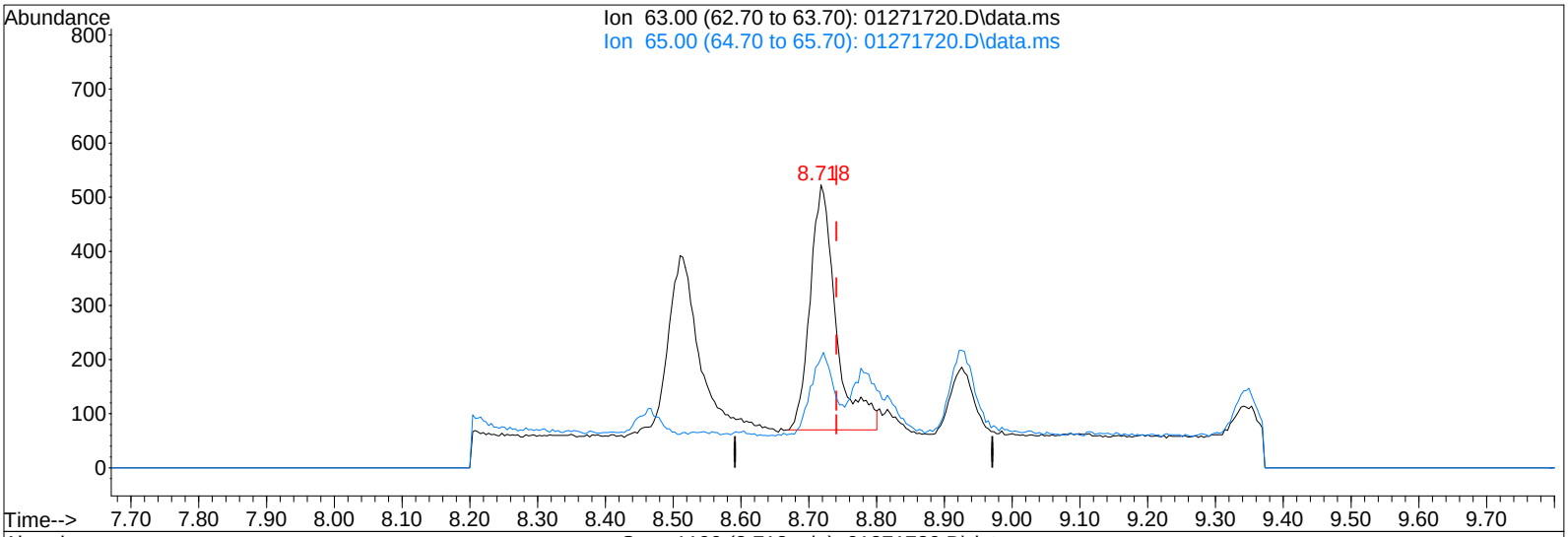
response 2470

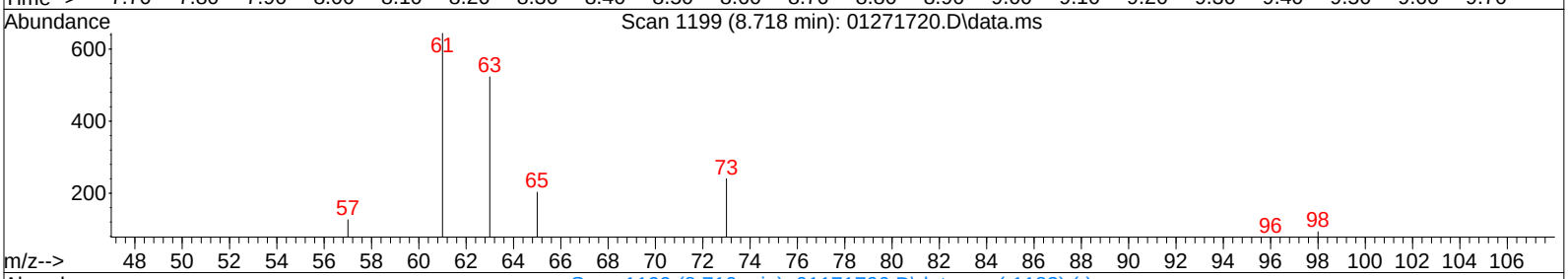
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	67.21
0.00	0.00	0.00
0.00	0.00	0.00

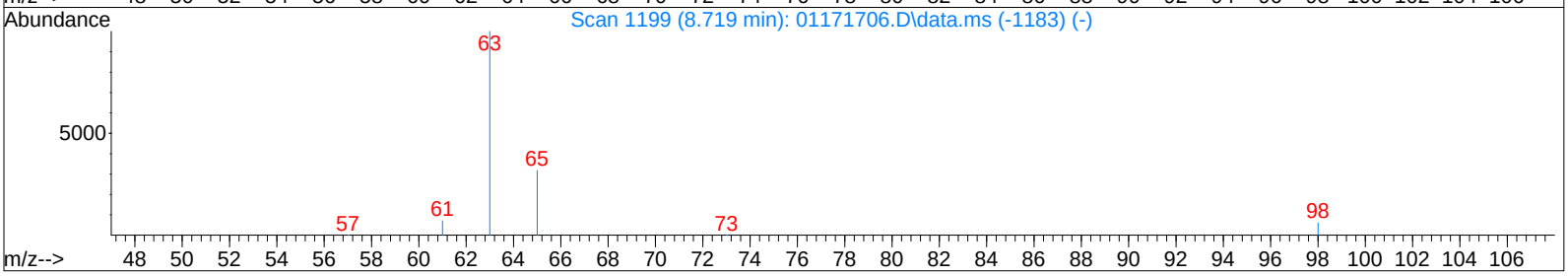
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271720.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.023) 11.56pg

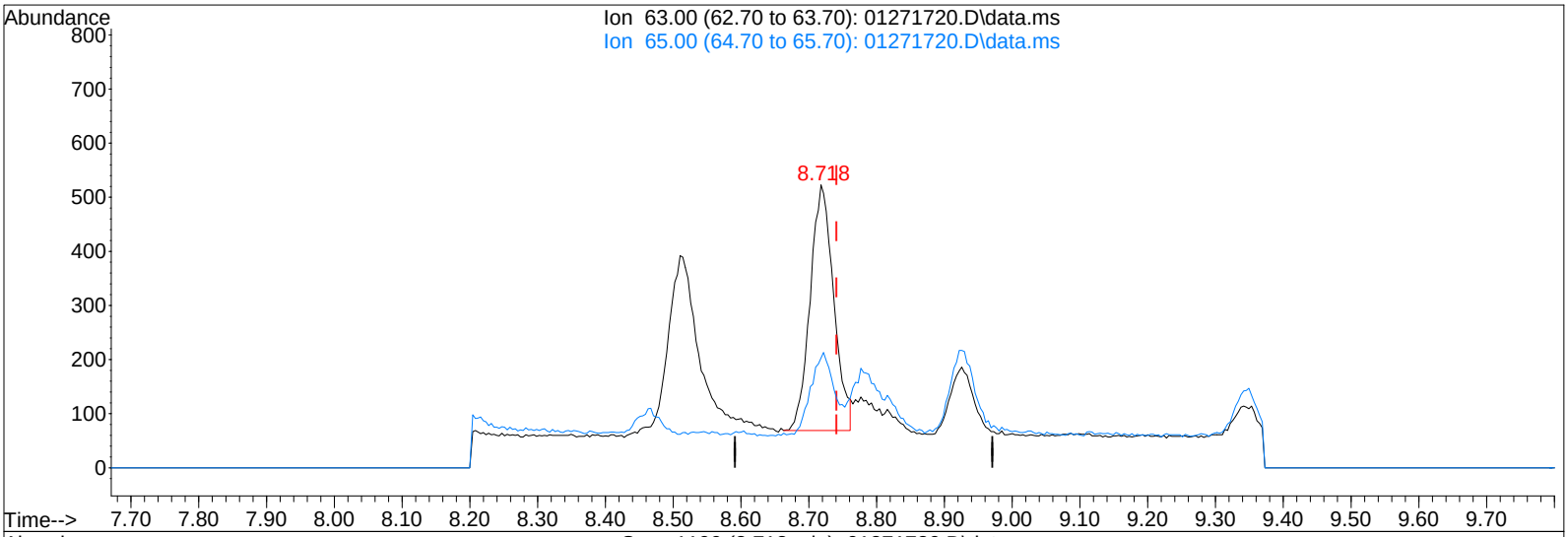
response 1206

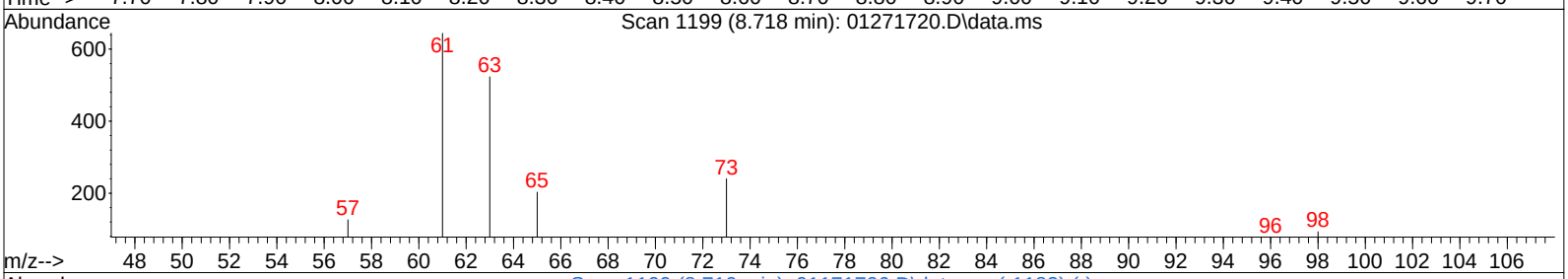
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	30.27
0.00	0.00	0.00
0.00	0.00	0.00

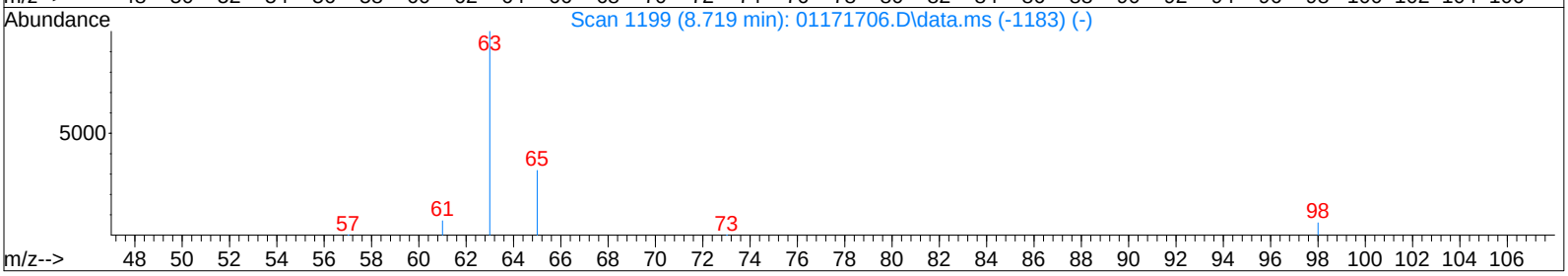
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271720.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.023) 10.51pg m

response 1096

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	33.30
0.00	0.00	0.00
0.00	0.00	0.00

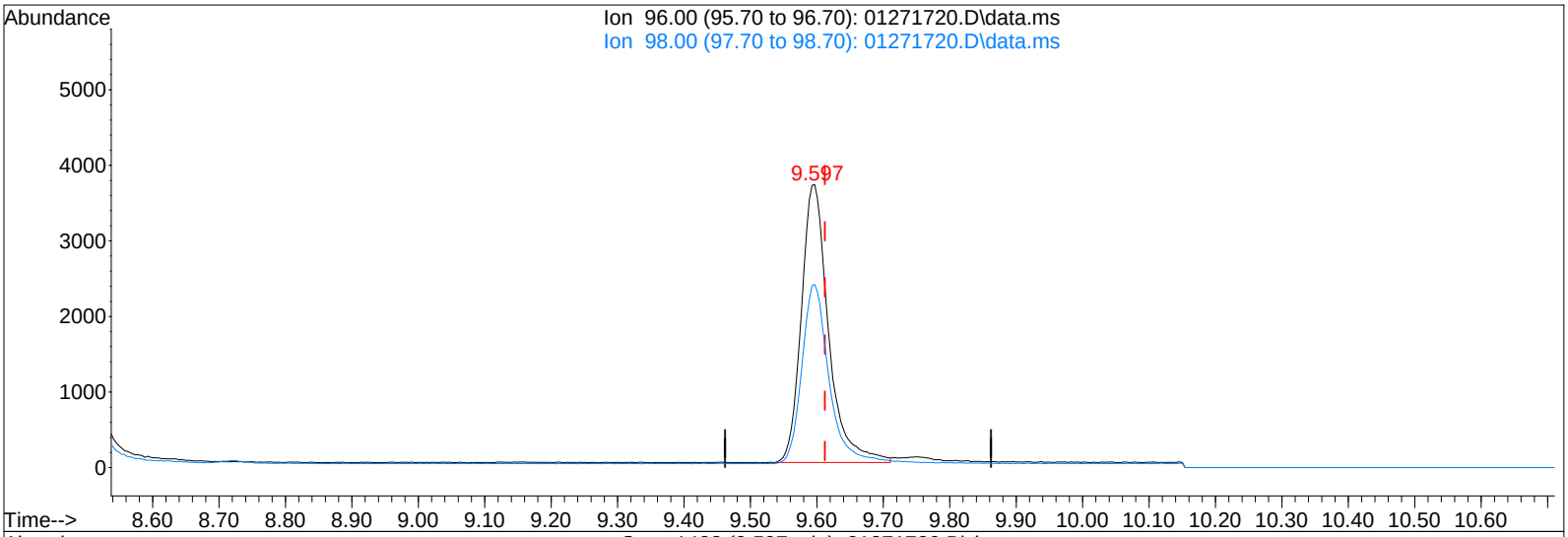
BLC

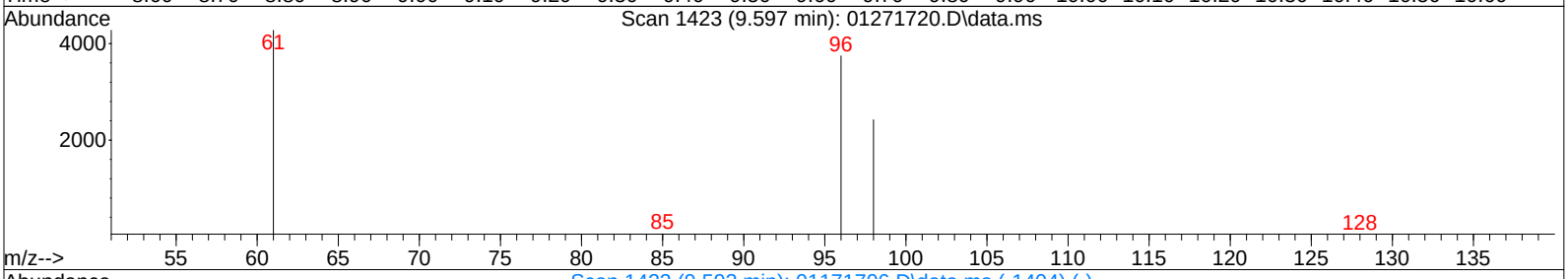
CL 1/30/17 1/30/17

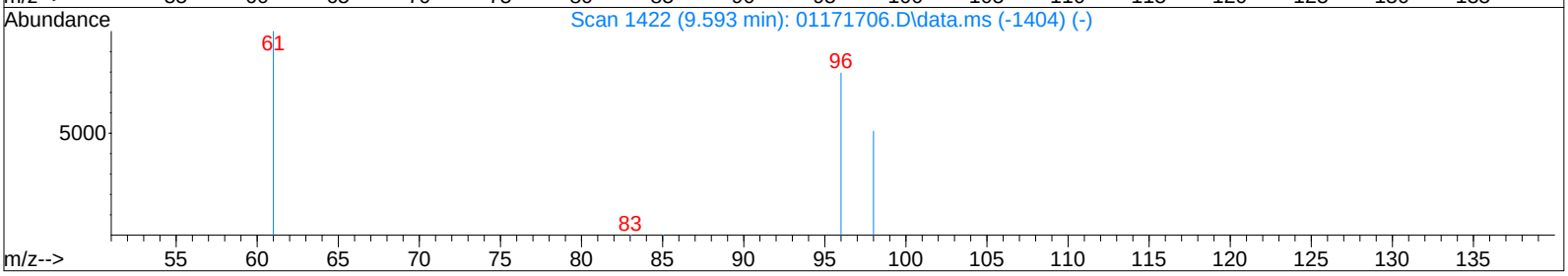
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01271720.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.597min (-0.015) 169.59pg

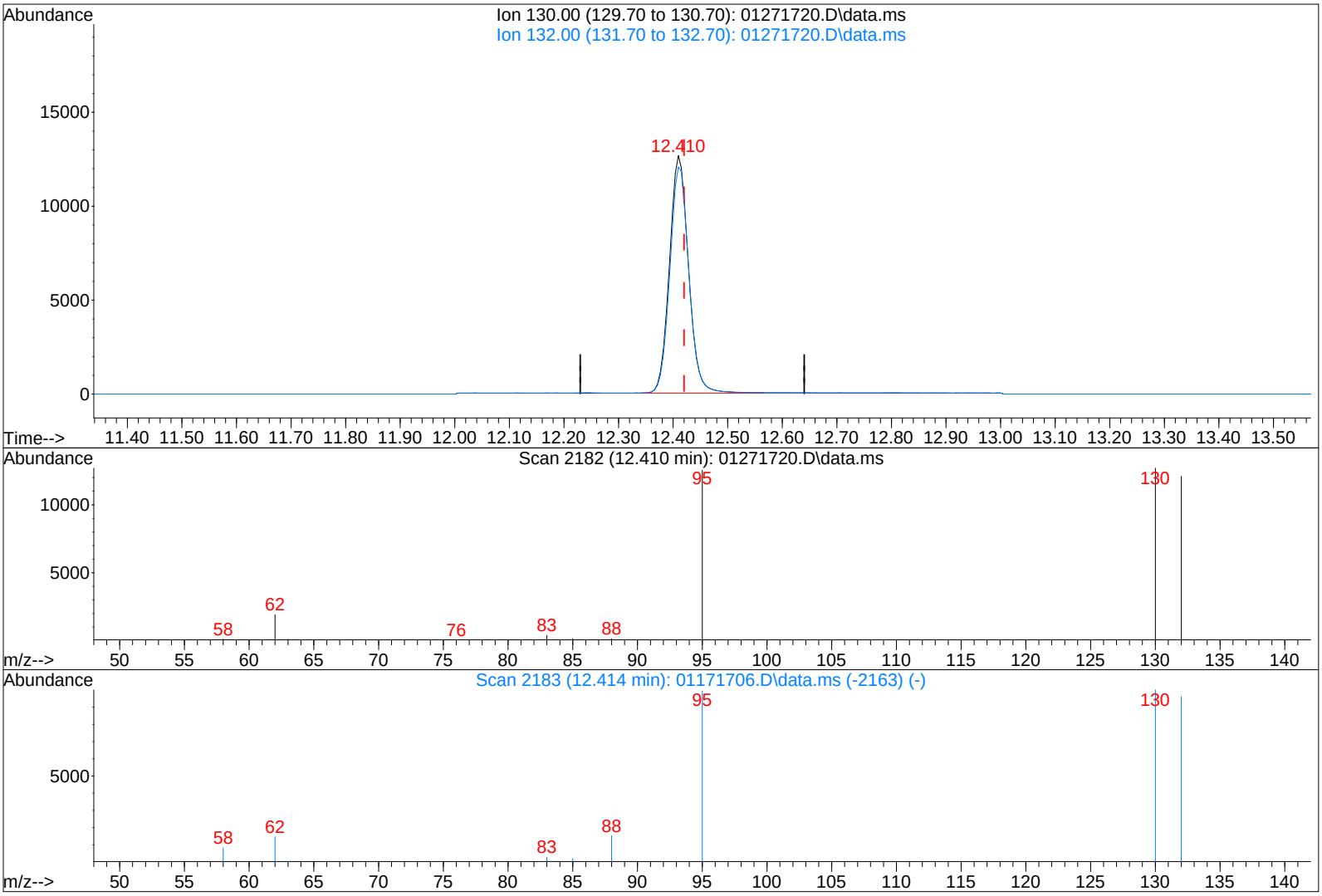
response 10464

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	65.33
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271720.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.011) 499.69pg

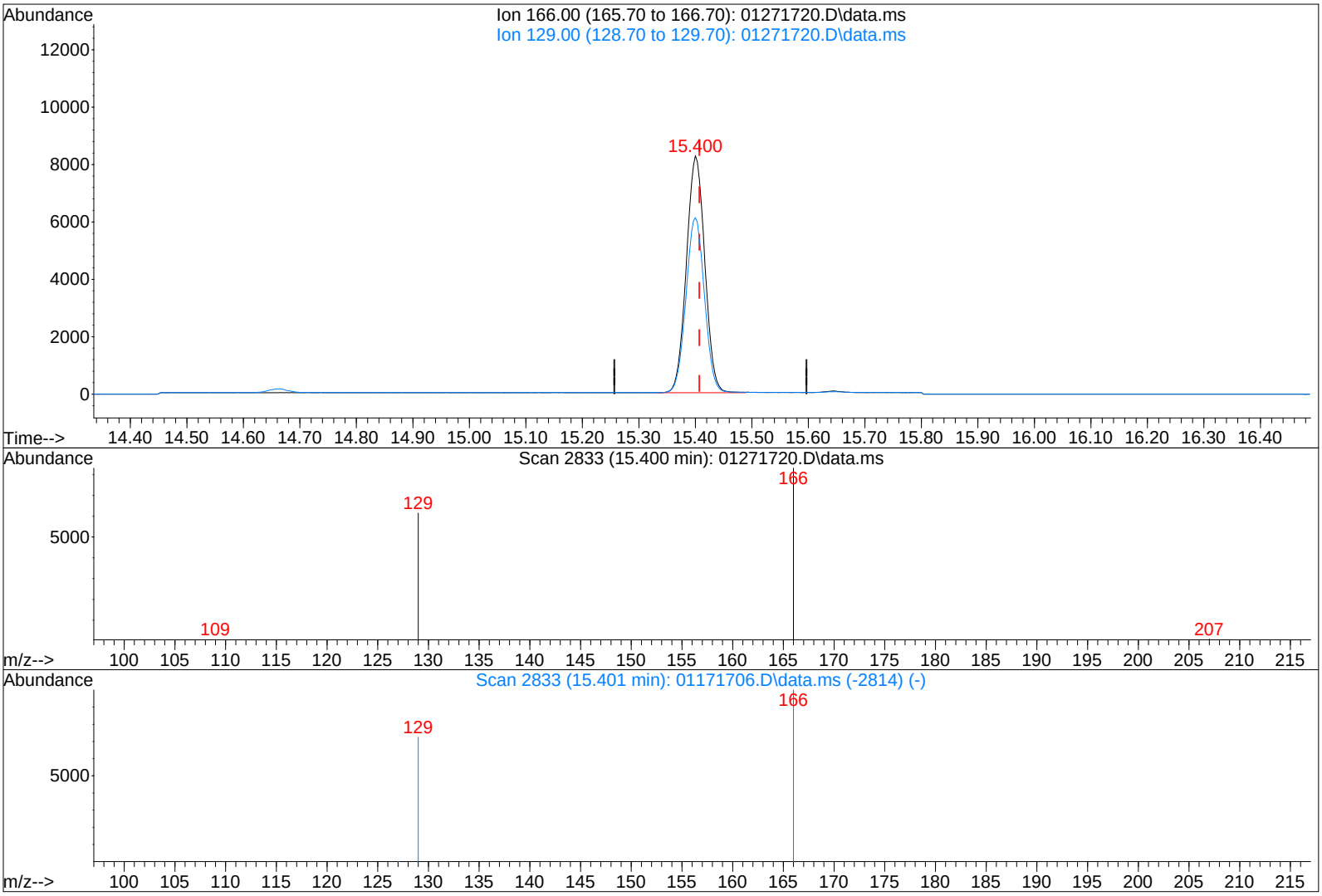
response 30592

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.91
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\27\01271720.D Vial: 11
Acq On : 27 Jan 2017 17:53 Operator: CL
Sample : P1700261-014 (1000mL) PF2 Inst : MS19
Misc : S29-01241701

Quant Time: Jan 28 08:03:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01271720.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.007) 293.93pg

response 18658

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	74.29
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	42360	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	187253	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	28915	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	66552	907.177	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.72%			
33) Toluene-d8 (SS2)	14.15	98	187865	1009.996	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.00%			
45) Bromofluorobenzene (SS3)	17.56	174	56201	1062.454	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.46	85	75	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.48	58	2943	101.800	pg	93
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.53	84	233	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	617	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.39	78	3326	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	476	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.10	112	85	N.D.		
40) Ethylbenzene	16.50	91	91	N.D.		
41) m,p-Xylene	16.67	91	141	N.D.		
42) Styrene	17.04	104	92	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	163	N.D.		
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
47) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	68	N.D.		
49) 1,4-Dichlorobenzene	18.99	146	81	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	81	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.98	182	120	N.D.		
53) Naphthalene	21.13	128	572	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

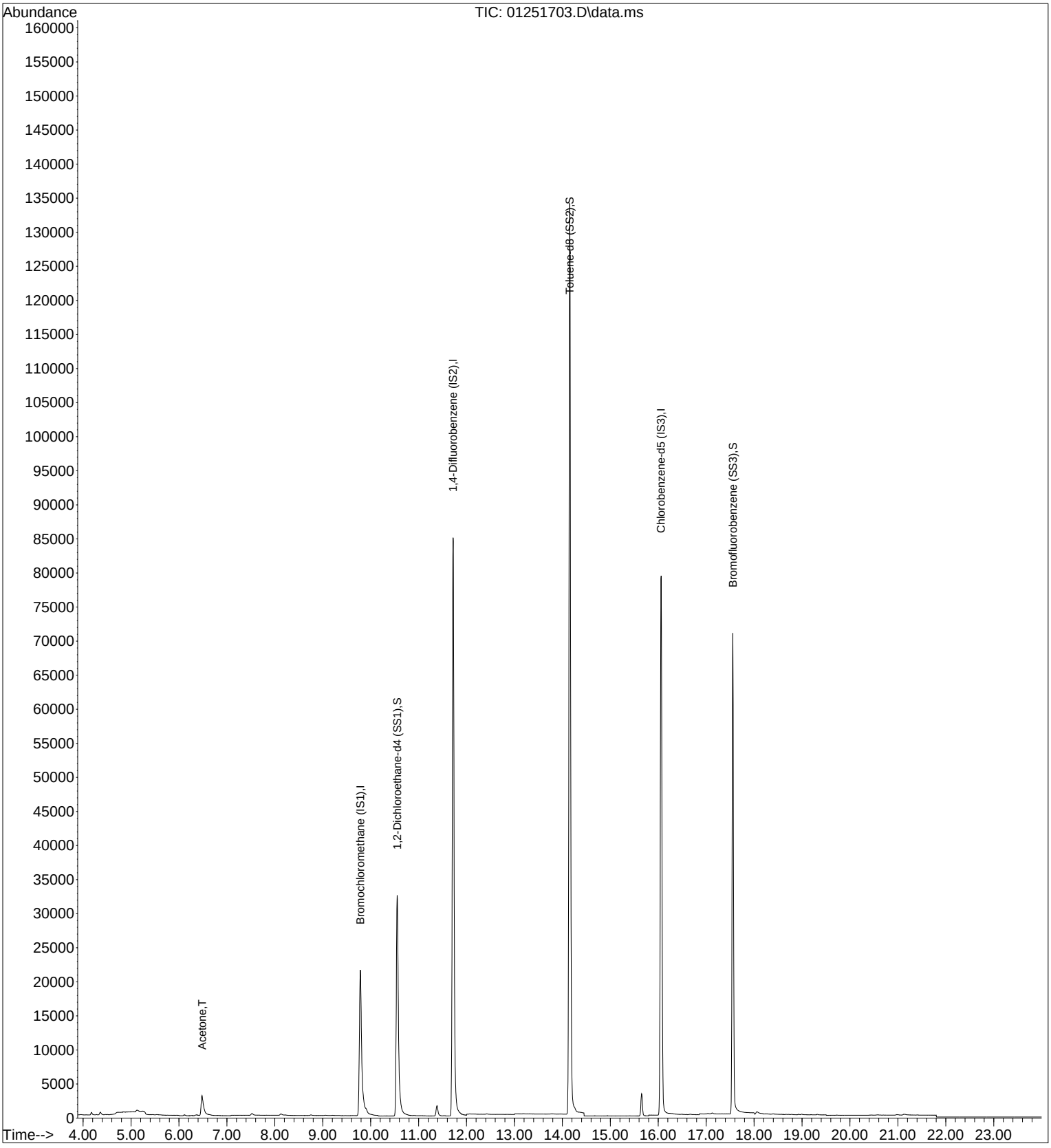
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251703.D Vial: 2
Acq On : 25 Jan 2017 16:08 Operator: CL
Sample : MB S19012517 1000mL Inst : MS19
Misc : S29-12201602/AC01205

Quant Time: Jan 26 07:19:45 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	49310	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	214885	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	31834	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	76785	899.141	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.91%				
33) Toluene-d8 (SS2)	14.15	98	210865	987.873	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.79%				
45) Bromofluorobenzene (SS3)	17.56	174	57006	978.855	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.89%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.46	85	136	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.11	54	146	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	4640	137.879	pg	#	82
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.53	84	326	N.D.			
14) Trichlorotrifluoroethane	7.83	151	60	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.75	73	103	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	821	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3425	N.D.			
24) Carbon Tetrachloride	11.54	117	50	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	12.43	130	65	N.D.			
29) 1,4-Dioxane	12.43	88	51	N.D.			
30) cis-1,3-Dichloropropene	13.29	75	51	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	657	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	14.93	107	52	N.D.			
37) Tetrachloroethene	15.40	166	51	N.D.			
39) Chlorobenzene	16.10	112	171	N.D.			
40) Ethylbenzene	16.49	91	103	N.D.			
41) m,p-Xylene	16.67	91	181	N.D.			
42) Styrene	17.04	104	134	N.D.			
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.12	83	136	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.81	105	70	N.D.			
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.			
49) 1,4-Dichlorobenzene	19.01	146	144	N.D.			
50) 1,2-Dichlorobenzene	19.33	146	55	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	21.01	182	234	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

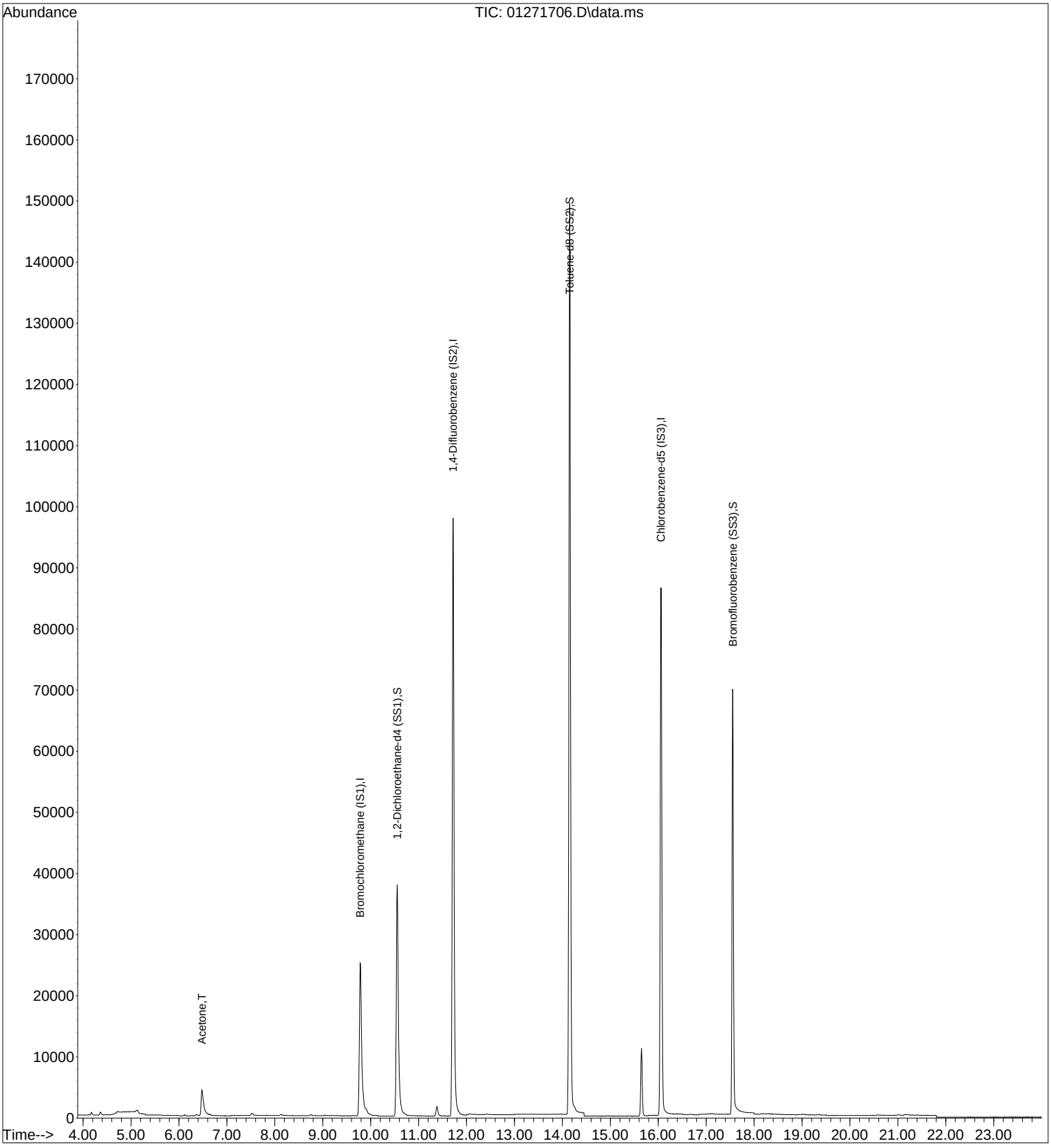
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	59	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271706.D Vial: 2
Acq On : 27 Jan 2017 10:02 Operator: CL
Sample : MB S19012717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 27 10:27:35 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	43243	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	212725	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	30868	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	67145	896.571	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.66%				
33) Toluene-d8 (SS2)	14.15	98	201850	955.241	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.52%				
45) Bromofluorobenzene (SS3)	17.55	174	66047	1169.590	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.96%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	50628	463.438	pg		100
3) Chloromethane	4.65	52	11989	368.363	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	48184	448.306	pg		100
5) Vinyl Chloride	4.96	62	44624	427.282	pg		99
6) 1,3-Butadiene	5.14	54	18868	303.869	pg		96
7) Bromomethane	5.48	94	18498	440.301	pg		100
8) Chloroethane	5.70	64	12815	398.829	pg		99
9) Acrolein	6.27	56	8022	351.446	pg		99
10) Acetone	6.40	58	66491	2253.004	pg	#	88
11) Trichlorofluoromethane	6.62	101	36646	490.450	pg		100
12) 1,1-Dichloroethene	7.35	96	20723	442.694	pg		93
13) Methylene Chloride	7.48	84	23806	468.634	pg		89
14) Trichlorotrifluoroethane	7.80	151	21278	455.611	pg		99
15) trans-1,2-Dichloroethene	8.51	96	22589	447.615	pg		100
16) 1,1-Dichloroethane	8.72	63	37154	414.977	pg		99
17) Methyl tert-Butyl Ether	8.79	73	56513	422.996	pg		97
18) cis-1,2-Dichloroethene	9.59	96	23732	448.133	pg		100
19) Chloroform	9.89	83	41956	445.623	pg		100
21) 1,2-Dichloroethane	10.64	62	29823	411.487	pg		99
22) 1,1,1-Trichloroethane	10.91	97	37038	423.782	pg		99
23) Benzene	11.37	78	98159	473.198	pg		100
24) Carbon Tetrachloride	11.52	117	32818	467.636	pg		100
26) 1,2-Dichloropropane	12.18	63	20382	376.162	pg		98
27) Bromodichloromethane	12.36	83	31020	414.576	pg		100
28) Trichloroethene	12.41	130	24589	444.597	pg		100
29) 1,4-Dioxane	12.38	88	16443	404.891	pg		92
30) cis-1,3-Dichloropropene	13.26	75	30457	417.909	pg		100
31) trans-1,3-Dichloropropene	13.77	75	26043	439.104	pg		100
32) 1,1,2-Trichloroethane	13.95	83	18866	411.634	pg		97
34) Toluene	14.25	91	86416	437.851	pg		100
35) Dibromochloromethane	14.66	129	24022	439.537	pg		100
36) 1,2-Dibromoethane	14.92	107	23467	453.996	pg		100
37) Tetrachloroethene	15.40	166	24539	427.920	pg		98
39) Chlorobenzene	16.10	112	60764	510.645	pg		100
40) Ethylbenzene	16.48	91	85715	488.473	pg		99
41) m,p-Xylene	16.66	91	137131	1041.898	pg		99
42) Styrene	17.01	104	46944	509.095	pg		100
43) o-Xylene	17.12	106	35875	530.583	pg		98
44) 1,1,2,2-Tetrachloroethane	17.09	83	37270	479.728	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	72386	519.550	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	71871	525.558	pg		99
48) 1,3-Dichlorobenzene	18.92	146	45469	540.974	pg		100
49) 1,4-Dichlorobenzene	18.98	146	43870	501.328	pg		100
50) 1,2-Dichlorobenzene	19.31	146	43259	505.044	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	11400	440.282	pg		94
52) 1,2,4-Trichlorobenzene	20.95	182	14738	290.691	pg		97
53) Naphthalene	21.07	128	43519	270.320	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

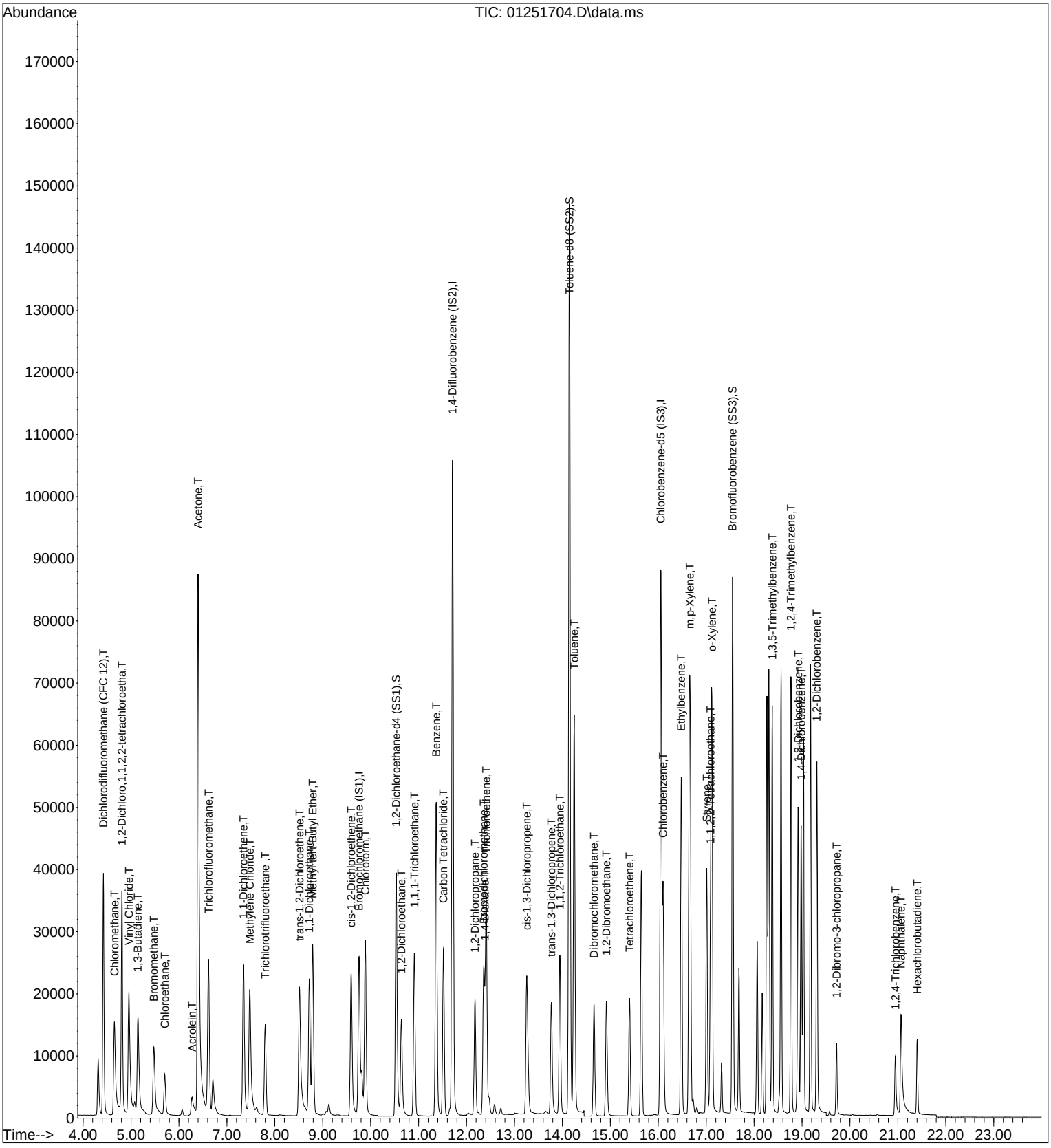
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	11870	295.932	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251704.D Vial: 2
Acq On : 25 Jan 2017 16:39 Operator: CL
Sample : LCS S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01171715 (2/17)

Quant Time: Jan 26 07:19:46 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	48731	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	241793	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	33444	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	78415	929.139	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.91%				
33) Toluene-d8 (SS2)	14.14	98	224607	935.152	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.51%				
45) Bromofluorobenzene (SS3)	17.55	174	67784	1107.894	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.79%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	65519	532.204	pg		100
3) Chloromethane	4.65	52	15984	435.802	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	62673	517.443	pg		100
5) Vinyl Chloride	4.96	62	57212	486.120	pg		100
6) 1,3-Butadiene	5.15	54	24178	345.535	pg		96
7) Bromomethane	5.48	94	23979	506.485	pg		100
8) Chloroethane	5.70	64	16631	459.301	pg		99
9) Acrolein	6.27	56	10109	393.002	pg		99
10) Acetone	6.40	58	83883	2522.224	pg	#	89
11) Trichlorofluoromethane	6.62	101	46872	556.663	pg		100
12) 1,1-Dichloroethene	7.35	96	26944	510.768	pg		93
13) Methylene Chloride	7.48	84	30772	537.544	pg		89
14) Trichlorotrifluoroethane	7.80	151	27492	522.373	pg		99
15) trans-1,2-Dichloroethene	8.51	96	29158	512.715	pg		100
16) 1,1-Dichloroethane	8.72	63	48403	479.734	pg		100
17) Methyl tert-Butyl Ether	8.79	73	72146	479.194	pg		97
18) cis-1,2-Dichloroethene	9.59	96	30703	514.475	pg		100
19) Chloroform	9.89	83	54216	510.989	pg		100
21) 1,2-Dichloroethane	10.64	62	38994	477.434	pg		100
22) 1,1,1-Trichloroethane	10.91	97	47674	484.047	pg		100
23) Benzene	11.36	78	120753	516.560	pg		100
24) Carbon Tetrachloride	11.52	117	42048	531.682	pg		100
26) 1,2-Dichloropropane	12.18	63	26641	432.567	pg		99
27) Bromodichloromethane	12.36	83	40061	471.042	pg		99
28) Trichloroethene	12.41	130	31777	505.491	pg		100
29) 1,4-Dioxane	12.38	88	21545	466.744	pg		92
30) cis-1,3-Dichloropropene	13.25	75	39162	472.752	pg		100
31) trans-1,3-Dichloropropene	13.77	75	33264	493.430	pg		99
32) 1,1,2-Trichloroethane	13.95	83	24564	471.525	pg		97
34) Toluene	14.25	91	111162	495.523	pg		100
35) Dibromochloromethane	14.66	129	30690	494.036	pg		100
36) 1,2-Dibromoethane	14.92	107	30024	511.020	pg		100
37) Tetrachloroethene	15.40	166	31881	489.117	pg		98
39) Chlorobenzene	16.10	112	78171	606.329	pg		100
40) Ethylbenzene	16.48	91	110026	578.721	pg		99
41) m,p-Xylene	16.66	91	177340	1243.617	pg		99
42) Styrene	17.01	104	60236	602.928	pg		100
43) o-Xylene	17.12	106	46468	634.316	pg		98
44) 1,1,2,2-Tetrachloroethane	17.09	83	48286	573.651	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	94213	624.128	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	93051	628.027	pg		99
48) 1,3-Dichlorobenzene	18.92	146	58476	642.138	pg		99
49) 1,4-Dichlorobenzene	18.98	146	57597	607.497	pg		99
50) 1,2-Dichlorobenzene	19.31	146	56561	609.481	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	14811	527.959	pg		96
52) 1,2,4-Trichlorobenzene	20.95	182	19213	349.767	pg		97
53) Naphthalene	21.07	128	53064	304.221	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

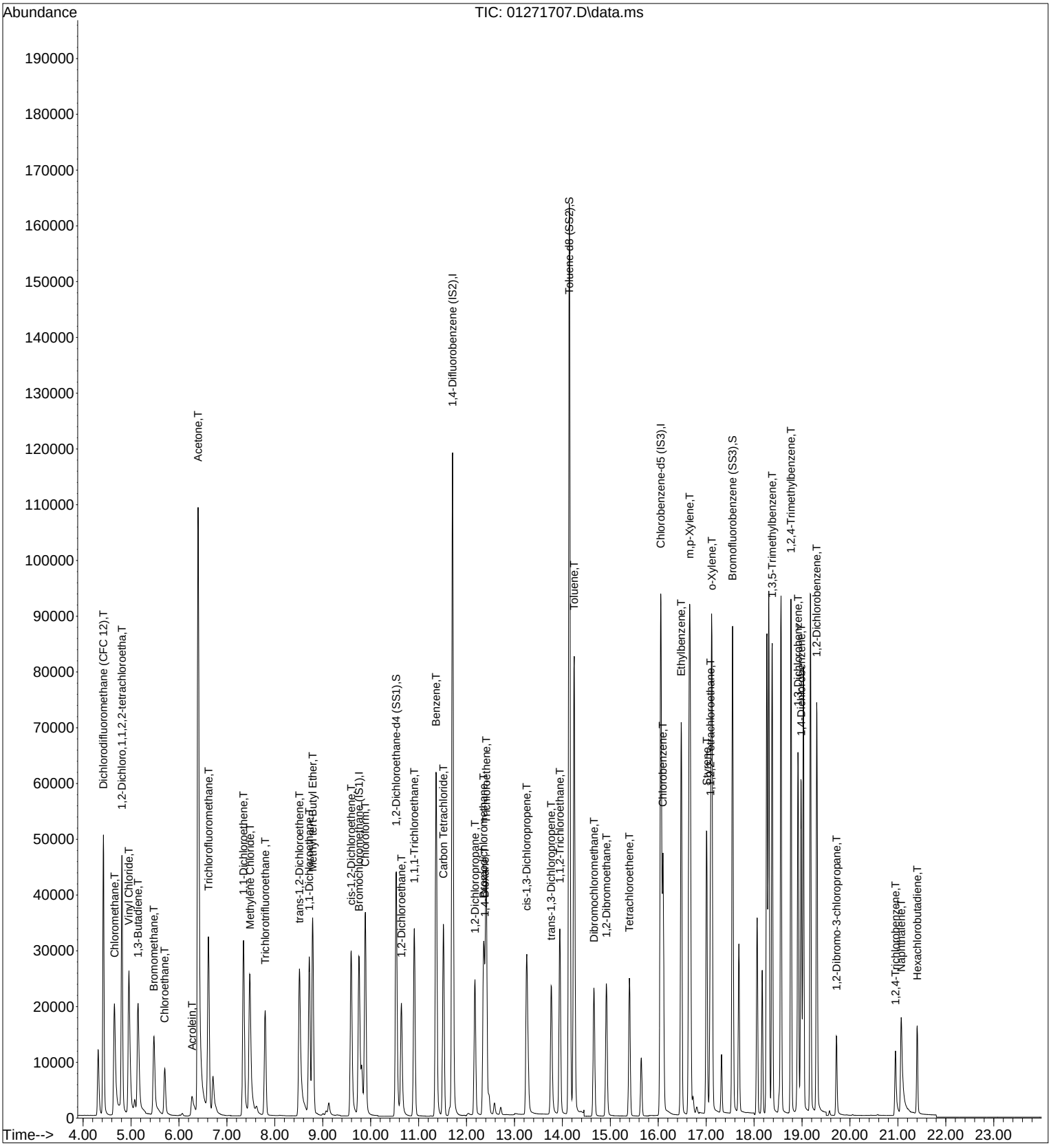
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	15679	360.786	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271707.D Vial: 2
Acq On : 27 Jan 2017 10:32 Operator: CL
Sample : LCS S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 27 11:12:49 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane		1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771		25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride		2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488		11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane		1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane		0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein		0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone				0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704		
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703		
4ng/L Std. ID:	S29-01171706					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704		
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703		
4ng/L Std. ID:	S29-01171706					
Dilution Factors:		5	50	250	1000	5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

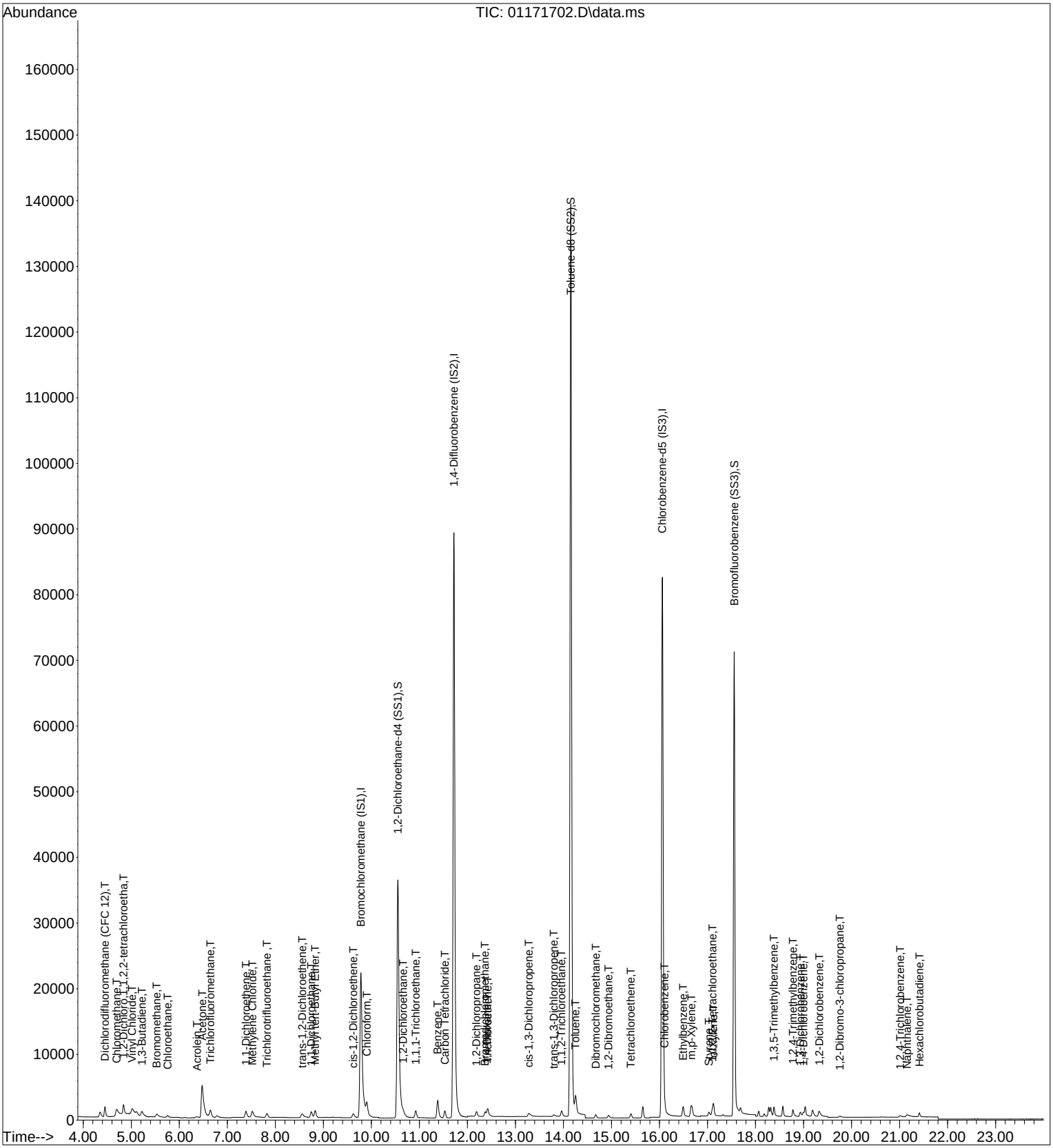
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

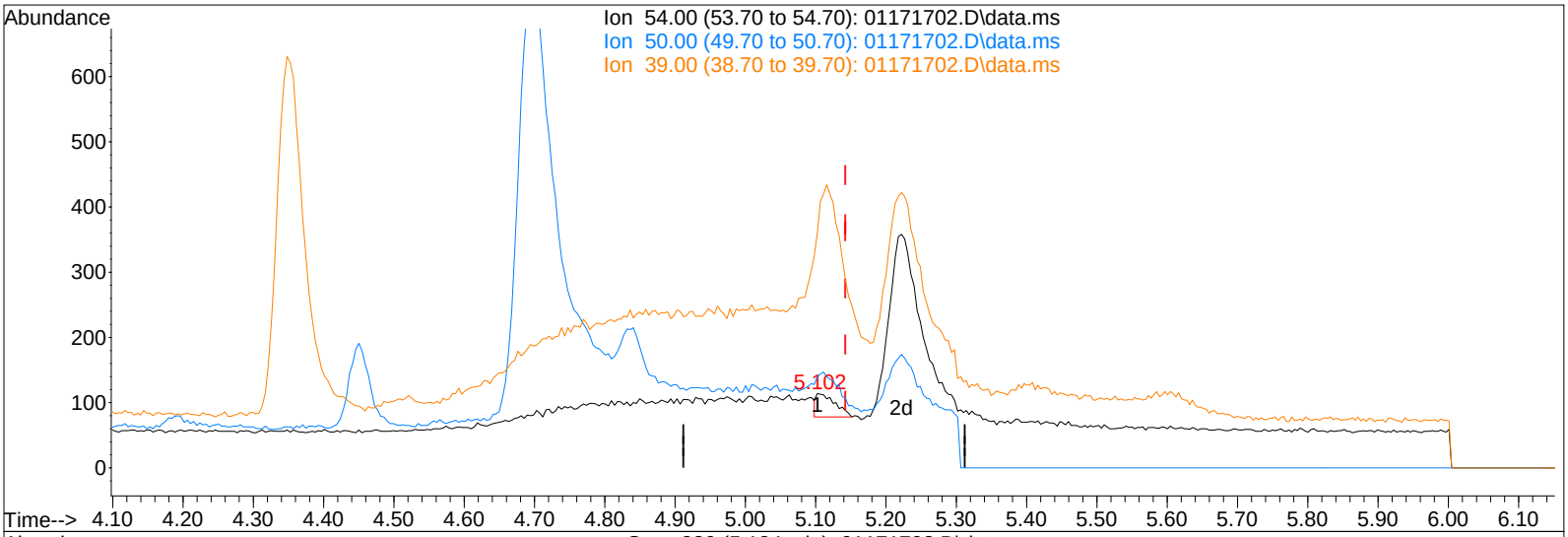
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

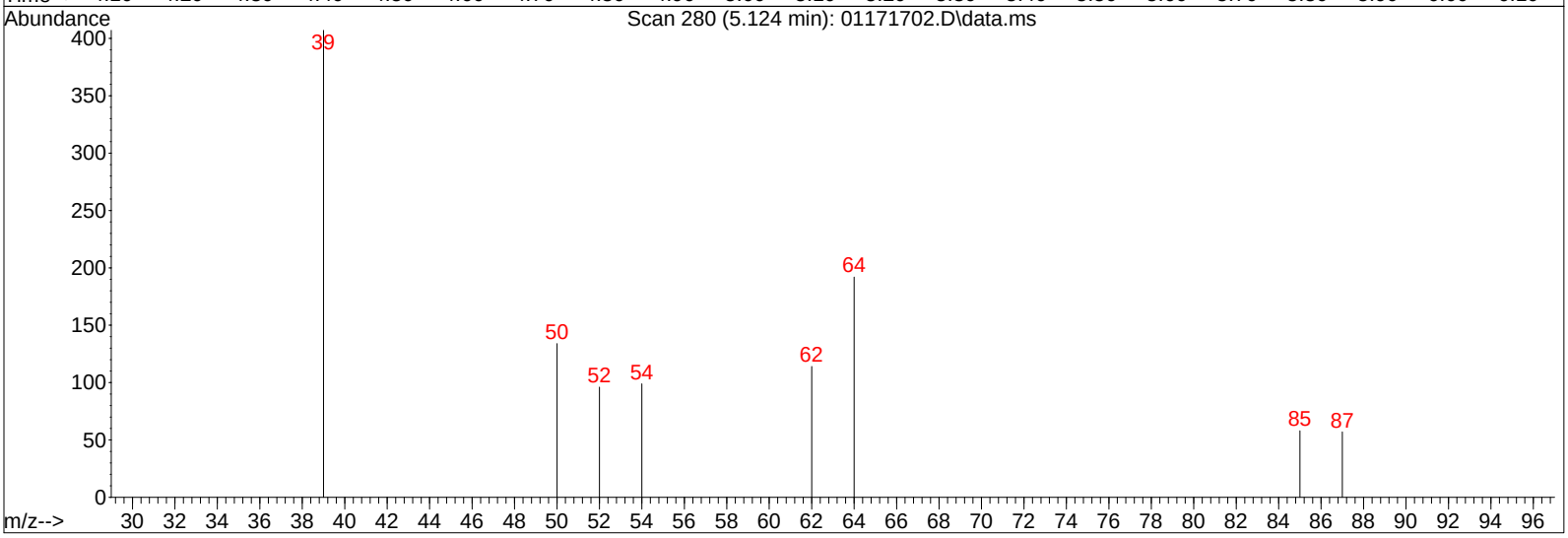


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

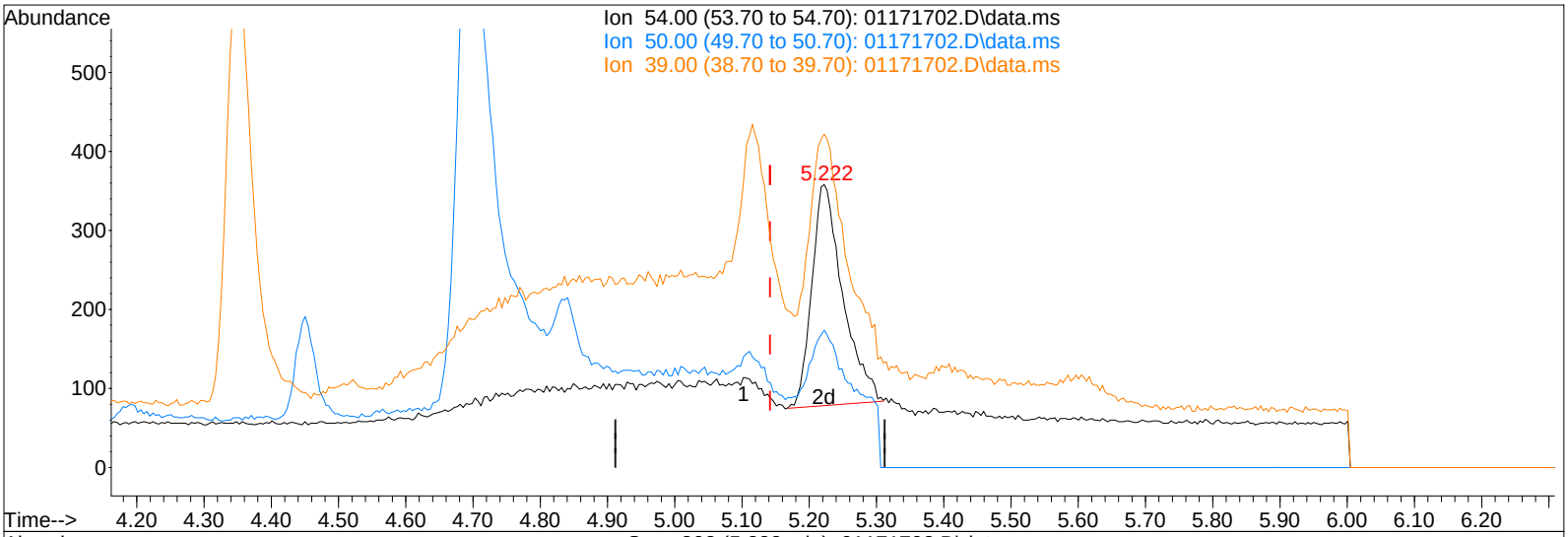
response 67

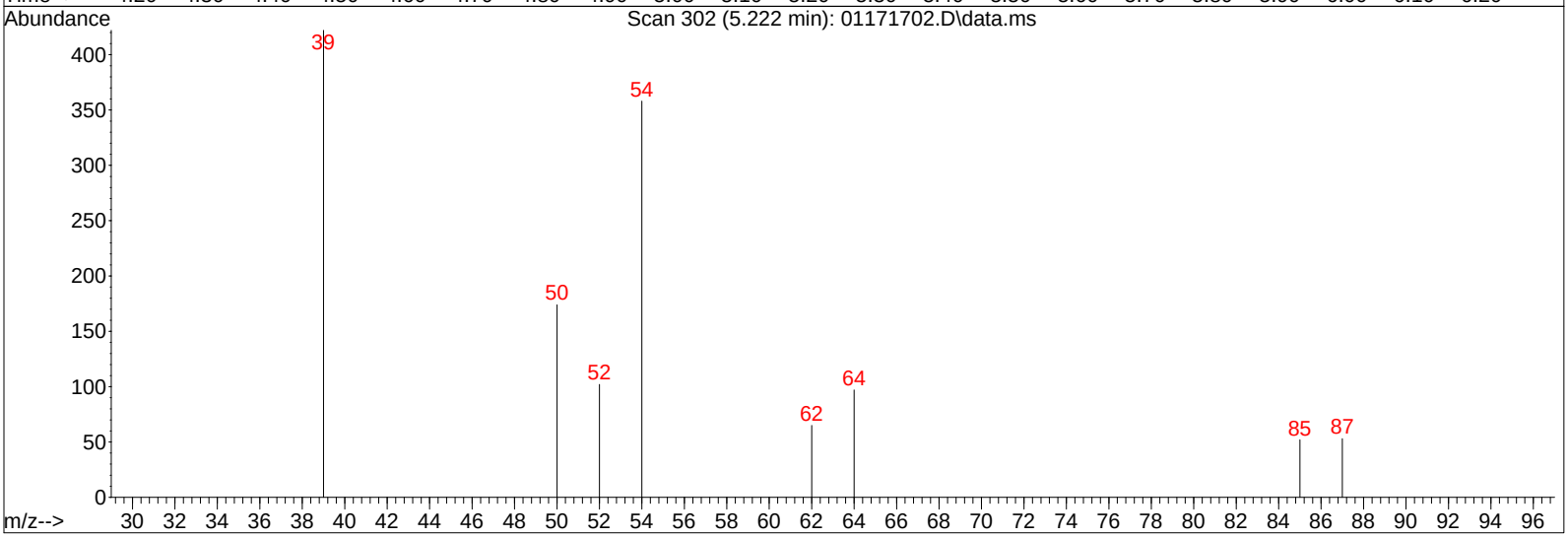
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

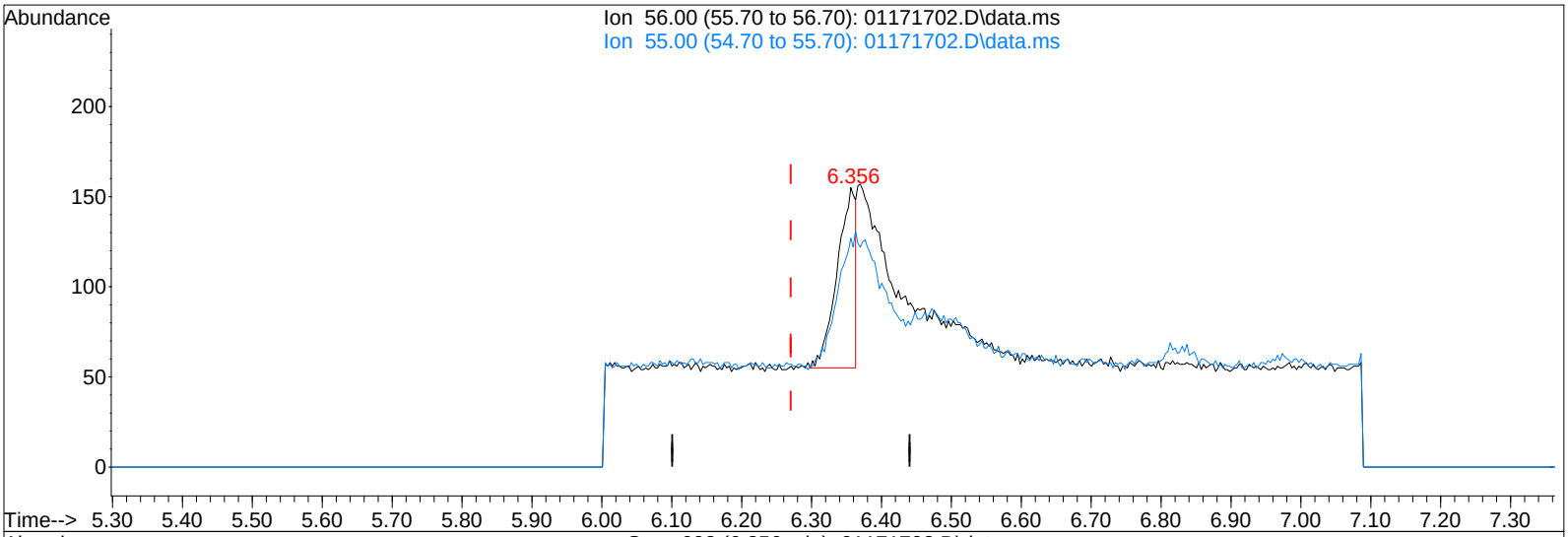
CL 1/18/17

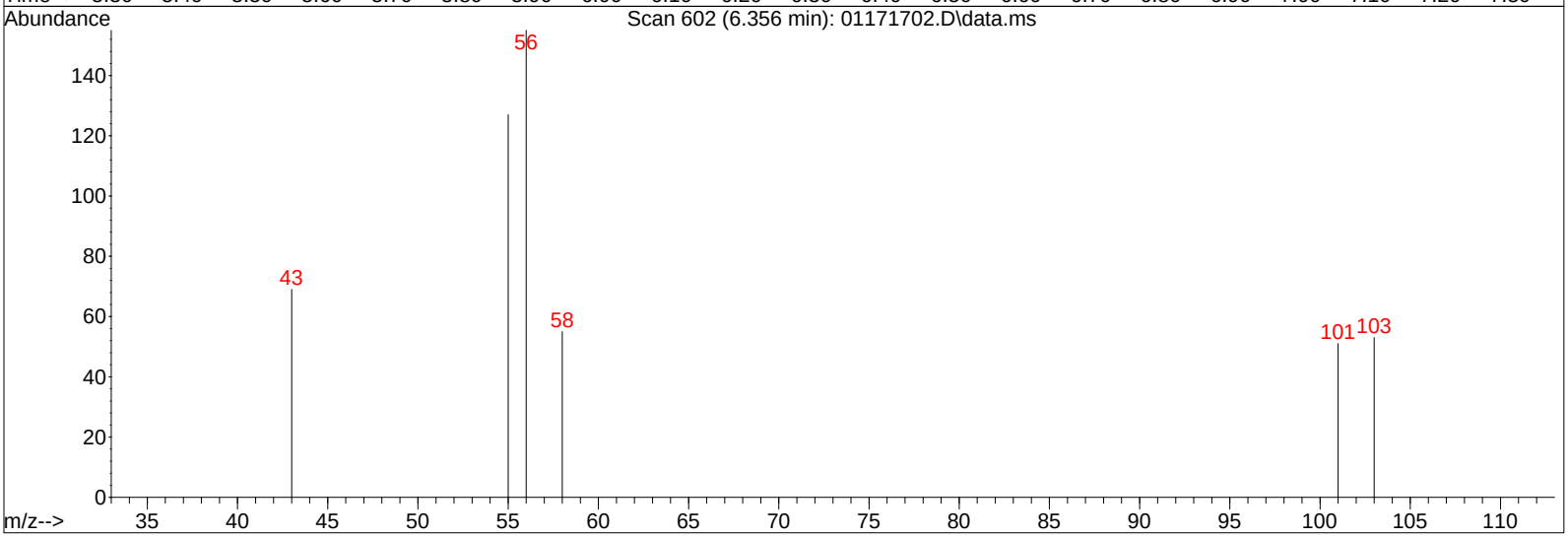
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

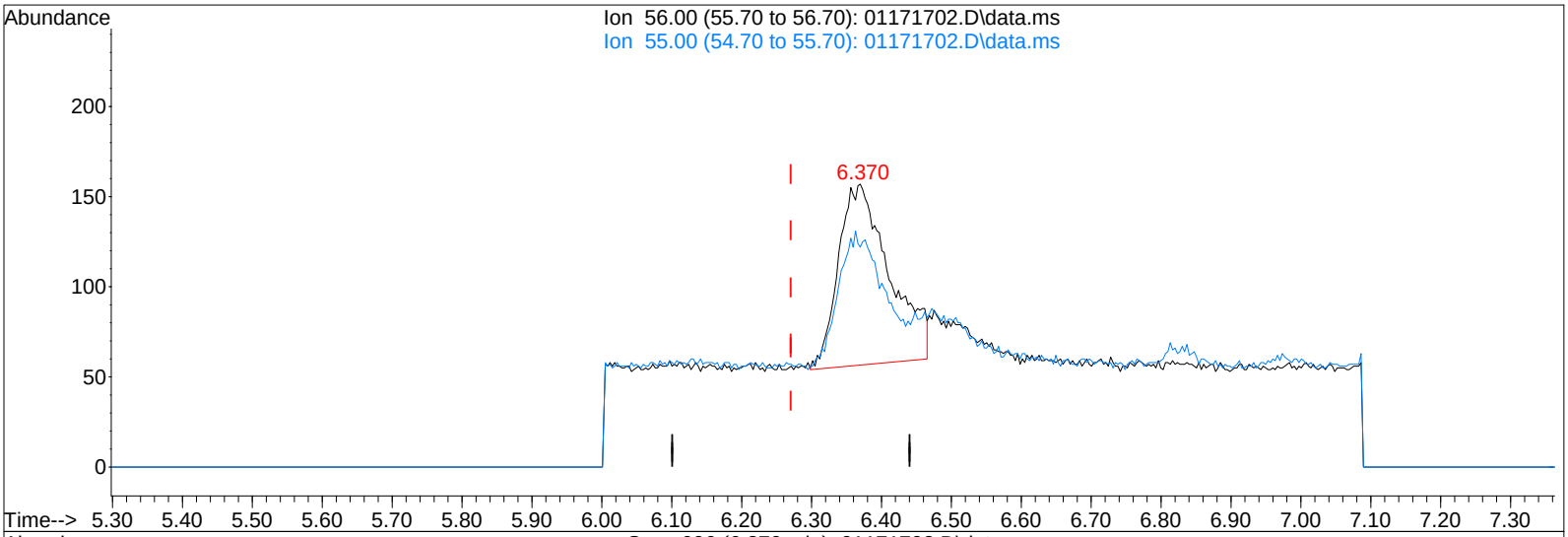
response 183

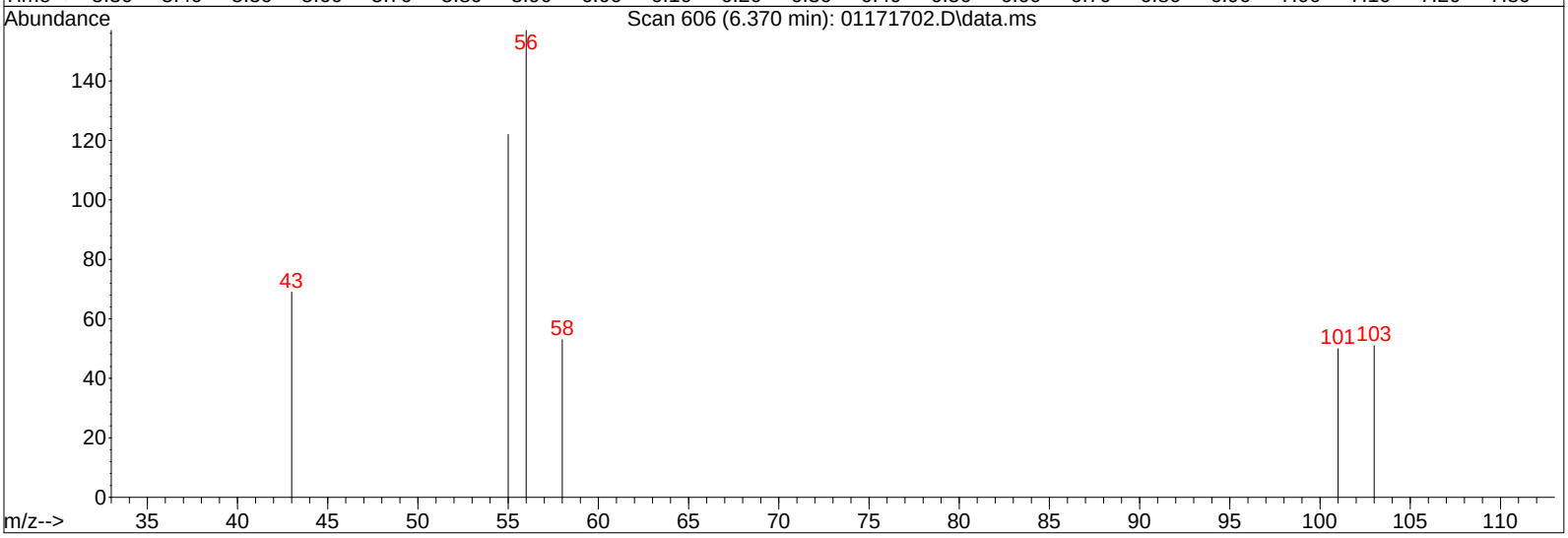
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

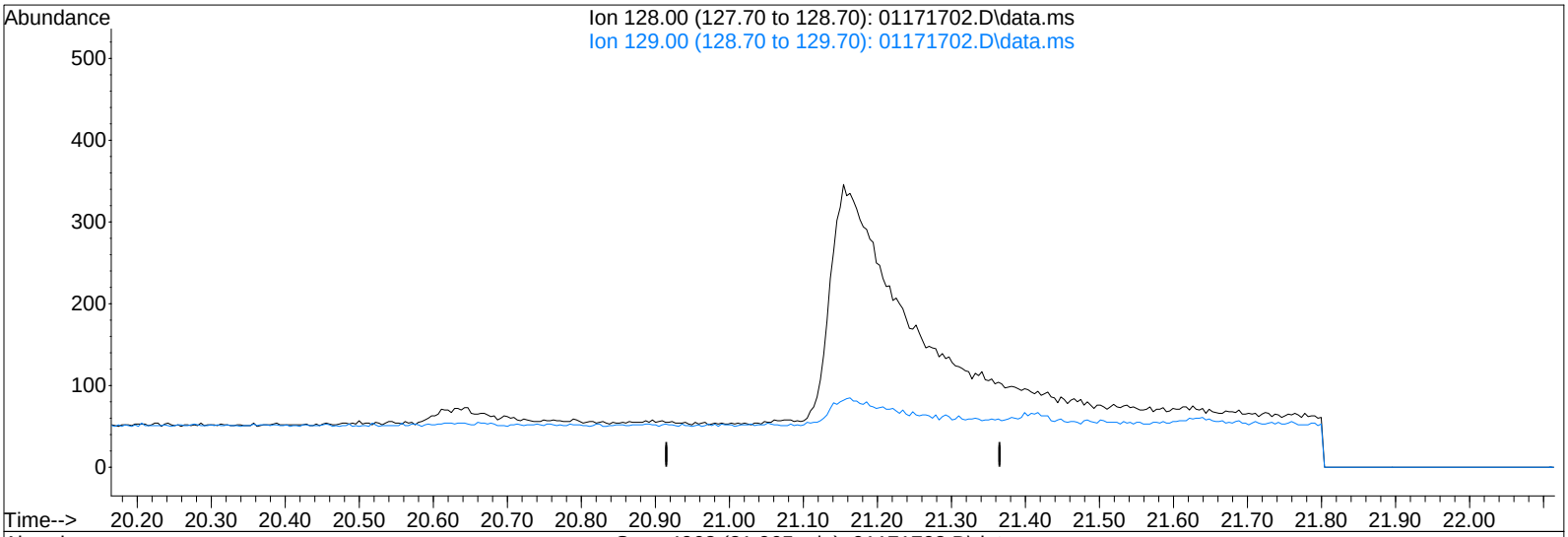
CL 1/18/17

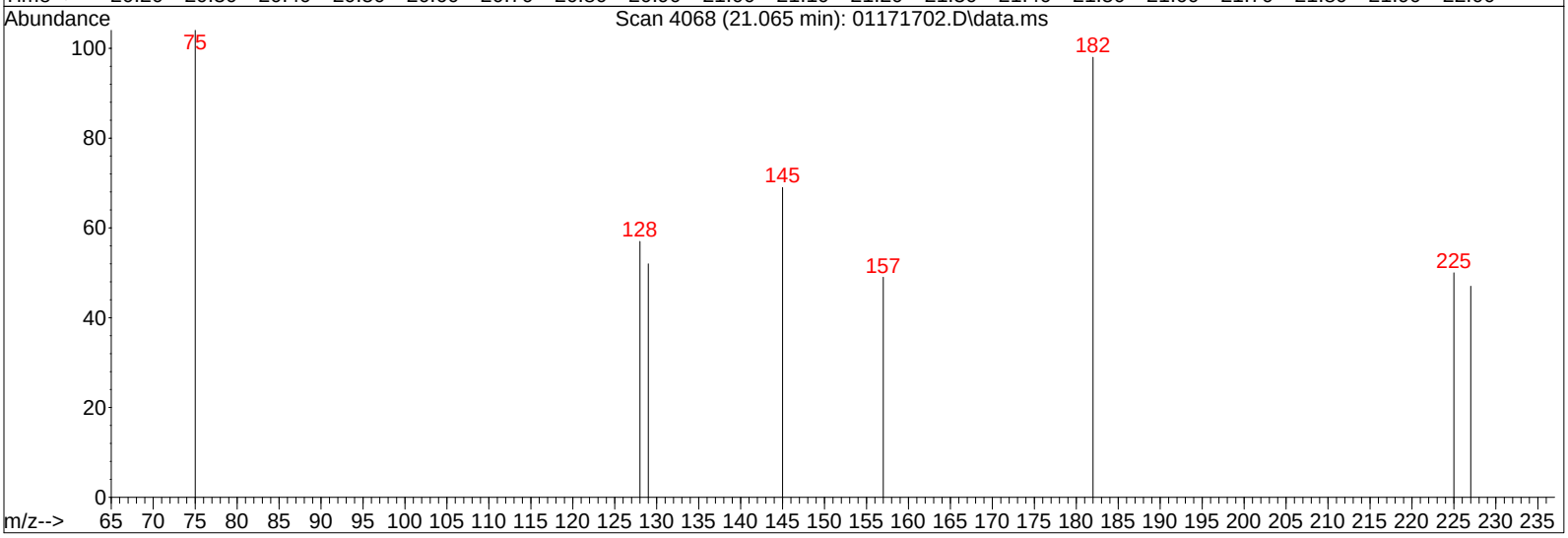
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

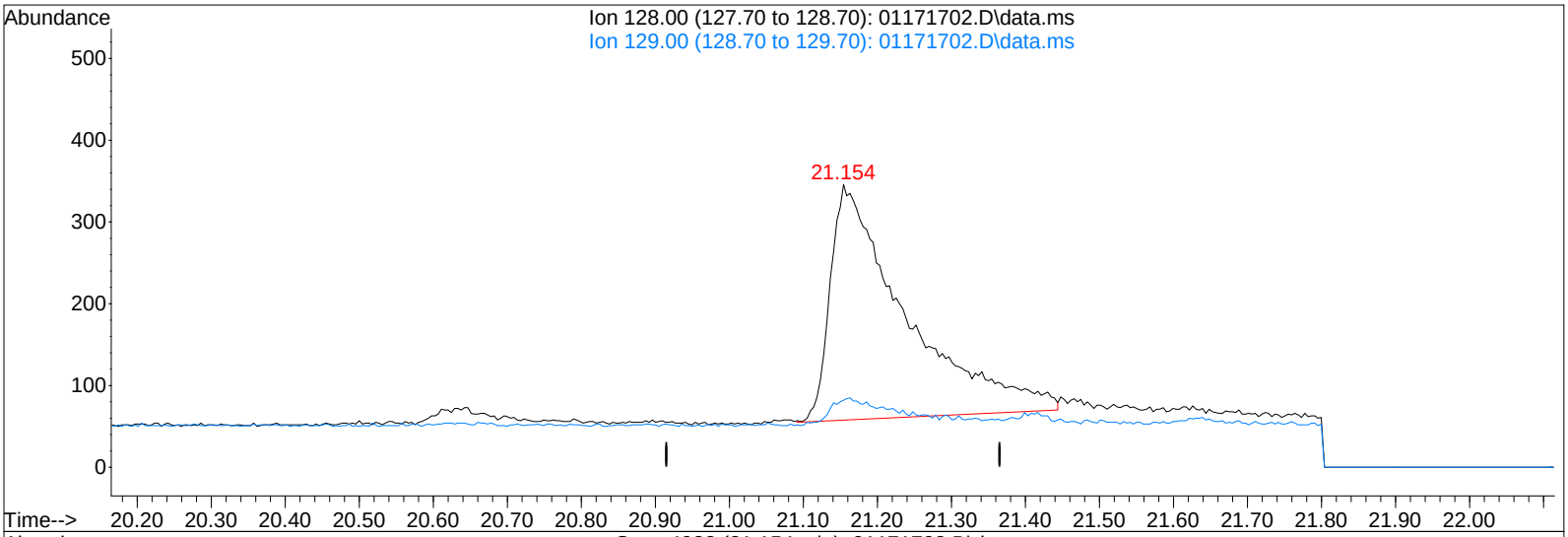
response 0

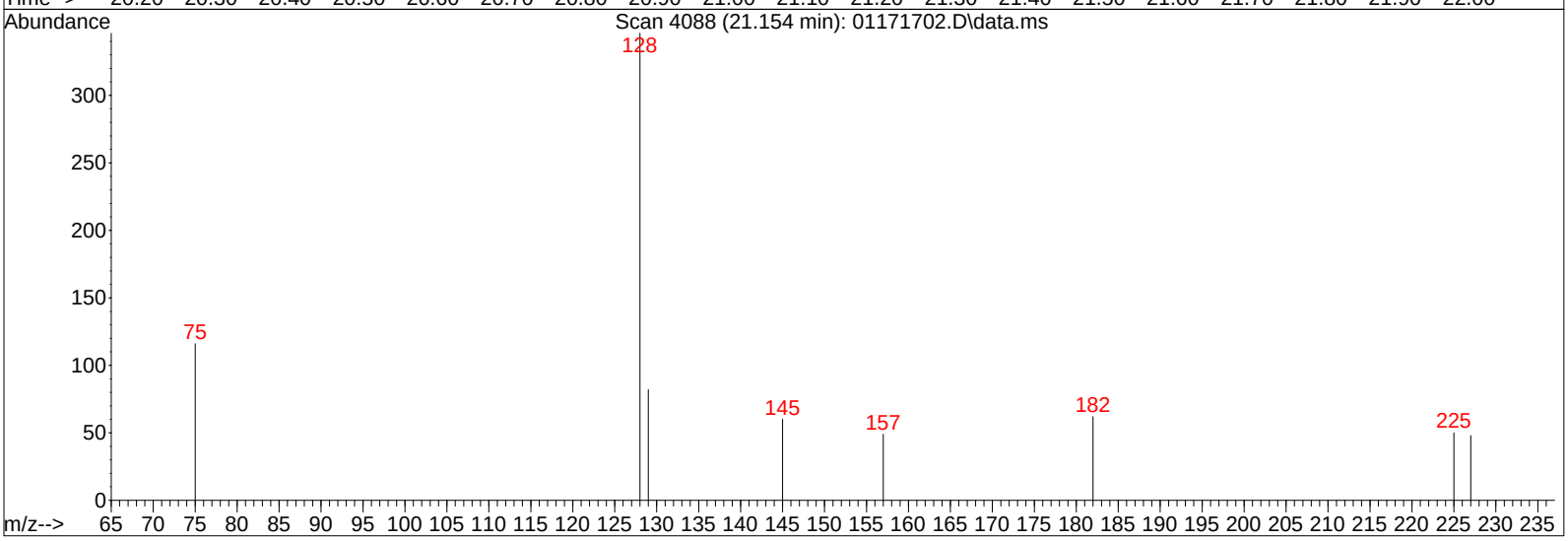
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

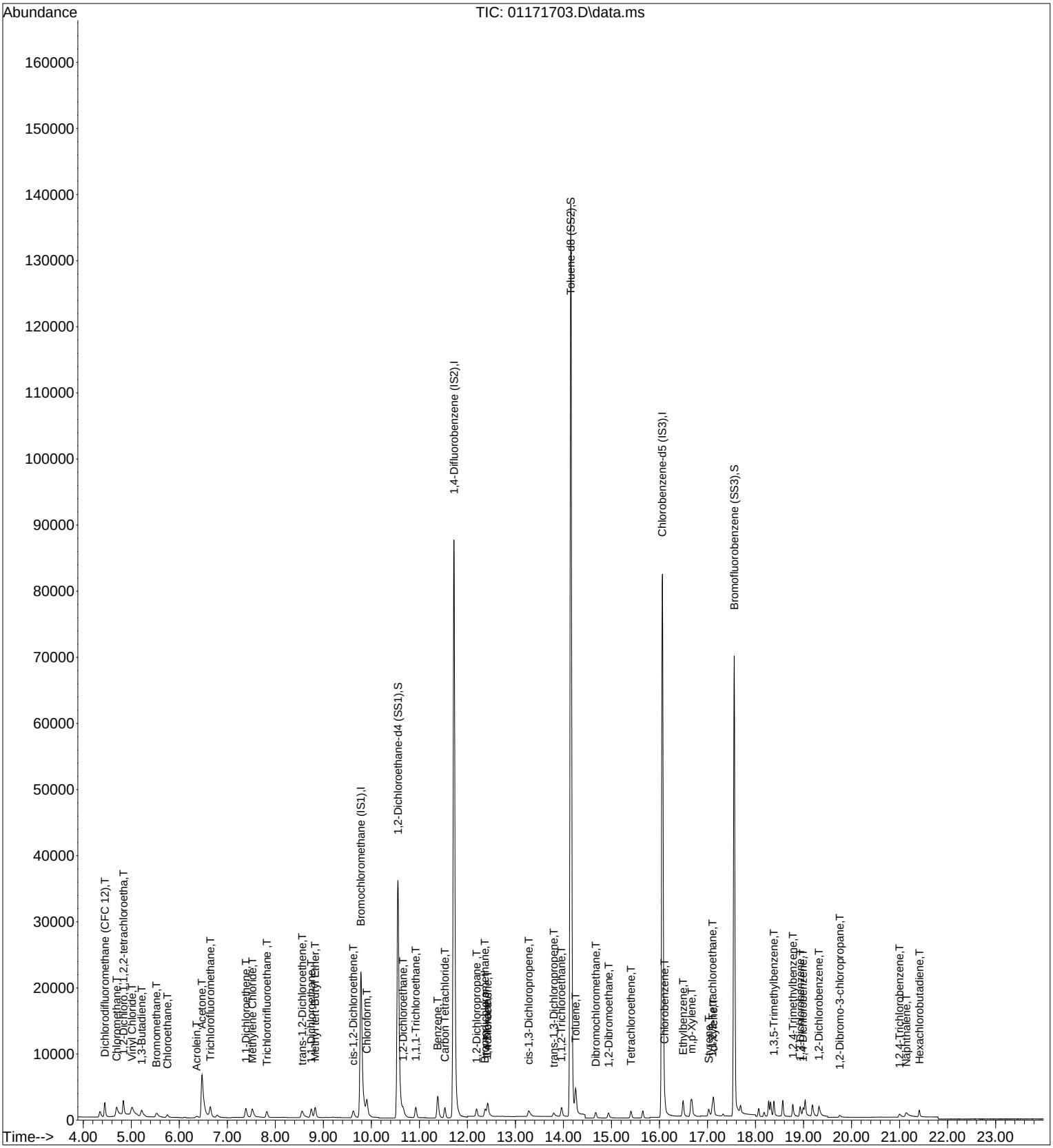
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

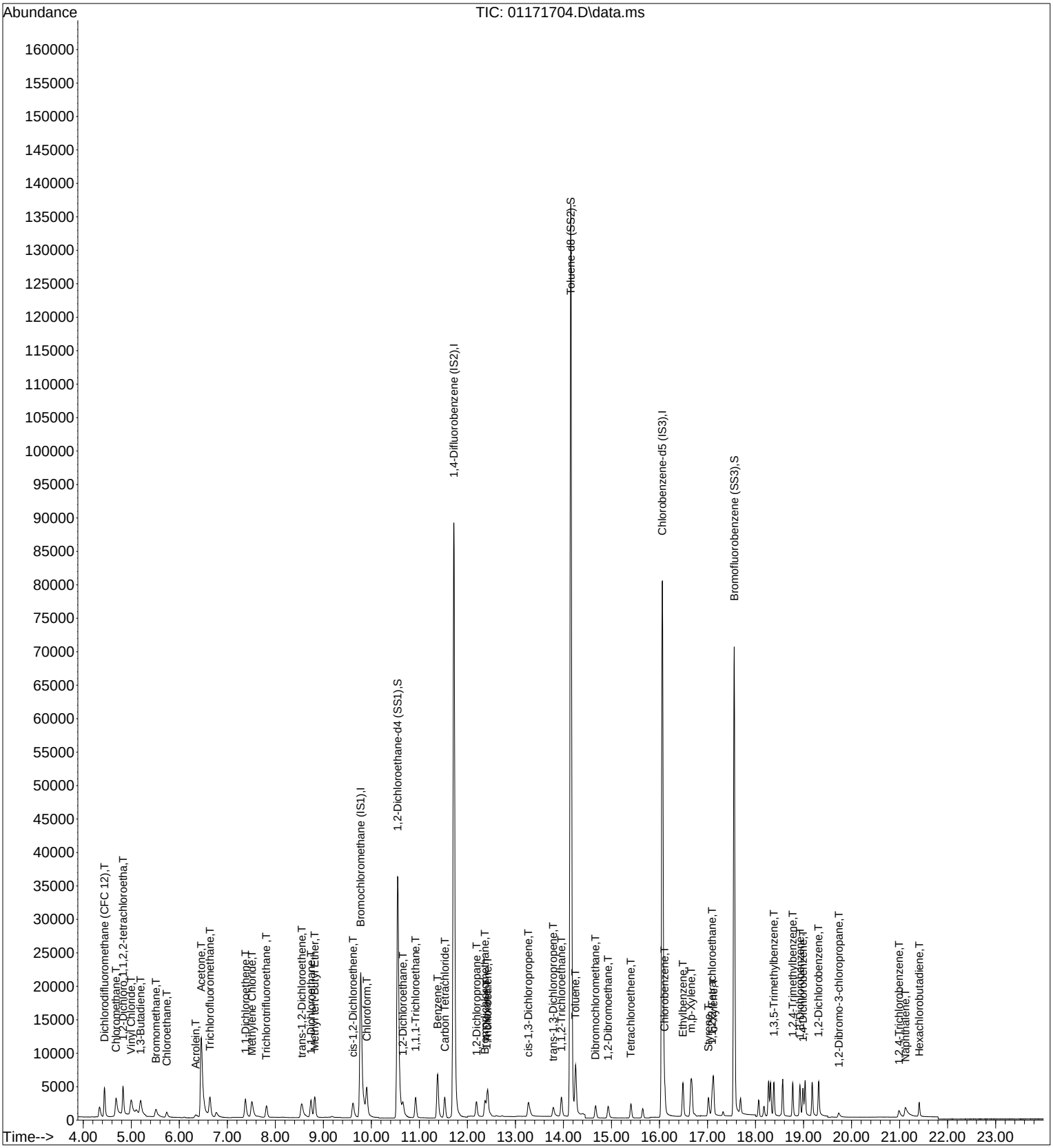
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

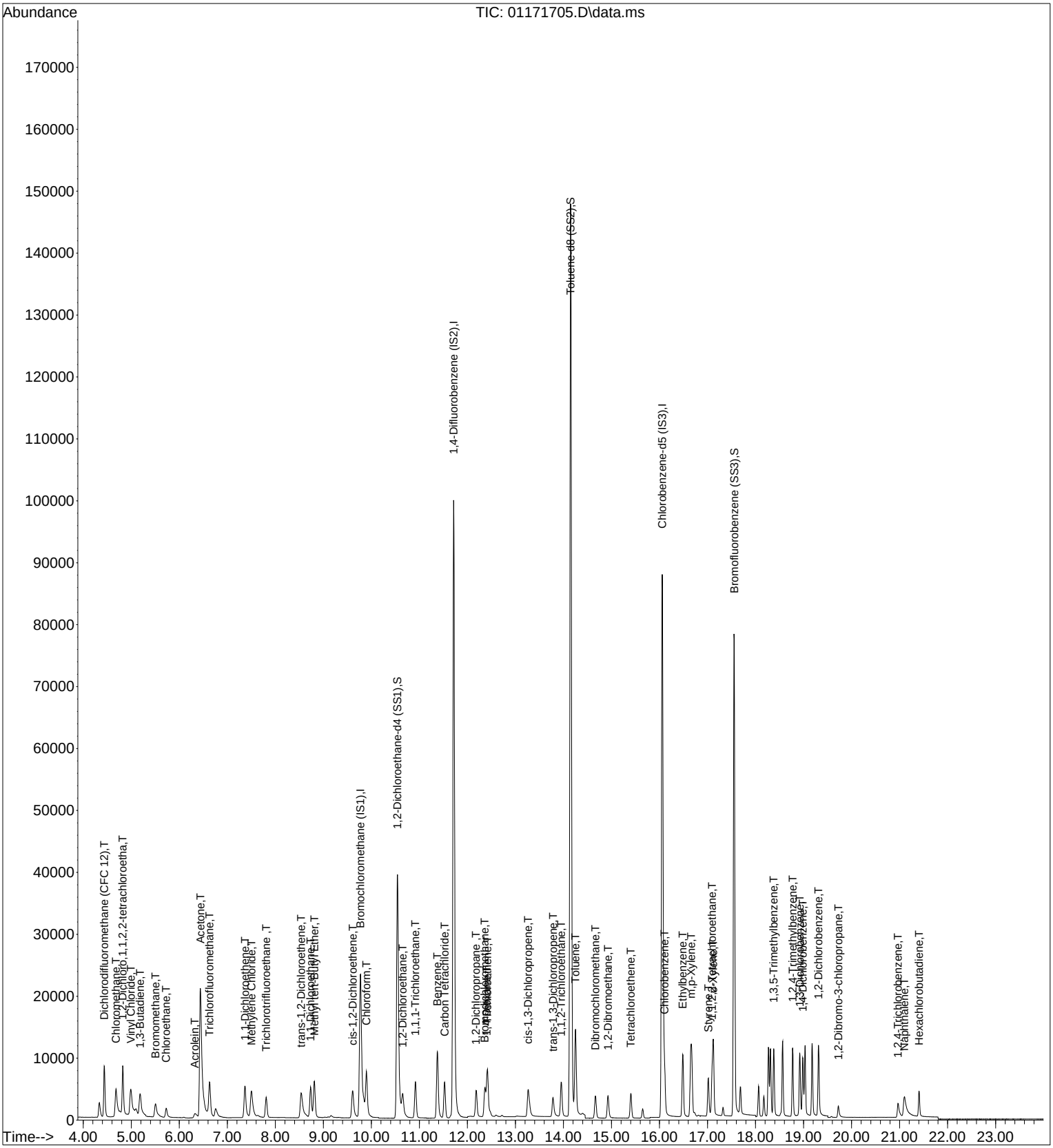
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

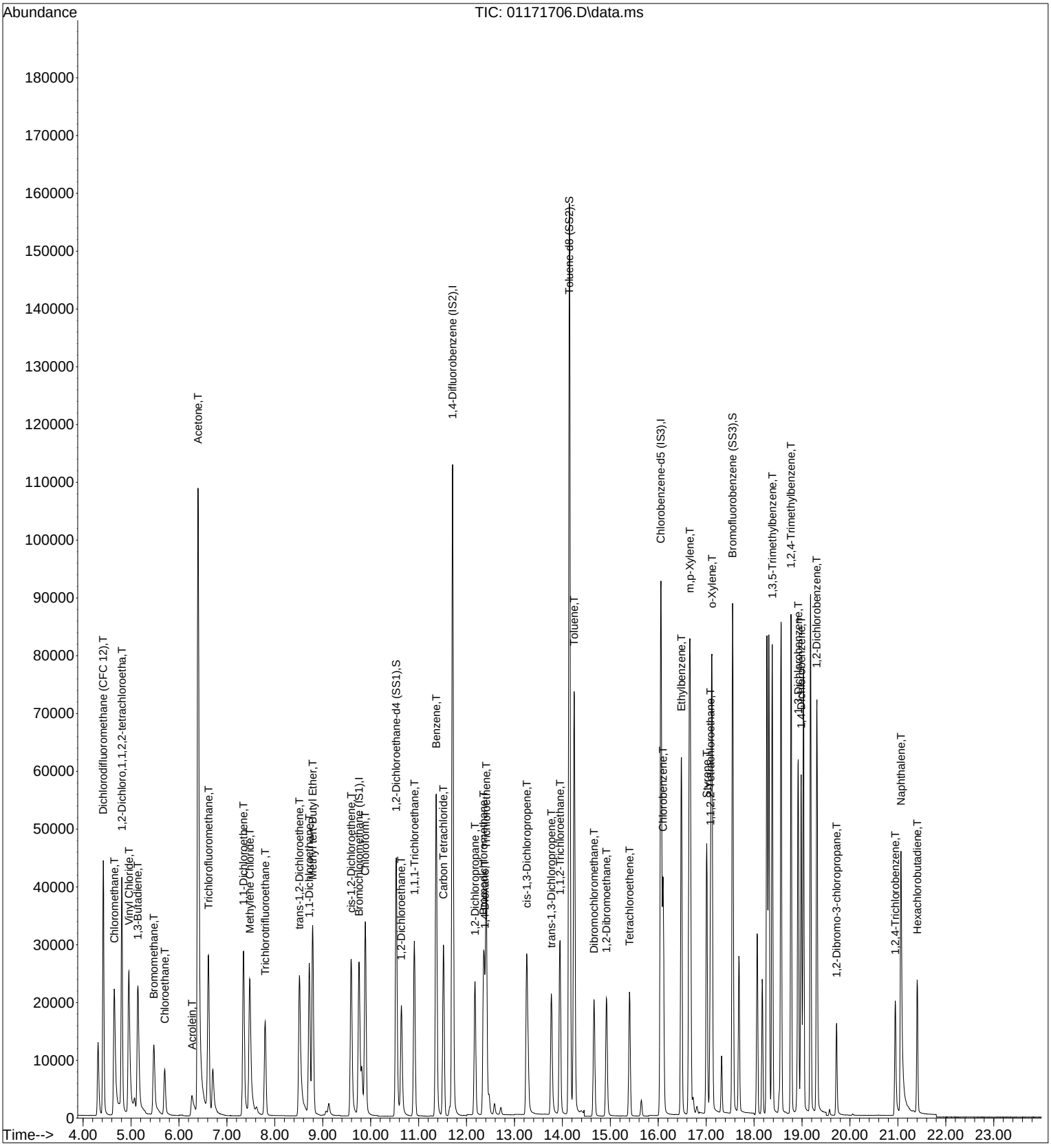
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%			
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%			
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250	pg	100
3) Chloromethane	4.64	52	35441	1282.063	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480	pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719	pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929	pg	95
7) Bromomethane	5.46	94	44725	1146.180	pg	99
8) Chloroethane	5.69	64	34327	1236.992	pg	100
9) Acrolein	6.26	56	23627	1236.477	pg	97
10) Acetone	6.39	58	166227	6290.964	pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916	pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819	pg	99
13) Methylene Chloride	7.47	84	58254	1176.655	pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618	pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554	pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958	pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938	pg	100
19) Chloroform	9.89	83	102450	1152.147	pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847	pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018	pg	100
23) Benzene	11.36	78	228212	1090.215	pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088	pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178	pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369	pg	100
28) Trichloroethene	12.41	130	58583	1084.198	pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578	pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571	pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142	pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911	pg	100
34) Toluene	14.25	91	217931	1099.513	pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190	pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718	pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938	pg	100
39) Chlorobenzene	16.10	112	147852	926.327	pg	100
40) Ethylbenzene	16.48	91	229006	938.287	pg	100
41) m,p-Xylene	16.66	91	373197	2020.962	pg	100
42) Styrene	17.01	104	132963	980.329	pg	100
43) o-Xylene	17.12	106	93607	973.294	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626	pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867	pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511	pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904	pg	100
53) Naphthalene	21.06	128	226576	1042.971	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

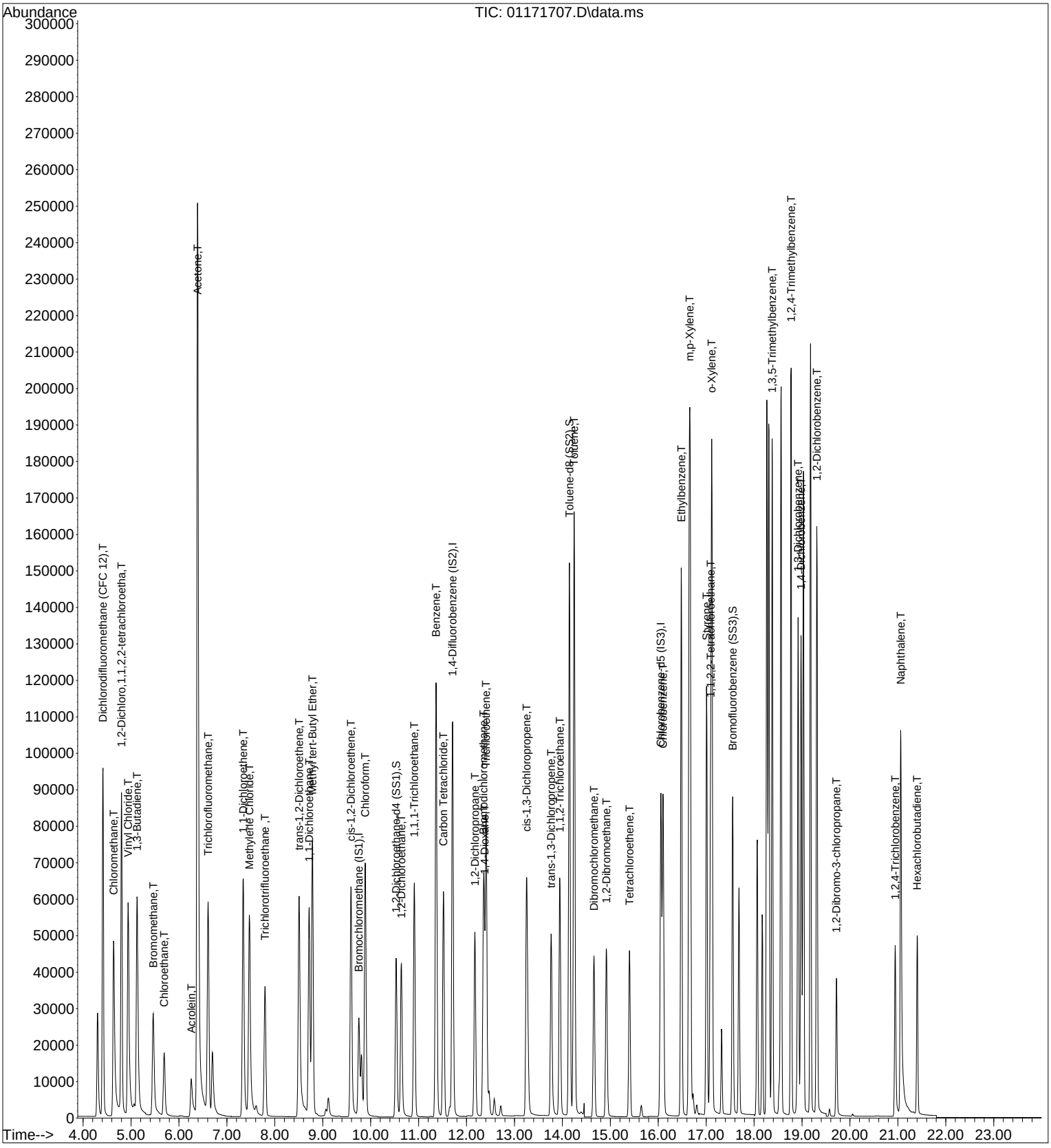
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

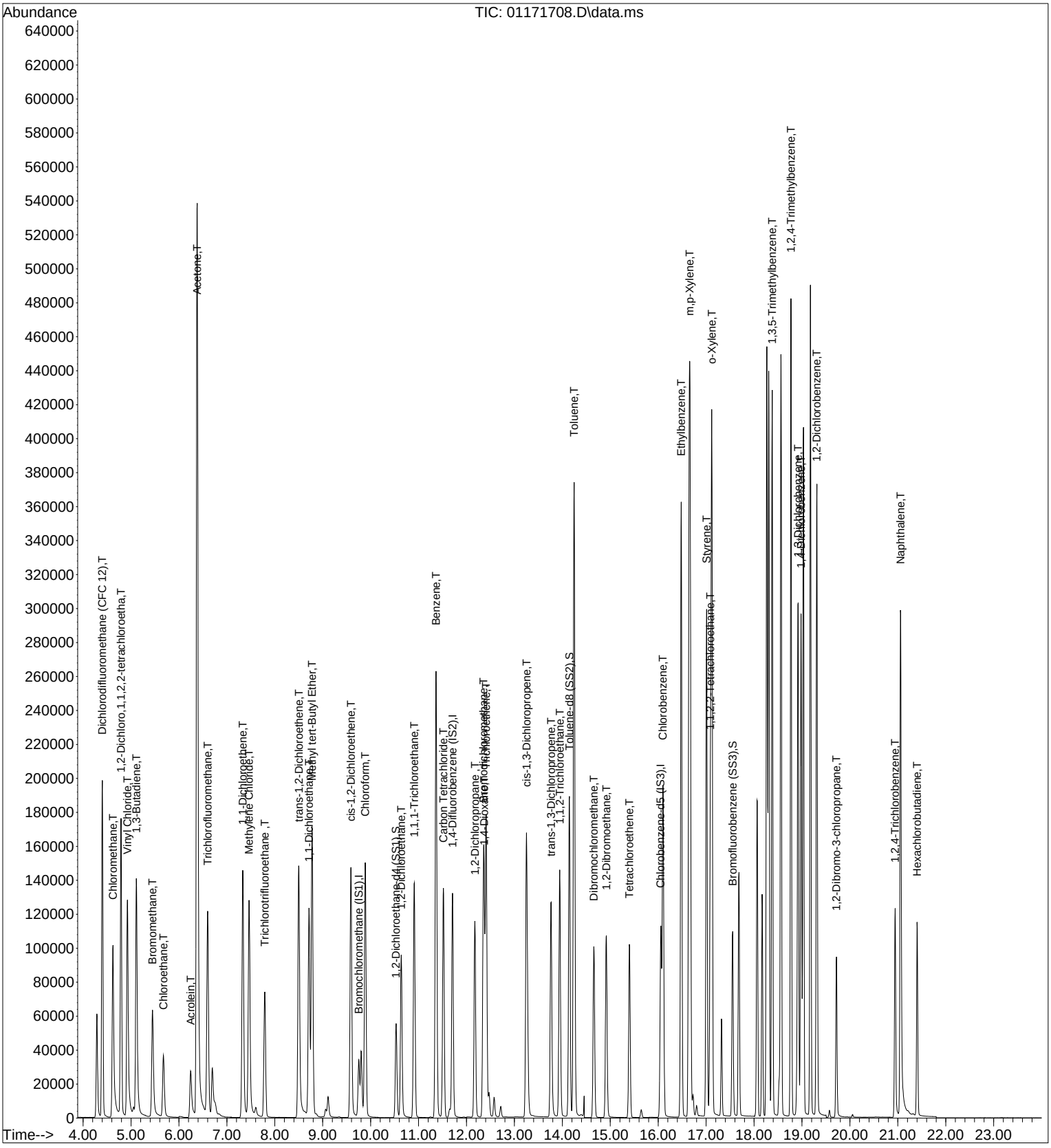
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%			
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%			
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944	pg	100
3) Chloromethane	4.61	52	162688	4785.564	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926	pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389	pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564	pg	99
7) Bromomethane	5.44	94	222851	4643.991	pg	100
8) Chloroethane	5.66	64	179461	5258.665	pg	100
9) Acrolein	6.24	56	140240	5967.932	pg	99
10) Acetone	6.38	58	838814	25814.022	pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282	pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913	pg	99
13) Methylene Chloride	7.47	84	297672	4889.177	pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498	pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436	pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227	pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907	pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430	pg	100
19) Chloroform	9.89	83	522733	4780.247	pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905	pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873	pg	100
23) Benzene	11.36	78	1167900	4536.841	pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159	pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114	pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606	pg	100
28) Trichloroethene	12.41	130	299094	4425.611	pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520	pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385	pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769	pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991	pg	99
34) Toluene	14.25	91	1167322	4708.699	pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519	pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632	pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535	pg	100
39) Chlorobenzene	16.10	112	788966	3880.853	pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214	pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622	pg	100
42) Styrene	17.01	104	851189	4927.183	pg	99
43) o-Xylene	17.12	106	518661	4234.000	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849	pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868	pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829	pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465	pg	100
53) Naphthalene	21.06	128	1434819	5185.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

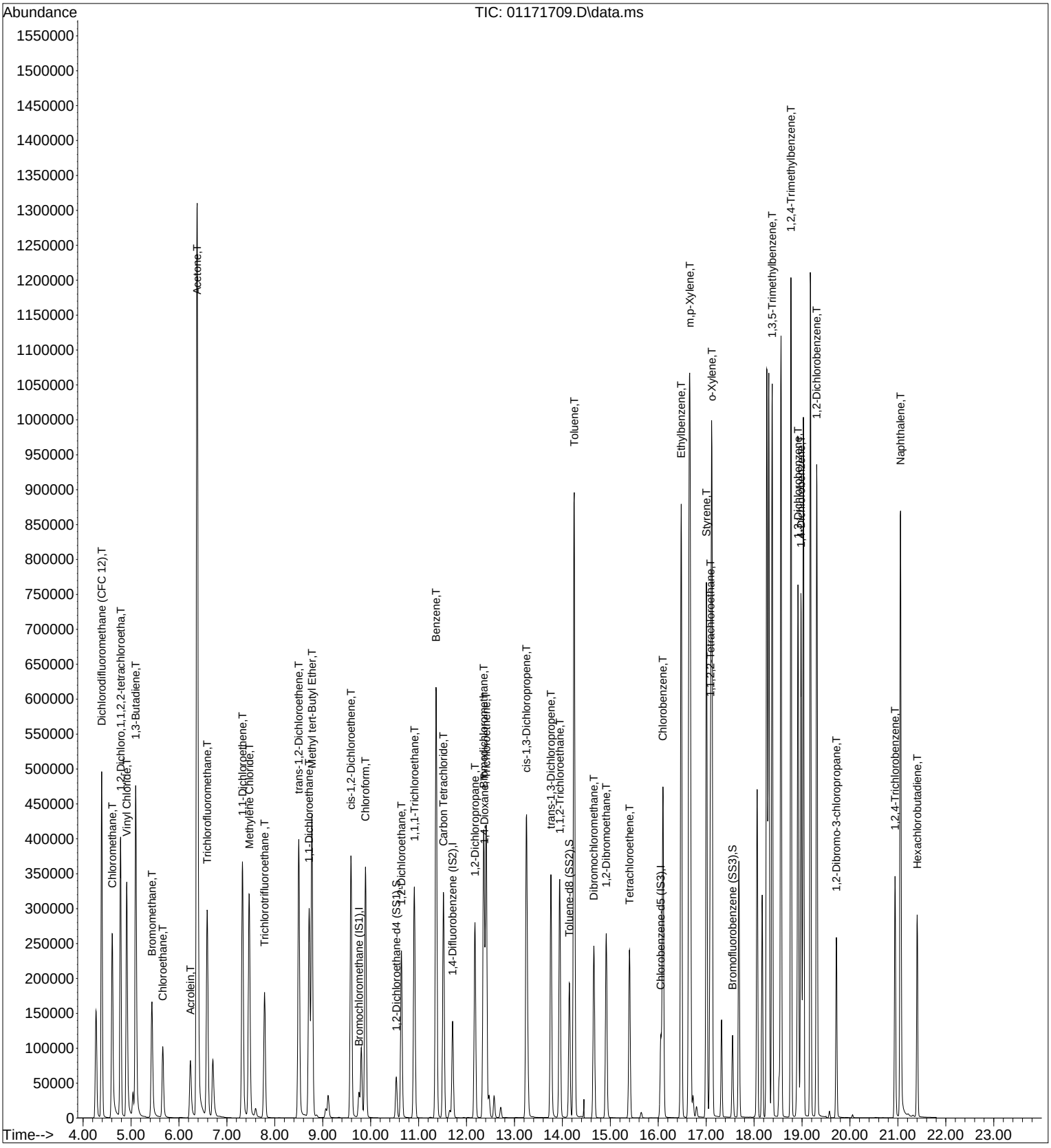
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

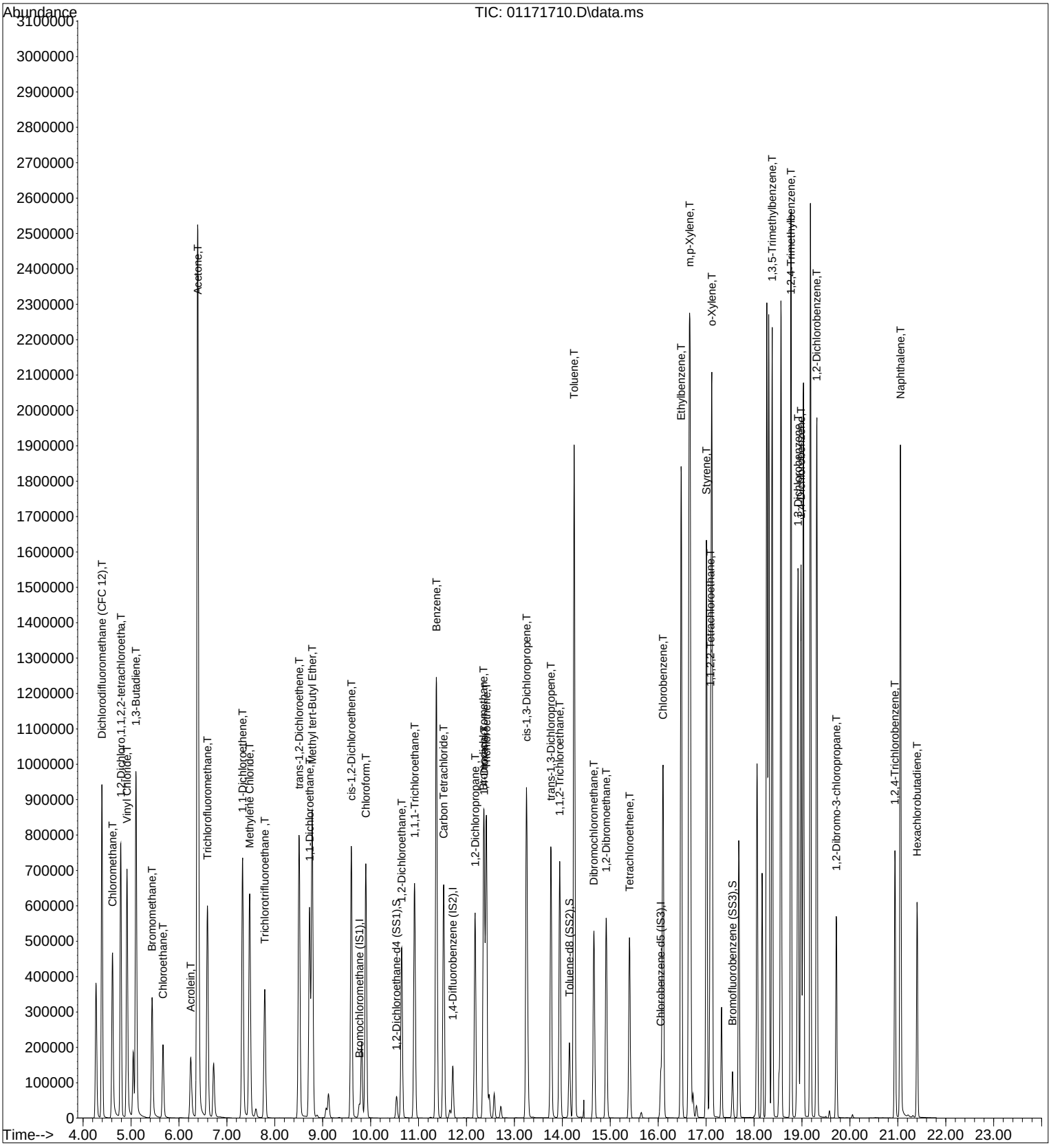
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

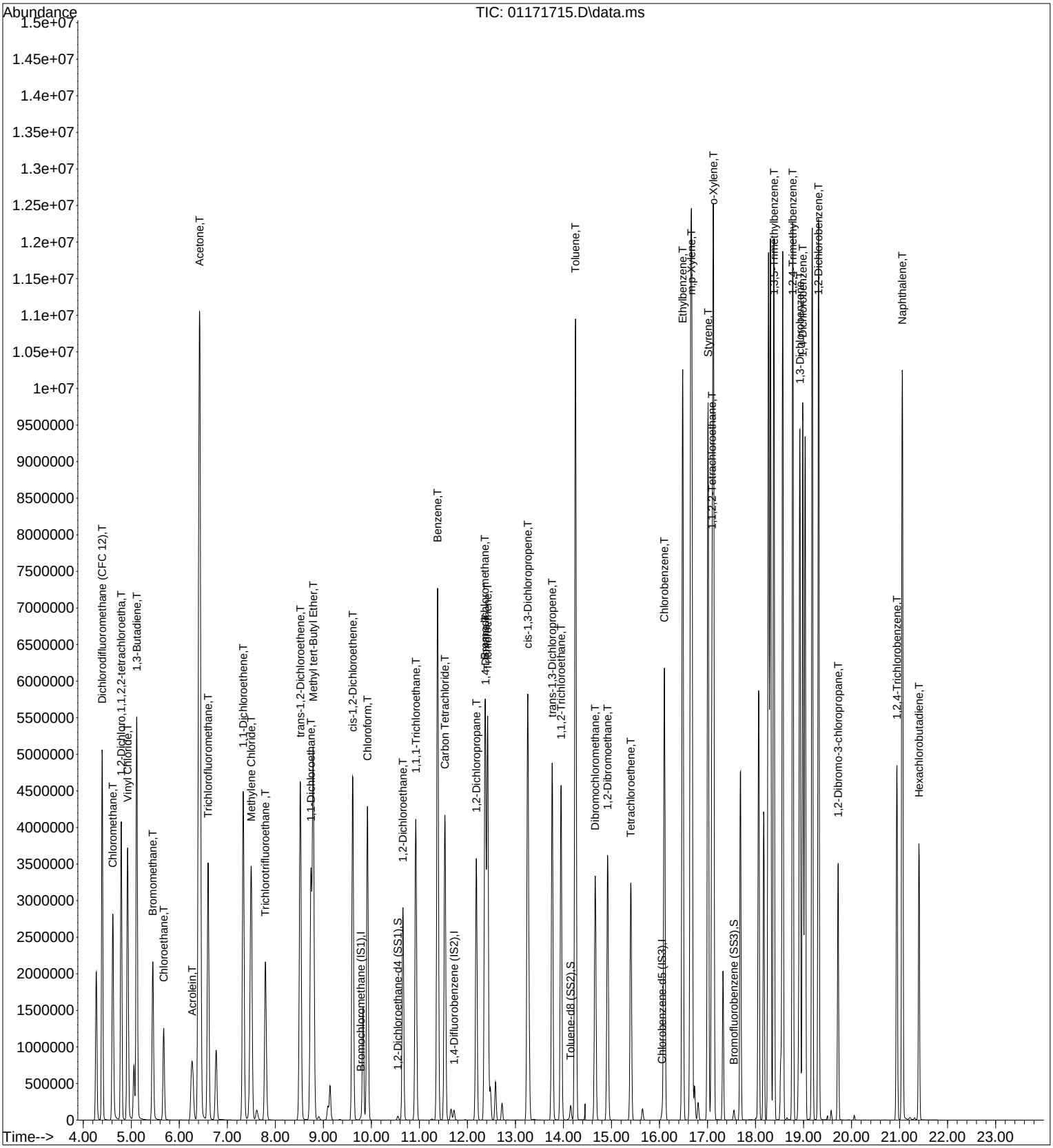
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

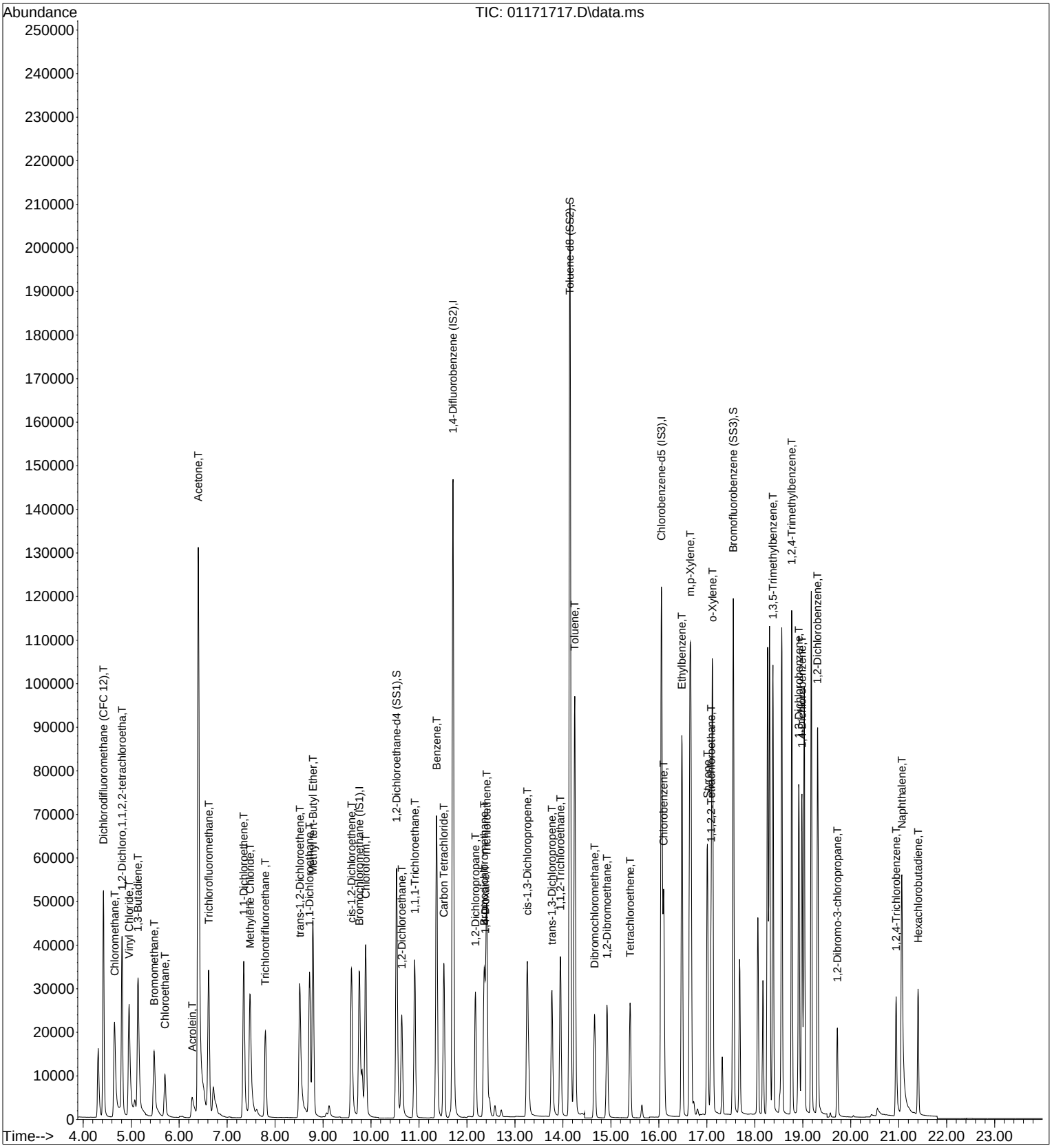
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23 CL 1/18/17
Acq. Method File: TO15SIM.M

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	99	-0.02
2	T	Dichlorodifluoromethane (CF	2.526	2.370	6.2	95	0.03
3	T	Chloromethane	0.753	0.553	26.6	70	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.447	1.5	97	0.02
5	T	Vinyl Chloride	2.415	2.080	13.9	82	0.03
6	T	1,3-Butadiene	1.436	0.903	37.1#	79	0.03
7	T	Bromomethane	0.972	0.866	10.9	93	0.03
8	T	Chloroethane	0.743	0.603	18.8	85	0.03
9	T	Acrolein	0.528	0.367	30.5#	81	0.00
10	T	Acetone	0.682	0.645	5.4	97	-0.02
11	T	Trichlorofluoromethane	1.728	1.700	1.6	97	0.01
12	T	1,1-Dichloroethene	1.083	0.967	10.7	96	0.01
13	T	Methylene Chloride	1.175	1.083	7.8	92	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.982	9.1	97	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.043	10.6	96	0.00
16	T	1,1-Dichloroethane	2.070	1.725	16.7	86	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.638	14.6	94	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.100	10.2	96	-0.02
19	T	Chloroform	2.177	1.923	11.7	90	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.545	10.8	90	-0.02
21	T	1,2-Dichloroethane	1.676	1.374	18.0	87	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.723	14.7	96	-0.02
23	T	Benzene	4.797	4.151	13.5	89	-0.02
24	T	Carbon Tetrachloride	1.623	1.521	6.3	98	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	98	-0.02
26	T	1,2-Dichloropropane	0.255	0.190	25.5	85	-0.01
27	T	Bromodichloromethane	0.352	0.284	19.3	91	-0.01
28	T	Trichloroethene	0.260	0.231	11.2	97	-0.01
29	T	1,4-Dioxane	0.191	0.152	20.4	92	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.285	16.9	92	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.242	13.3	94	0.00
32	T	1,1,2-Trichloroethane	0.215	0.174	19.1	90	0.00
33	S	Toluene-d8 (SS2)	0.993	0.951	4.2	97	0.00
34	T	Toluene	0.928	0.813	12.4	93	0.00
35	T	Dibromochloromethane	0.257	0.221	14.0	95	0.00
36	T	1,2-Dibromoethane	0.243	0.218	10.3	96	0.00
37	T	Tetrachloroethene	0.270	0.230	14.8	95	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	88	0.00
39	T	Chlorobenzene	3.855	3.895	-1.0	95	0.00
40	T	Ethylbenzene	5.685	5.650	0.6	96	0.00
41	T	m,p-Xylene	4.264	4.505	-5.7	95	0.00
42	T	Styrene	2.987	3.084	-3.2	94	0.00
43	T	o-Xylene	2.190	2.354	-7.5	96	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.387	5.2	87	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.164	-18.3	100	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.020	-11.2	94	0.00
47	T	1,2,4-Trimethylbenzene	4.430	4.997	-12.8	94	0.00
48	T	1,3-Dichlorobenzene	2.723	3.033	-11.4	91	0.00
49	T	1,4-Dichlorobenzene	2.835	2.969	-4.7	91	0.00
50	T	1,2-Dichlorobenzene	2.775	2.898	-4.4	90	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.799	4.8	85	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.363	17.0	76	0.00
53	T	Naphthalene	5.215	4.531	13.1	70	0.00
54	T	Hexachlorobutadiene	1.299	1.103	15.1	81	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/26/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44323	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	218293	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	31623	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	68482	892.142 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.21%		
33) Toluene-d8 (SS2)	14.15	98	207631	957.536 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.75%		
45) Bromofluorobenzene (SS3)	17.55	174	68423	1182.737 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.27%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.42	85	54988	491.083 pg	100
3) Chloromethane	4.65	52	12323	369.400 pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	54509	494.796 pg	99
5) Vinyl Chloride	4.95	62	47153	440.496 pg	100
6) 1,3-Butadiene	5.14	54	21153	332.368 pg	96
7) Bromomethane	5.48	94	19067	442.786 pg	100
8) Chloroethane	5.70	64	13492	409.667 pg	99
9) Acrolein	6.27	56	8475	362.245 pg	100
10) Acetone	6.40	58	75934	2510.280 pg	# 86
11) Trichlorofluoromethane	6.61	101	39518	516.000 pg	100
12) 1,1-Dichloroethene	7.35	96	22700	473.111 pg	93
13) Methylene Chloride	7.48	84	25362	487.100 pg	89
14) Trichlorotrifluoroethane	7.80	151	22820	476.723 pg	100
15) trans-1,2-Dichloroethene	8.51	96	24659	476.727 pg	100
16) 1,1-Dichloroethane	8.72	63	38992	424.894 pg	100
17) Methyl tert-Butyl Ether	8.79	73	62317	455.074 pg	97
18) cis-1,2-Dichloroethene	9.59	96	25936	477.818 pg	100
19) Chloroform	9.89	83	45085	467.189 pg	100
21) 1,2-Dichloroethane	10.64	62	32038	431.278 pg	99
22) 1,1,1-Trichloroethane	10.91	97	41000	457.684 pg	100
23) Benzene	11.37	78	96787	455.215 pg	100
24) Carbon Tetrachloride	11.52	117	35573	494.542 pg	100
26) 1,2-Dichloropropane	12.17	63	22047	396.512 pg	98
27) Bromodichloromethane	12.35	83	33101	431.104 pg	100
28) Trichloroethene	12.41	130	26689	470.259 pg	100
29) 1,4-Dioxane	12.38	88	17663	423.839 pg	91
30) cis-1,3-Dichloropropene	13.26	75	34686	463.796 pg	100
31) trans-1,3-Dichloropropene	13.77	75	28149	462.507 pg	100
32) 1,1,2-Trichloroethane	13.95	83	20191	429.307 pg	97
34) Toluene	14.25	91	93405	461.191 pg	100
35) Dibromochloromethane	14.66	129	25636	457.105 pg	100
36) 1,2-Dibromoethane	14.92	107	25127	473.712 pg	100
37) Tetrachloroethene	15.40	166	26679	453.372 pg	98
39) Chlorobenzene	16.10	112	65348	536.056 pg	100
40) Ethylbenzene	16.48	91	94254	524.311 pg	99
41) m,p-Xylene	16.66	91	151221	1121.520 pg	99
42) Styrene	17.01	104	51732	547.625 pg	100
43) o-Xylene	17.12	106	39222	566.235 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39856	500.766 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	83260	583.330 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	83111	593.241 pg	100
48) 1,3-Dichlorobenzene	18.92	146	50741	589.285 pg	100
49) 1,4-Dichlorobenzene	18.98	146	49661	553.956 pg	100
50) 1,2-Dichlorobenzene	19.31	146	48480	552.485 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	13305	501.587 pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	22486	432.924 pg	98
53) Naphthalene	21.07	128	77580	470.385 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

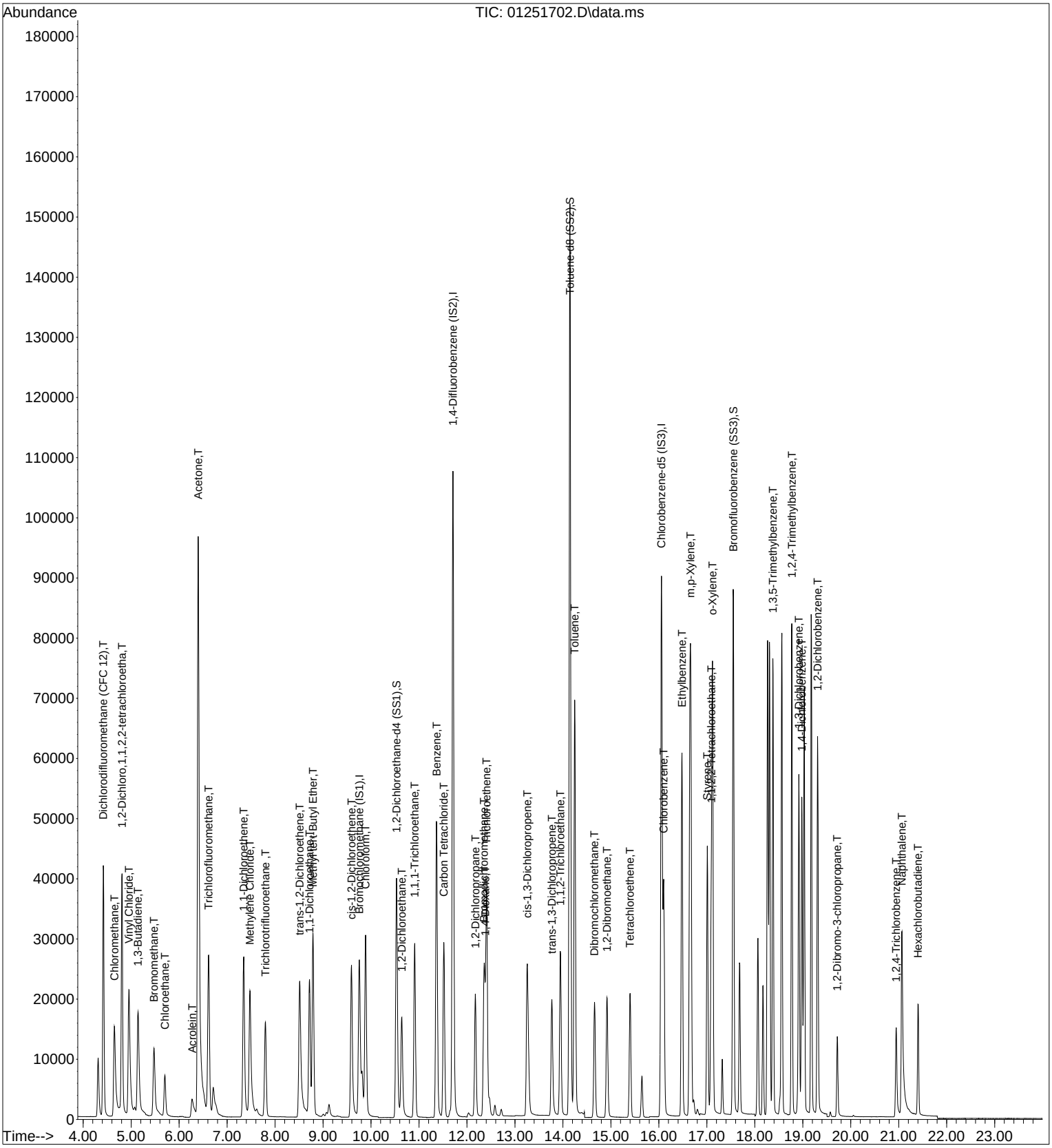
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	18471	449.508	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\25\01251702.D Vial: 16
Acq On : 25 Jan 2017 15:36 Operator: CL
Sample : CCV S19012517 500pg Inst : MS19
Misc : S29-12201602/S29-01051708 (2/3)

Quant Time: Jan 26 07:19:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/28/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	115	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.603	-3.0	122	0.03
3	T	Chloromethane	0.753	0.641	14.9	94	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.724	-9.6	126	0.02
5	T	Vinyl Chloride	2.415	2.292	5.1	106	0.04
6	T	1,3-Butadiene	1.436	1.003	30.2#	102	0.04
7	T	Bromomethane	0.972	0.959	1.3	119	0.03
8	T	Chloroethane	0.743	0.660	11.2	108	0.03
9	T	Acrolein	0.528	0.353	33.1#	91	0.01
10	T	Acetone	0.682	0.677	0.7	118	-0.02
11	T	Trichlorofluoromethane	1.728	1.861	-7.7	124	0.01
12	T	1,1-Dichloroethene	1.083	1.066	1.6	123	0.01
13	T	Methylene Chloride	1.175	1.194	-1.6	118	-0.02
14	T	Trichlorotrifluoroethane	1.080	1.114	-3.1	128	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.139	2.4	122	0.00
16	T	1,1-Dichloroethane	2.070	1.891	8.6	110	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.878	6.9	119	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.211	1.1	123	-0.02
19	T	Chloroform	2.177	2.112	3.0	116	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.535	11.4	104	-0.02
21	T	1,2-Dichloroethane	1.676	1.508	10.0	111	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.884	6.8	122	-0.02
23	T	Benzene	4.797	4.636	3.4	115	-0.02
24	T	Carbon Tetrachloride	1.623	1.642	-1.2	123	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	114	-0.02
26	T	1,2-Dichloropropane	0.255	0.209	18.0	110	0.00
27	T	Bromodichloromethane	0.352	0.310	11.9	116	0.00
28	T	Trichloroethene	0.260	0.256	1.5	126	0.00
29	T	1,4-Dioxane	0.191	0.165	13.6	116	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.304	11.4	116	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.251	10.0	114	0.00
32	T	1,1,2-Trichloroethane	0.215	0.190	11.6	116	0.00
33	S	Toluene-d8 (SS2)	0.993	0.928	6.5	110	0.00
34	T	Toluene	0.928	0.883	4.8	119	0.00
35	T	Dibromochloromethane	0.257	0.239	7.0	121	0.00
36	T	1,2-Dibromoethane	0.243	0.229	5.8	118	0.00
37	T	Tetrachloroethene	0.270	0.254	5.9	123	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	3.855	4.332	-12.4	117	0.00
40	T	Ethylbenzene	5.685	6.326	-11.3	119	0.00
41	T	m,p-Xylene	4.264	5.019	-17.7	117	0.00
42	T	Styrene	2.987	3.172	-6.2	107	0.00
43	T	o-Xylene	2.190	2.655	-21.2	120	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.730	-8.5	111	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.102	-14.9	108	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.652	-25.2	117	0.00
47	T	1,2,4-Trimethylbenzene	4.430	5.413	-22.2	113	0.00
48	T	1,3-Dichlorobenzene	2.723	2.985	-9.6	99	0.00
49	T	1,4-Dichlorobenzene	2.835	2.737	3.5	93	0.00
50	T	1,2-Dichlorobenzene	2.775	2.992	-7.8	103	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.832	0.8	98	0.00
52	T	1,2,4-Trichlorobenzene	1.642	0.932	43.2#	57	0.00
53	T	Naphthalene	5.215	2.099	59.8#	36#	0.02
54	T	Hexachlorobutadiene	1.299	1.261	2.9	103	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration CL 1/28/17
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51625	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	255804	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35048	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	79249	886.381	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 88.64%			
33) Toluene-d8 (SS2)	14.14	98	237323	933.975	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.40%			
45) Bromofluorobenzene (SS3)	17.55	174	73660	1148.835	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	70360	539.489	pg	100
3) Chloromethane	4.65	52	16634	428.101	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	70652	550.620	pg	100
5) Vinyl Chloride	4.96	62	60512	485.337	pg	99
6) 1,3-Butadiene	5.15	54	27379	369.347	pg	95
7) Bromomethane	5.48	94	24573	489.935	pg	100
8) Chloroethane	5.70	64	17178	447.813	pg	99
9) Acrolein	6.27	56	9493	348.366	pg	100
10) Acetone	6.40	58	92897	2636.675	pg	# 88
11) Trichlorofluoromethane	6.62	101	50382	564.806	pg	100
12) 1,1-Dichloroethene	7.35	96	29135	521.341	pg	93
13) Methylene Chloride	7.48	84	32566	536.992	pg	89
14) Trichlorotrifluoroethane	7.80	151	30174	541.193	pg	100
15) trans-1,2-Dichloroethene	8.51	96	31368	520.655	pg	100
16) 1,1-Dichloroethane	8.72	63	49775	465.677	pg	99
17) Methyl tert-Butyl Ether	8.79	73	79192	496.507	pg	97
18) cis-1,2-Dichloroethene	9.59	96	33271	526.253	pg	99
19) Chloroform	9.89	83	57679	513.153	pg	100
21) 1,2-Dichloroethane	10.64	62	40952	473.299	pg	99
22) 1,1,1-Trichloroethane	10.91	97	52242	500.692	pg	100
23) Benzene	11.36	78	125883	508.318	pg	100
24) Carbon Tetrachloride	11.52	117	44713	533.686	pg	100
26) 1,2-Dichloropropane	12.18	63	28373	435.456	pg	98
27) Bromodichloromethane	12.36	83	42281	469.915	pg	100
28) Trichloroethene	12.41	130	34691	521.620	pg	99
29) 1,4-Dioxane	12.38	88	22417	459.035	pg	91
30) cis-1,3-Dichloropropene	13.25	75	43398	495.194	pg	100
31) trans-1,3-Dichloropropene	13.77	75	34131	478.560	pg	100
32) 1,1,2-Trichloroethane	13.95	83	25817	468.433	pg	97
34) Toluene	14.24	91	118921	501.074	pg	100
35) Dibromochloromethane	14.66	129	32509	494.654	pg	100
36) 1,2-Dibromoethane	14.92	107	30974	498.314	pg	100
37) Tetrachloroethene	15.40	166	34535	500.814	pg	99
39) Chlorobenzene	16.10	112	80554	596.218	pg	100
40) Ethylbenzene	16.48	91	116947	586.972	pg	99
41) m,p-Xylene	16.66	91	186719	1249.463	pg	99
42) Styrene	17.01	104	58980	563.338	pg	100
43) o-Xylene	17.12	106	49041	638.802	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	50528	572.814	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	103898	656.788	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	99787	642.668	pg	98
48) 1,3-Dichlorobenzene	18.92	146	55347	579.963	pg	100
49) 1,4-Dichlorobenzene	18.98	146	50747	510.752	pg	100
50) 1,2-Dichlorobenzene	19.31	146	55470	570.369	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15357	522.369	pg	94
52) 1,2,4-Trichlorobenzene	20.95	182	17029	295.820	pg	98
53) Naphthalene	21.08	128	39830	217.898	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

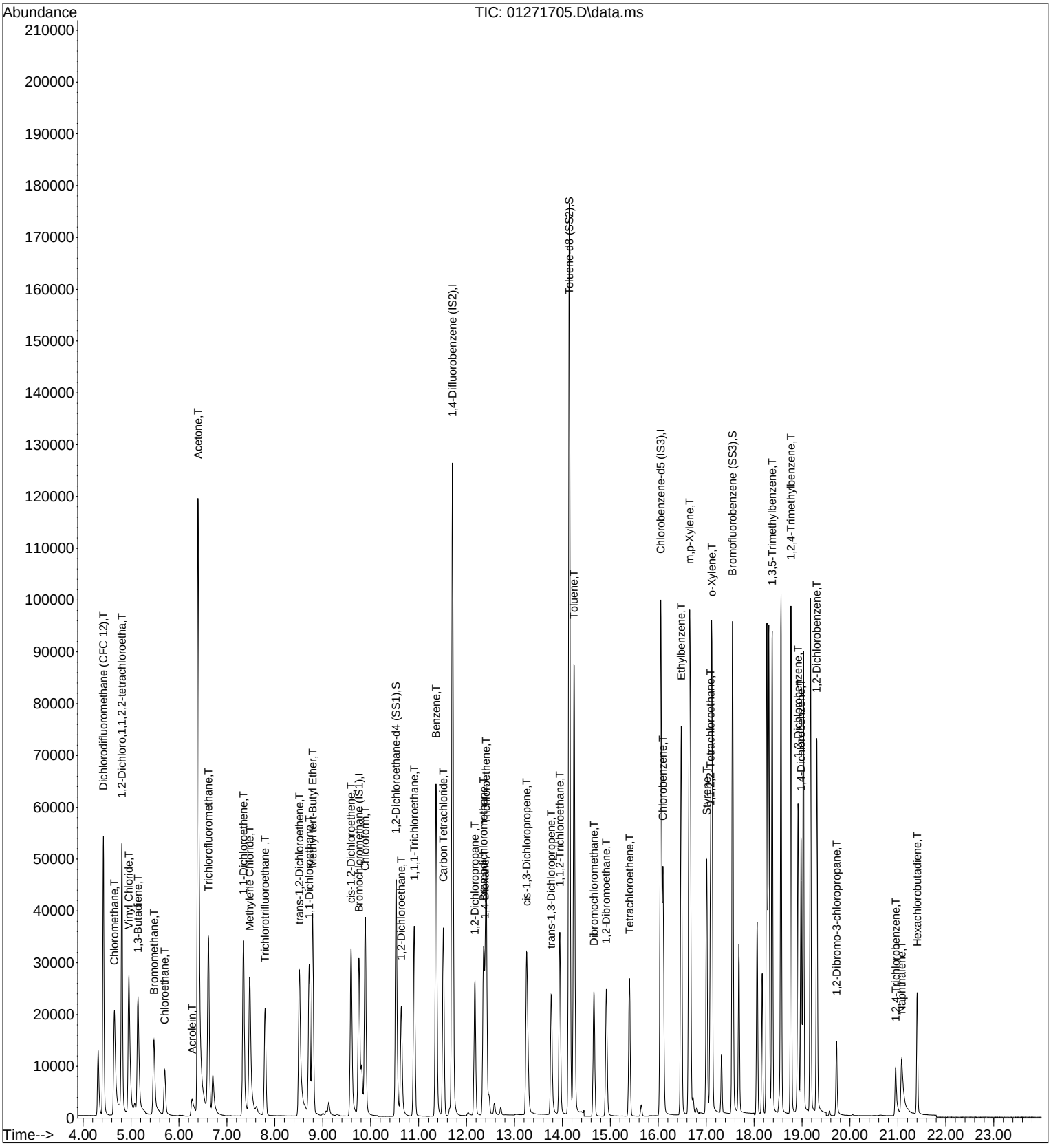
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	23395	513.700	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\27\01271705.D Vial: 16
Acq On : 27 Jan 2017 9:30 Operator: CL
Sample : CCV S19012717 500pg Inst : MS19
Misc : S29-01241701/S29-01051709 (2/3)

Quant Time: Jan 27 09:55:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



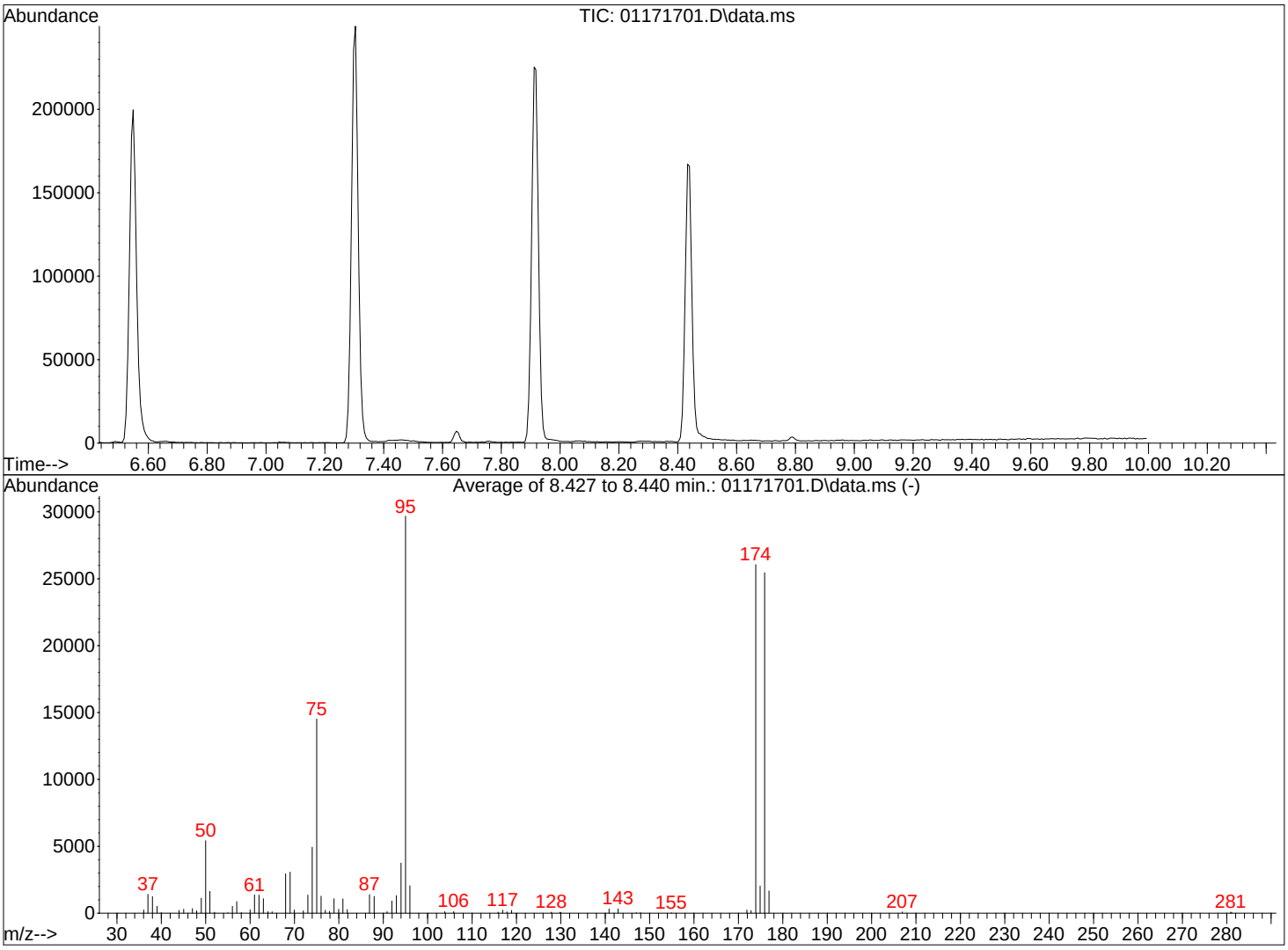
BFB

Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

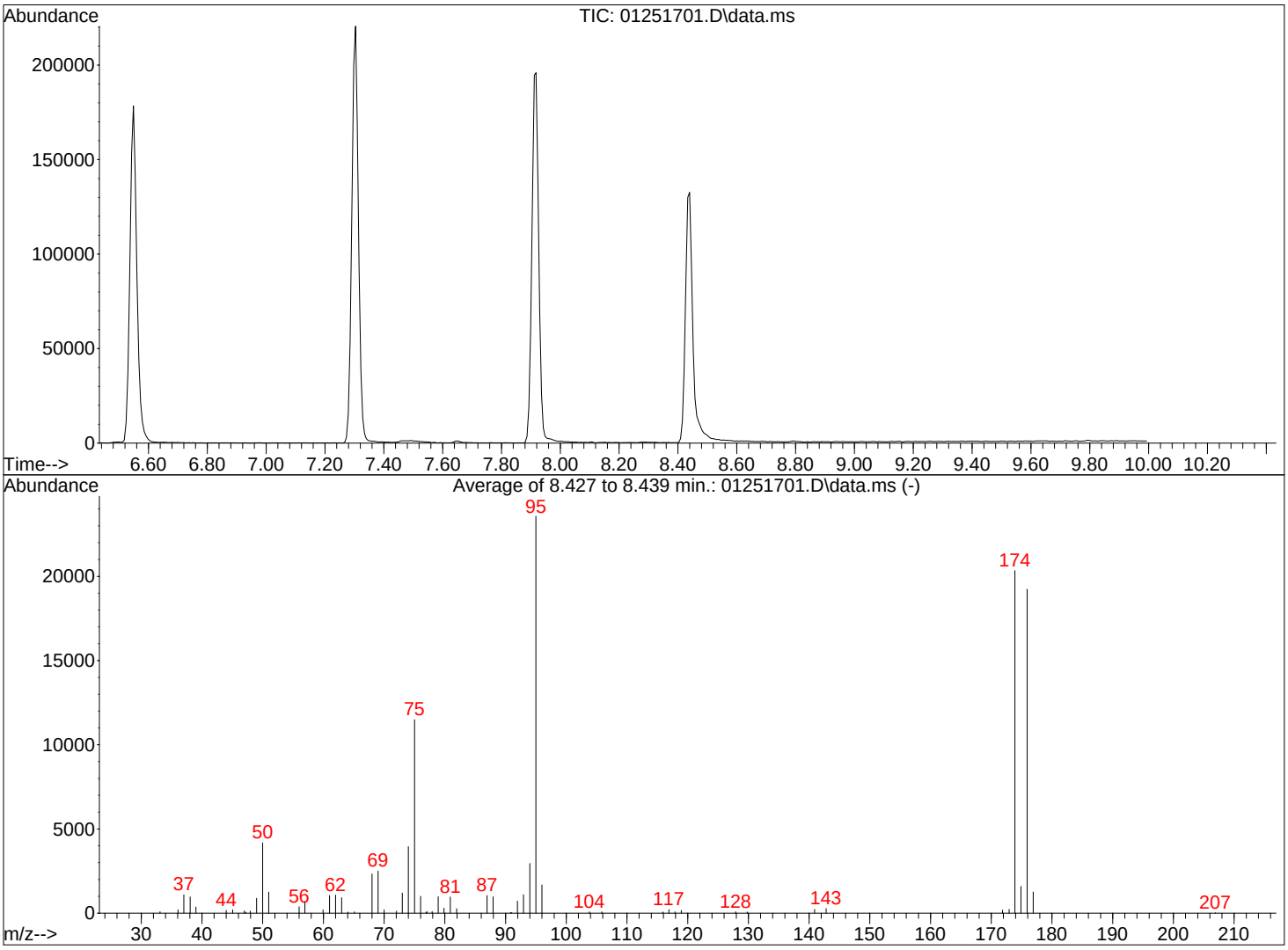
BFB

Data Path : I:\MS19\DATA\2017 01\25\
Data File : 01251701.D
Acq On : 25 Jan 2017 15:18
Operator : CL
Sample : BFB S19012517
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/25/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 702

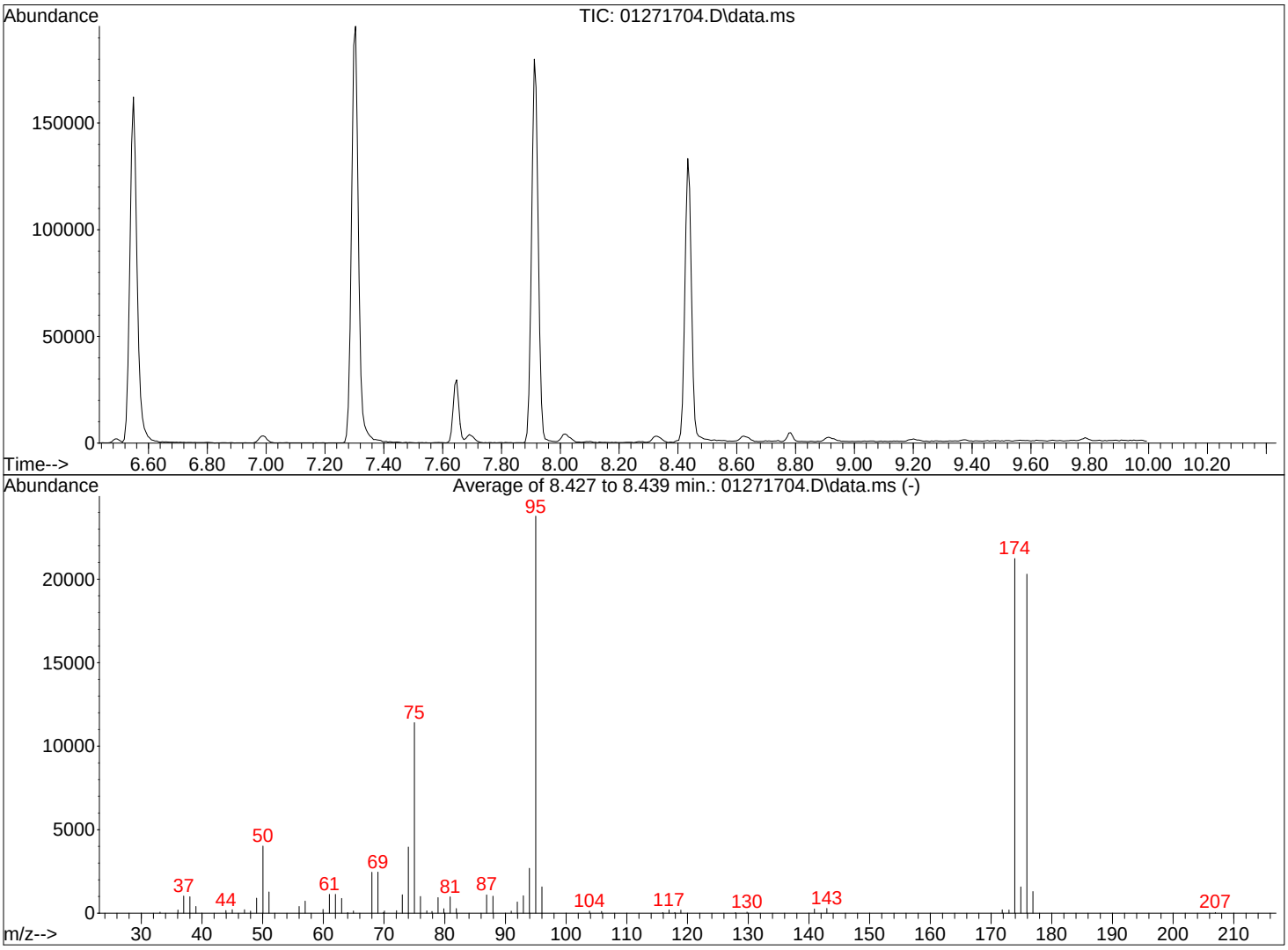
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.7	4177	PASS
75	95	30	66	48.7	11487	PASS
95	95	100	100	100.0	23573	PASS
96	95	5	9	7.1	1681	PASS
173	174	0.00	2	1.1	225	PASS
174	95	50	120	86.3	20339	PASS
175	174	4	9	7.8	1592	PASS
176	174	93	101	94.6	19241	PASS
177	176	5	9	6.5	1260	PASS

Data Path : I:\MS19\DATA\2017 01\27\
Data File : 01271704.D
Acq On : 27 Jan 2017 9:12
Operator : CL
Sample : BFB S19012717
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017

CL 1/28/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.9	4016	PASS
75	95	30	66	48.0	11407	PASS
95	95	100	100	100.0	23773	PASS
96	95	5	9	6.6	1578	PASS
173	174	0.00	2	0.9	192	PASS
174	95	50	120	89.3	21235	PASS
175	174	4	9	7.4	1577	PASS
176	174	93	101	95.6	20298	PASS
177	176	5	9	6.4	1299	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\25\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/25/17 15:18	01251701.D	BFB S19012517	S29-12201602	CL	2	Pass
2	1/25/17 15:36	01251702.D	CCV S19012517_500pg	S29-12201602/S29-01051708 (2/3)	CL	16	Pass
3	1/25/17 16:08	01251703.D	MB S19012517_1000mL	S29-12201602/AC01205	CL	2	Pass
4	1/25/17 16:39	01251704.D	LCS S19012517_500pg	S29-12201602/S29-01171715 (2/17)	CL	2	Pass
5	1/25/17 17:10	01251705.D	LCSD S19012517_500pg	S29-12201602/S29-01171715 (2/17)	CL	2	Pass
6	1/25/17 17:42	01251706.D	P1700260-016 (1000mL)	S29-12201602	CL	10	
7	1/25/17 18:14	01251707.D	P1700260-017 (1000mL)	S29-12201602	CL	11	
8	1/25/17 18:45	01251708.D	P1700260-018 (1000mL)	S29-12201602	CL	12	
9	1/25/17 19:16	01251709.D	P1700260-019 (1000mL)	S29-12201602	CL	13	
10	1/25/17 19:48	01251710.D	P1700260-020 (1000mL)	S29-12201602	CL	14	
11	1/25/17 20:19	01251711.D	P1700260-021 (1000mL)	S29-12201602	CL	15	
12	1/25/17 20:50	01251712.D	blank	S29-12201602	CL	2	No IS
13	1/25/17 21:21	01251713.D	P1700260-022 (1000mL)	S29-12201602	CL	1	
14	1/25/17 21:52	01251714.D	P1700260-023 (1000mL)	S29-12201602	CL	3	
15	1/25/17 22:23	01251715.D	P1700260-024 (1000mL)	S29-12201602	CL	4	
16	1/25/17 22:54	01251716.D	P1700261-001 (1000mL)	S29-12201602	CL	6	
17	1/25/17 23:25	01251717.D	P1700261-002 (1000mL)	S29-12201602	CL	7	
18	1/25/17 23:57	01251718.D	P1700261-002dup (1000mL)	S29-12201602	CL	7	Pass for Dup
19	1/26/17 0:28	01251719.D	P1700261-003 (1000mL)	S29-12201602	CL	8	
20	1/26/17 0:59	01251720.D	P1700261-004 (1000mL)	S29-12201602	CL	9	
21	1/26/17 1:31	01251721.D	blank	S29-12201602	CL	2	No IS
22	1/26/17 2:02	01251722.D	CCV S19012517_500pg_End	S29-12201602/S29-01051708 (2/3)	CL	16	
23	1/26/17 2:34	01251723.D	P1700214-001 (500mL)	S29-12201602	CL	5	
24	1/26/17 3:05	01251724.D	P1700214-001dil (50mL)	S29-12201602	CL	5	
25	1/26/17 3:36	01251725.D	blank	S29-12201602	CL	2	No IS

CL 1/26/17

Injection Log

Directory: I:\MS19\DATA\2017_01\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/27/17 7:29	01271701.D	ccv test	S29-01241701	CL	2	
2	1/27/17 8:04	01271702.D	blank	S29-01241701	CL	2	
3	1/27/17 8:35	01271703.D	ccv test	S29-01241701/S29-01051709 (2/3)	CL	16	
4	1/27/17 9:12	01271704.D	BFB S19012717	S29-01241701	CL	2	Pass
5	1/27/17 9:30	01271705.D	CCV S19012717_500pg	S29-01241701/S29-01051709 (2/3)	CL	16	Pass
6	1/27/17 10:02	01271706.D	MB S19012717_1000mL	S29-01241701/AC01205	CL	2	Pass
7	1/27/17 10:32	01271707.D	LCS S19012717_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
8	1/27/17 11:04	01271708.D	LCSD S19012717_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
9	1/27/17 11:57	01271709.D	P1700261-005 (1000mL) PF2	S29-01241701	CL	1	
10	1/27/17 12:28	01271710.D	P1700261-006 (1000mL)	S29-01241701	CL	3	
11	1/27/17 12:59	01271711.D	P1700261-007 (1000mL)	S29-01241701	CL	4	
12	1/27/17 13:30	01271712.D	P1700261-008 (1000mL)	S29-01241701	CL	5	
13	1/27/17 14:02	01271713.D	P1700261-009 (1000mL) PF2	S29-01241701	CL	6	
14	1/27/17 14:33	01271714.D	P1700261-010 (1000mL)	S29-01241701	CL	7	
15	1/27/17 15:05	01271715.D	blank	S29-01241701	CL	2	
16	1/27/17 15:36	01271716.D	P1700261-011 (1000mL)	S29-01241701	CL	8	
17	1/27/17 16:07	01271717.D	P1700261-012 (1000mL)	S29-01241701	CL	9	
18	1/27/17 16:51	01271718.D	CCV2 S19012617_500pg	S29-01241701/S29-01051708 (2/3)	CL	16	Not Needed
19	1/27/17 17:22	01271719.D	P1700261-013 (1000mL)	S29-01241701	CL	10	
20	1/27/17 17:53	01271720.D	P1700261-014 (1000mL) PF2	S29-01241701	CL	11	
21	1/27/17 18:25	01271721.D	P1700261-015 (1000mL)	S29-01241701	CL	12	
22	1/27/17 18:56	01271722.D	P1700261-015dup (1000mL)	S29-01241701	CL	12	
23	1/27/17 19:28	01271723.D	P1700261-016 (1000mL) PF2	S29-01241701	CL	13	
24	1/27/17 20:00	01271724.D	P1700261-017 (1000mL)	S29-01241701	CL	14	
25	1/27/17 20:31	01271725.D	blank	S29-01241701	CL	2	
26	1/27/17 21:02	01271726.D	P1700261-018 (1000mL)	S29-01241701	CL	15	
27	1/27/17 21:34	01271727.D	P1700261-019 (1000mL)	S29-01241701	CL	1	
28	1/27/17 22:05	01271728.D	P1700259-001 (1000mL)	S29-01241701	CL	3	
29	1/27/17 22:37	01271729.D	P1700259-002 (1000mL)	S29-01241701	CL	4	
30	1/27/17 23:08	01271730.D	P1700259-003 (1000mL)	S29-01241701	CL	5	
31	1/27/17 23:39	01271731.D	P1700259-004 (1000mL)	S29-01241701	CL	6	Surr 3 Fail
32	1/28/17 0:10	01271732.D	CCV S19012617_500pg_End	S29-01241701/S29-01051708 (2/3)	CL	16	Pass
33	1/28/17 0:41	01271733.D	blank	S29-01241701	CL	2	
34	1/28/17 3:04	01271734.D	blank	S29-01241701	CL	2	

CL 1/28/17

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061724.D
Acq On : 6 Jan 2017 23:43 Operator: CL
Sample : AC01013-FCR00055 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 07 15:18:47 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

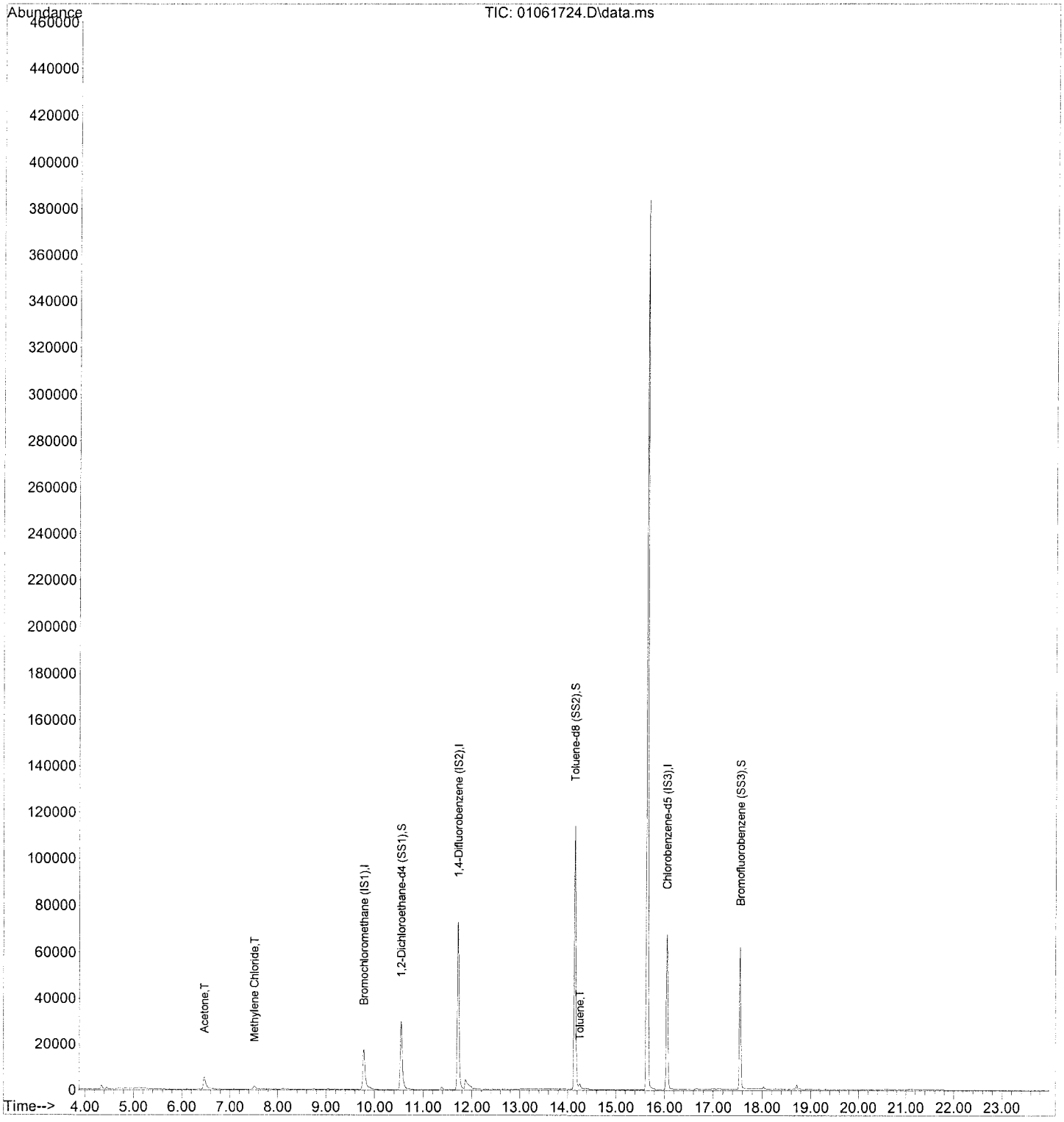
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	34286	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	155739	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	26606	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.6	65	59197	1077.931	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.79%				
33) Toluene-d8 (SS2)	14.1	98	159593	1049.126	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.91%				
45) Bromofluorobenzene (SS3)	17.6	174	48012	910.586	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.06%				
Target Compounds							Qvalue
10) Acetone	6.5	58	6525	318.358	pg	#	71
13) Methylene Chloride	7.5	84	1870	46.693	pg		85
34) Toluene	14.3	91	2594	17.549	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061724.D
Acq On : 6 Jan 2017 23:43 Operator: CL
Sample : AC01013-FCR00055 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 07 15:18:47 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051733.D
Acq On : 6 Jan 2017 7:03 am
Operator : JM
Sample : AS01020 FCS00053
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

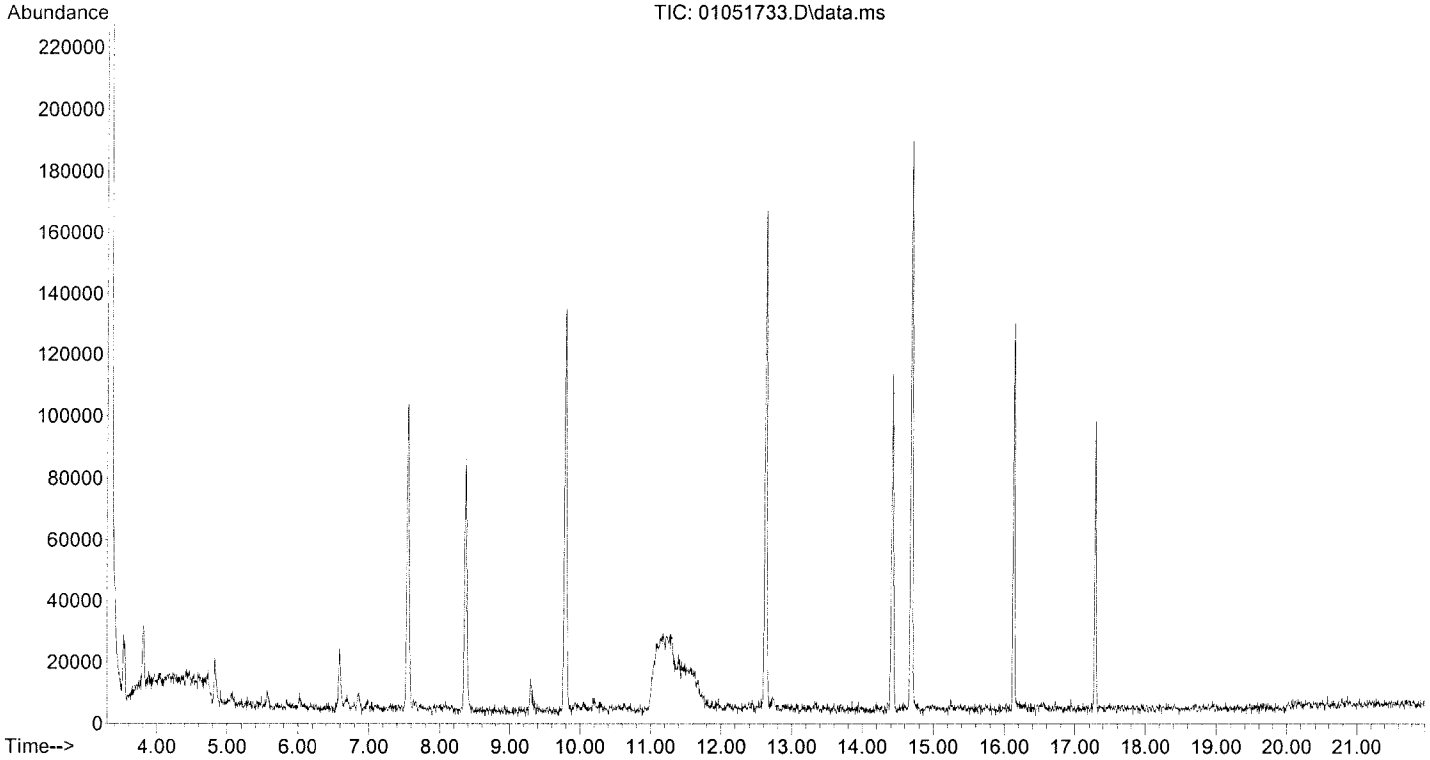
Quant Time: Jan 06 08:17:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

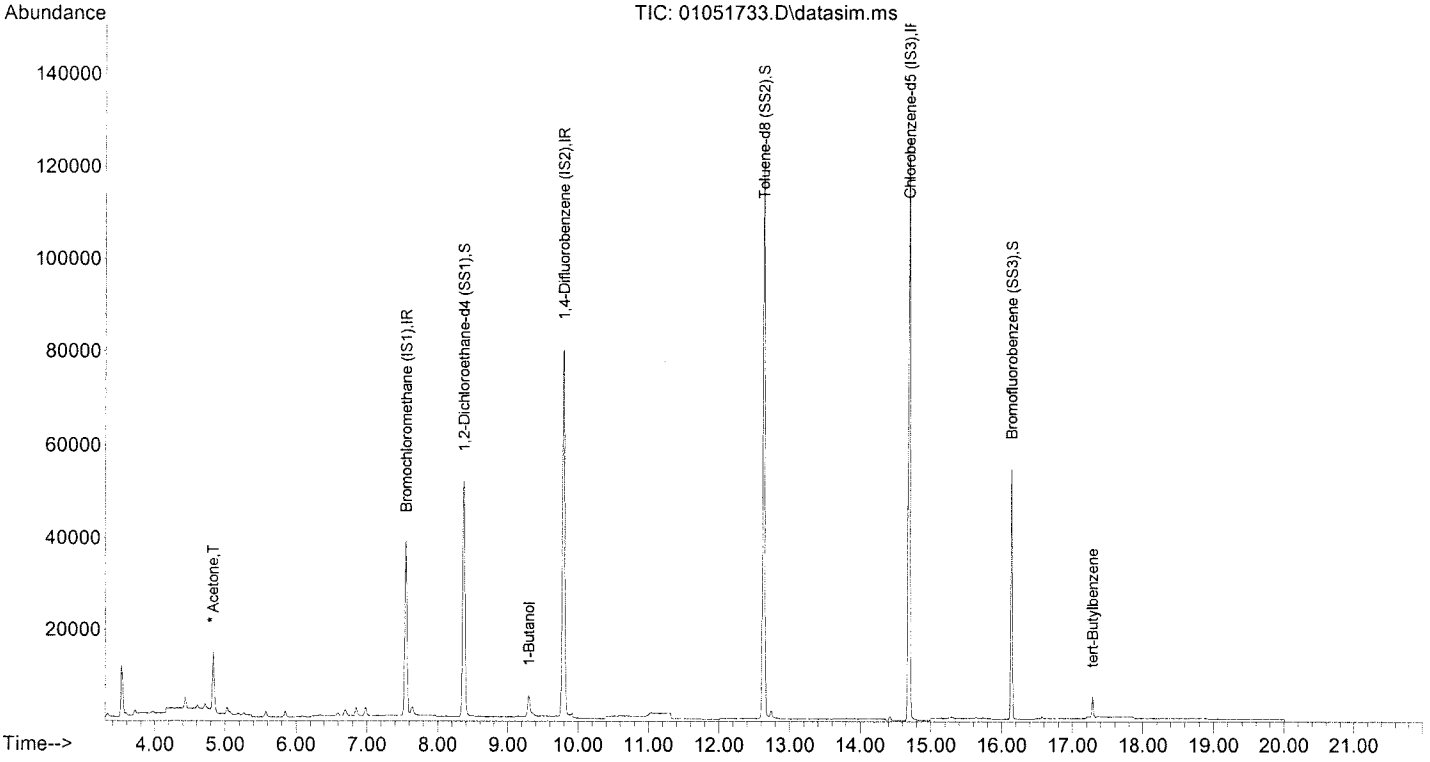
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46688	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147615	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119252	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76983	837.235	pg		0.00
Spiked Amount 1000.000			Recovery = 83.72%				
57) Toluene-d8 (SS2)	12.63	98	132493	909.222	pg		0.00
Spiked Amount 1000.000			Recovery = 90.92%				
74) Bromofluorobenzene (SS3)	16.14	174	38164	795.199	pg		0.00
Spiked Amount 1000.000			Recovery = 79.52%				
Target Compounds							Qvalue
13) * Acetone	4.83	58	7366	122.020	pg	#	47
41) 1-Butanol	9.30	56	4151	130.078	pg	#	48
83) tert-Butylbenzene	17.28	134	1770	81.062	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051733.D
Acq On : 6 Jan 2017 7:03 am
Operator : JM
Sample : AS01020 FCS00053
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 06 08:17:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061717.D
Acq On : 6 Jan 2017 20:04 Operator: CL
Sample : SSC00024-FCA00009 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 07 15:18:40 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

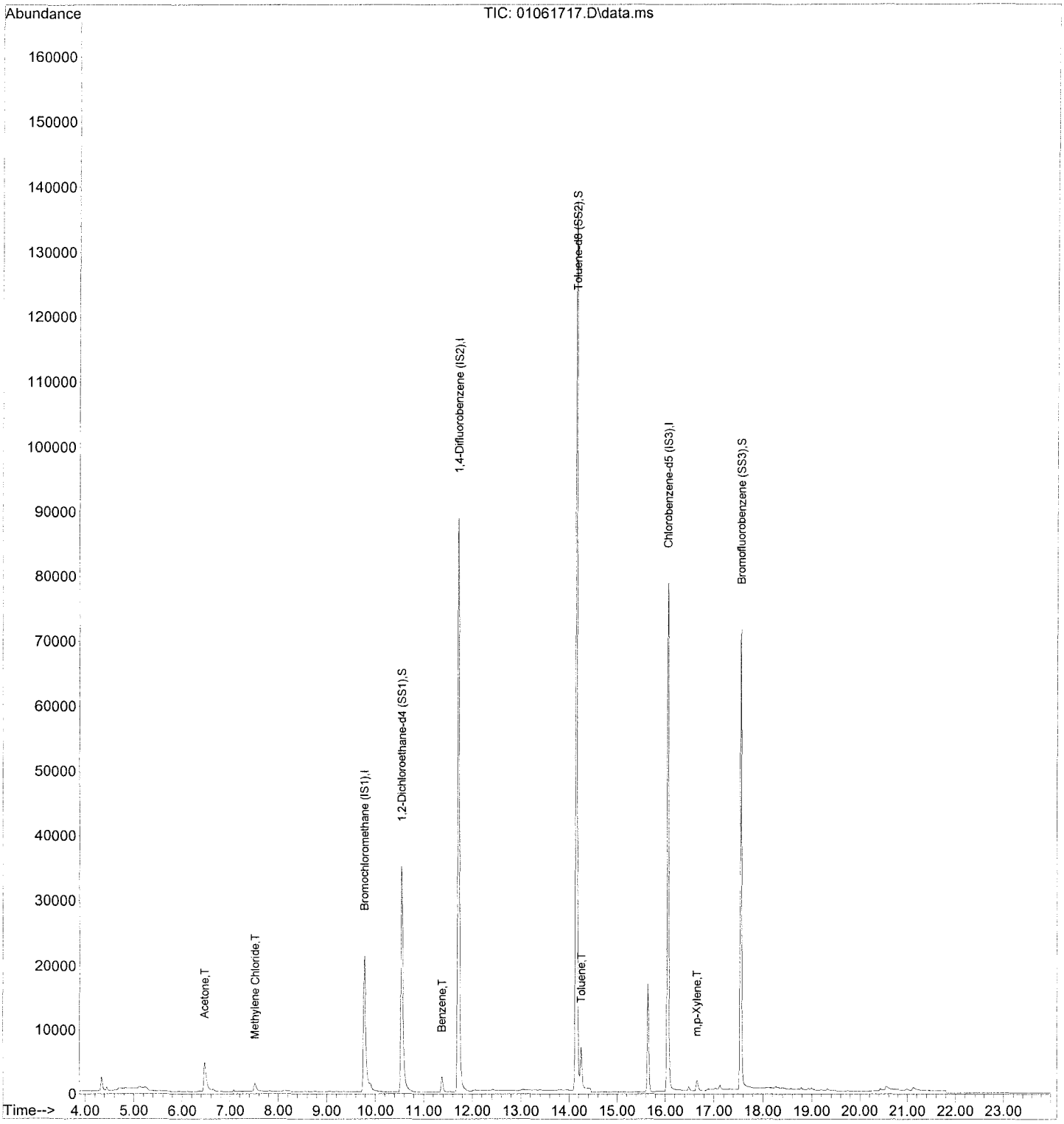
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	41363	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	191536	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	31518	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.6	65	71117	1073.420	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.34%			
33) Toluene-d8 (SS2)	14.2	98	192577	1029.355	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.94%			
45) Bromofluorobenzene (SS3)	17.6	174	55919	895.265	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.53%			
Target Compounds						Qvalue
10) Acetone	6.5	58	4812	194.610	pg	97
13) Methylene Chloride	7.5	84	1590	32.909	pg	83
23) Benzene	11.4	78	5197	25.469	pg	99
34) Toluene	14.3	91	8718	47.957	pg	100
41) m,p-Xylene	16.7	91	3342	18.382	pg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061717.D
Acq On : 6 Jan 2017 20:04 Operator: CL
Sample : SSC00024-FCA00009 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 07 15:18:40 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051713.D Vial: 10
Acq On : 5 Jan 2017 19:40 Operator: CL
Sample : AS01108-FCA00057 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:10 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

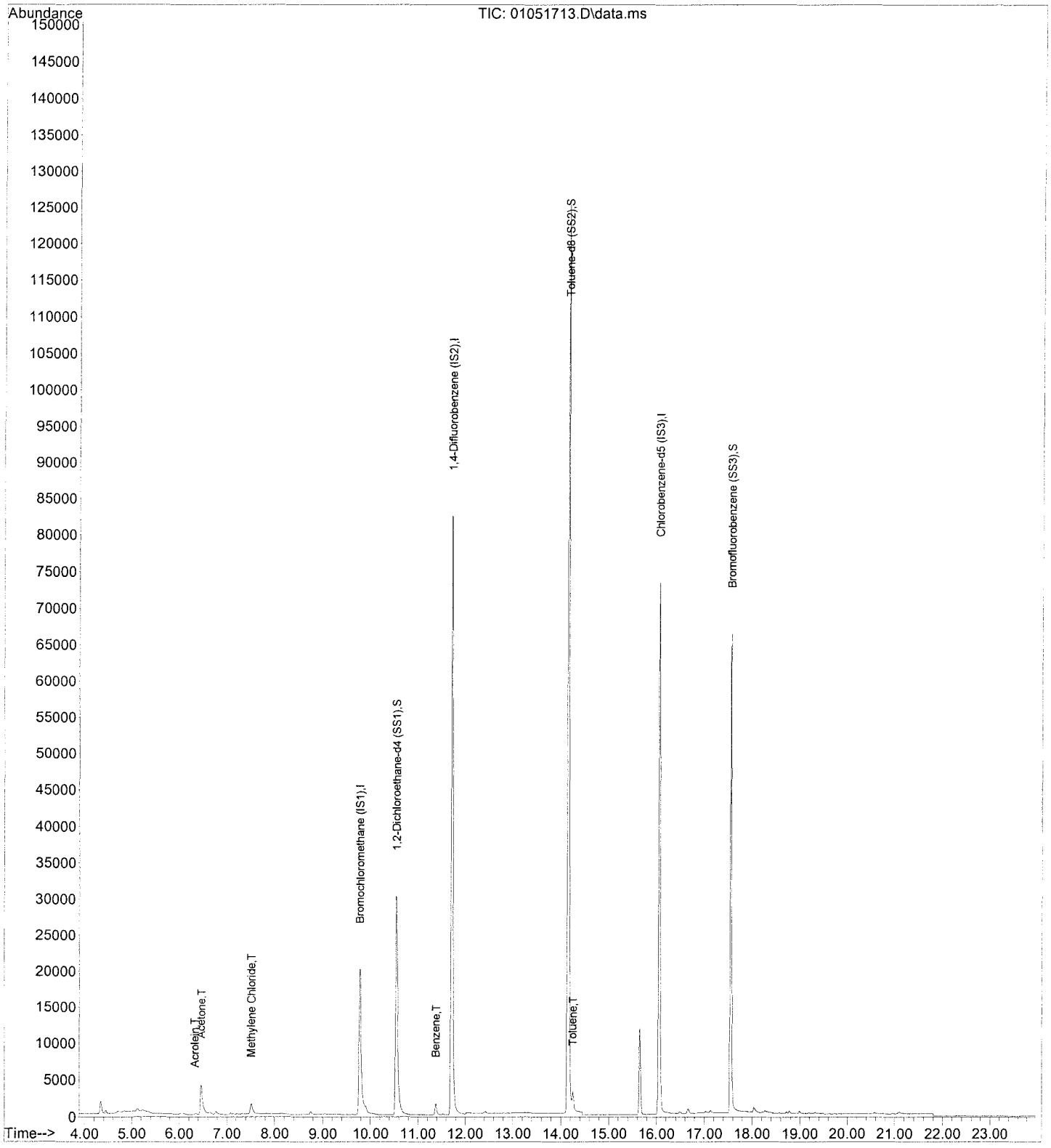
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	38223	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	178861	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	26701	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	60029	980.493	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.05%				
33) Toluene-d8 (SS2)	14.15	98	175475	1004.409	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.44%				
45) Bromofluorobenzene (SS3)	17.56	174	52176	986.039	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.60%				
Target Compounds							Qvalue
9) Acrolein	6.33	56	281	16.408	pg	#	52
10) Acetone	6.46	58	3888	170.159	pg		96
13) Methylene Chloride	7.52	84	1765	39.532	pg		93
23) Benzene	11.38	78	3281	17.400	pg		98
34) Toluene	14.25	91	3266	19.239	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051713.D Vial: 10
Acq On : 5 Jan 2017 19:40 Operator: CL
Sample : AS01108-FCA00057 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:10 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091716.D Vial: 5
Acq On : 9 Jan 2017 18:12 Operator: CL
Sample : SC01846_FCR00016 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:29 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/10/17

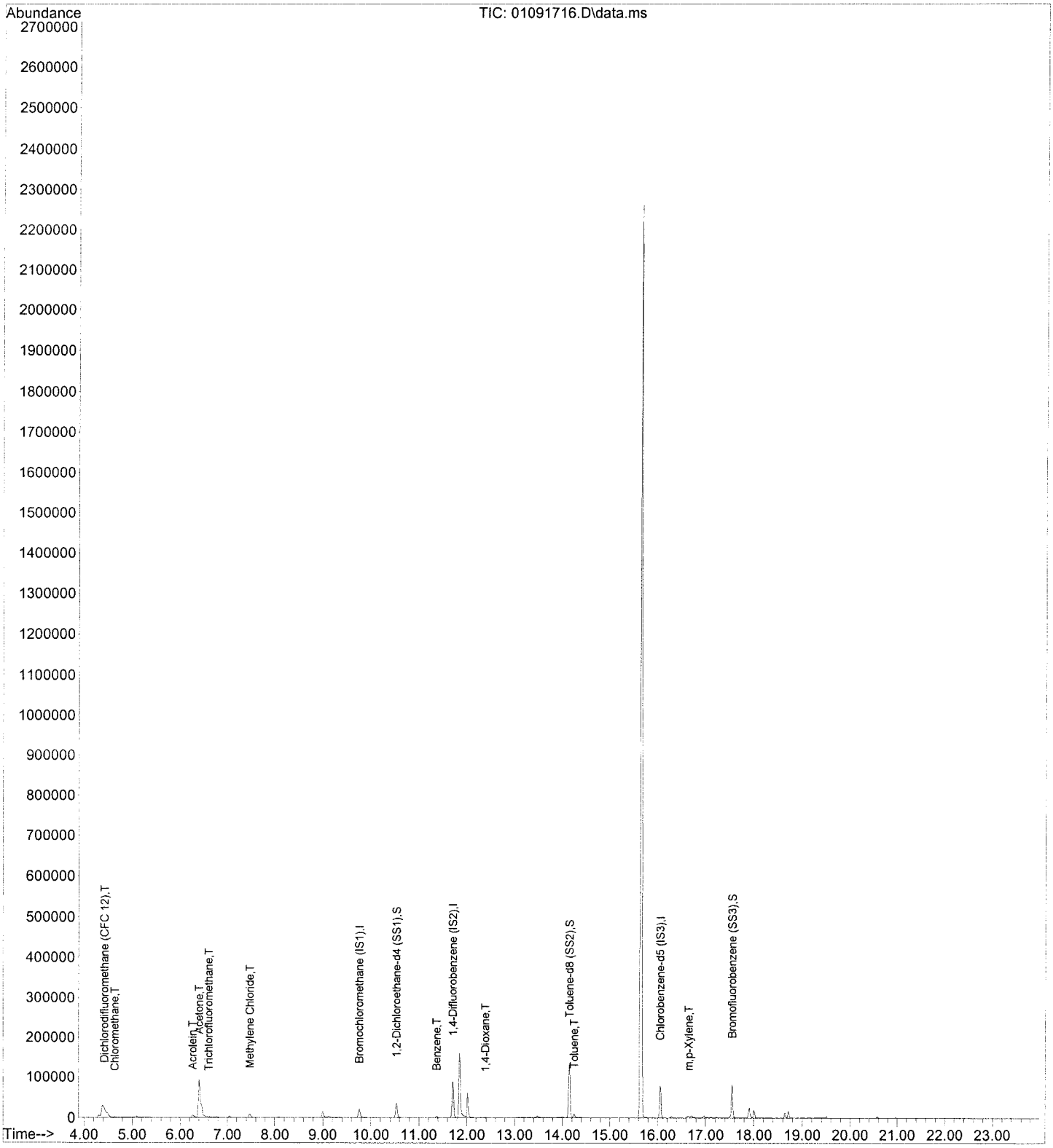
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	35309	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	177799	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	31112	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	61676	1095.204	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.52%				
33) Toluene-d8 (SS2)	14.15	98	184580	1100.271	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.03%				
45) Bromofluorobenzene (SS3)	17.55	174	61583	1033.644	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.36%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	5970	69.019	pg		100
3) Chloromethane	4.64	52	1166	49.998	pg		92
9) Acrolein	6.26	56	14407	893.723	pg		100
10) Acetone	6.40	58	48506	2176.019	pg	#	23
11) Trichlorofluoromethane	6.60	101	2216	34.815	pg		100
13) Methylene Chloride	7.48	84	9051	216.706	pg		82
23) Benzene	11.37	78	6779	38.388	pg		100
29) 1,4-Dioxane	12.39	88	729	21.647	pg		87
34) Toluene	14.25	91	12301	73.786	pg		100
41) m,p-Xylene	16.65	91	4783	28.765	pg		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091716.D Vial: 5
Acq On : 9 Jan 2017 18:12 Operator: CL
Sample : SC01846_FCR00016 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:29 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061716.D
Acq On : 6 Jan 2017 19:33 Operator: CL
Sample : AC00985-FCS00105 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 07 15:18:39 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

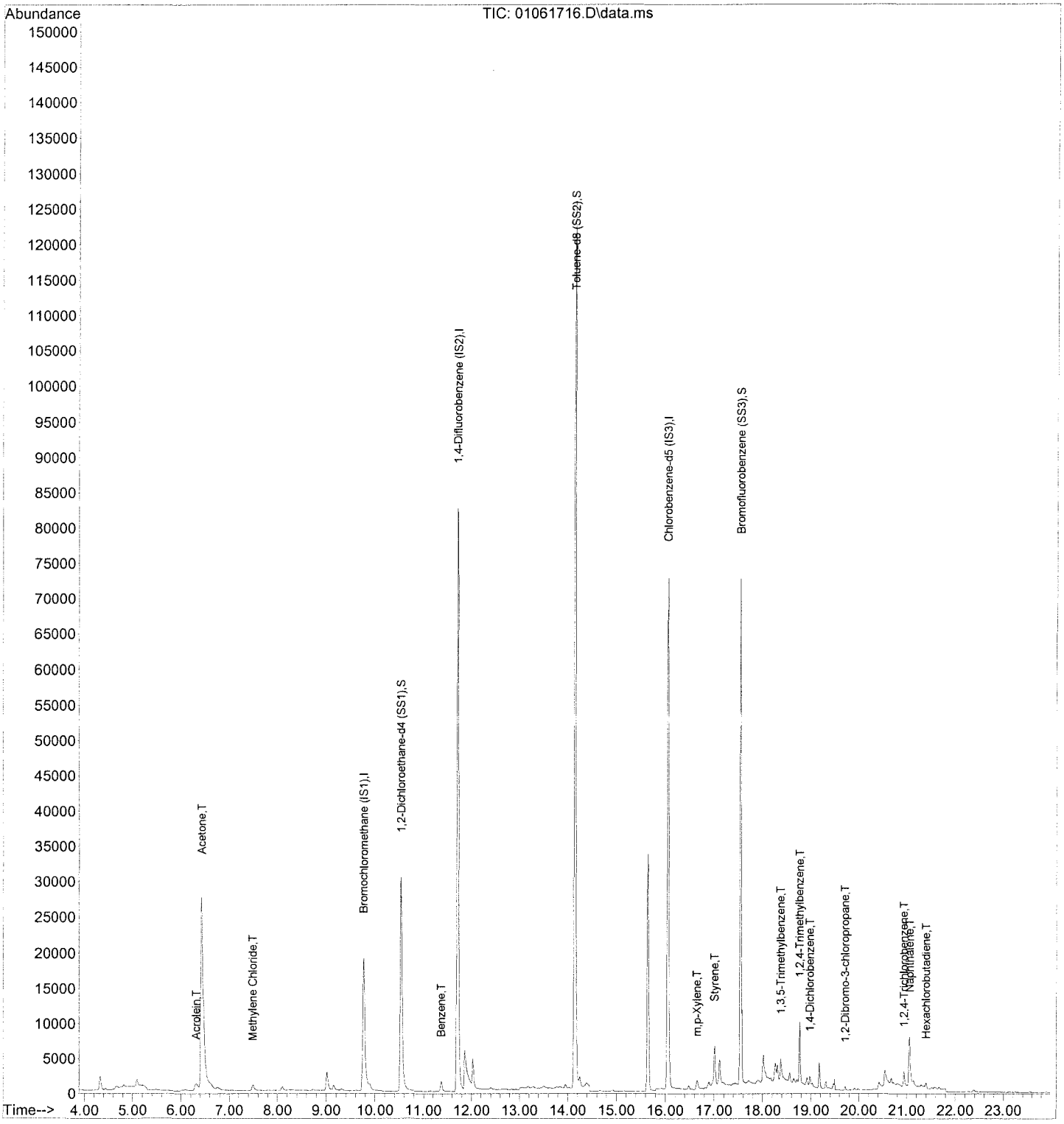
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	35154	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	172894	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.1	54	26711	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.5	65	57306	1017.732	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.77%				
33) Toluene-d8 (SS2)	14.1	98	171619	1016.240	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.62%				
45) Bromofluorobenzene (SS3)	17.6	174	53950	1019.183	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.92%				
Target Compounds							Qvalue
9) Acrolein	6.3	56	3220	204.434	pg		96
10) Acetone	6.4	58	41328	1966.628	pg	#	39
13) Methylene Chloride	7.5	84	929	22.624	pg		89
23) Benzene	11.4	78	2899	16.717	pg		99
41) m,p-Xylene	16.7	91	2500	16.225	pg		100
42) Styrene	17.0	104	6771	66.762	pg		97
46) 1,3,5-Trimethylbenzene	18.4	105	3498	23.428	pg		98
47) 1,2,4-Trimethylbenzene	18.8	105	10561	68.745	pg	#	83
49) 1,4-Dichlorobenzene	19.0	146	1428	15.920	pg		96
51) 1,2-Dibromo-3-chloropr...	19.7	157	456	16.633	pg		96
52) 1,2,4-Trichlorobenzene	20.9	182	2591	53.634	pg		98
53) Naphthalene	21.1	128	15847	108.860	pg		96
54) Hexachlorobutadiene	21.4	225	752	21.021	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061716.D
Acq On : 6 Jan 2017 19:33 Operator: CL
Sample : AC00985-FCS00105 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 07 15:18:39 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051705.D Vial: 3
Acq On : 5 Jan 2017 15:30 Operator: CL
Sample : AS00750-FCA00822 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:02 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

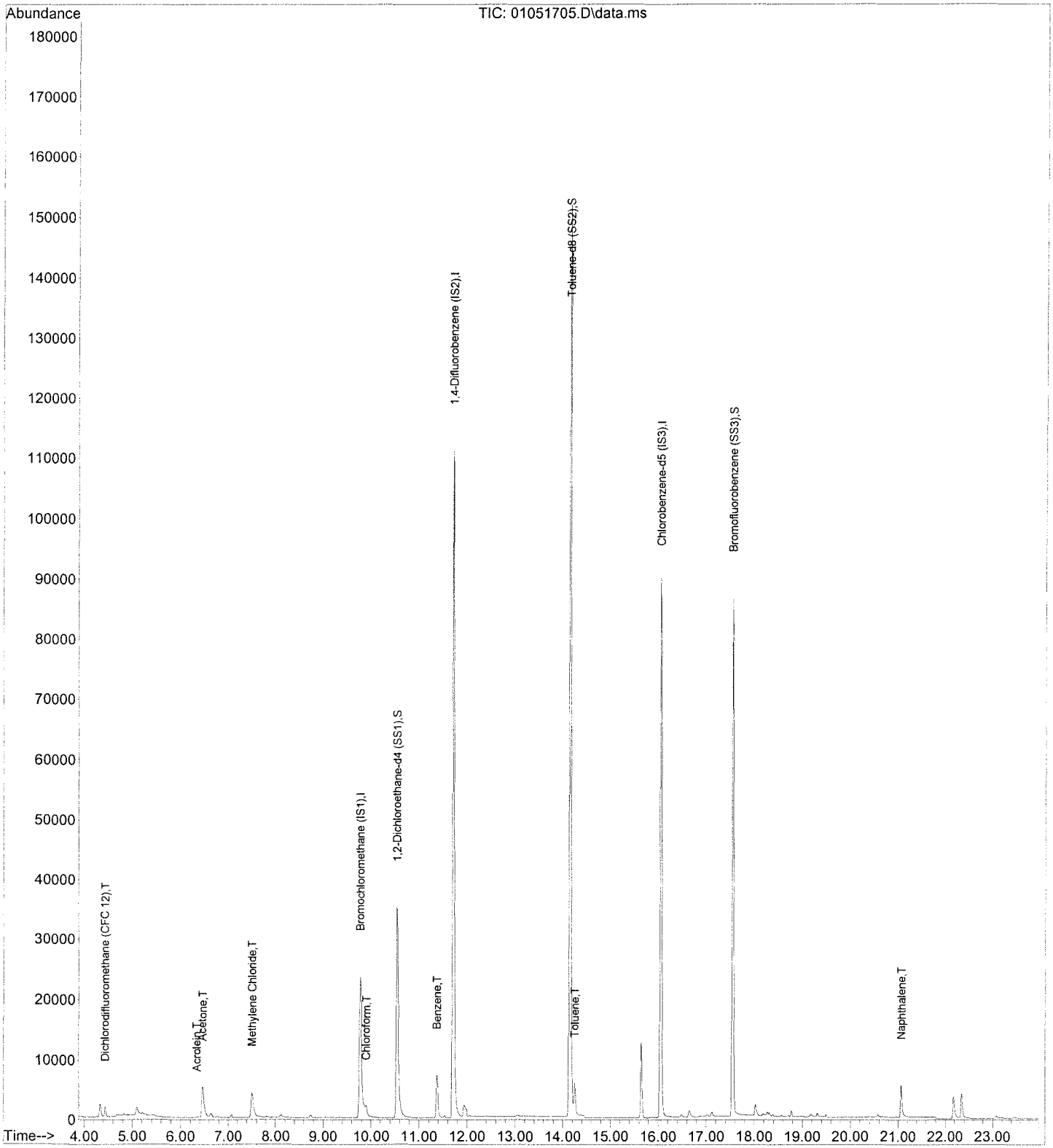
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	46084	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	237452	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	31878	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	69789	945.464	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.55%				
33) Toluene-d8 (SS2)	14.15	98	213037	918.523	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.85%				
45) Bromofluorobenzene (SS3)	17.55	174	68254	1080.408	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.04%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	2394	21.409	pg		99
9) Acrolein	6.34	56	350	16.951	pg	#	46
10) Acetone	6.46	58	4658	169.084	pg		93
13) Methylene Chloride	7.51	84	5530	102.730	pg		91
19) Chloroform	9.90	83	2181	22.646	pg		100
23) Benzene	11.37	78	15517	68.255	pg		100
34) Toluene	14.25	91	6909	30.657	pg		99
53) Naphthalene	21.06	128	11348	65.319	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051705.D Vial: 3
Acq On : 5 Jan 2017 15:30 Operator: CL
Sample : AS00750-FCA00822 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:02 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091712.D
Acq On : 9 Jan 2017 17:46
Operator : JM
Sample : AS00030 FCR00280
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

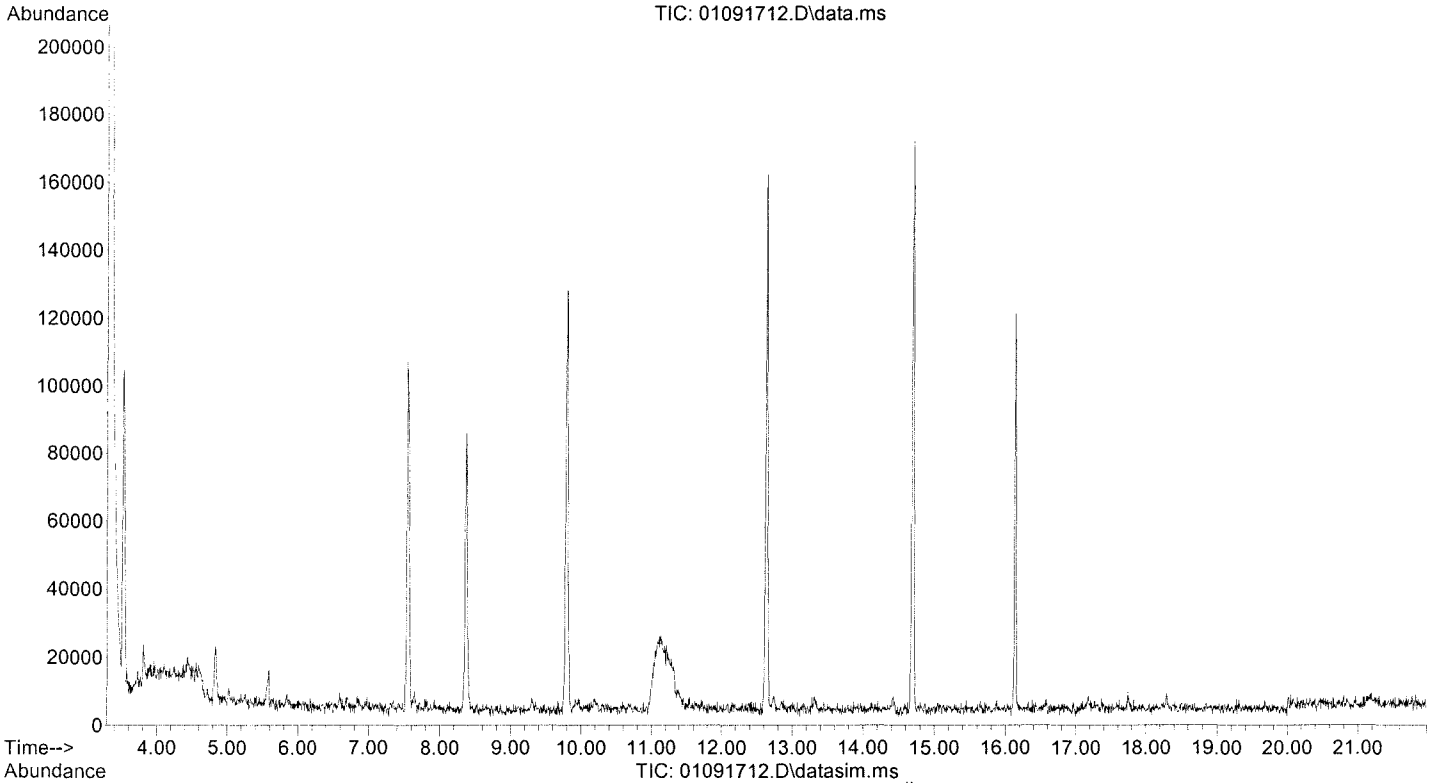
Quant Time: Jan 10 07:50:03 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

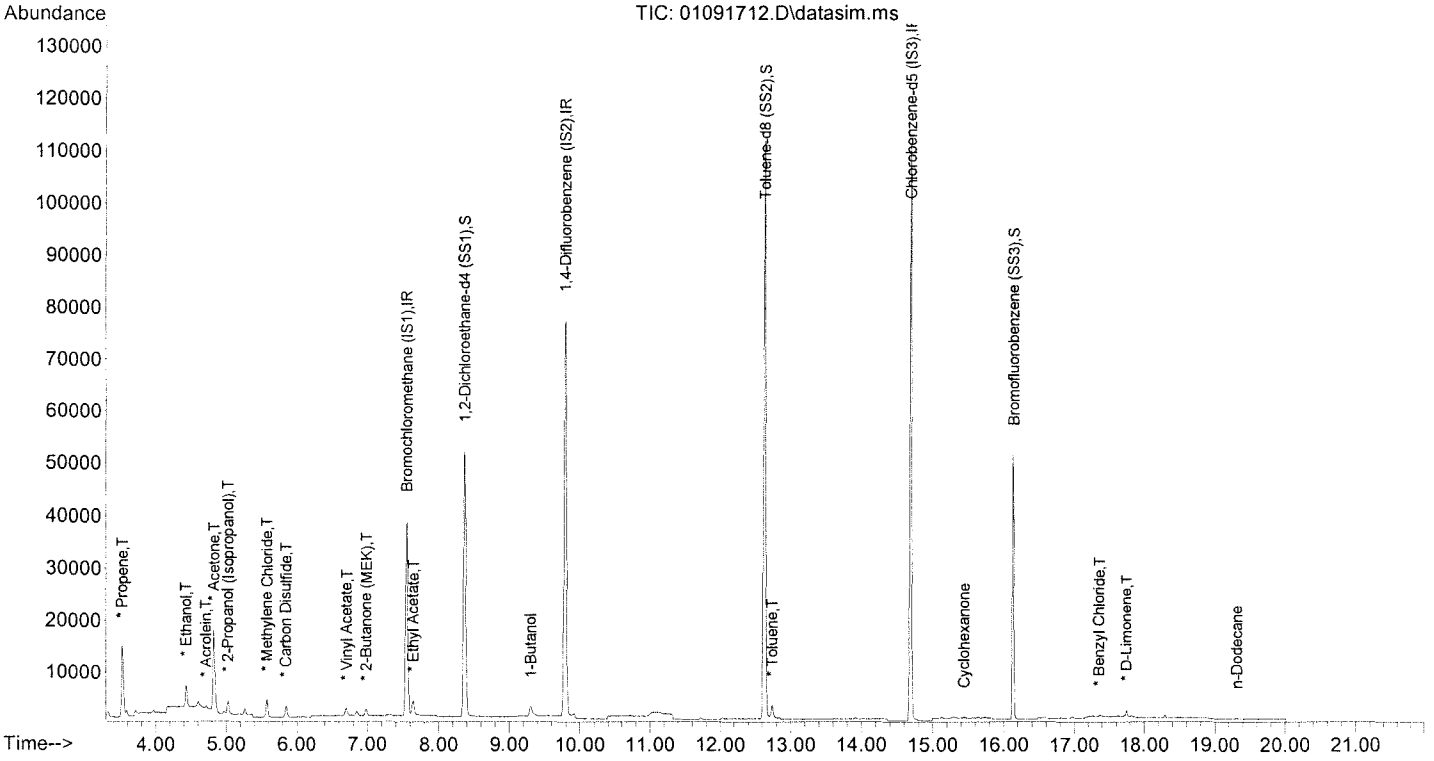
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45817	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	140413	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106967	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	76310	845.693 pg		0.00
Spiked Amount 1000.000			Recovery =	84.57%		
57) Toluene-d8 (SS2)	12.63	98	125609	960.978 pg		0.00
Spiked Amount 1000.000			Recovery =	96.10%		
74) Bromofluorobenzene (SS3)	16.14	174	36452	846.758 pg		0.00
Spiked Amount 1000.000			Recovery =	84.68%		
Target Compounds						Qvalue
2) * Propene	3.53	42	6180	67.203 pg	#	78
10) * Ethanol	4.44	45	5041	80.373 pg		99
12) * Acrolein	4.72	56	637	12.123 pg	#	79
13) * Acetone	4.83	58	8086	136.493 pg	#	64
15) * 2-Propanol (Isopropa...	5.03	45	3564	22.204 pg	#	67
19) * Methylene Chloride	5.58	84	3853	58.389 pg		100
22) * Carbon Disulfide	5.84	76	4238	17.518 pg		96
26) * Vinyl Acetate	6.71	86	416	33.483 pg	#	1
27) * 2-Butanone (MEK)	6.99	72	462	12.993 pg		81
30) * Ethyl Acetate	7.65	61	612	33.666 pg		93
41) 1-Butanol	9.31	56	1627	53.599 pg	#	49
58) * Toluene	12.74	91	2861	18.924 pg		100
69) Cyclohexanone	15.44	98	114	10.304 pg	#	58
85) * Benzyl Chloride	17.36	126	102	12.840 pg	#	30
93) * D-Limonene	17.75	68	556	16.024 pg	#	79
99) n-Dodecane	19.32	85	69	12.752 pg	#	60

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091712.D
Acq On : 9 Jan 2017 17:46
Operator : JM
Sample : AS00030 FCR00280
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 10 07:50:03 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061720.D
Acq On : 6 Jan 2017 9:52 pm
Operator : JM
Sample : AS01135 FCA00515
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 09 08:37:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46817	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	144945	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	108490	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	76336	827.911 pg		0.00
Spiked Amount 1000.000			Recovery =	82.79%		
57) Toluene-d8 (SS2)	12.63	98	124683	940.503 pg		0.00
Spiked Amount 1000.000			Recovery =	94.05%		
74) Bromofluorobenzene (SS3)	16.14	174	36568	837.528 pg		0.00
Spiked Amount 1000.000			Recovery =	83.75%		
Target Compounds						Qvalue
2) * Propene	3.53	42	5637	59.989 pg	#	67
3) * Dichlorodifluoromethane	3.59	85	4370	21.832 pg		100
4) * Chloromethane	3.71	50	1619	10.820 pg		96
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	146	0.983 pg	#	1
7) * 1,3-Butadiene	4.00	54	97	0.913 pg	#	1
8) * Bromomethane	4.21	94	118	1.298 pg	#	70
10) * Ethanol	4.43	45	6736	105.104 pg		96
11) * Acetonitrile	4.60	41	2099	13.062 pg		97
12) * Acrolein	4.72	56	828	15.421 pg		83
13) * Acetone	4.83	58	9775	161.480 pg	#	61
14) * Trichlorofluoromethane	4.97	101	1592	11.905 pg		97
15) * 2-Propanol (Isopropa...	5.03	45	5328	32.485 pg		98
16) * Acrylonitrile	5.19	53	357	3.745 pg	#	77
18) tert-Butanol	5.56	59	283	2.863 pg	#	49
19) * Methylene Chloride	5.57	84	5755	85.349 pg		99
21) * Trichlorotrifluoroet...	5.82	151	358	6.831 pg	#	49
22) * Carbon Disulfide	5.84	76	2520	10.194 pg		100
26) * Vinyl Acetate	6.71	86	234	18.432 pg	#	15
27) * 2-Butanone (MEK)	6.98	72	329	9.055 pg		93
29) DIPE	7.64	45	1238	5.846 pg	#	53
30) * Ethyl Acetate	7.64	61	1176	63.311 pg		98
31) * n-Hexane	7.65	57	767	8.030 pg		97
32) * Chloroform	7.69	83	178	1.508 pg		95
36) * 1,2-Dichloroethane	8.50	62	95	0.951 pg	#	42
39) * Benzene	9.35	78	1311	7.843 pg		96
41) 1-Butanol	9.30	56	1642	52.402 pg	#	38
42) * Carbon Tetrachloride	9.54	117	367	5.643 pg		93
45) * 1,2-Dichloropropane	10.33	63	51	0.822 pg	#	32
49) Isooctane	10.71	56	188	2.353 pg		95
51) * n-Heptane	11.03	71	393	4.579 pg		96
53) * 4-Methyl-2-pentanone	11.72	58	51	1.689 pg	#	47
58) * Toluene	12.74	91	3494	22.786 pg		93
64) * Tetrachloroethene	14.02	166	61	1.196 pg		89
66) * Ethylbenzene	15.12	91	364	2.815 pg	#	74
67) * m- & p-Xylenes	15.29	91	791	7.873 pg	#	80
70) * Styrene	15.64	104	50	0.935 pg	#	28
71) * o-Xylene	15.73	91	258	2.625 pg		87
72) * n-Nonane	15.98	57	58	1.310 pg	#	42
76) * alpha-Pinene	16.61	93	168	2.637 pg		89
78) 3-Ethyltoluene	16.81	105	105	1.168 pg	#	45
79) * 4-Ethyltoluene	16.85	105	51	0.647 pg	#	46
84) * 1,2,4-Trimethylbenzene	17.26	105	130	1.627 pg		99
93) * D-Limonene	17.75	68	136	3.865 pg		96
98) * Naphthalene	19.30	128	67	1.964 pg	#	66

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061720.D
Acq On : 6 Jan 2017 9:52 pm
Operator : JM
Sample : AS01135 FCA00515
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 09 08:37:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

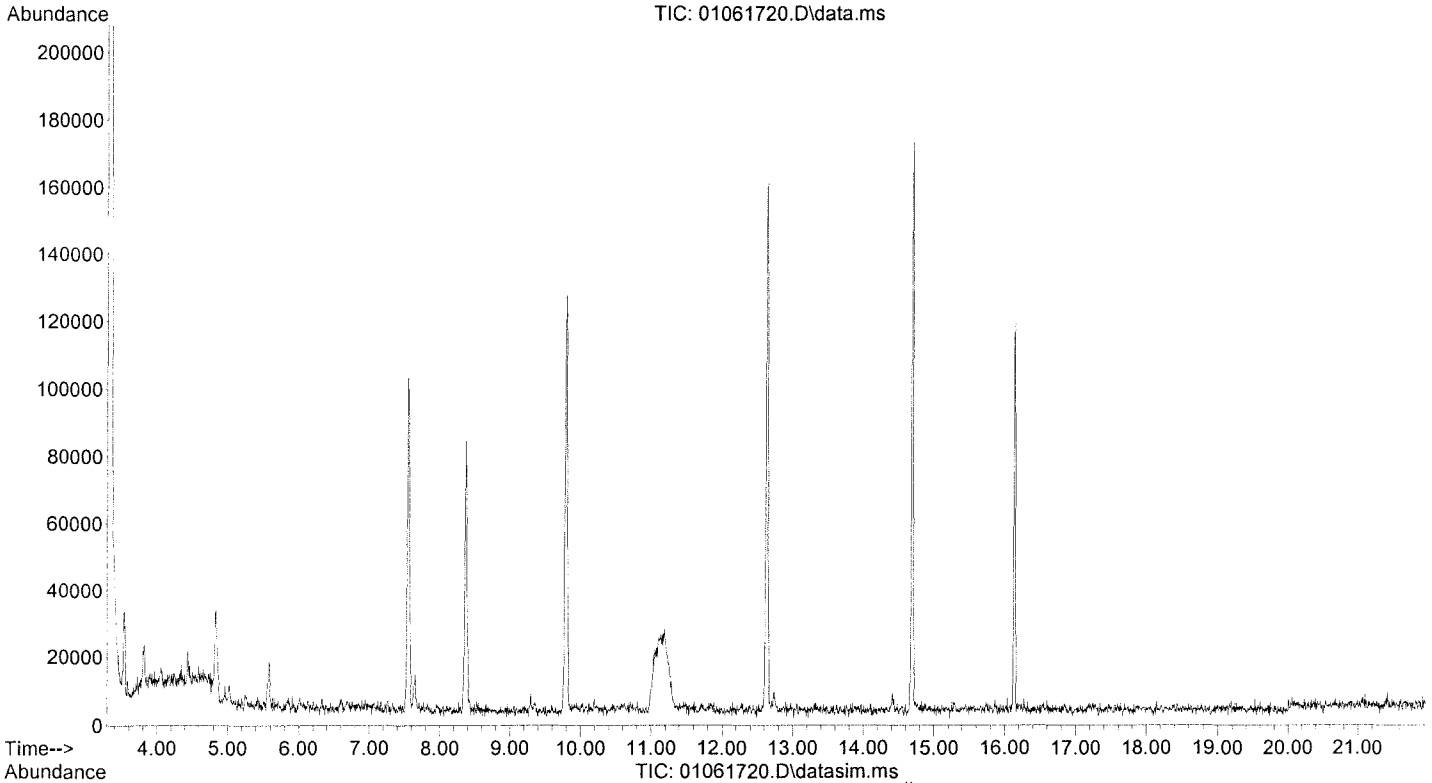
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

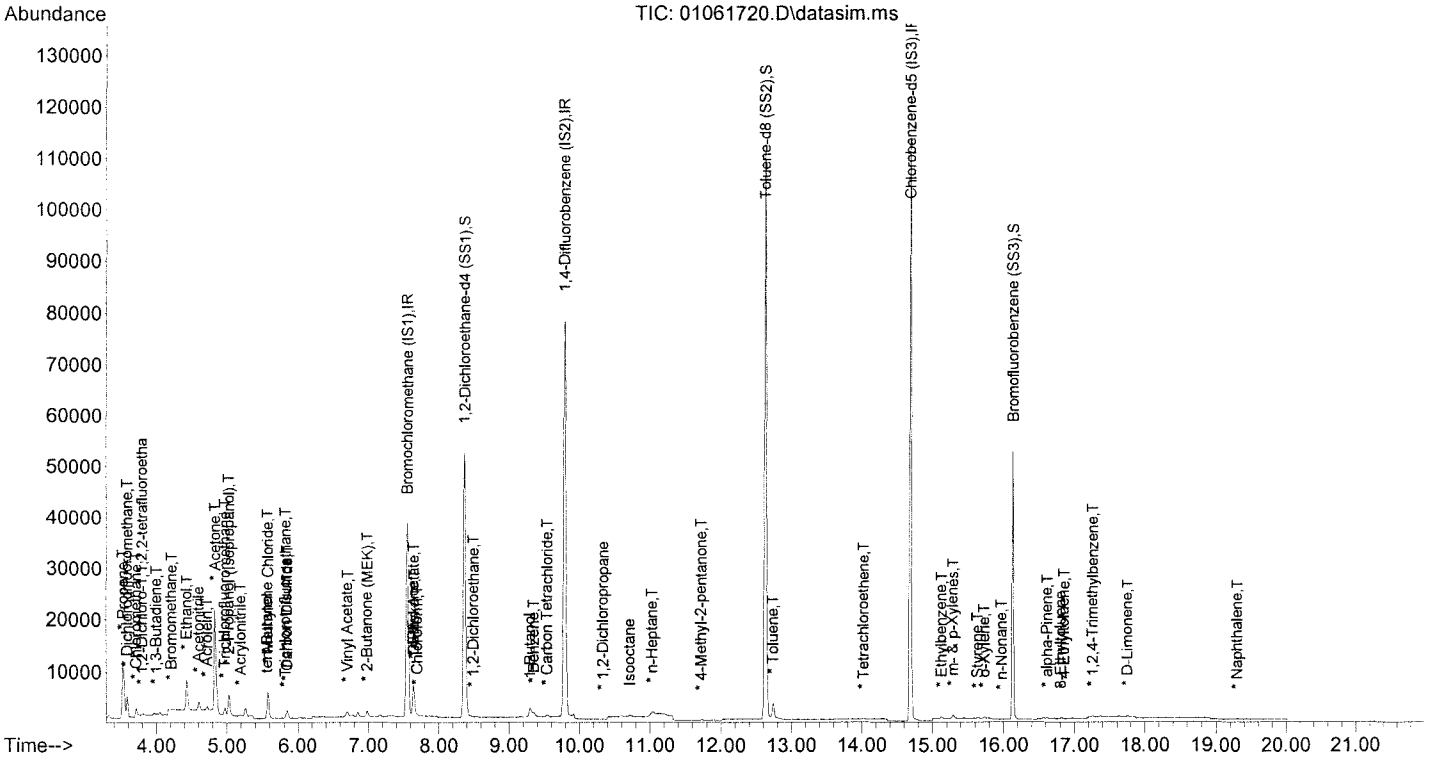
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061720.D
Acq On : 6 Jan 2017 9:52 pm
Operator : JM
Sample : AS01135 FCA00515
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 09 08:37:55 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061714.D
Acq On : 6 Jan 2017 18:31 Operator: CL
Sample : AS00864-FCA00686 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 07 15:18:37 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

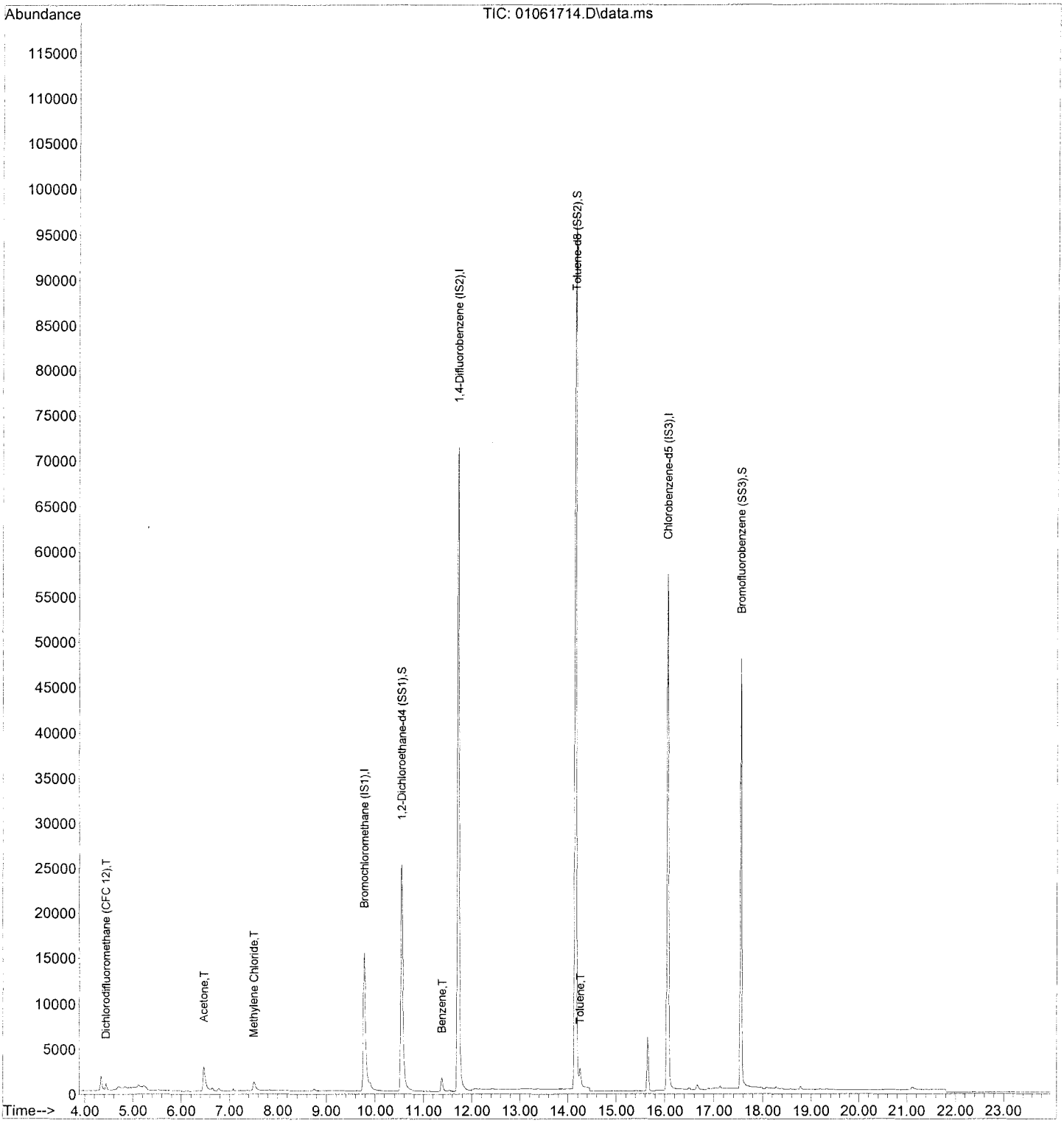
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	29998	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	153559	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	22345	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.5	65	51577	1073.426	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.34%			
33) Toluene-d8 (SS2)	14.2	98	138603	924.077	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.41%			
45) Bromofluorobenzene (SS3)	17.6	174	36595	826.404	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.64%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.4	85	1098	15.085	pg	100
10) Acetone	6.5	58	2767	154.301	pg	98
13) Methylene Chloride	7.5	84	1238	35.331	pg	85
23) Benzene	11.4	78	3358	22.692	pg	99
34) Toluene	14.3	91	2531	17.366	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061714.D
Acq On : 6 Jan 2017 18:31 Operator: CL
Sample : AS00864-FCA00686 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 07 15:18:37 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061708.D
Acq On : 6 Jan 2017 15:23 Operator: CL
Sample : AC02218-FCA01047 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 6 Sample Multiplier: 1

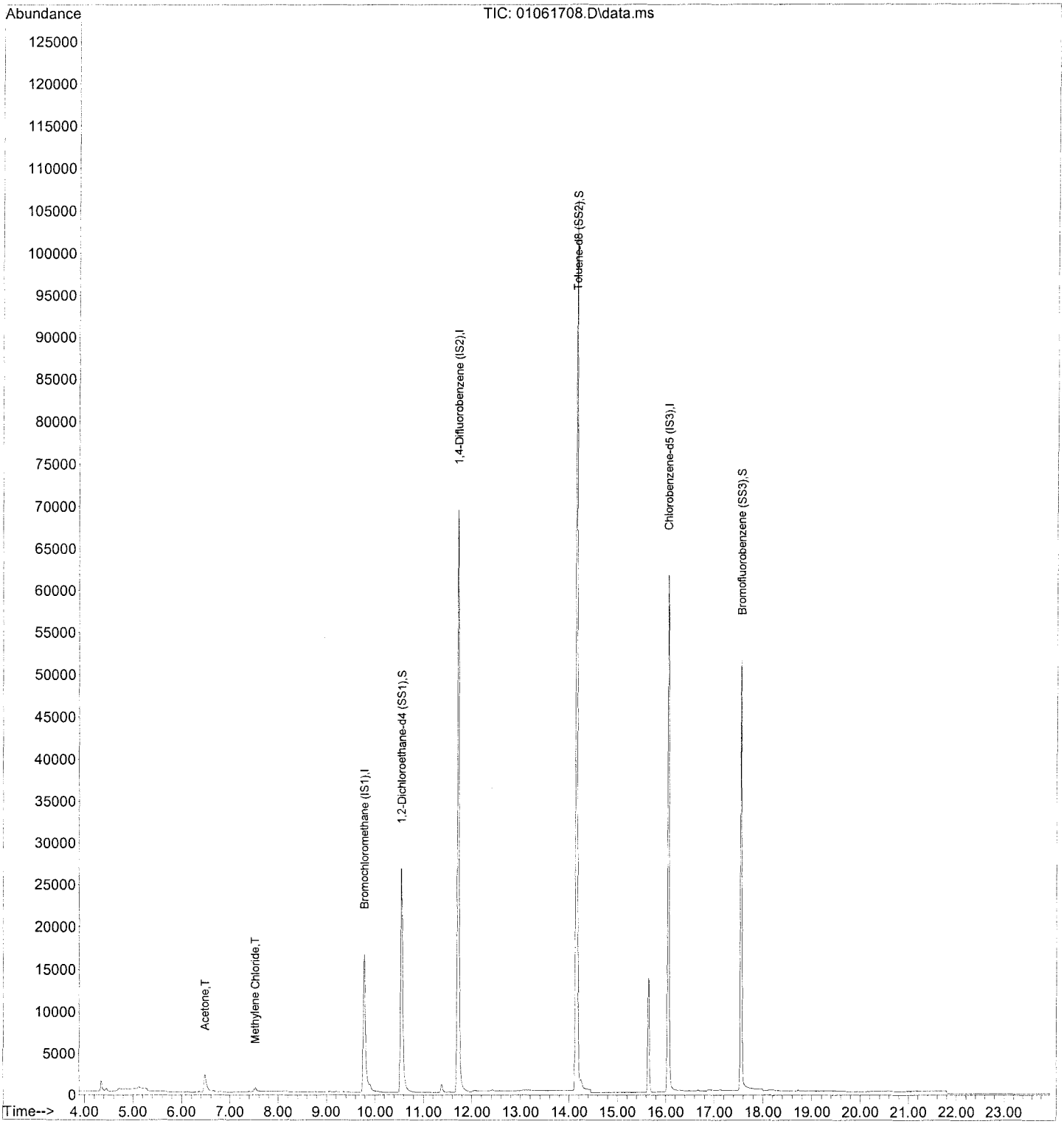
Quant Time: Jan 07 15:18:31 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	31892	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	149313	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	23837	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.6	65	54211	1061.241 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.12%		
33) Toluene-d8 (SS2)	14.2	98	148345	1017.153 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%		
45) Bromofluorobenzene (SS3)	17.6	174	40337	853.892 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.39%		
Target Compounds					Qvalue
10) Acetone	6.5	58	2291	120.170 pg	92
13) Methylene Chloride	7.5	84	563	15.113 pg	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS19\DATA\2017 01\06\01061708.D
Acq On : 6 Jan 2017 15:23 Operator: CL
Sample : AC02218-FCA01047 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 07 15:18:31 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071707.D
Acq On : 7 Jan 2017 6:41 pm
Operator : JM
Sample : AS00824 FCR00024
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 09 09:39:19 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48390	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150809	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	115974	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	79472	833.905 pg		0.00
Spiked Amount 1000.000			Recovery =	83.39%		
57) Toluene-d8 (SS2)	12.63	98	133190	939.839 pg		0.00
Spiked Amount 1000.000			Recovery =	93.98%		
74) Bromofluorobenzene (SS3)	16.14	174	38298	820.546 pg		0.00
Spiked Amount 1000.000			Recovery =	82.06%		
Target Compounds						Qvalue
2) * Propene	3.53	42	4863	50.070 pg	#	77
3) * Dichlorodifluoromethane	3.59	85	796	3.847 pg		97
4) * Chloromethane	3.71	50	807	5.218 pg		99
7) * 1,3-Butadiene	4.00	54	28	0.255 pg	#	1
8) * Bromomethane	4.21	94	67	0.713 pg	#	61
10) * Ethanol	4.44	45	2217	33.468 pg		100
11) * Acetonitrile	4.61	41	464	2.794 pg	#	73
12) * Acrolein	4.72	56	1073	19.335 pg		97
13) * Acetone	4.83	58	6906	110.376 pg	#	51
14) * Trichlorofluoromethane	4.96	101	283	2.048 pg	#	73
15) * 2-Propanol (Isopropa...	5.03	45	2287	13.491 pg		89
16) * Acrylonitrile	5.19	53	245	2.486 pg	#	73
18) tert-Butanol	5.55	59	370	3.621 pg	#	67
19) * Methylene Chloride	5.58	84	1312	18.825 pg	#	60
20) * 3-Chloro-1-propene (...	5.69	41	62	0.666 pg	#	43
21) * Trichlorotrifluoroet...	5.82	151	84	1.551 pg	#	19
22) * Carbon Disulfide	5.85	76	2458	9.620 pg		95
26) * Vinyl Acetate	6.71	86	271	20.653 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	446	11.876 pg		99
29) DIPE	7.64	45	257	1.174 pg	#	53
30) * Ethyl Acetate	7.65	61	240	12.501 pg	#	81
31) * n-Hexane	7.65	57	159	1.610 pg	#	60
39) * Benzene	9.35	78	6325	36.367 pg		98
41) 1-Butanol	9.30	56	1019	31.256 pg	#	48
42) * Carbon Tetrachloride	9.55	117	83	1.227 pg	#	1
48) * 1,4-Dioxane	10.65	88	71	1.957 pg	#	9
49) Isooctane	10.72	56	157	1.889 pg	#	63
51) * n-Heptane	11.04	71	96	1.075 pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	100	3.183 pg	#	47
55) * 1,1,2-Trichloroethane	12.39	97	50	1.122 pg	#	18
58) * Toluene	12.74	91	862	5.259 pg		99
59) * 2-Hexanone	13.07	58	53	1.890 pg	#	68
65) * Chlorobenzene	14.73	112	75	0.694 pg	#	42
66) * Ethylbenzene	15.12	91	104	0.752 pg	#	45
67) * m- & p-Xylenes	15.28	91	209	1.946 pg		98
69) Cyclohexanone	15.44	98	56	4.669 pg	#	53
71) * o-Xylene	15.73	91	59	0.562 pg	#	32
72) * n-Nonane	15.97	57	63	1.331 pg	#	42
78) 3-Ethyltoluene	16.84	105	64	0.666 pg	#	45
79) * 4-Ethyltoluene	16.84	105	64	0.759 pg	#	46
83) tert-Butylbenzene	17.28	134	102	4.803 pg	#	1
85) * Benzyl Chloride	17.36	126	72	8.360 pg	#	8
93) * D-Limonene	17.75	68	53	1.409 pg	#	15
98) * Naphthalene	19.29	128	50	1.371 pg	#	66
99) n-Dodecane	19.31	85	51	8.693 pg	#	1

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071707.D
Acq On : 7 Jan 2017 6:41 pm
Operator : JM
Sample : AS00824 FCR00024
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

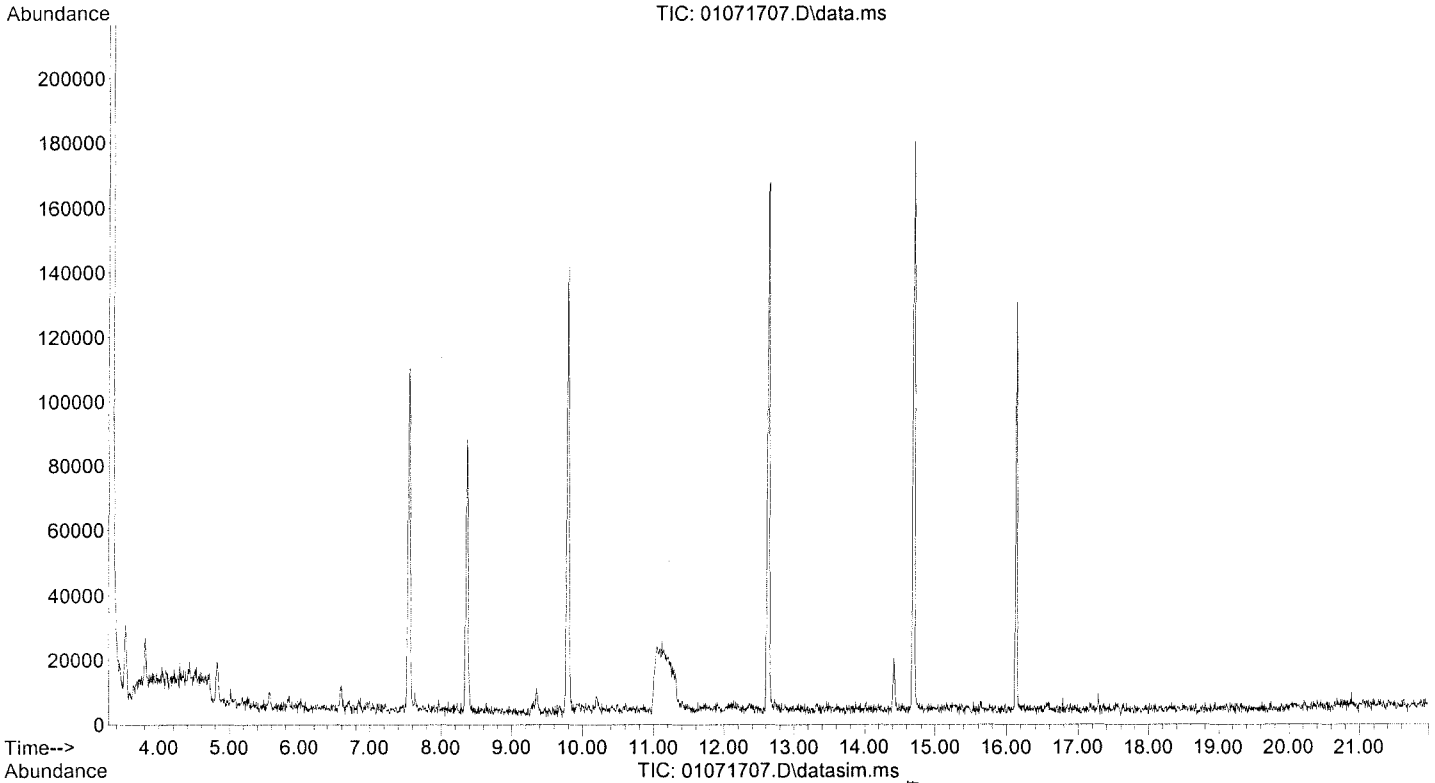
Quant Time: Jan 09 09:39:19 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

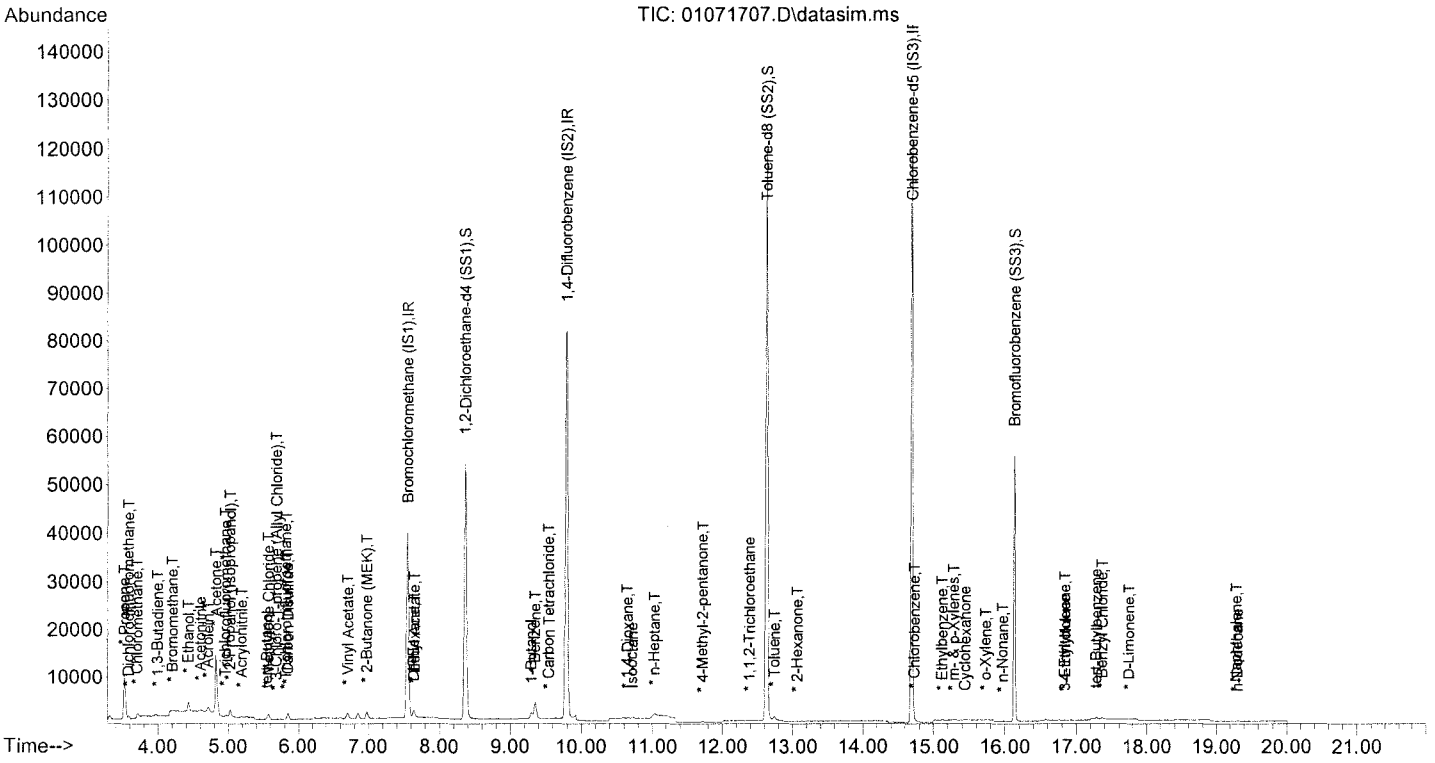
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071707.D
Acq On : 7 Jan 2017 6:41 pm
Operator : JM
Sample : AS00824 FCR00024
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jan 09 09:39:19 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061713.D
Acq On : 6 Jan 2017 17:59 Operator: CL
Sample : AS00970-FCA00405 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 07 15:18:36 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

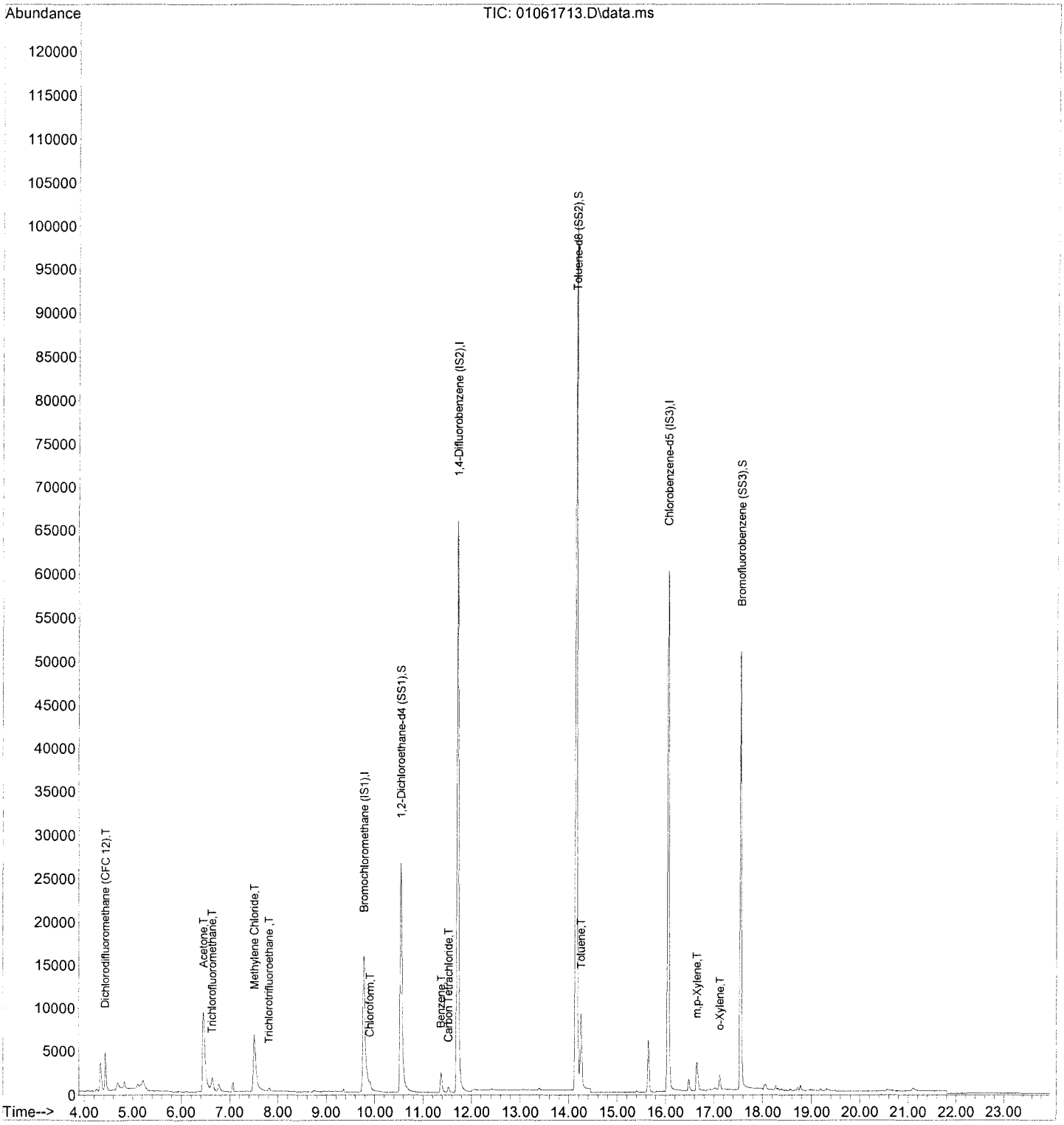
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	30626	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	141085	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	23337	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.5	65	52631	1072.901 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.29%		
33) Toluene-d8 (SS2)	14.2	98	143645	1042.367 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.24%		
45) Bromofluorobenzene (SS3)	17.6	174	39867	862.024 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 86.20%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.4	85	6013	80.914 pg	100
10) Acetone	6.5	58	8768	478.920 pg	92
11) Trichlorofluoromethane	6.6	101	2353	43.253 pg	100
13) Methylene Chloride	7.5	84	8945	250.042 pg	87
14) Trichlorotrifluoroethane	7.8	151	507	15.235 pg	96
19) Chloroform	9.9	83	1060	16.562 pg	98
23) Benzene	11.4	78	4836	32.009 pg	100
24) Carbon Tetrachloride	11.5	117	759	15.153 pg	99
34) Toluene	14.3	91	12029	89.833 pg	99
41) m,p-Xylene	16.7	91	6152	45.699 pg	99
43) o-Xylene	17.1	106	985	15.795 pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061713.D
Acq On : 6 Jan 2017 17:59 Operator: CL
Sample : AS00970-FCA00405 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 07 15:18:36 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051712.D Vial: 9
Acq On : 5 Jan 2017 19:09 Operator: CL
Sample : AS00958-FCA00752 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:09 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

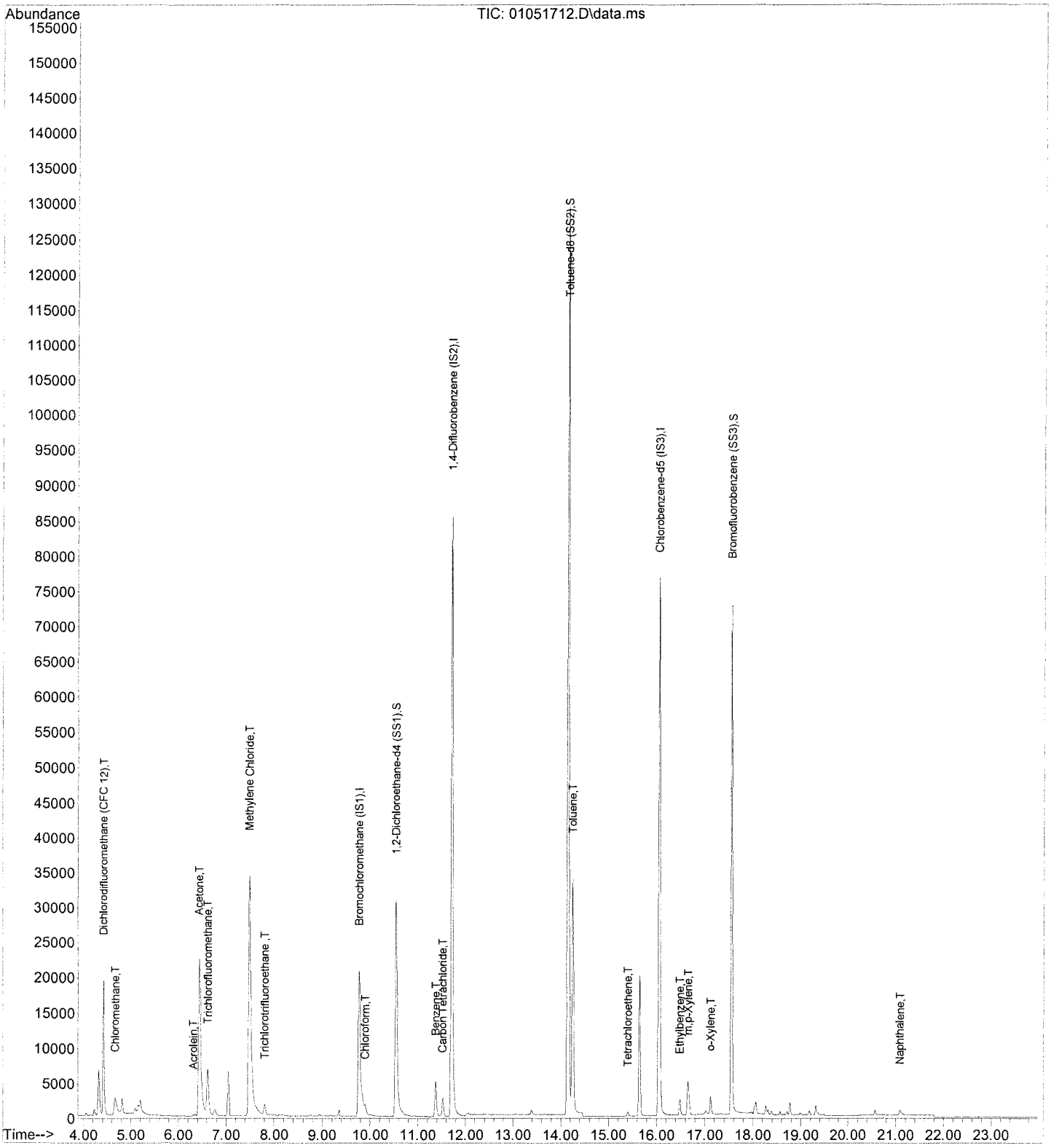
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	39164	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	182873	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	27635	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	61030	972.892	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.29%				
33) Toluene-d8 (SS2)	14.15	98	182050	1019.183	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.92%				
45) Bromofluorobenzene (SS3)	17.55	174	56126	1024.839	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.48%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	25276	265.977	pg		100
3) Chloromethane	4.68	52	2611	102.644	pg		99
9) Acrolein	6.32	56	650	37.042	pg	#	62
10) Acetone	6.44	58	18611	794.941	pg	#	78
11) Trichlorofluoromethane	6.62	101	10042	144.351	pg		100
13) Methylene Chloride	7.49	84	46199	1009.878	pg		94
14) Trichlorotrifluoroethane	7.81	151	2295	53.930	pg		99
19) Chloroform	9.90	83	1645	20.099	pg		96
23) Benzene	11.37	78	10502	54.358	pg		99
24) Carbon Tetrachloride	11.52	117	3253	50.787	pg		100
34) Toluene	14.25	91	46557	268.240	pg		100
37) Tetrachloroethene	15.41	166	793	15.920	pg		100
40) Ethylbenzene	16.49	91	3809	19.977	pg		99
41) m,p-Xylene	16.65	91	9123	57.229	pg		100
43) o-Xylene	17.12	106	1420	19.229	pg		95
53) Naphthalene	21.08	128	2328	15.457	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051712.D Vial: 9
Acq On : 5 Jan 2017 19:09 Operator: CL
Sample : AS00958-FCA00752 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:09 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091713.D
Acq On : 9 Jan 2017 18:27
Operator : JM
Sample : AC02060 FCR00090
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 10 07:50:08 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

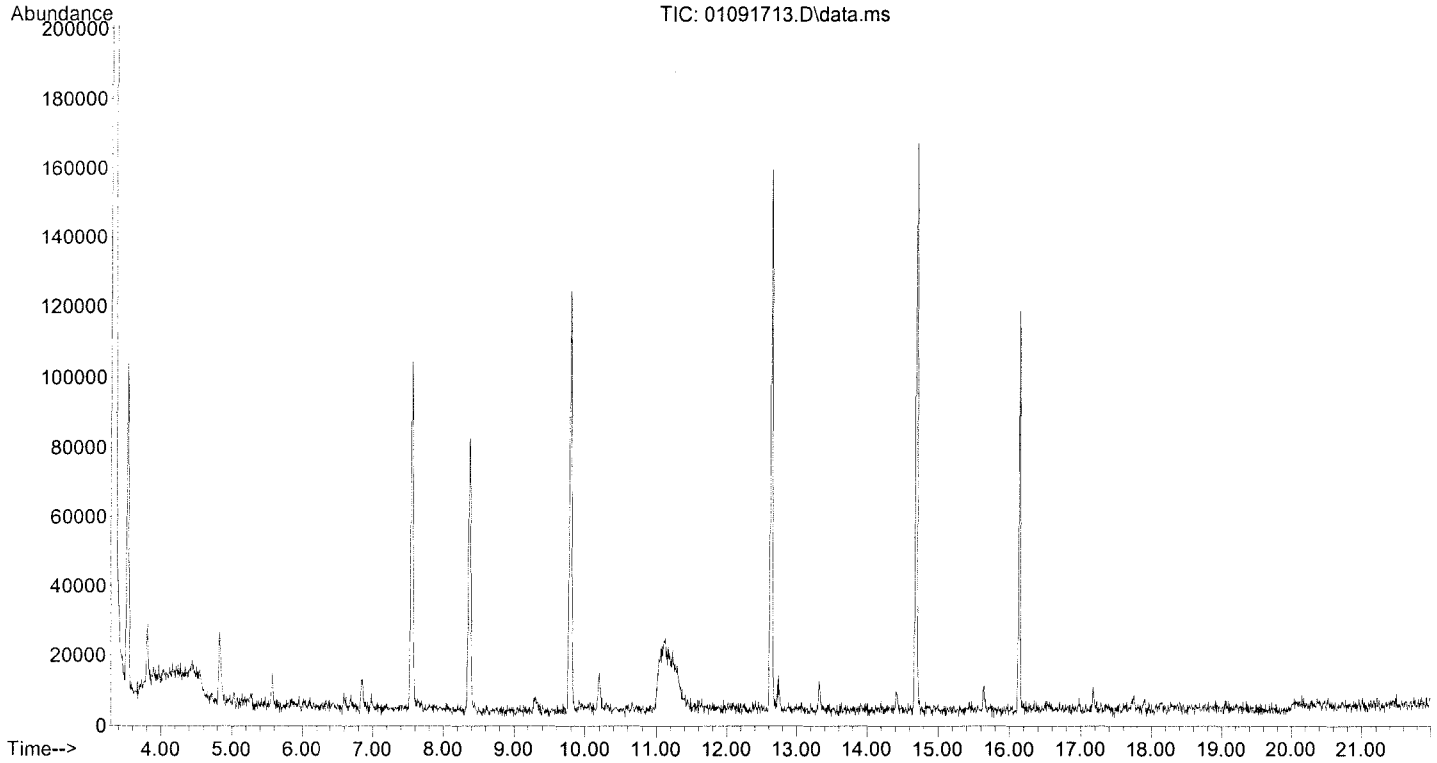
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	45470	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	137542	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	106258	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74689	834.045	pg		0.00
Spiked Amount 1000.000			Recovery =	83.41%			
57) Toluene-d8 (SS2)	12.63	98	122514	943.554	pg		0.00
Spiked Amount 1000.000			Recovery =	94.36%			
74) Bromofluorobenzene (SS3)	16.14	174	36270	848.152	pg		0.00
Spiked Amount 1000.000			Recovery =	84.81%			
Target Compounds							Qvalue
2) * Propene	3.53	42	5434	59.542	pg	#	75
10) * Ethanol	4.44	45	3906	62.752	pg		99
12) * Acrolein	4.72	56	939	18.007	pg		83
13) * Acetone	4.84	58	11799	200.689	pg	#	32
15) * 2-Propanol (Isopropa...	5.03	45	3044	19.109	pg		89
19) * Methylene Chloride	5.58	84	2512	38.358	pg		95
22) * Carbon Disulfide	5.85	76	3252	13.545	pg		100
26) * Vinyl Acetate	6.71	86	415	33.658	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	787	22.302	pg		70
30) * Ethyl Acetate	7.65	61	374	20.731	pg	#	81
41) 1-Butanol	9.31	56	2337	78.597	pg	#	50
58) * Toluene	12.74	91	5821	38.760	pg		99
88) n-Decane	17.38	85	175	11.693	pg	#	18
93) * D-Limonene	17.75	68	563	16.334	pg		96

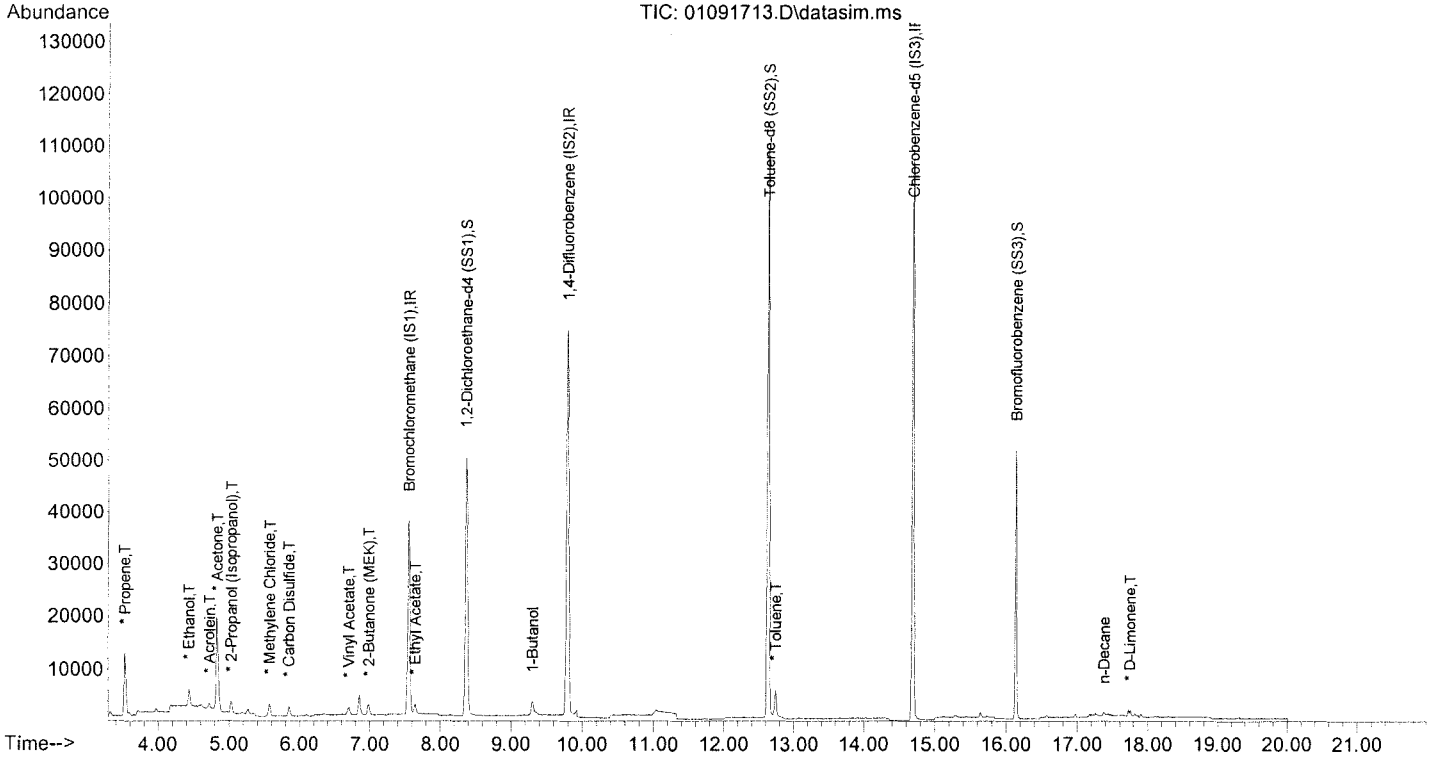
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091713.D
Acq On : 9 Jan 2017 18:27
Operator : JM
Sample : AC02060 FCR00090
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 10 07:50:08 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071724.D
Acq On : 8 Jan 2017 7:59 am
Operator : JM
Sample : AS01160 FCR00197
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 09 09:41:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45091	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	138473	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104858	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74398	837.779	pg		0.00
Spiked Amount 1000.000			Recovery =	83.78%			
57) Toluene-d8 (SS2)	12.63	98	118347	923.631	pg		0.00
Spiked Amount 1000.000			Recovery =	92.36%			
74) Bromofluorobenzene (SS3)	16.14	174	35013	829.689	pg		0.00
Spiked Amount 1000.000			Recovery =	82.97%			
Target Compounds							Qvalue
2) * Propene	3.53	42	8605	95.080	pg	#	67
3) * Dichlorodifluoromethane	3.58	85	9326	48.374	pg		100
4) * Chloromethane	3.71	50	2938	20.386	pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	341	2.383	pg		93
7) * 1,3-Butadiene	4.01	54	30	0.293	pg	#	1
8) * Bromomethane	4.21	94	197	2.250	pg	#	46
10) * Ethanol	4.43	45	13565	219.761	pg		94
11) * Acetonitrile	4.60	41	4169	26.937	pg		93
12) * Acrolein	4.71	56	948	18.332	pg		97
13) * Acetone	4.82	58	65128	1117.074	pg		81
14) * Trichlorofluoromethane	4.97	101	3448	26.772	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	8048	50.947	pg		91
16) * Acrylonitrile	5.19	53	207	2.254	pg		96
18) tert-Butanol	5.55	59	651	6.837	pg		91
19) * Methylene Chloride	5.57	84	10513	161.880	pg		100
21) * Trichlorotrifluoroet...	5.83	151	636	12.600	pg		99
22) * Carbon Disulfide	5.84	76	4145	17.410	pg		99
26) * Vinyl Acetate	6.71	86	232	18.974	pg		58
27) * 2-Butanone (MEK)	6.98	72	722	20.632	pg	#	54
29) DIPE	7.64	45	1656	8.120	pg	#	53
30) * Ethyl Acetate	7.64	61	1561	87.254	pg		91
31) * n-Hexane	7.65	57	1855	20.163	pg		92
32) * Chloroform	7.68	83	255	2.242	pg	#	78
36) * 1,2-Dichloroethane	8.49	62	157	1.631	pg		90
39) * Benzene	9.35	78	5115	32.030	pg		99
41) 1-Butanol	9.30	56	1071	35.777	pg	#	56
42) * Carbon Tetrachloride	9.54	117	894	14.390	pg		100
43) * Cyclohexane	9.71	84	90	1.772	pg	#	59
46) * Bromodichloromethane	10.57	83	124	1.725	pg	#	19
48) * 1,4-Dioxane	10.65	88	57	1.711	pg	#	67
49) Isooctane	10.71	56	810	10.611	pg	#	68
51) * n-Heptane	11.04	71	716	8.732	pg	#	76
53) * 4-Methyl-2-pentanone	11.73	58	93	3.223	pg	#	25
58) * Toluene	12.74	91	8686	58.609	pg		100
62) * n-Butyl Acetate	13.80	56	65	3.585	pg	#	37
63) * n-Octane	13.91	85	202	8.737	pg	#	48
64) * Tetrachloroethene	14.01	166	174	3.531	pg		90
65) * Chlorobenzene	14.74	112	51	0.522	pg	#	1
66) * Ethylbenzene	15.12	91	925	7.401	pg	#	87
67) * m- & p-Xylenes	15.29	91	2113	21.760	pg		91
69) Cyclohexanone	15.44	98	53	4.887	pg	#	45
70) * Styrene	15.63	104	196	3.791	pg		95
71) * o-Xylene	15.73	91	634	6.675	pg	#	78
72) * n-Nonane	15.98	57	224	5.233	pg		93
75) * Cumene	16.27	105	68	0.502	pg	#	49

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071724.D
Acq On : 8 Jan 2017 7:59 am
Operator : JM
Sample : AS01160 FCR00197
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 09 09:41:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

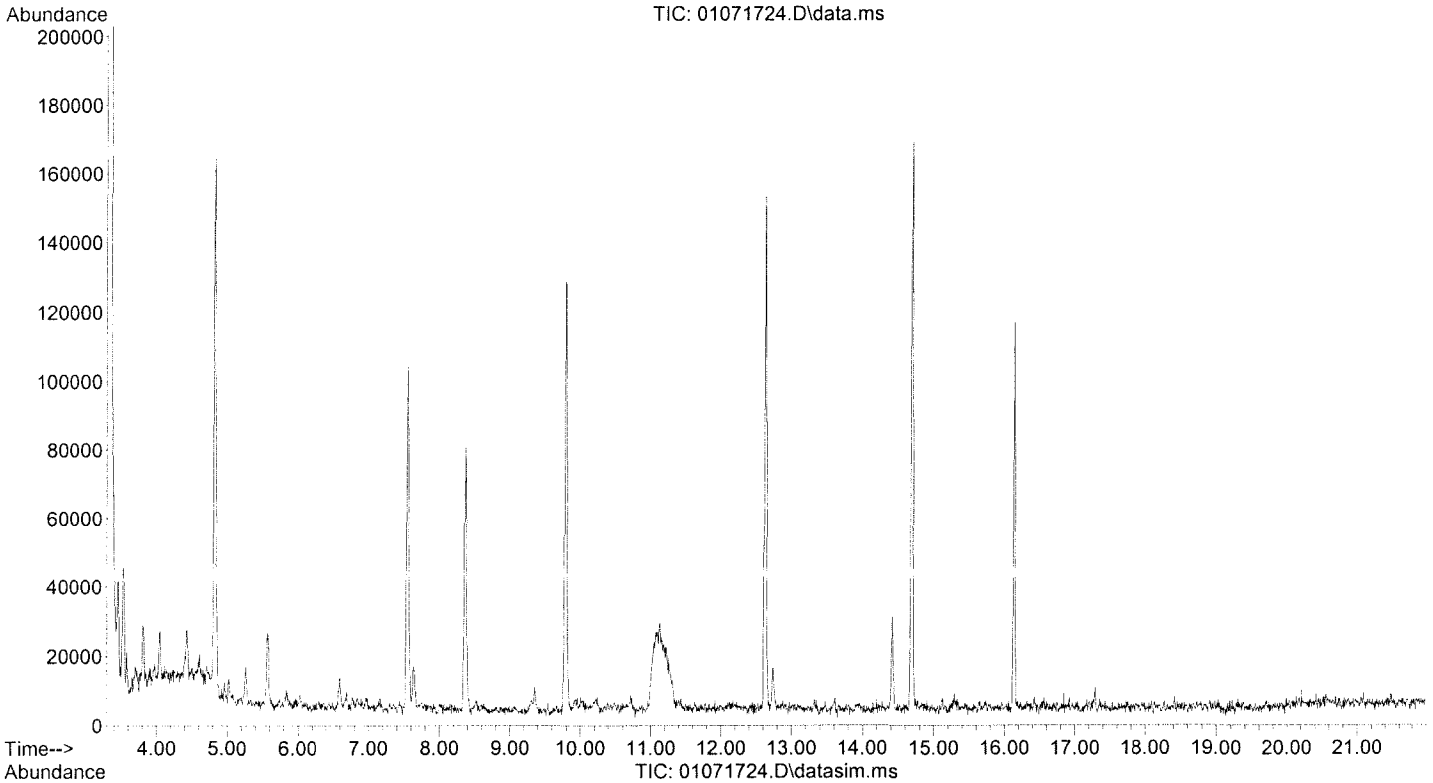
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
76) * alpha-Pinene	16.61	93	359	5.831	pg		94
77) * n-Propylbenzene	16.72	91	113	0.906	pg	#	56
78) 3-Ethyltoluene	16.81	105	291	3.348	pg		92
79) * 4-Ethyltoluene	16.81	105	291	3.818	pg		89
80) * 1,3,5-Trimethylbenzene	16.92	105	169	1.977	pg	#	78
82) 2-Ethyltoluene	17.07	105	125	1.205	pg	#	45
83) tert-Butylbenzene	17.29	134	96	5.000	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	372	4.816	pg	#	84
85) * Benzyl Chloride	17.36	126	59	7.576	pg	#	17
88) n-Decane	17.37	85	89	6.026	pg	#	13
90) 1,2,3-Trimethylbenzene	17.62	105	100	1.235	pg	#	57
93) * D-Limonene	17.75	68	339	9.967	pg	#	74
96) n-Undecane	18.41	85	83	9.828	pg	#	1
98) * Naphthalene	19.29	128	756	22.930	pg		99

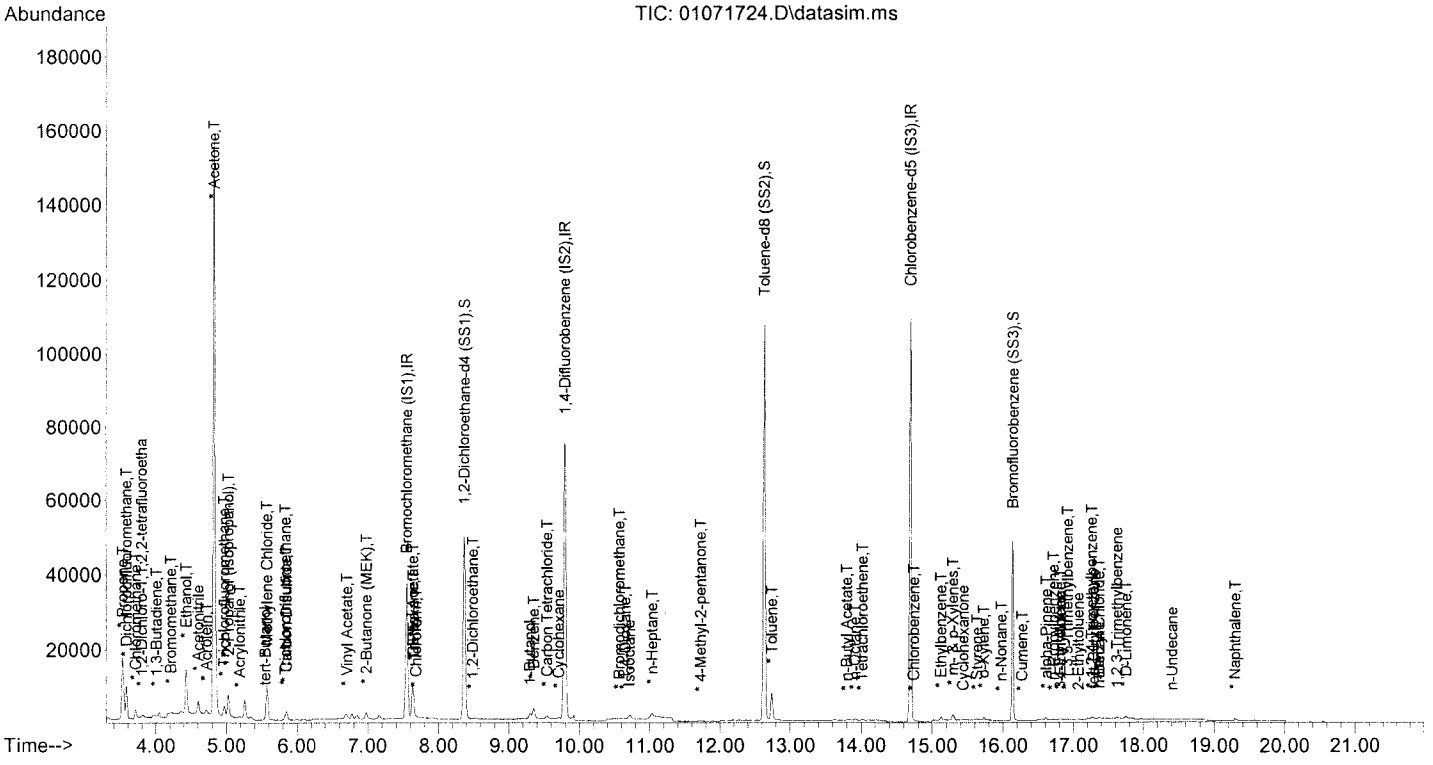
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071724.D
Acq On : 8 Jan 2017 7:59 am
Operator : JM
Sample : AS01160 FCR00197
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 09 09:41:01 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061708.D
Acq On : 6 Jan 2017 1:23 pm
Operator : JM
Sample : AC02102 FCS00289
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 09 08:36:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48365	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	158065	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	121373	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	78934	828.687 pg		0.00
Spiked Amount 1000.000			Recovery =	82.87%		
57) Toluene-d8 (SS2)	12.63	98	137171	924.875 pg		0.00
Spiked Amount 1000.000			Recovery =	92.49%		
74) Bromofluorobenzene (SS3)	16.14	174	42726	874.697 pg		0.00
Spiked Amount 1000.000			Recovery =	87.47%		
Target Compounds						Qvalue
2) * Propene	3.53	42	7071	72.841 pg	#	78
3) * Dichlorodifluoromethane	3.59	85	1564	7.563 pg		99
4) * Chloromethane	3.71	50	2221	14.368 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	67	0.436 pg	#	17
7) * 1,3-Butadiene	3.99	54	87	0.793 pg	#	1
8) * Bromomethane	4.22	94	306	3.258 pg	#	77
9) * Chloroethane	4.35	64	173	2.579 pg	#	60
10) * Ethanol	4.43	45	10709	161.748 pg		96
11) * Acetonitrile	4.60	41	2099	12.644 pg		88
12) * Acrolein	4.71	56	12547	226.203 pg		96
13) * Acetone	4.85	58	85936	1374.194 pg	#	11
14) * Trichlorofluoromethane	4.97	101	583	4.220 pg		91
15) * 2-Propanol (Isopropa...	5.03	45	8723	51.482 pg		98
16) * Acrylonitrile	5.18	53	238	2.417 pg		96
18) tert-Butanol	5.55	59	4705	46.071 pg		84
19) * Methylene Chloride	5.58	84	3427	49.197 pg		97
21) * Trichlorotrifluoroet...	5.82	151	155	2.863 pg	#	65
22) * Carbon Disulfide	5.85	76	2776	10.871 pg	#	94
26) * Vinyl Acetate	6.70	86	3550	270.682 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	6146	163.741 pg		79
29) DIPE	7.64	45	580	2.651 pg	#	53
30) * Ethyl Acetate	7.64	61	565	29.444 pg		93
31) * n-Hexane	7.65	57	522	5.290 pg		93
32) * Chloroform	7.69	83	78	0.639 pg	#	16
36) * 1,2-Dichloroethane	8.50	62	65	0.630 pg	#	42
39) * Benzene	9.35	78	1507	8.267 pg		93
41) 1-Butanol	9.30	56	5680	166.224 pg	#	44
42) * Carbon Tetrachloride	9.54	117	73	1.029 pg	#	1
43) * Cyclohexane	9.67	84	90	1.552 pg	#	1
46) * Bromodichloromethane	10.57	83	57	0.695 pg	#	19
48) * 1,4-Dioxane	10.64	88	82	2.157 pg	#	58
49) Isooctane	10.72	56	224	2.571 pg		74
50) * Methyl Methacrylate	10.91	69	59	1.290 pg	#	42
51) * n-Heptane	11.04	71	462	4.936 pg	#	68
53) * 4-Methyl-2-pentanone	11.72	58	229	6.953 pg	#	64
58) * Toluene	12.74	91	2540	14.807 pg		98
59) * 2-Hexanone	13.07	58	738	25.150 pg	#	79
65) * Chlorobenzene	14.73	112	54	0.478 pg	#	1
66) * Ethylbenzene	15.12	91	224	1.548 pg		95
67) * m- & p-Xylenes	15.29	91	556	4.947 pg	#	78
69) Cyclohexanone	15.44	98	271	21.587 pg		83
70) * Styrene	15.64	104	208	3.476 pg		87
71) * o-Xylene	15.73	91	244	2.219 pg		93
75) * Cumene	16.27	105	51	0.325 pg	#	49
77) * n-Propylbenzene	16.72	91	102	0.706 pg	#	56

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061708.D
Acq On : 6 Jan 2017 1:23 pm
Operator : JM
Sample : AC02102 FCS00289
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Jan 09 08:36:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
78) 3-Ethyltoluene	16.80	105	136	1.352	pg	#	45
79) * 4-Ethyltoluene	16.84	105	81	0.918	pg	#	46
81) alpha-Methylstyrene	17.04	118	71	1.772	pg	#	20
83) tert-Butylbenzene	17.28	134	149	6.705	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	234	2.617	pg	#	74
85) * Benzyl Chloride	17.36	126	53	5.880	pg	#	53
87) * 1,4-Dichlorobenzene	17.43	146	135	3.310	pg	#	80
88) n-Decane	17.39	85	50	2.925	pg	#	50
90) 1,2,3-Trimethylbenzene	17.61	105	81	0.864	pg	#	27
93) * D-Limonene	17.75	68	234	5.944	pg		85
96) n-Undecane	18.43	85	55	5.627	pg	#	1
98) * Naphthalene	19.29	128	51	1.336	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061708.D
Acq On : 6 Jan 2017 1:23 pm
Operator : JM
Sample : AC02102 FCS00289
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
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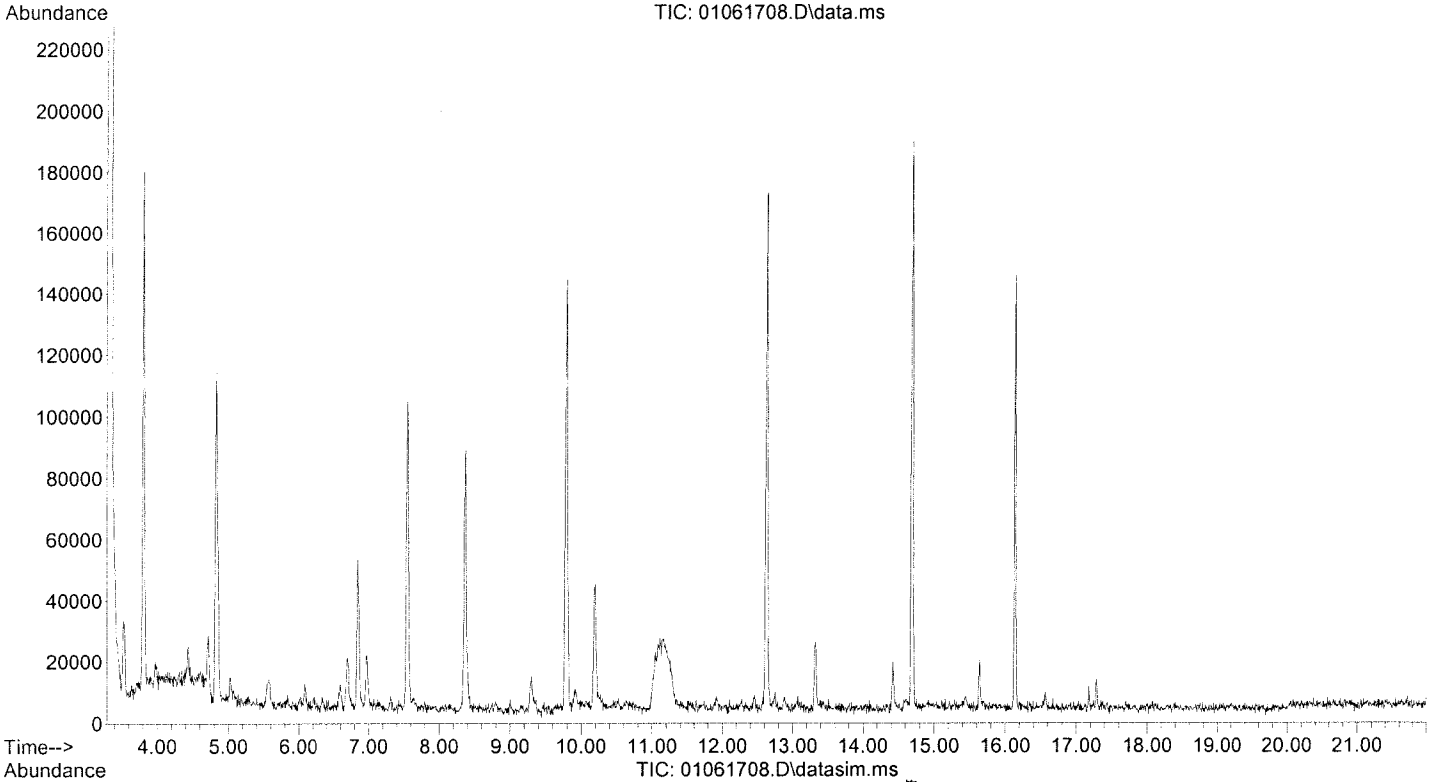
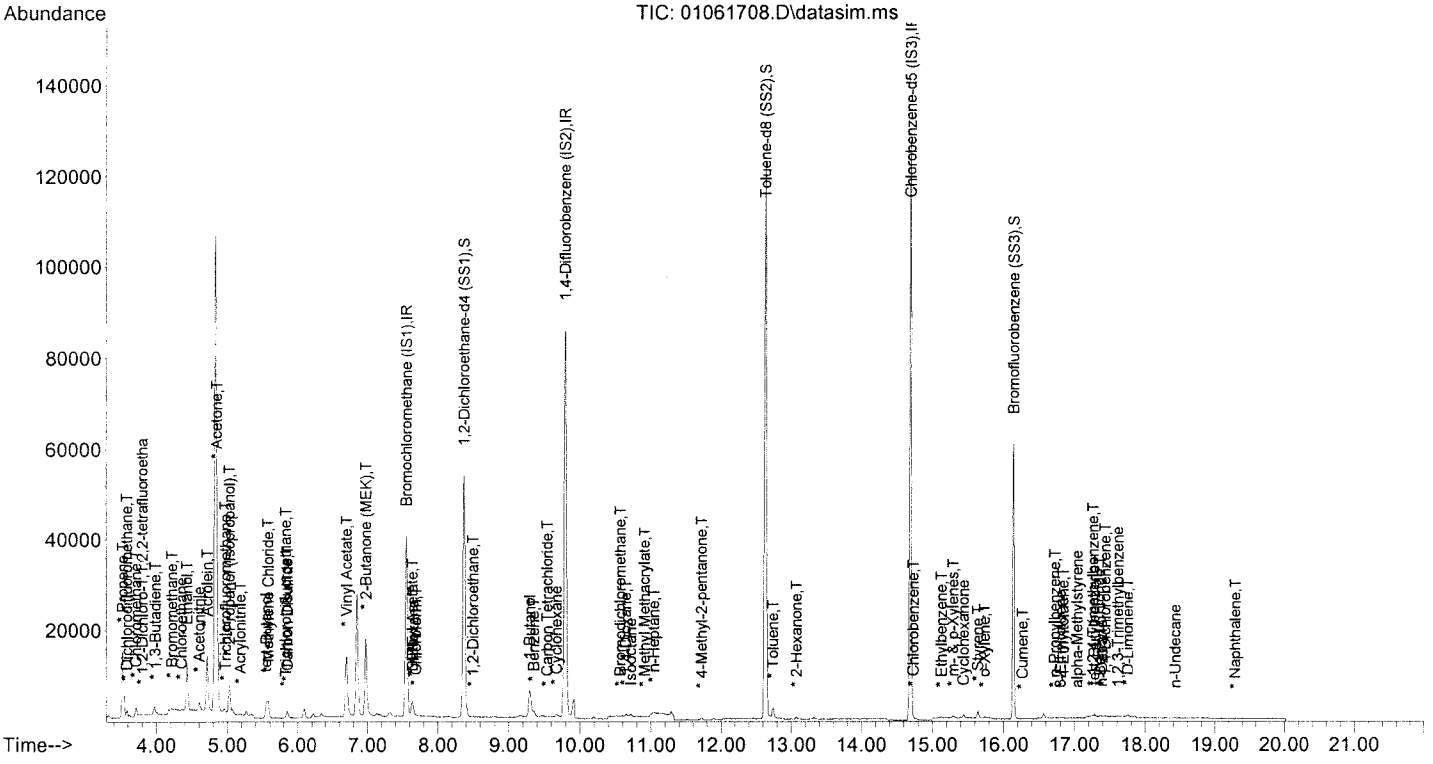
Quant Time: Jan 09 08:36:43 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051720.D Vial: 1
Acq On : 5 Jan 2017 23:19 Operator: CL
Sample : AS00928-FCR00261 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:17 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

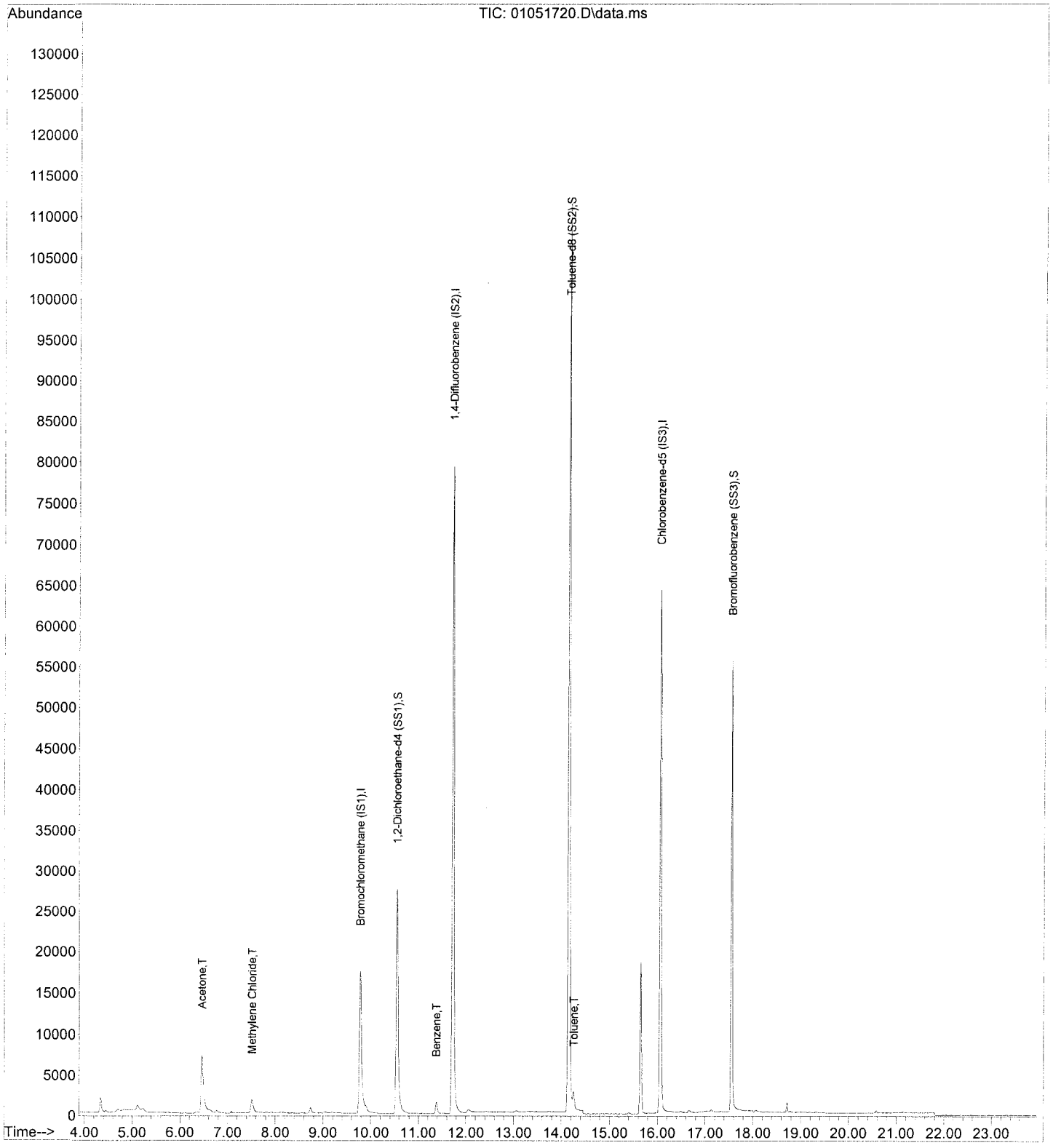
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	33681	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	168976	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	24363	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	55065	1020.702	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.07%				
33) Toluene-d8 (SS2)	14.15	98	155915	944.656	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.47%				
45) Bromofluorobenzene (SS3)	17.56	174	43399	898.876	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.89%				
Target Compounds							Qvalue
10) Acetone	6.46	58	8085	401.557	pg	#	87
13) Methylene Chloride	7.52	84	2137	54.318	pg		85
23) Benzene	11.38	78	3101	18.664	pg		99
34) Toluene	14.26	91	2888	18.008	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051720.D Vial: 1
Acq On : 5 Jan 2017 23:19 Operator: CL
Sample : AS00928-FCR00261 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:17 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061716.D
Acq On : 6 Jan 2017 7:05 pm
Operator : JM
Sample : AS00984 FCR00226
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 09 08:37:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46349	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150093	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	120316	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	75885	831.330 pg		0.00
Spiked Amount 1000.000			Recovery = 83.13%			
57) Toluene-d8 (SS2)	12.63	98	127037	864.071 pg		0.00
Spiked Amount 1000.000			Recovery = 86.41%			
74) Bromofluorobenzene (SS3)	16.14	174	43673	901.939 pg		0.00
Spiked Amount 1000.000			Recovery = 90.19%			
Target Compounds						Qvalue
2) * Propene	3.53	42	34859	374.716 pg	#	69
3) * Dichlorodifluoromethane	3.59	85	103304	521.300 pg		99
4) * Chloromethane	3.71	50	29016	195.873 pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	3505	23.828 pg		97
6) * Vinyl Chloride	3.90	62	78	0.551 pg	#	42
7) * 1,3-Butadiene	4.01	54	1146	10.894 pg	#	1
8) * Bromomethane	4.22	94	632	7.022 pg		84
9) * Chloroethane	4.36	64	113	1.758 pg	#	41
10) * Ethanol	4.43	45	41594	655.557 pg		100
11) * Acetonitrile	4.60	41	16658	104.711 pg		98
12) * Acrolein	4.72	56	3333	62.703 pg		94
13) * Acetone	4.82	58	66990	1117.825 pg		72
14) * Trichlorofluoromethane	4.97	101	37671	284.555 pg		99
15) * 2-Propanol (Isopropa...	5.02	45	164705	1014.347 pg		89
16) * Acrylonitrile	5.19	53	473	5.012 pg	#	71
18) tert-Butanol	5.55	59	2218	22.663 pg	#	1
19) * Methylene Chloride	5.58	84	51806	776.061 pg		99
21) * Trichlorotrifluoroet...	5.83	151	7184	138.458 pg		99
22) * Carbon Disulfide	5.85	76	18250	74.574 pg		97
24) * 1,1-Dichloroethane	6.59	63	172	1.520 pg	#	48
25) * Methyl tert-Butyl Ether	6.67	73	63	0.535 pg	#	50
26) * Vinyl Acetate	6.71	86	1380	109.800 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	3381	93.994 pg		76
29) DIPE	7.64	45	10866	51.832 pg	#	59
30) * Ethyl Acetate	7.64	61	10527	572.449 pg		99
31) * n-Hexane	7.65	57	8198	86.691 pg		97
32) * Chloroform	7.69	83	2283	19.531 pg		93
34) * Tetrahydrofuran	8.14	71	345	11.966 pg	#	58
36) * 1,2-Dichloroethane	8.50	62	1530	15.466 pg		92
38) * 1,1,1-Trichloroethane	8.82	97	381	4.876 pg		94
39) * Benzene	9.36	78	26889	155.342 pg		99
40) Isopropyl Acetate	9.29	61	64	3.573 pg	#	28
41) 1-Butanol	9.30	56	4109	126.636 pg	#	48
42) * Carbon Tetrachloride	9.54	117	9289	137.940 pg		98
43) * Cyclohexane	9.70	84	1058	19.213 pg		93
45) * 1,2-Dichloropropane	10.34	63	494	7.691 pg	#	86
46) * Bromodichloromethane	10.60	83	292	3.748 pg	#	41
47) * Trichloroethene	10.63	130	211	3.823 pg		98
48) * 1,4-Dioxane	10.64	88	302	8.366 pg	#	70
49) Isooctane	10.72	56	5103	61.676 pg	#	68
50) * Methyl Methacrylate	10.89	69	95	2.188 pg	#	17
51) * n-Heptane	11.04	71	3335	37.522 pg		95
53) * 4-Methyl-2-pentanone	11.72	58	391	12.503 pg	#	76
58) * Toluene	12.74	91	59499	349.889 pg		100
59) * 2-Hexanone	13.07	58	281	9.660 pg	#	68

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061716.D
Acq On : 6 Jan 2017 7:05 pm
Operator : JM
Sample : AS00984 FCR00226
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 09 08:37:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

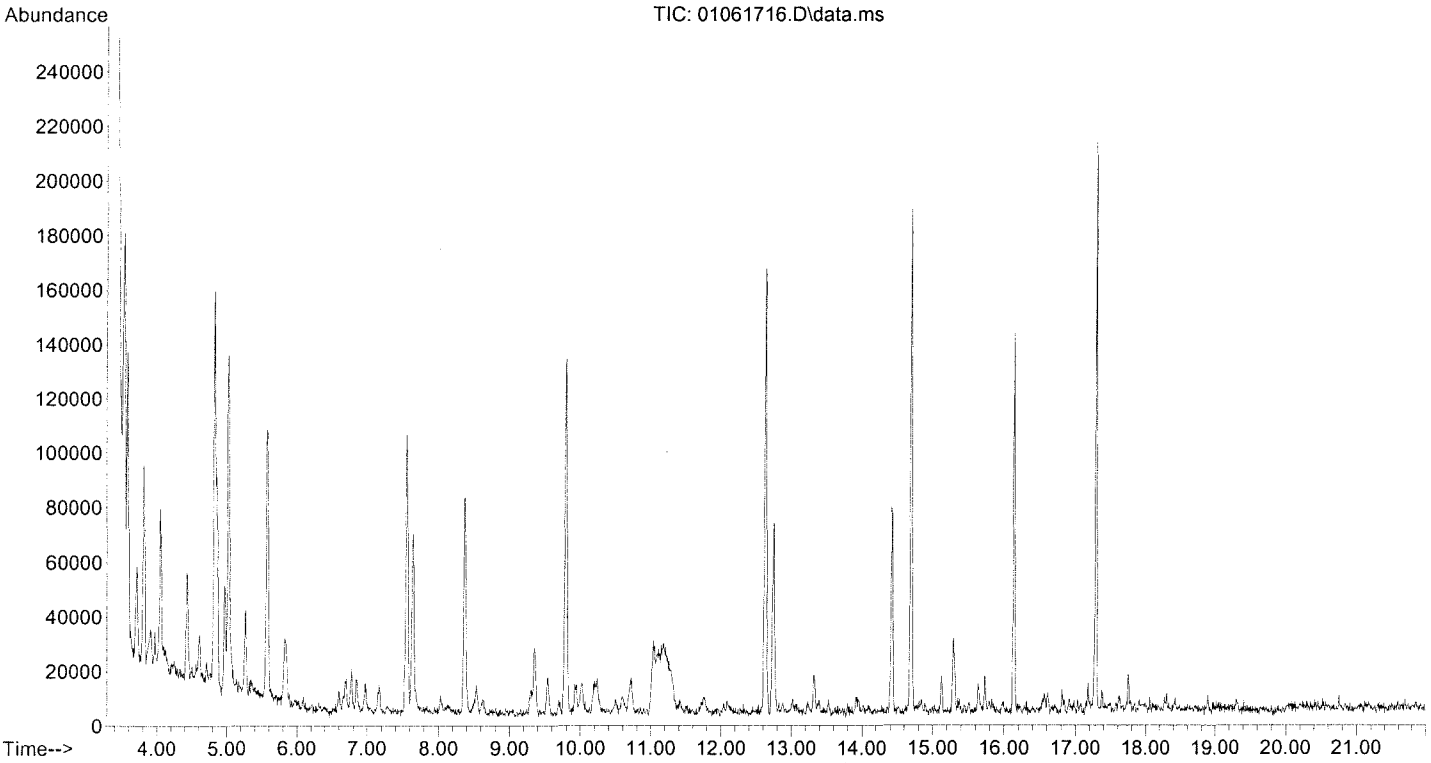
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
60) * Dibromochloromethane	13.19	129	54	1.093	pg	#	11
62) * n-Butyl Acetate	13.80	56	393	18.892	pg		96
63) * n-Octane	13.92	85	518	19.527	pg		99
64) * Tetrachloroethene	14.02	166	871	15.402	pg		91
65) * Chlorobenzene	14.74	112	88	0.785	pg	#	56
66) * Ethylbenzene	15.12	91	8182	57.052	pg		100
67) * m- & p-Xylenes	15.29	91	20186	181.167	pg		95
68) * Bromoform	15.33	173	199	5.588	pg		99
69) Cyclohexanone	15.44	98	154	12.375	pg	#	70
70) * Styrene	15.63	104	1298	21.880	pg		96
71) * o-Xylene	15.73	91	7088	65.034	pg		98
72) * n-Nonane	15.98	57	706	14.374	pg	#	74
75) * Cumene	16.27	105	385	2.477	pg		99
76) * alpha-Pinene	16.61	93	1931	27.334	pg		96
77) * n-Propylbenzene	16.72	91	1080	7.543	pg		93
78) 3-Ethyltoluene	16.81	105	3705	37.151	pg		92
79) * 4-Ethyltoluene	16.84	105	1587	18.148	pg		99
80) * 1,3,5-Trimethylbenzene	16.92	105	1719	17.526	pg		99
81) alpha-Methylstyrene	17.07	118	71	1.788	pg	#	1
82) 2-Ethyltoluene	17.07	105	1439	12.091	pg		93
83) tert-Butylbenzene	17.28	134	3889	176.532	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	6348	71.620	pg		87
85) * Benzyl Chloride	17.36	126	109	12.199	pg	#	45
87) * 1,4-Dichlorobenzene	17.43	146	174	4.304	pg	#	82
88) n-Decane	17.38	85	492	29.033	pg		90
89) sec-Butylbenzene	17.49	105	207	1.471	pg	#	65
90) 1,2,3-Trimethylbenzene	17.62	105	1512	16.270	pg		95
91) p-Isopropyltoluene	17.63	134	295	10.489	pg		98
93) * D-Limonene	17.75	68	2298	58.882	pg		85
94) n-Butylbenzene	17.97	134	366	22.242	pg	#	1
96) n-Undecane	18.42	85	237	24.458	pg	#	56
98) * Naphthalene	19.29	128	942	24.901	pg		98
99) n-Dodecane	19.31	85	242	39.763	pg		72

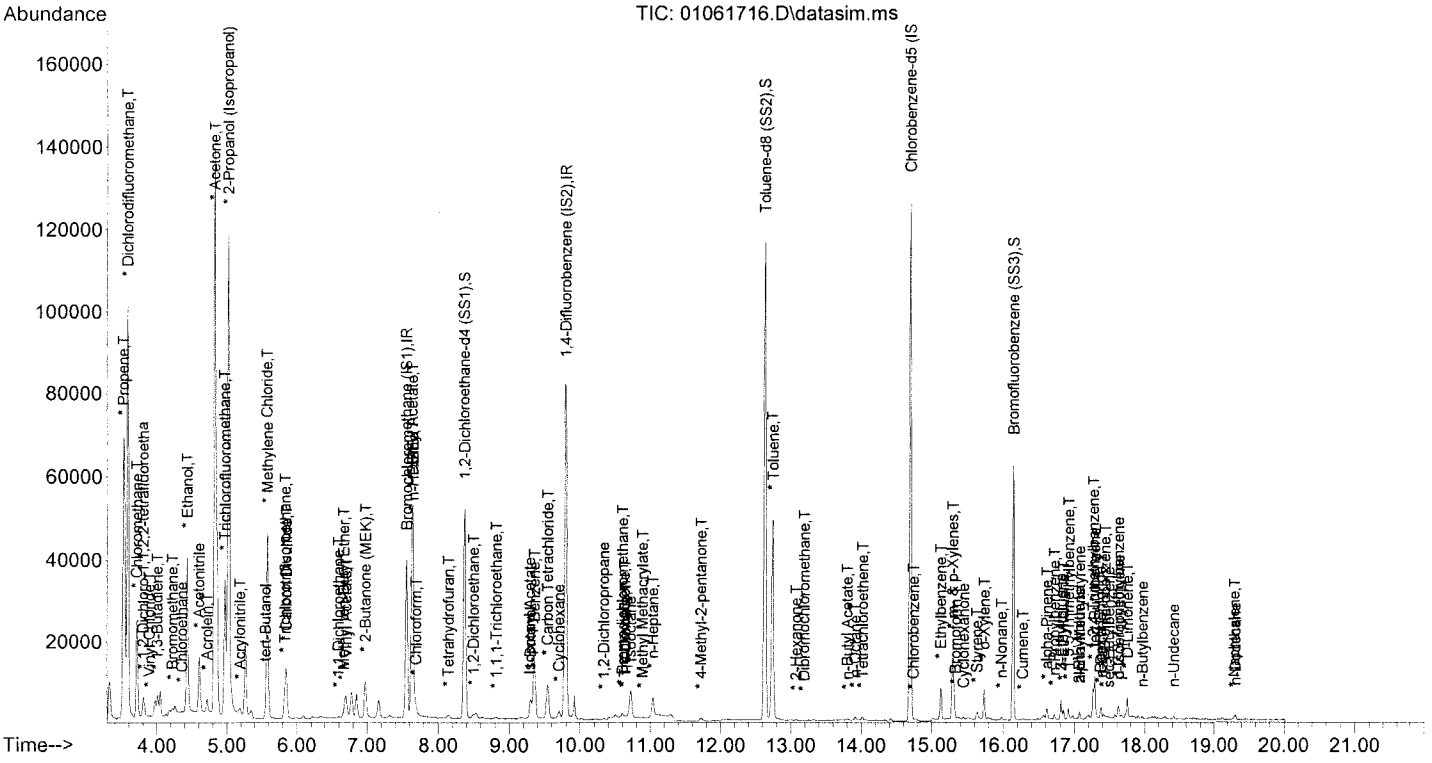
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061716.D
Acq On : 6 Jan 2017 7:05 pm
Operator : JM
Sample : AS00984 FCR00226
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 09 08:37:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





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LABORATORY REPORT

March 24, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Your report number P1700262 has been amended for the samples submitted to our laboratory on January 20, 2017. The case narrative page was amended. No sample results were affected by the change. The revised page has been indicated by the "Revised Page" footer located at the bottom right of the page.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 8:56 am, Mar 24, 2017

Sue Anderson
Project Manager

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F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700262

CASE NARRATIVE

The samples were received intact under chain of custody on January 20, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The surrogate bromofluorobenzene was outside control criterion in sample 17N210-1-04-F (P1700262-001); however, the results were not affected as this compound is not associated with the target analytes included in this report. No corrective action was appropriate.

The response for the third internal standard in sample 17M310-1-10-F (P1700262-007) was outside control criteria; however, since this compound is not associated with the target analytes included in this report the results were not affected. No corrective action was appropriate.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700262
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/20/2017
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC SIM
17N210-1-04-F	P1700262-001	Air	1/16/2017	09:24	AS00987	-1.73	3.80			X
17N210-1-06-F	P1700262-002	Air	1/16/2017	10:21	SSC00186	-5.64	3.88			X
17N210-1-07-F	P1700262-003	Air	1/16/2017	09:20	AC01804	-4.52	3.71			X
17N210-1-08-F	P1700262-004	Air	1/16/2017	09:21	AS00064	0.19	3.67			X
17N210-1-10-F	P1700262-005	Air	1/16/2017	09:17	AS01003	-3.52	3.86			X
17N210-C-11-F	P1700262-006	Air	1/16/2017	10:15	AS00961	0.41	3.80	-0.96	2.28	X
17M310-1-10-F	P1700262-007	Air	1/16/2017	09:18	AS00683	-2.57	3.69			X
17N210-A-01-F	P1700262-008	Air	1/15/2017	10:59	AC01139	-1.43	3.72			X
17N243A-B-01-F	P1700262-009	Air	1/15/2017	10:45	AS00756	-1.95	3.70			X
17N243A-1-01-F	P1700262-010	Air	1/15/2017	10:44	AC02157	-1.81	3.86			X
17N243A-1-02-F	P1700262-011	Air	1/15/2017	10:43	SSC00081	-3.64	3.60			X
17N243A-A-01-F	P1700262-012	Air	1/15/2017	09:41	AS00225	-1.35	3.66			X
17N239-B-01-F	P1700262-013	Air	1/15/2017	11:46	AS00534	-1.59	3.87			X
17N239-B-02-F	P1700262-014	Air	1/15/2017	11:45	AS01095	-1.04	3.82			X
17N239-G-04-F	P1700262-015	Air	1/16/2017	11:00	AS00640	-1.48	3.76			X
17N239-B-05-F	P1700262-016	Air	1/15/2017	11:42	AC01571	-1.19	3.60			X
17N239-B-06-F	P1700262-017	Air	1/15/2017	11:43	AS01042	-2.88	3.93			X
17N239-1-02-F	P1700262-018	Air	1/15/2017	11:35	AS00893	-2.11	3.70			X
17N239-1-03-F	P1700262-019	Air	1/15/2017	11:36	AS00549	-0.60	4.06			X
17N239-1-05-F	P1700262-020	Air	1/15/2017	11:37	AC02123	-1.42	3.61			X
17N239-1-07-F	P1700262-021	Air	1/15/2017	11:38	AC01127	0.46	3.67			X
17N239-1-08-F	P1700262-022	Air	1/15/2017	11:34	AC02124	-2.43	3.65			X
17M339-1-07-F	P1700262-023	Air	1/15/2017	11:39	AS00424	-0.64	3.73			X
17N239-A-01-F	P1700262-024	Air	1/15/2017	11:49	AC02216	-1.95	3.84			X

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005
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Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1700262
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero **Phone/email:** (619) 302-9651/ luis.rivero@noreasinc.com	**Laboratory Phone:**	(805) 526-7161	
Project Contact: Sevda Aleckson **Phone/email:** (949) 467-9117 / sevda.aleckson@noreasinc.com	**Airbill No.**	FedEx	

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17N210-1-04-F	AS00987	FCA01068	1/16/17	0924	-29.74	-5.8	6L	8hr	X				
2	17N210-1-06-F	SSC00186	FCA01067	1/16/17	1021	-29.71	-13.51	6L	8hr	X				
3	17N210-1-07-F	AC01804	FCA00068	1/16/17	0920	-29.62	-11.21	6L	8hr	X				X
4	17N210-1-08-F	AS00064	FCA00859	1/16/17	0921	-29.6	-1.95	6L	8hr	X				
5	17N210-1-10-F	AS01003	FCA00754	1/16/17	0917	-30.41	-9.29	6L	8hr	X				X
6	17N210-C-11-F	AS00961	FCA00927	1/16/17	1015	-29.52	-1.37	6L	8hr	X				
7	17M310-1-10-F	AS00683	FCA00971	1/16/17	0918	-29.76	-7.43	6L	8hr	X				
8	17N210-A-01-F	AC01139	FCR00021	1/15/17	1059	-30.1	-4.69	6L	24hr	X				
9	17N243A-B-01-F	AS00756	004643	1/15/17	1045	-30.37	-5.71	6L	24hr	X				X
10	17N243A-1-01-F	AC02157	FCR00066	1/15/17	1044	-30.52	-5.49	6L	24hr	X				
11	17N243A-1-02-F	SSC00081	FCR00065	1/15/17	1043	-30.31	-9.00	6L	24hr	X				
12	17N243A-A-01-F	AS00225	FCR00079	1/15/17	0941	-30.3	-4.54	6L	24hr	X				

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Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature): FEDEX	Date	Received By (signature)	Date 01/20/17 0930
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 005
PAGE 6 of 8

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:** P1700262
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

ANALYSES REQUIRED

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17N239-B-01-F	AS00534	FCR00223	1/15/17	1146	-30.34	-4.39	6L	24hr	X				
14	17N239-B-02-F	AS01095	FCR00085	1/15/17	1145	-30.48	-3.32	6L	24hr	X				
15	17N239-G-04-F	AS00640	N/A	1/16/17	1100	-30.46	-4.2	6L	Grab	X				X
16	17N239-B-05-F	AC01571	FCR00116	1/15/17	1142	-30.46	-3.64	6L	24hr	X				
17	17N239-B-06-F	AS01042	FCR00125	1/15/17	1143	-30.32	-7.1	6L	24hr	X				
18	17N239-1-02-F	AS00893	FCR00232	1/15/17	1135	-30.25	-5.44	6L	24hr	X				
19	17N239-1-03-F	AS00549	FCR00259	1/15/17	1136	-30.06	-2.36	6L	24hr	X				
20	17N239-1-05-F	AC02123	FCR00142	1/15/17	1137	-30.46	-4.1	6L	24hr	X				
21	17N239-1-07-F	AC01127	FCR00232	1/15/17	1138	-30.49	-0.14	6L	24hr	X				X
22	17N239-1-08-F	AC02124	FCR00038	1/15/17	1134	-30.44	-3.04	6L	24hr	X				
23	17M339-1-07-F	AS00424	FCR00181	1/15/17	1139	-30.29	-2.64	6L	24hr	X				
24	17N239-A-01-F	AC02216	FCR00024	1/15/17	1149	-30.46	-5.78	6L	24hr	X				

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Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/18/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 01/20/17 0930
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental

Sample Acceptance Check Form

Client: NOREAS Work order: P1700262

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700262-001.01	6.0 L Silonite Can					
P1700262-002.01	6.0 L Silonite Can					
P1700262-003.01	6.0 L Ambient Can					
P1700262-004.01	6.0 L Silonite Can					
P1700262-005.01	6.0 L Silonite Can					
P1700262-006.01	6.0 L Silonite Can					
P1700262-007.01	6.0 L Silonite Can					
P1700262-008.01	6.0 L Ambient Can					
P1700262-009.01	6.0 L Silonite Can					
P1700262-010.01	6.0 L Ambient Can					
P1700262-011.01	6.0 L Silonite Can					
P1700262-012.01	6.0 L Silonite Can					
P1700262-013.01	6.0 L Silonite Can					
P1700262-014.01	6.0 L Silonite Can					
P1700262-015.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700262

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/20/17 Date opened: 1/20/17 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700262-016.01	6.0 L Ambient Can					
P1700262-017.01	6.0 L Silonite Can					
P1700262-018.01	6.0 L Silonite Can					
P1700262-019.01	6.0 L Silonite Can					
P1700262-020.01	6.0 L Ambient Can					
P1700262-021.01	6.0 L Ambient Can					
P1700262-022.01	6.0 L Ambient Can					
P1700262-023.01	6.0 L Silonite Can					
P1700262-024.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-04-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-001

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00987
Initial Pressure (psig): -1.73 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.041**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	**0.037**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.52**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.061**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-06-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-002

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00186
Initial Pressure (psig): -5.64 Final Pressure (psig): 3.88

Canister Dilution Factor: 2.05

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.041	0.051	0.041	0.016	**U**
75-35-4	1,1-Dichloroethene	0.043	0.051	0.043	0.018	**U**
156-60-5	trans-1,2-Dichloroethene	**0.022**	0.051	0.043	0.015	**J**
75-34-3	1,1-Dichloroethane	**0.020**	0.051	0.041	0.013	**J**
156-59-2	cis-1,2-Dichloroethene	0.043	0.051	0.043	0.019	**U**
79-01-6	Trichloroethene	**0.29**	0.051	0.043	0.017	
127-18-4	Tetrachloroethene	**0.066**	0.051	0.043	0.017	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-07-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-003

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01804
Initial Pressure (psig): -4.52 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.81

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.026**	0.045	0.036	0.014	**J**
75-35-4	1,1-Dichloroethene	**0.021**	0.045	0.038	0.016	**J**
156-60-5	trans-1,2-Dichloroethene	**0.036**	0.045	0.038	0.013	**J**
75-34-3	1,1-Dichloroethane	**0.026**	0.045	0.036	0.011	**J**
156-59-2	cis-1,2-Dichloroethene	**0.32**	0.045	0.038	0.017	
79-01-6	Trichloroethene	**1.3**	0.045	0.038	0.015	
127-18-4	Tetrachloroethene	**0.064**	0.045	0.038	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-08-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-004

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00064
Initial Pressure (psig): 0.19 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.010**	0.031	0.025	0.0093	**J**
75-35-4	1,1-Dichloroethene	**0.011**	0.031	0.026	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.035**	0.031	0.026	0.0090	
75-34-3	1,1-Dichloroethane	**0.014**	0.031	0.025	0.0075	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**1.1**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.062**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-1-10-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-005

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01003

Initial Pressure (psig): -3.52 Final Pressure (psig): 3.86

Canister Dilution Factor: 1.66

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.042	0.033	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035	0.042	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.029**	0.042	0.035	0.012	**J**
75-34-3	1,1-Dichloroethane	0.033	0.042	0.033	0.010	**U**
156-59-2	cis-1,2-Dichloroethene	**0.054**	0.042	0.035	0.015	
79-01-6	Trichloroethene	**0.85**	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.041**	0.042	0.035	0.014	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-C-11-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-006

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17 & 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.10 Liter(s)
Container ID: AS00961

Initial Pressure (psig): 0.41 Final Pressure (psig): 3.80
Initial Pressure 2 (psig): -0.96 Final Pressure 2 (psig): 2.28

Canister Dilution Factor: 1.22
Canister Dilution Factor 2: 1.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.031	0.024	0.0093	**U**
75-35-4	1,1-Dichloroethene	**0.46**	0.031	0.026	0.010	
156-60-5	trans-1,2-Dichloroethene	**0.21**	0.031	0.026	0.0089	
75-34-3	1,1-Dichloroethane	**0.36**	0.031	0.024	0.0074	
156-59-2	cis-1,2-Dichloroethene	**2.5**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**95**	0.38	0.32	0.13	**D**
127-18-4	Tetrachloroethene	**0.84**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M310-1-10-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-007

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00683
Initial Pressure (psig): -2.57 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.031**	0.038	0.032	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.010**	0.038	0.030	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.053**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.96**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.085**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N210-A-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-008

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01139
Initial Pressure (psig): -1.43 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.072**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.0085**	0.035	0.028	0.0085	**J**
156-59-2	cis-1,2-Dichloroethene	**0.021**	0.035	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.058**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.069**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-B-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-009

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00756
Initial Pressure (psig): -1.95 Final Pressure (psig): 3.70

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.038**	0.036	0.029	0.011	
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.052**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.020**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.51**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.12**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-1-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-010

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02157
Initial Pressure (psig): -1.81 Final Pressure (psig): 3.86

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.047**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	**0.014**	0.036	0.029	0.0088	**J**
156-59-2	cis-1,2-Dichloroethene	**0.10**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.11**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.11**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-1-02-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-011

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/29/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00081
Initial Pressure (psig): -3.64 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.041	0.033	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035	0.041	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.053**	0.041	0.035	0.012	
75-34-3	1,1-Dichloroethane	**0.017**	0.041	0.033	0.010	**J**
156-59-2	cis-1,2-Dichloroethene	**0.084**	0.041	0.035	0.015	
79-01-6	Trichloroethene	**0.14**	0.041	0.035	0.014	
127-18-4	Tetrachloroethene	**0.10**	0.041	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243A-A-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-012

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00225
Initial Pressure (psig): -1.35 Final Pressure (psig): 3.66

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.010	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.094**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0084	**U**
156-59-2	cis-1,2-Dichloroethene	**0.032**	0.035	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.097**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.088**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-013

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00534
Initial Pressure (psig): -1.59 Final Pressure (psig): 3.87

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.26**	0.036	0.028	0.011	
75-35-4	1,1-Dichloroethene	**0.22**	0.036	0.030	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.13**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.15**	0.036	0.028	0.0087	
156-59-2	cis-1,2-Dichloroethene	**4.2**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**11**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-02-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-014

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01095
Initial Pressure (psig): -1.04 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.033**	0.034	0.027	0.010	**J**
75-35-4	1,1-Dichloroethene	**0.027**	0.034	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.072**	0.034	0.029	0.0099	
75-34-3	1,1-Dichloroethane	**0.031**	0.034	0.027	0.0083	**J**
156-59-2	cis-1,2-Dichloroethene	**0.55**	0.034	0.029	0.013	
79-01-6	Trichloroethene	**1.4**	0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.067**	0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-G-04-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-015

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00640

Initial Pressure (psig): -1.48 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.026**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.018**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.089**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.026**	0.035	0.028	0.0085	**J**
156-59-2	cis-1,2-Dichloroethene	**0.36**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.81**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.20**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-05-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-016

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01571
Initial Pressure (psig): -1.19 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.039**	0.034	0.027	0.010	
75-35-4	1,1-Dichloroethene	**0.036**	0.034	0.028	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.093**	0.034	0.028	0.0099	
75-34-3	1,1-Dichloroethane	**0.049**	0.034	0.027	0.0082	
156-59-2	cis-1,2-Dichloroethene	**0.40**	0.034	0.028	0.012	
79-01-6	Trichloroethene	**0.95**	0.034	0.028	0.011	
127-18-4	Tetrachloroethene	**0.37**	0.034	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-B-06-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-017

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01042
Initial Pressure (psig): -2.88 Final Pressure (psig): 3.93

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.035**	0.040	0.032	0.012	**J**
75-35-4	1,1-Dichloroethene	**0.023**	0.040	0.033	0.014	**J**
156-60-5	trans-1,2-Dichloroethene	**0.082**	0.040	0.033	0.012	
75-34-3	1,1-Dichloroethane	**0.036**	0.040	0.032	0.0096	**J**
156-59-2	cis-1,2-Dichloroethene	**0.52**	0.040	0.033	0.015	
79-01-6	Trichloroethene	**1.1**	0.040	0.033	0.013	
127-18-4	Tetrachloroethene	**0.33**	0.040	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-02-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-018

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00893
Initial Pressure (psig): -2.11 Final Pressure (psig): 3.70

Canister Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.025**	0.037	0.029	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.016**	0.037	0.031	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.088**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.041**	0.037	0.029	0.0089	
156-59-2	cis-1,2-Dichloroethene	**0.38**	0.037	0.031	0.013	
79-01-6	Trichloroethene	**0.87**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.10**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-03-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-019

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00549

Initial Pressure (psig): -0.60 Final Pressure (psig): 4.06

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027	0.033	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.069**	0.033	0.028	0.0097	
75-34-3	1,1-Dichloroethane	**0.0099**	0.033	0.027	0.0081	**J**
156-59-2	cis-1,2-Dichloroethene	**0.090**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**0.21**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.065**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-05-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-020

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02123
Initial Pressure (psig): -1.42 Final Pressure (psig): 3.61

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.022**	0.035	0.028	0.010	**J**
75-35-4	1,1-Dichloroethene	**0.015**	0.035	0.029	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.088**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0084	**U**
156-59-2	cis-1,2-Dichloroethene	**0.31**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.73**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.089**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-07-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-021

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01127
Initial Pressure (psig): 0.46 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.030	0.024	0.0092	**U**
75-35-4	1,1-Dichloroethene	0.025	0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.068**	0.030	0.025	0.0088	
75-34-3	1,1-Dichloroethane	**0.0098**	0.030	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.060**	0.030	0.025	0.011	
79-01-6	Trichloroethene	**0.15**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.064**	0.030	0.025	0.0099	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-08-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-022

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02124
Initial Pressure (psig): -2.43 Final Pressure (psig): 3.65

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.030**	0.038	0.030	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.020**	0.038	0.032	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.096**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.028**	0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	**0.43**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.96**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.15**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M339-1-07-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-023

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00424
Initial Pressure (psig): -0.64 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026	0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028	0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.16**	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	0.026	0.033	0.026	0.0080	**U**
156-59-2	cis-1,2-Dichloroethene	**0.079**	0.033	0.028	0.012	
79-01-6	Trichloroethene	**0.14**	0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.085**	0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-A-01-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-024

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02216
Initial Pressure (psig): -1.95 Final Pressure (psig): 3.84

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.074**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.016**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.040**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.057**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170128-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170202-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700262

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/15 - 1/16/17
Analyst: Cory Lewis Date(s) Received: 1/20/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 1/28 - 2/2/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170128-MB	**91**	**100**	**102**	70-130	
Method Blank	P170202-MB	**103**	**100**	**93**	70-130	
Lab Control Sample	P170128-LCS	**94**	**96**	**115**	70-130	
Lab Control Sample	P170202-LCS	**102**	**101**	**97**	70-130	
17N210-1-04-F	P1700262-001	**92**	**102**	**163**	70-130	**S**
17N210-1-06-F	P1700262-002	**92**	**109**	**110**	70-130	
17N210-1-07-F	P1700262-003	**93**	**102**	**110**	70-130	
17N210-1-08-F	P1700262-004	**93**	**103**	**109**	70-130	
17N210-1-10-F	P1700262-005	**93**	**76**	**111**	70-130	
17N210-C-11-F	P1700262-006	**94**	**126**	**111**	70-130	
17M310-1-10-F	P1700262-007	**93**	**119**	**78**	70-130	
17N210-A-01-F	P1700262-008	**92**	**102**	**110**	70-130	
17N243A-B-01-F	P1700262-009	**92**	**103**	**108**	70-130	
17N243A-1-01-F	P1700262-010	**92**	**103**	**112**	70-130	
17N243A-1-02-F	P1700262-011	**92**	**102**	**113**	70-130	
17N243A-A-01-F	P1700262-012	**106**	**102**	**97**	70-130	
17N239-B-01-F	P1700262-013	**107**	**101**	**96**	70-130	
17N239-B-02-F	P1700262-014	**105**	**101**	**96**	70-130	
17N239-G-04-F	P1700262-015	**106**	**102**	**97**	70-130	
17N239-B-05-F	P1700262-016	**102**	**101**	**96**	70-130	
17N239-B-06-F	P1700262-017	**106**	**102**	**94**	70-130	
17N239-1-02-F	P1700262-018	**104**	**102**	**96**	70-130	
17N239-1-03-F	P1700262-019	**107**	**102**	**95**	70-130	
17N239-1-05-F	P1700262-020	**106**	**102**	**95**	70-130	
17N239-1-07-F	P1700262-021	**106**	**102**	**97**	70-130	
17N239-1-08-F	P1700262-022	**104**	**102**	**95**	70-130	
17M339-1-07-F	P1700262-023	**106**	**103**	**94**	70-130	
17N239-A-01-F	P1700262-024	**108**	**103**	**95**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.
S = Surrogate recovery not within specified limits.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170128-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.64**	**87**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**3.98**	**94**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**3.95**	**93**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.73**	**88**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**3.96**	**93**	70-121	
79-01-6	Trichloroethene	4.25	**4.28**	**101**	71-123	
127-18-4	Tetrachloroethene	4.25	**3.51**	**83**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170202-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**4.15**	**99**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.18**	**98**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.44**	**104**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.26**	**100**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.29**	**101**	70-121	
79-01-6	Trichloroethene	4.25	**4.18**	**98**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.08**	**96**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700262

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 01281729.D
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 19:01
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170128-LCS	01281730.D	19:33
17N210-1-04-F	P1700262-001	01281735.D	22:11
17N210-1-06-F	P1700262-002	01281737.D	23:14
17N210-1-07-F	P1700262-003	01281739.D	00:17
17N210-1-08-F	P1700262-004	01281740.D	00:49
17N210-1-10-F	P1700262-005	01281741.D	01:20
17N210-C-11-F	P1700262-006	01281742.D	01:52
17M310-1-10-F	P1700262-007	01281743.D	02:23
17N210-A-01-F	P1700262-008	01281744.D	02:55
17N243A-B-01-F	P1700262-009	01281746.D	03:58
17N243A-1-01-F	P1700262-010	01281747.D	04:30
17N243A-1-02-F	P1700262-011	01281748.D	05:01

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700262

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02021703.D
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:26
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170202-LCS	02021704.D	03:57
17N243A-A-01-F	P1700262-012	02021706.D	05:00
17N239-B-01-F	P1700262-013	02021707.D	05:32
17N239-B-02-F	P1700262-014	02021708.D	06:03
17N239-G-04-F	P1700262-015	02021709.D	06:35
17N239-B-05-F	P1700262-016	02021710.D	08:09
17N239-B-06-F	P1700262-017	02021713.D	09:42
17N239-1-02-F	P1700262-018	02021714.D	10:14
17N239-1-03-F	P1700262-019	02021715.D	10:45
17N239-1-05-F	P1700262-020	02021716.D	10:45
17N239-1-07-F	P1700262-021	02021717.D	11:47
17N239-1-08-F	P1700262-022	02021718.D	12:19
17M339-1-07-F	P1700262-023	02021720.D	13:21
17N239-A-01-F	P1700262-024	02021721.D	13:52
17N210-C-11-F (Dilution)	P1700262-006	02021723.D	14:59

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700262

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 01281728.D

Analyst: Cory Lewis Date Analyzed: 1/28/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 18:29

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	AREA	#	RT
	24 Hour Standard	55989		9.75	252091		11.71	36778		16.05
	Upper Limit	78385		10.08	352927		12.04	51489		16.38
	Lower Limit	33593		9.42	151255		11.38	22067		15.72
	Client Sample ID									
01	Method Blank	49742		9.78	221254		11.72	33936		16.05
02	Lab Control Sample	50053		9.76	268245		11.71	35934		16.05
03	17N210-1-04-F	49883		9.75	241820		11.71	37506		16.05
04	17N210-1-06-F	50804		9.75	247479		11.71	39175		16.05
05	17N210-1-07-F	47734		9.76	228226		11.71	35456		16.05
06	17N210-1-08-F	48206		9.75	232629		11.71	36191		16.05
07	17N210-1-10-F	48798		9.75	317978		11.71	36264		16.05
08	17N210-C-11-F	47786		9.75	245108		11.71	37623		16.05
09	17M310-1-10-F	49572		9.76	242772		11.71	52956	I	16.05
10	17N210-A-01-F	48728		9.76	235072		11.71	35998		16.05
11	17N243A-B-01-F	47448		9.76	228388		11.71	35844		16.05
12	17N243A-1-01-F	48946		9.76	236142		11.71	38072		16.05
13	17N243A-1-02-F	49350		9.76	235272		11.71	37672		16.05
14										
15										
16										
17										
18										
19										
20										

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700262

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02021702.D
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:54
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	42362		9.76	202980		11.71		33966		16.05	
	Upper Limit	59307		10.09	284172		12.04		47552		16.38	
	Lower Limit	25417		9.43	121788		11.38		20380		15.72	
	Client Sample ID											
01	Method Blank	41818		9.78	202055		11.72		33539		16.06	
02	Lab Control Sample	41544		9.76	200771		11.71		33287		16.05	
03	17N243A-A-01-F	40637		9.76	199419		11.71		32930		16.05	
04	17N239-B-01-F	38896		9.76	197297		11.71		32950		16.05	
05	17N239-B-02-F	41147		9.75	198545		11.71		32931		16.05	
06	17N239-G-04-F	40670		9.76	197229		11.71		33202		16.05	
07	17N239-B-05-F	42953		9.75	206318		11.71		33691		16.05	
08	17N239-B-06-F	40218		9.76	195118		11.71		33049		16.05	
09	17N239-1-02-F	40484		9.75	195307		11.71		33368		16.05	
10	17N239-1-03-F	40308		9.76	197418		11.71		33614		16.05	
11	17N239-1-05-F	40952		9.75	197961		11.71		33972		16.05	
12	17N239-1-07-F	40476		9.76	196875		11.71		33223		16.05	
13	17N239-1-08-F	40988		9.75	197339		11.71		34152		16.05	
14	17M339-1-07-F	39245		9.76	191493		11.71		32839		16.05	
15	17N239-A-01-F	39294		9.76	192185		11.71		32786		16.05	
16	17N210-C-11-F (Dilution)	41680		9.77	202594		11.71		34035		16.06	
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:15:10 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/3/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	47734	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228226	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35456	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	77070	932.275	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.23%				
33) Toluene-d8 (SS2)	14.15	98	230500	1016.737	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.67%				
45) Bromofluorobenzene (SS3)	17.55	174	71550	1103.085	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.31%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.41	85	171198	1419.670	pg		100
3) Chloromethane	4.65	52	8411	234.115	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	7620	64.227	pg		99
5) Vinyl Chloride	4.97	62	1655	14.356	pg		91
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.48	94	1087	23.439	pg		92
8) Chloroethane	5.70	64	212	5.977	pg		98
9) Acrolein	6.28	56	3812	151.292	pg		99
10) Acetone	6.40	58	121100	3717.332	pg		93
11) Trichlorofluoromethane	6.60	101	67854	822.681	pg		100
12) 1,1-Dichloroethene	7.34	96	603	11.670	pg	#	83
13) Methylene Chloride	7.48	84	15369	274.082	pg		98
14) Trichlorotrifluoroethane	7.80	151	15157	294.012	pg		100
15) trans-1,2-Dichloroethene	8.52	96	1097	19.693	pg		98
16) 1,1-Dichloroethane	8.72	63	1394	14.105	pg		99
17) Methyl tert-Butyl Ether	8.81	73	764	5.180	pg		87
18) cis-1,2-Dichloroethene	9.60	96	10364	177.292	pg		98
19) Chloroform	9.89	83	10377	99.847	pg		99
21) 1,2-Dichloroethane	10.64	62	3196	39.948	pg		99
22) 1,1,1-Trichloroethane	10.91	97	1700	17.621	pg		97
23) Benzene	11.37	78	90899	396.972	pg		100
24) Carbon Tetrachloride	11.52	117	21746	280.714	pg		99
26) 1,2-Dichloropropane	12.18	63	909	15.637	pg		95
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	42105	709.599	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	13.94	83	156	N.D.			
34) Toluene	14.25	91	165207	780.215	pg		100
35) Dibromochloromethane	14.66	129	299	5.099	pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	2176	35.369	pg		99
39) Chlorobenzene	16.11	112	443	N.D.			
40) Ethylbenzene	16.48	91	32077	159.146	pg		99
41) m,p-Xylene	16.65	91	71462	472.698	pg		99
42) Styrene	17.01	104	8571	80.922	pg		97
43) o-Xylene	17.12	106	16407	211.256	pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	5114	31.956	pg		96
47) 1,2,4-Trimethylbenzene	18.77	105	17103	108.883	pg		87
48) 1,3-Dichlorobenzene	18.92	146	128	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	5163	51.366	pg		98
50) 1,2-Dichlorobenzene	19.31	146	371	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.			
53) Naphthalene	21.07	128	3702	20.020	pg		95

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:15:10 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

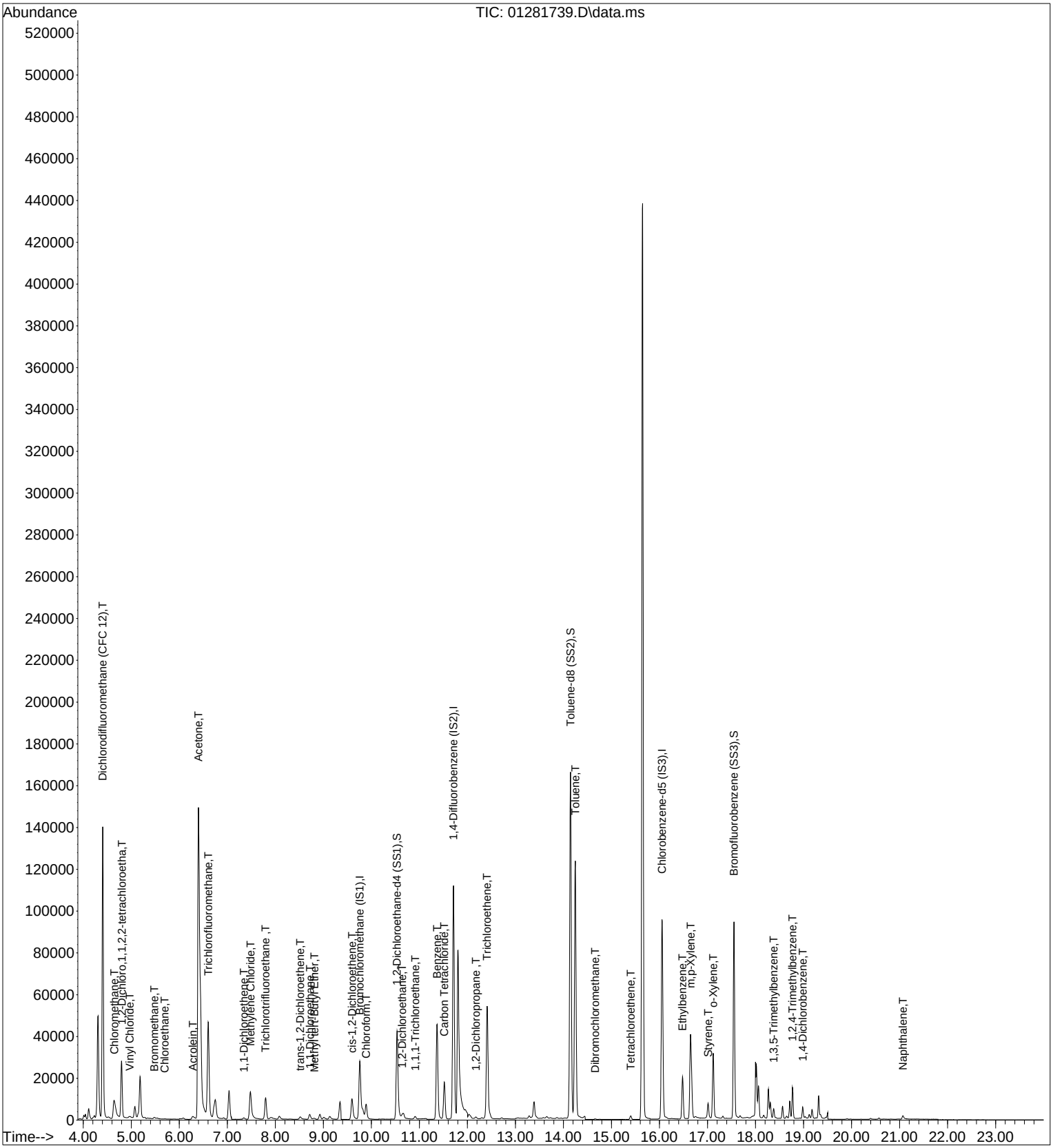
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

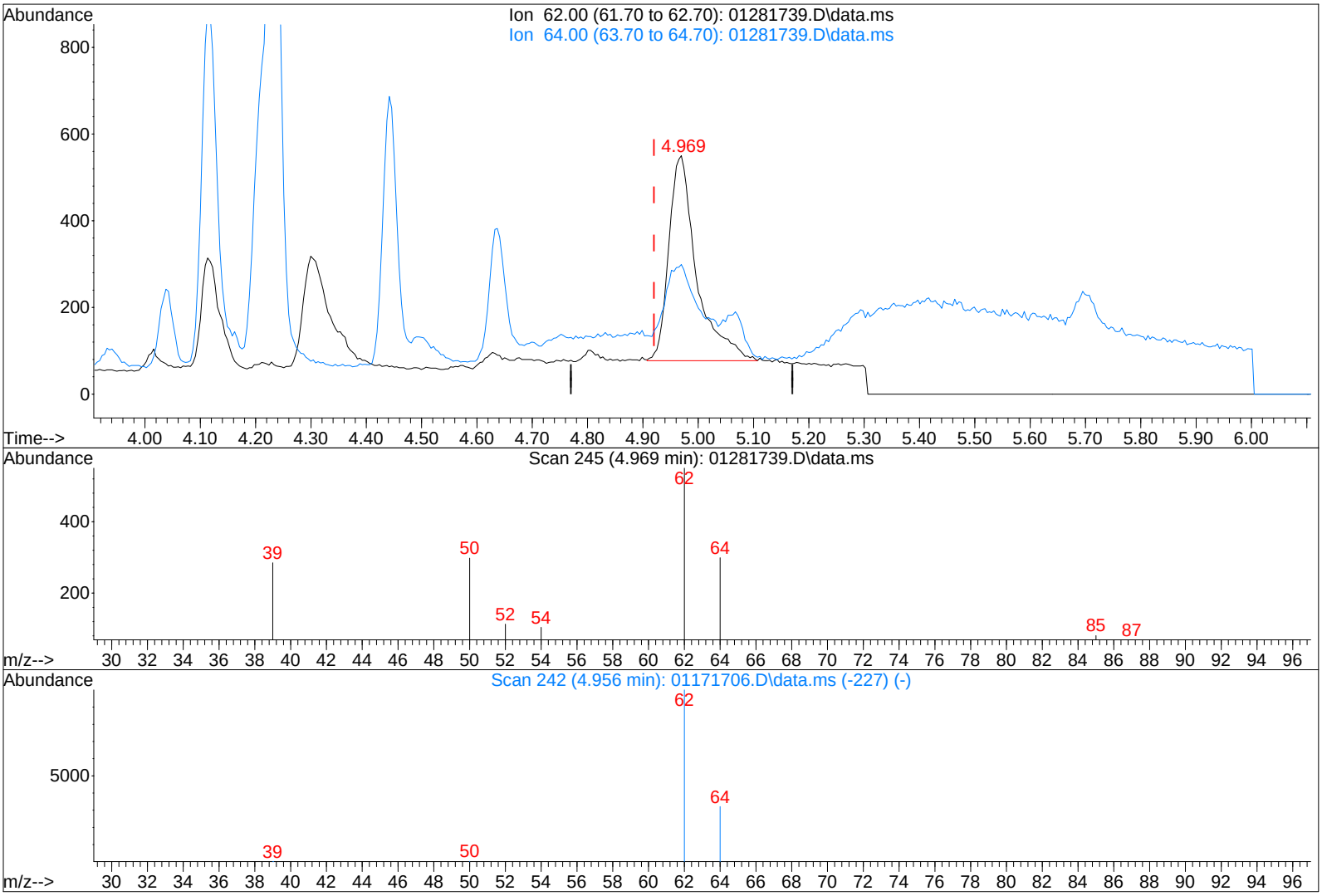
Quant Time: Feb 03 11:15:10 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(5) Vinyl Chloride (T)

4.969min (+0.049) 14.36pg

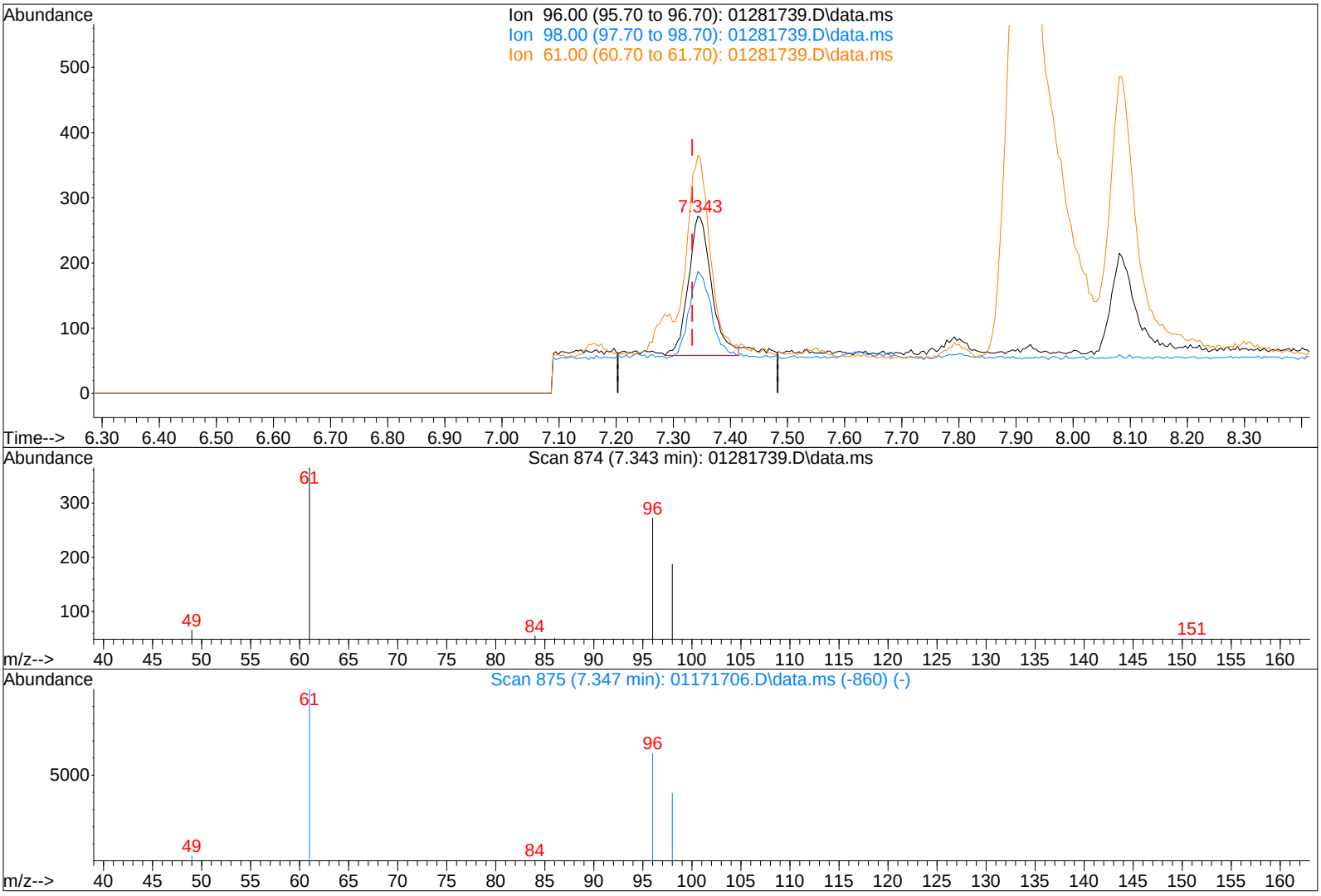
response 1655

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	36.74
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(12) 1,1-Dichloroethene (T)

7.343min (+0.010) 11.67pg

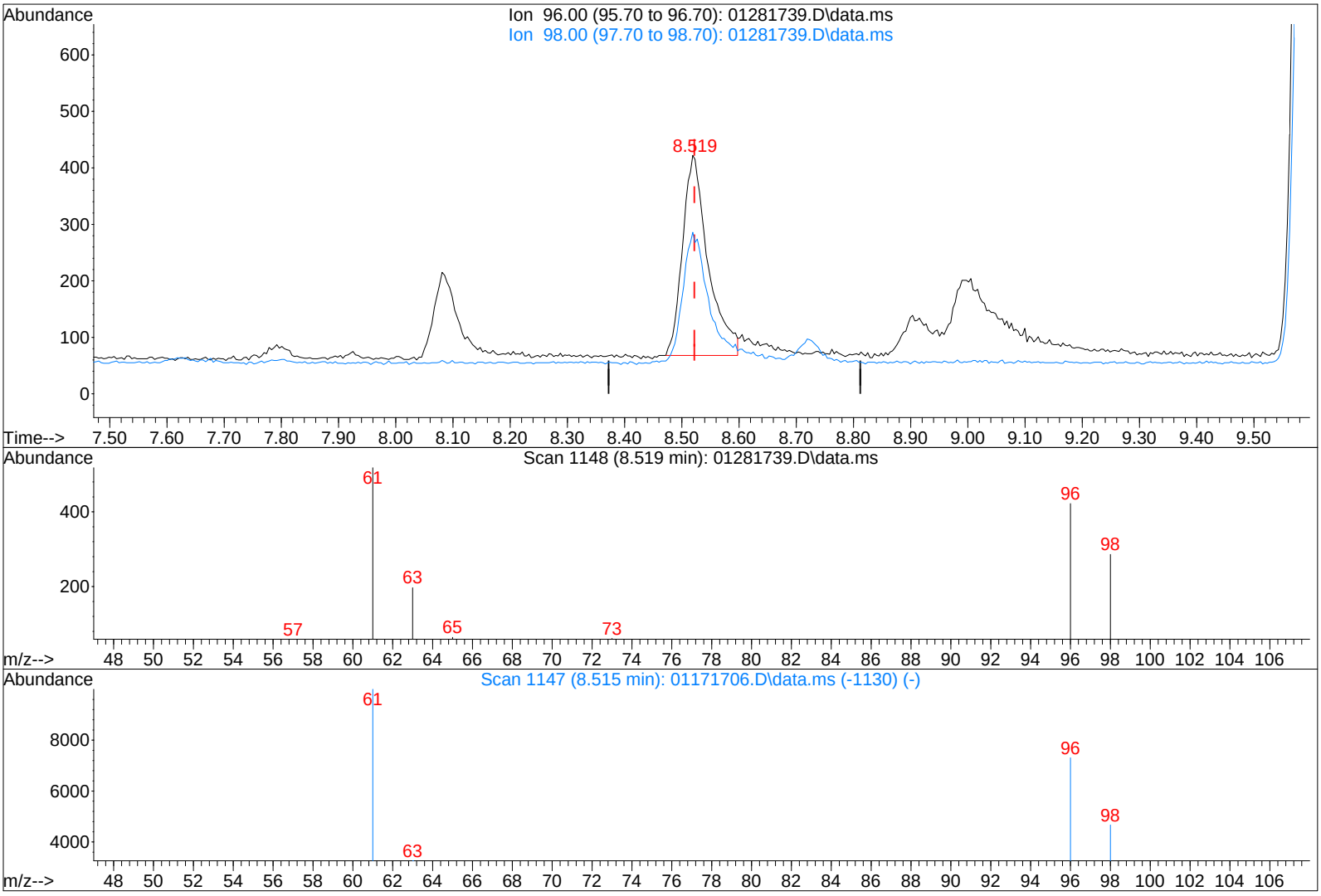
response 603

Ion	Exp%	Act%
96.00	100	100
98.00	63.50	60.03
61.00	162.10	133.50#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.003) 19.69pg

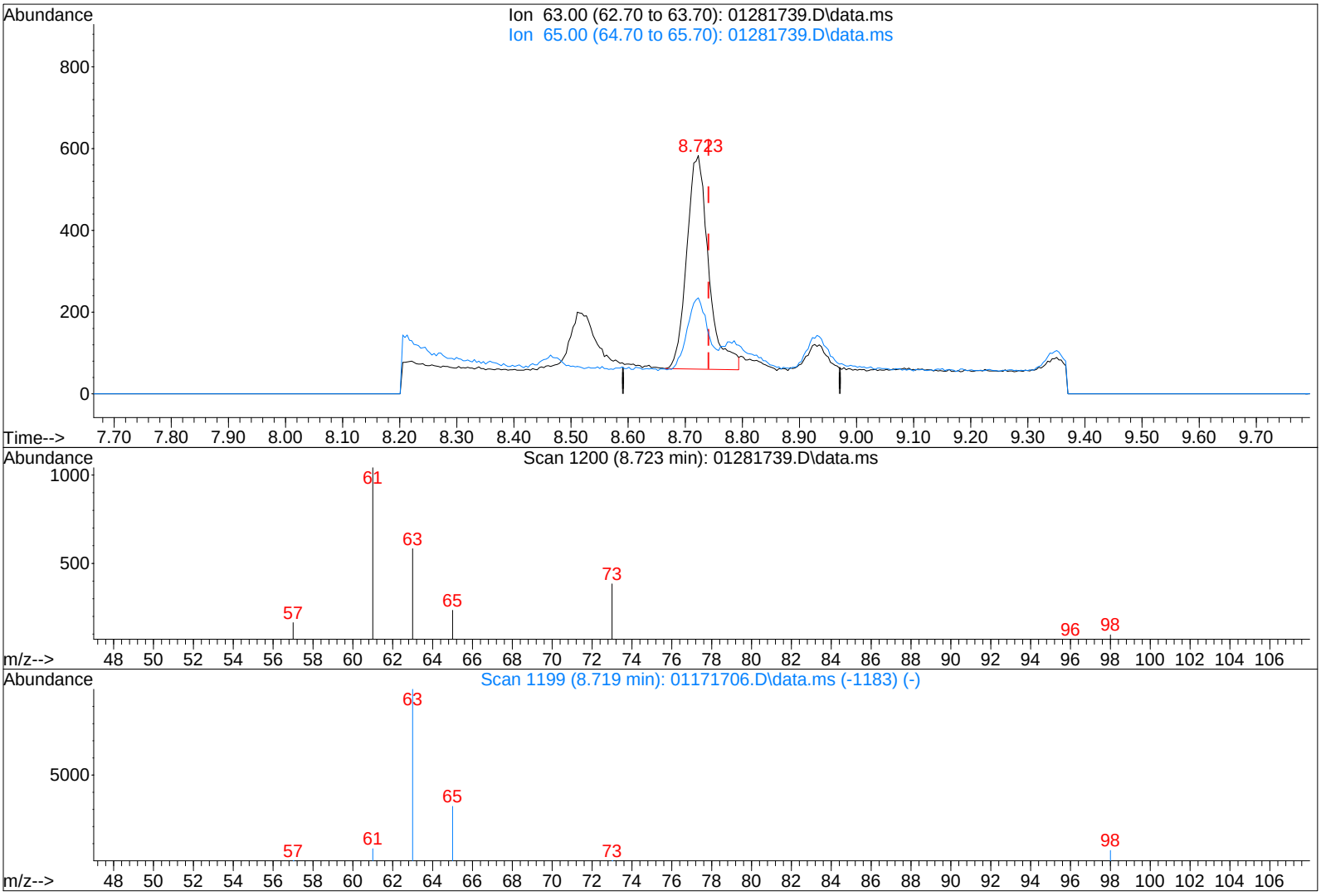
response 1097

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	63.26
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(16) 1,1-Dichloroethane (T)

8.723min (-0.018) 14.10pg

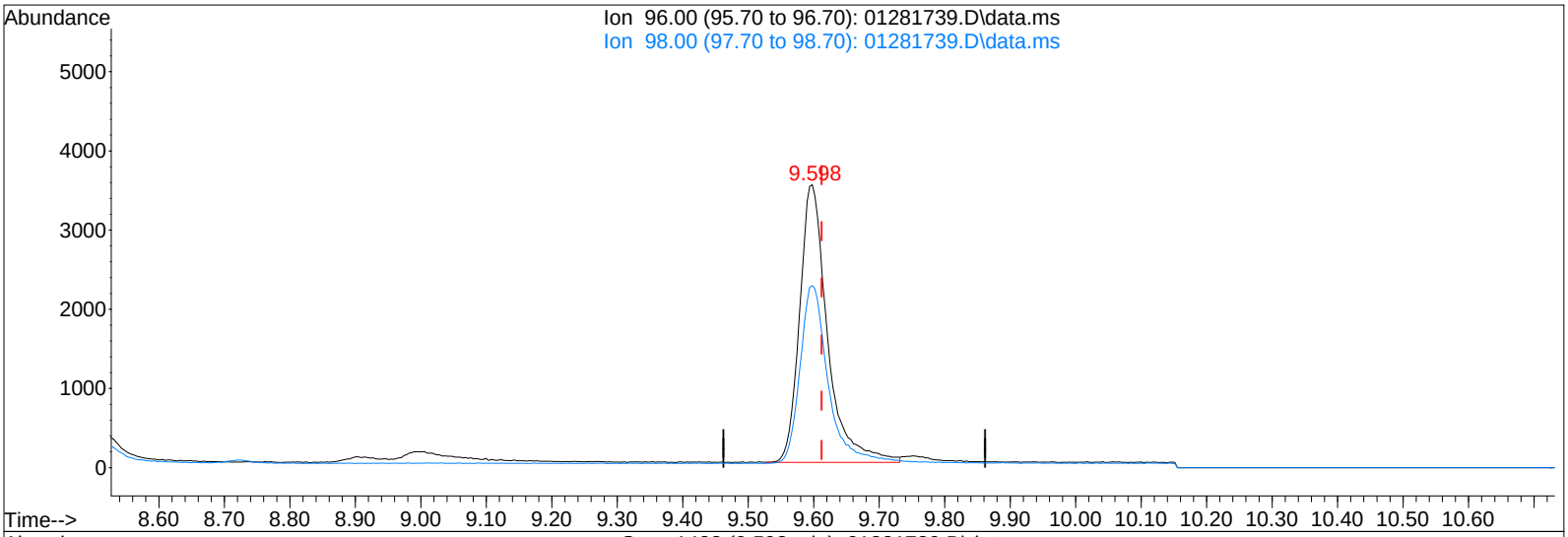
response 1394

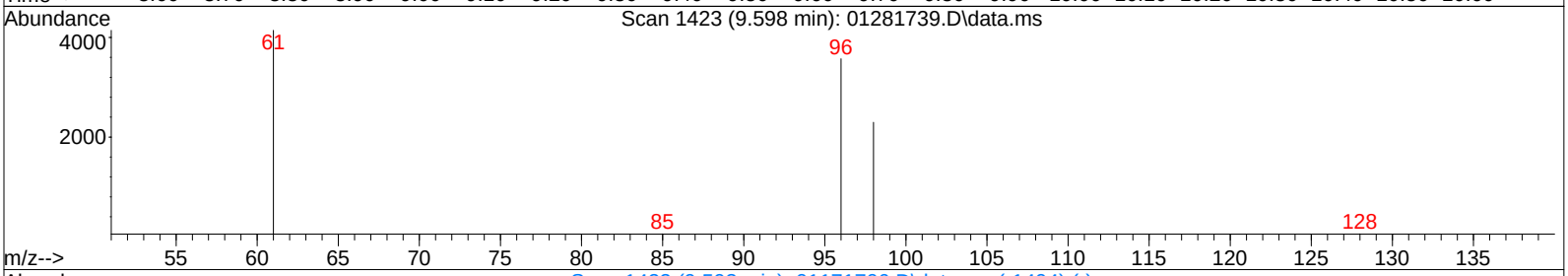
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	32.28
0.00	0.00	0.00
0.00	0.00	0.00

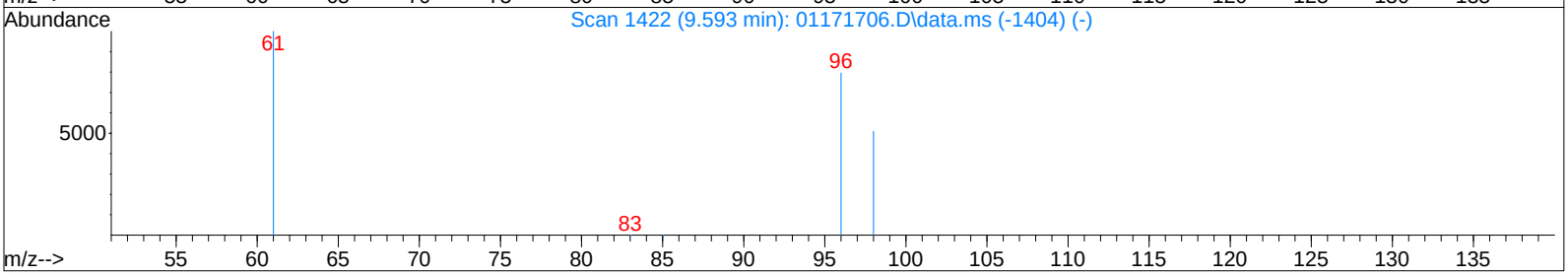
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281739.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.598min (-0.014) 177.29pg

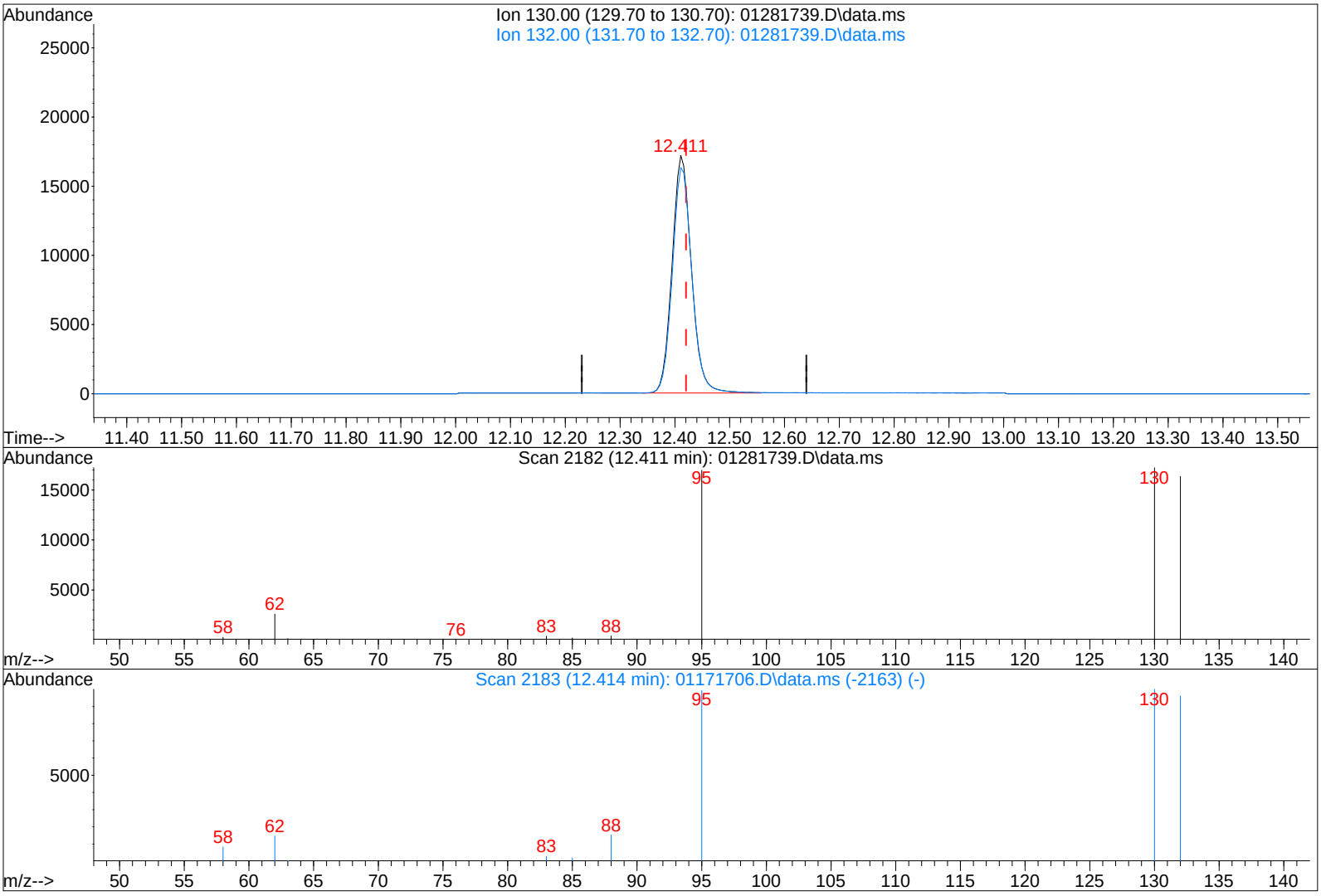
response 10364

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	65.43
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(28) Trichloroethene (T)

12.411min (-0.010) 709.60pg

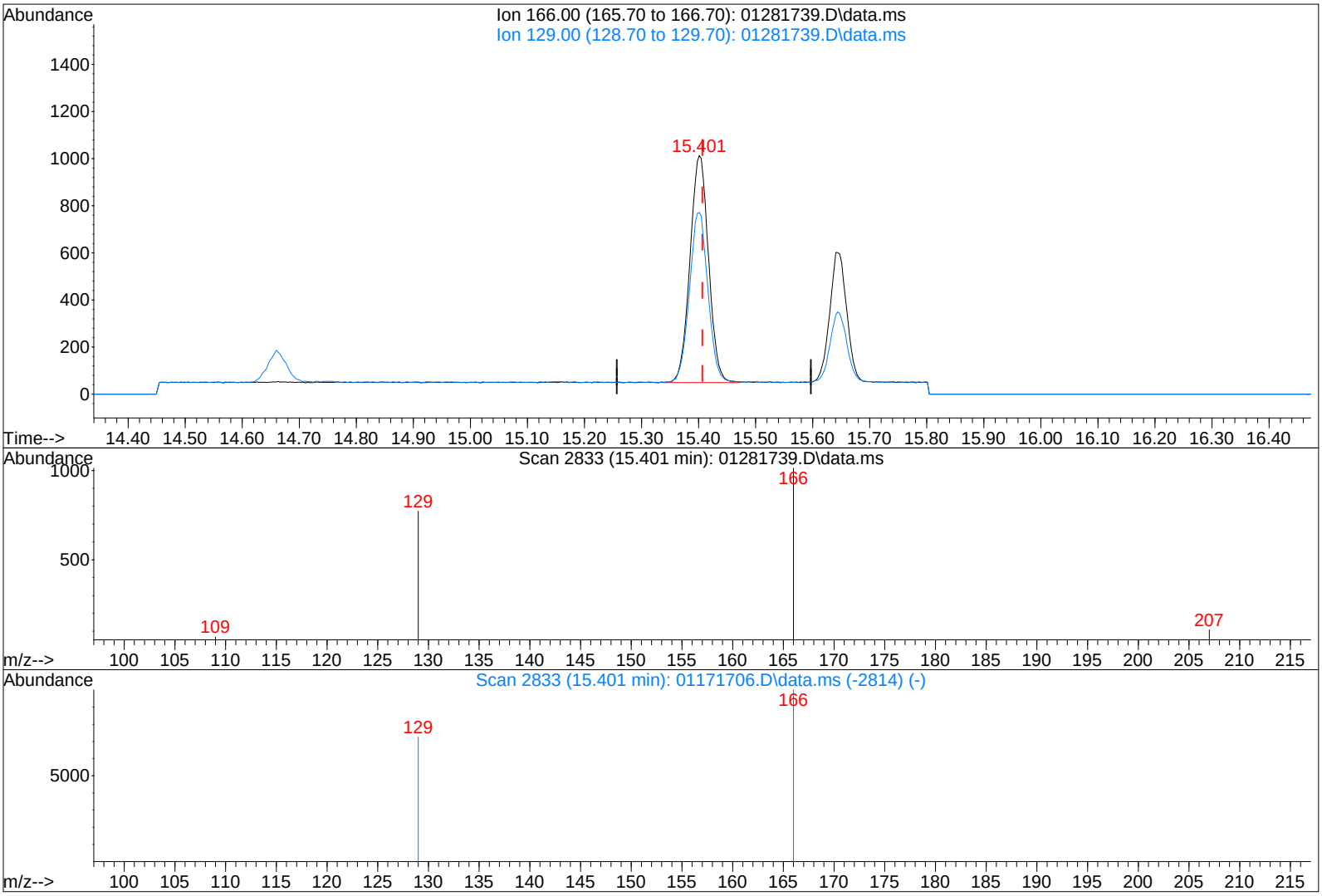
response 42105

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	95.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281739.D Vial: 7
Acq On : 29 Jan 2017 00:17 Operator: CL
Sample : P1700262-003 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:52 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281739.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 35.37pg

response 2176

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	73.99
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:17:34 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/3/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	48798	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	317978	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	36264	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	78460	928.395	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.84%				
33) Toluene-d8 (SS2)	14.14	98	239397	757.922	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 75.79%				
45) Bromofluorobenzene (SS3)	17.55	174	73410	1106.544	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	189777	1539.423	pg		100
3) Chloromethane	4.64	52	9445	257.163	pg		96
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8356	68.894	pg		100
5) Vinyl Chloride	4.96	62	257	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.47	94	1205	25.417	pg		90
8) Chloroethane	5.69	64	246	6.784	pg		88
9) Acrolein	6.27	56	5545	215.274	pg		100
10) Acetone	6.39	58	149870	4500.157	pg		100
11) Trichlorofluoromethane	6.60	101	71371	846.455	pg		100
12) 1,1-Dichloroethene	7.34	96	221	N.D.			
13) Methylene Chloride	7.47	84	17075	297.867	pg		99
14) Trichlorotrifluoroethane	7.80	151	16849	319.707	pg		100
15) trans-1,2-Dichloroethene	8.51	96	991	17.402	pg		90
16) 1,1-Dichloroethane	8.71	63	572	5.661	pg	#	63
17) Methyl tert-Butyl Ether	8.81	73	886	5.877	pg		84
18) cis-1,2-Dichloroethene	9.59	96	1929	32.279	pg		98
19) Chloroform	9.89	83	10232	96.305	pg		100
21) 1,2-Dichloroethane	10.64	62	3347	40.924	pg		100
22) 1,1,1-Trichloroethane	10.91	97	1291	13.090	pg		99
23) Benzene	11.36	78	120590	515.155	pg		100
24) Carbon Tetrachloride	11.52	117	26756	337.856	pg		100
26) 1,2-Dichloropropane	12.18	63	1251	15.446	pg		96
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.41	130	42088	509.103	pg		99
29) 1,4-Dioxane	12.39	88	3969	65.382	pg		100
30) cis-1,3-Dichloropropene	13.26	75	133	N.D.			
31) trans-1,3-Dichloropropene	13.77	75	189	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	191	N.D.			
34) Toluene	14.25	91	184401	625.053	pg		100
35) Dibromochloromethane	14.66	129	343	N.D.			
36) 1,2-Dibromoethane	14.92	107	112	N.D.			
37) Tetrachloroethene	15.40	166	2139	24.954	pg		96
39) Chlorobenzene	16.11	112	613	N.D.			
40) Ethylbenzene	16.48	91	38242	185.505	pg		99
41) m,p-Xylene	16.65	91	85012	549.797	pg		100
42) Styrene	17.01	104	6812	62.882	pg	#	45
43) o-Xylene	17.12	106	19220	241.962	pg		98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.38	105	6475	39.559	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	27925	173.817	pg		87
48) 1,3-Dichlorobenzene	18.92	146	295	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	3821	37.168	pg		99
50) 1,2-Dichlorobenzene	19.31	146	235	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.94	182	230	N.D.			
53) Naphthalene	21.06	128	16882	89.260	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:17:34 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

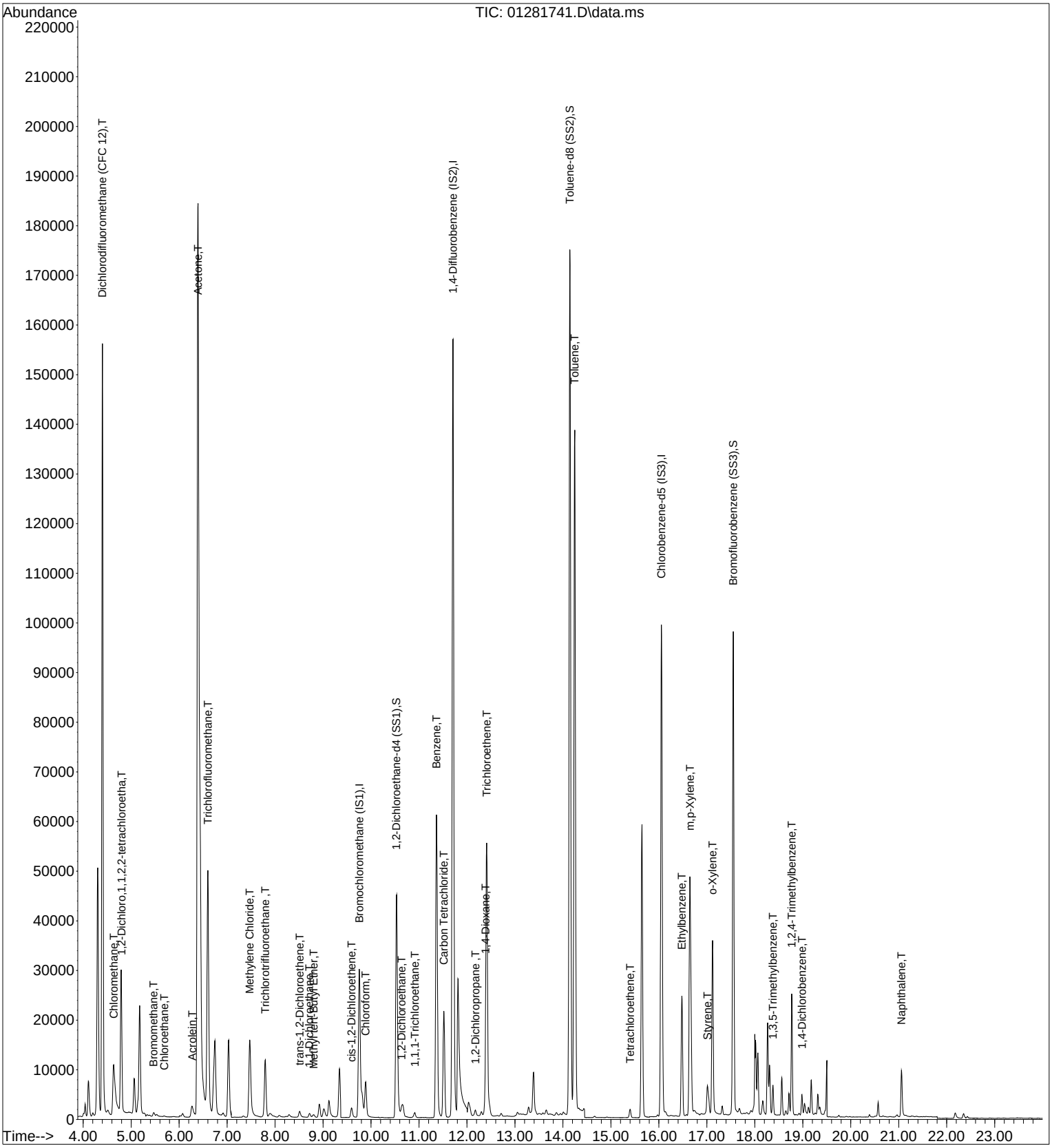
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

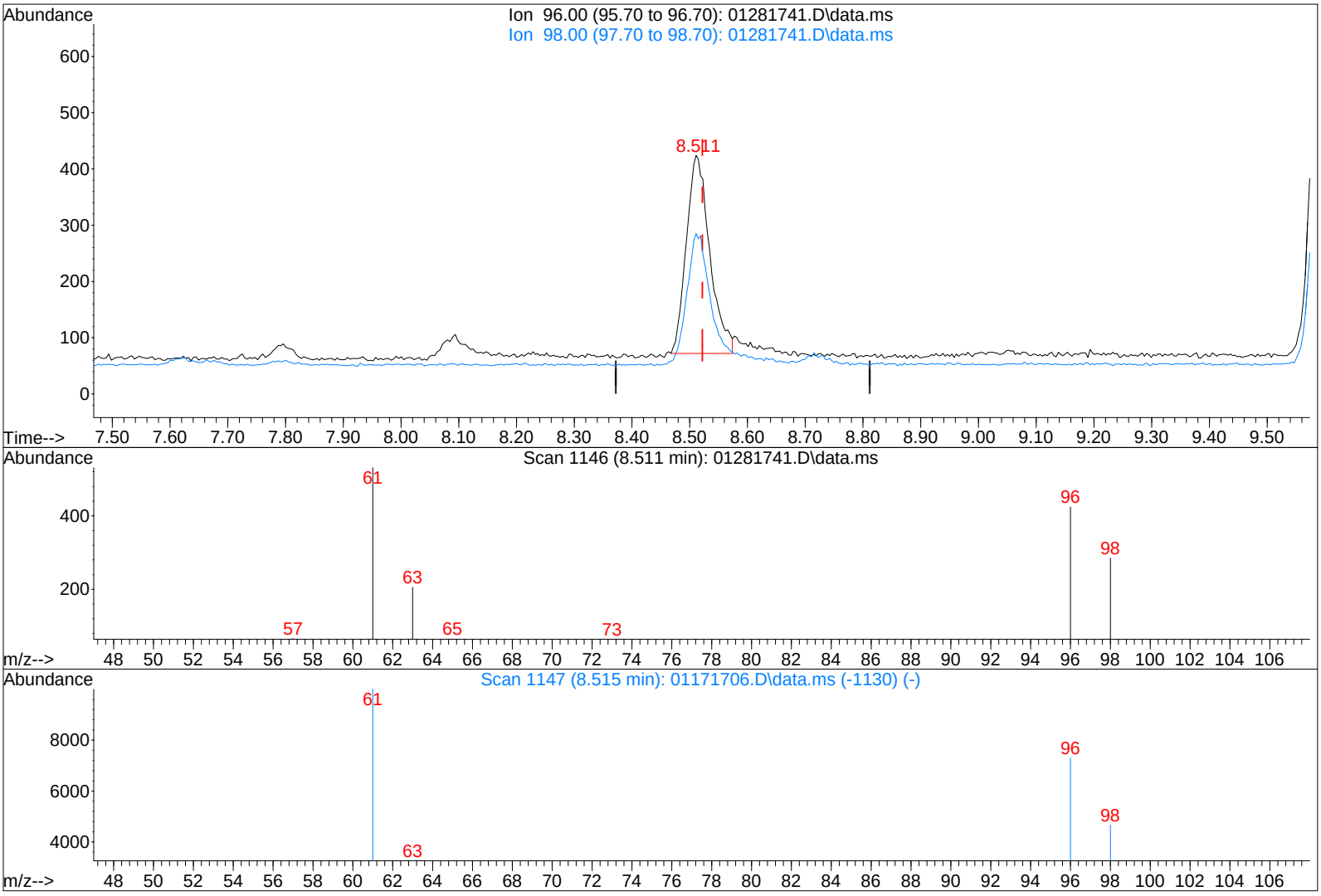
Quant Time: Feb 03 11:17:34 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:54 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281741.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.511min (-0.011) 17.40pg

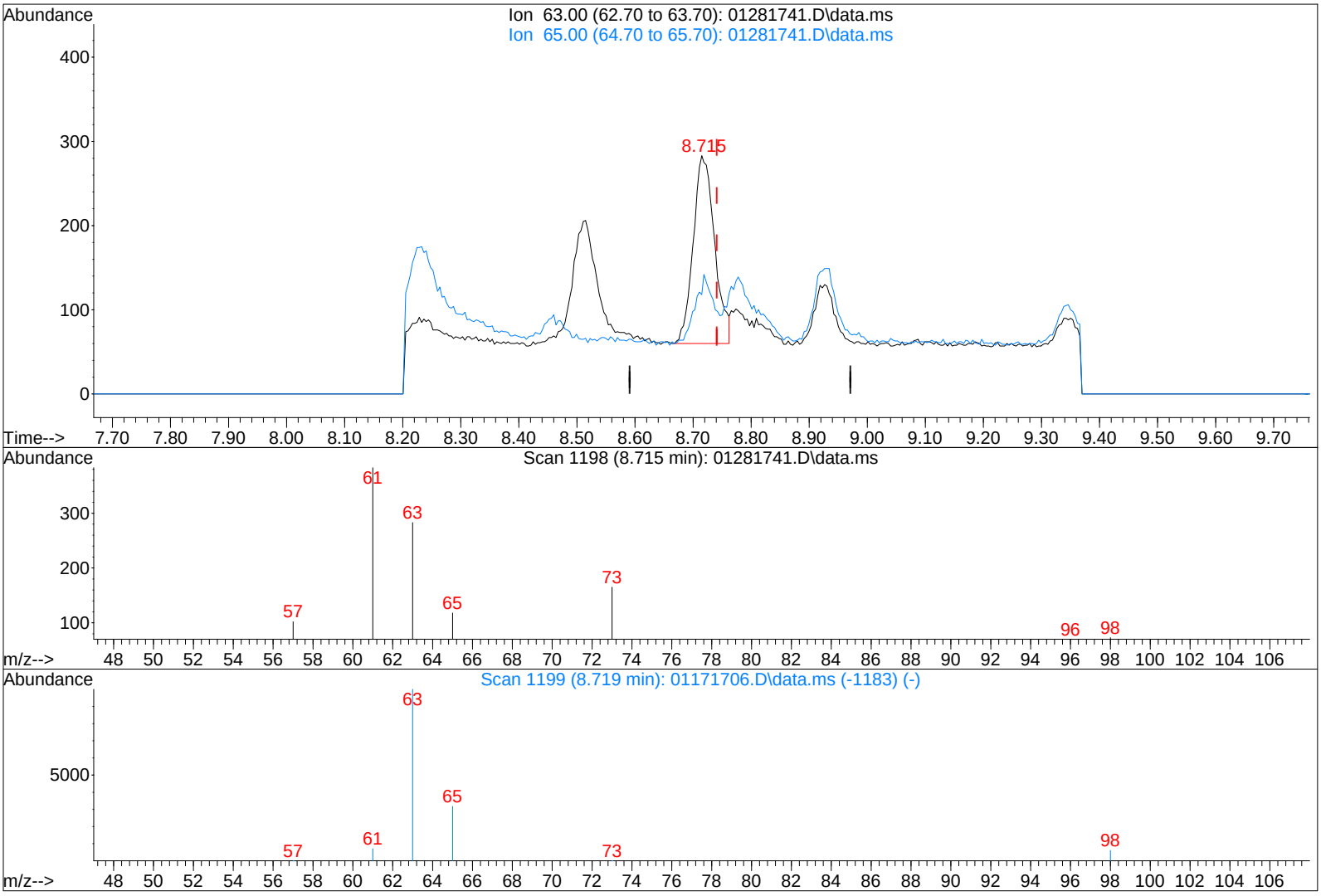
response 991

Ion	Exp%	Act%
96.00	100	100
98.00	61.90	69.42
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:54 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281741.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.026) 5.66pg

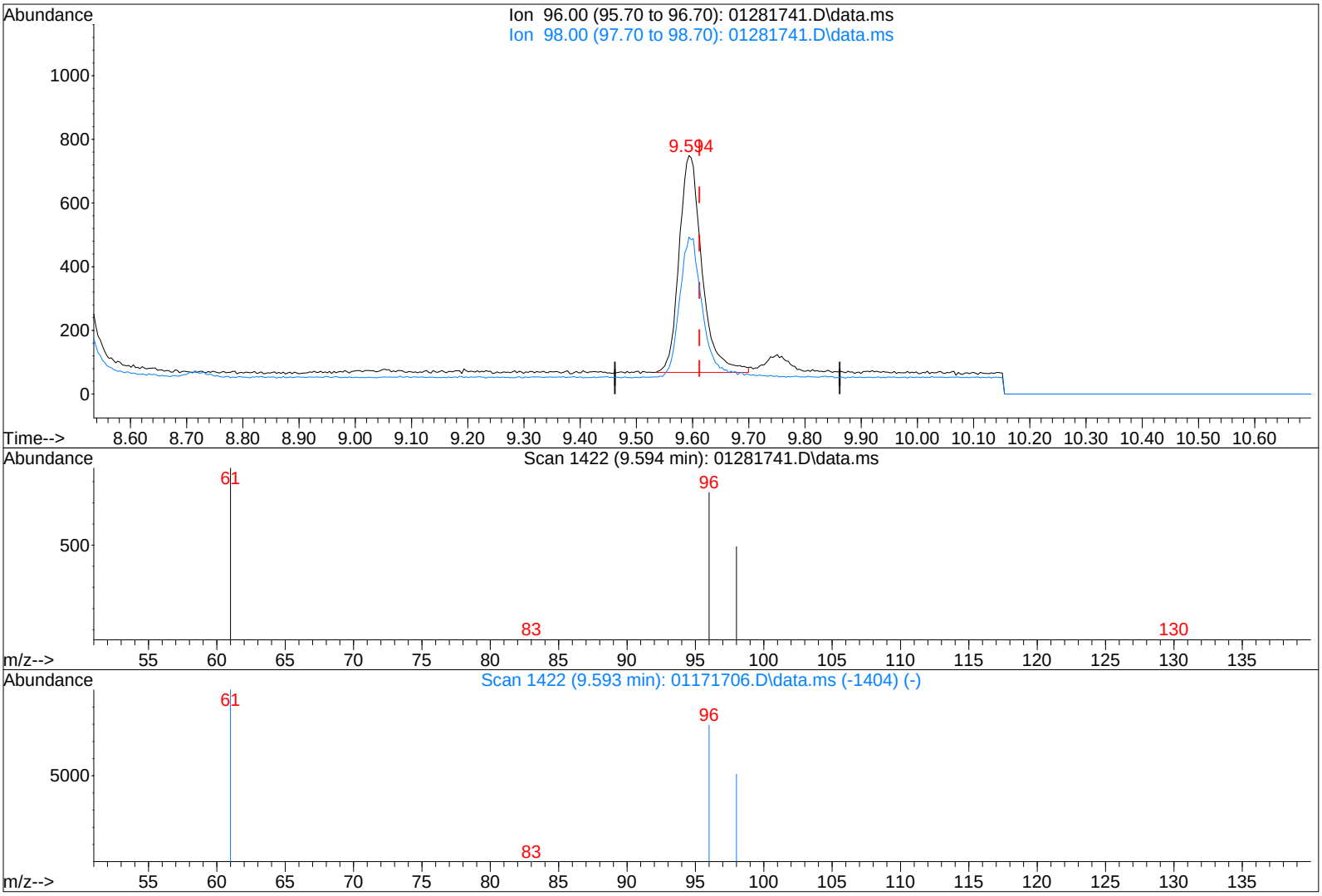
response 572

Ion	Exp%	Act%
63.00	100	100
65.00	31.70	11.36#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:54 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281741.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 32.28pg

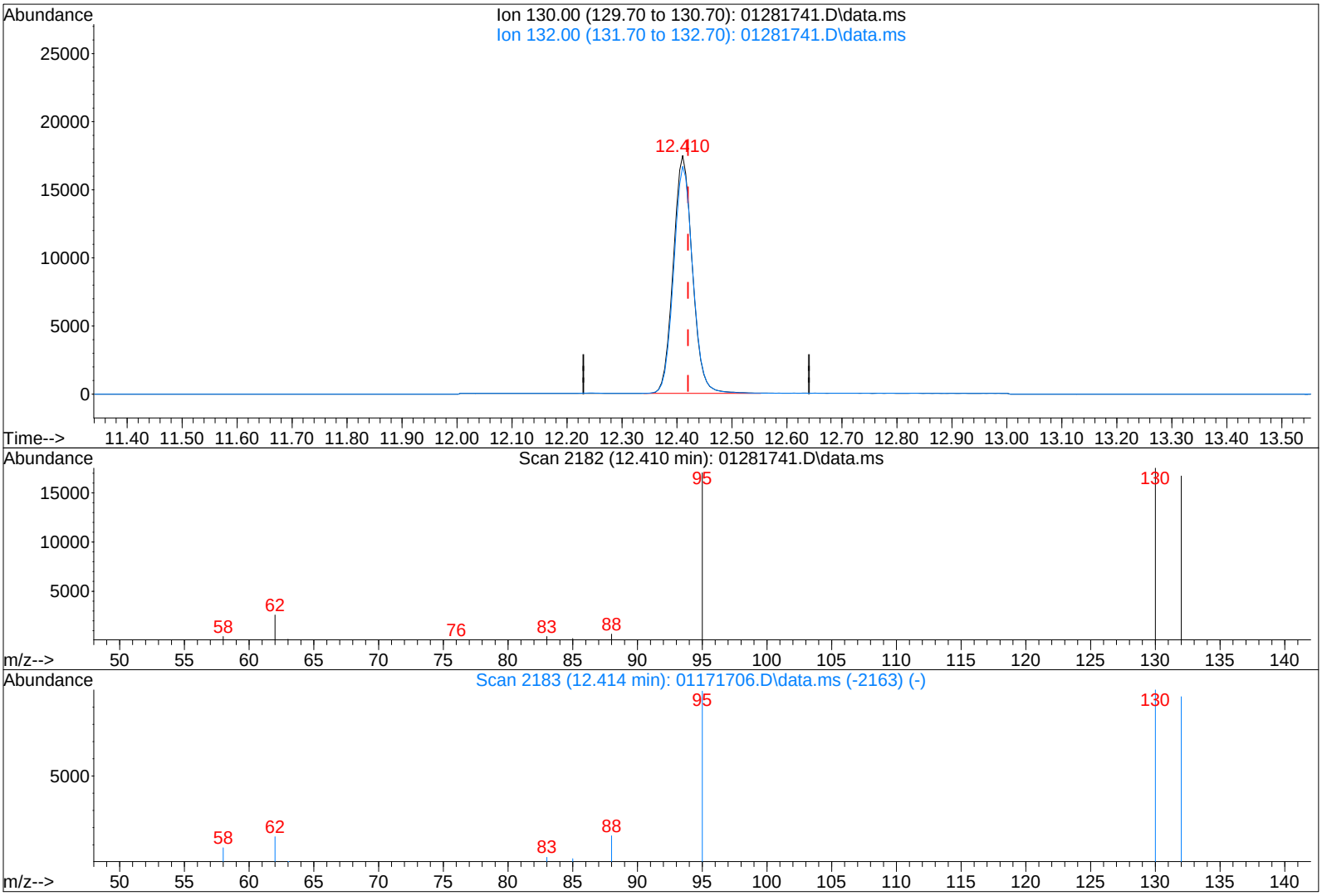
response 1929

Ion	Exp%	Act%
96.00	100	100
98.00	63.80	62.10
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:54 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281741.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 509.10pg

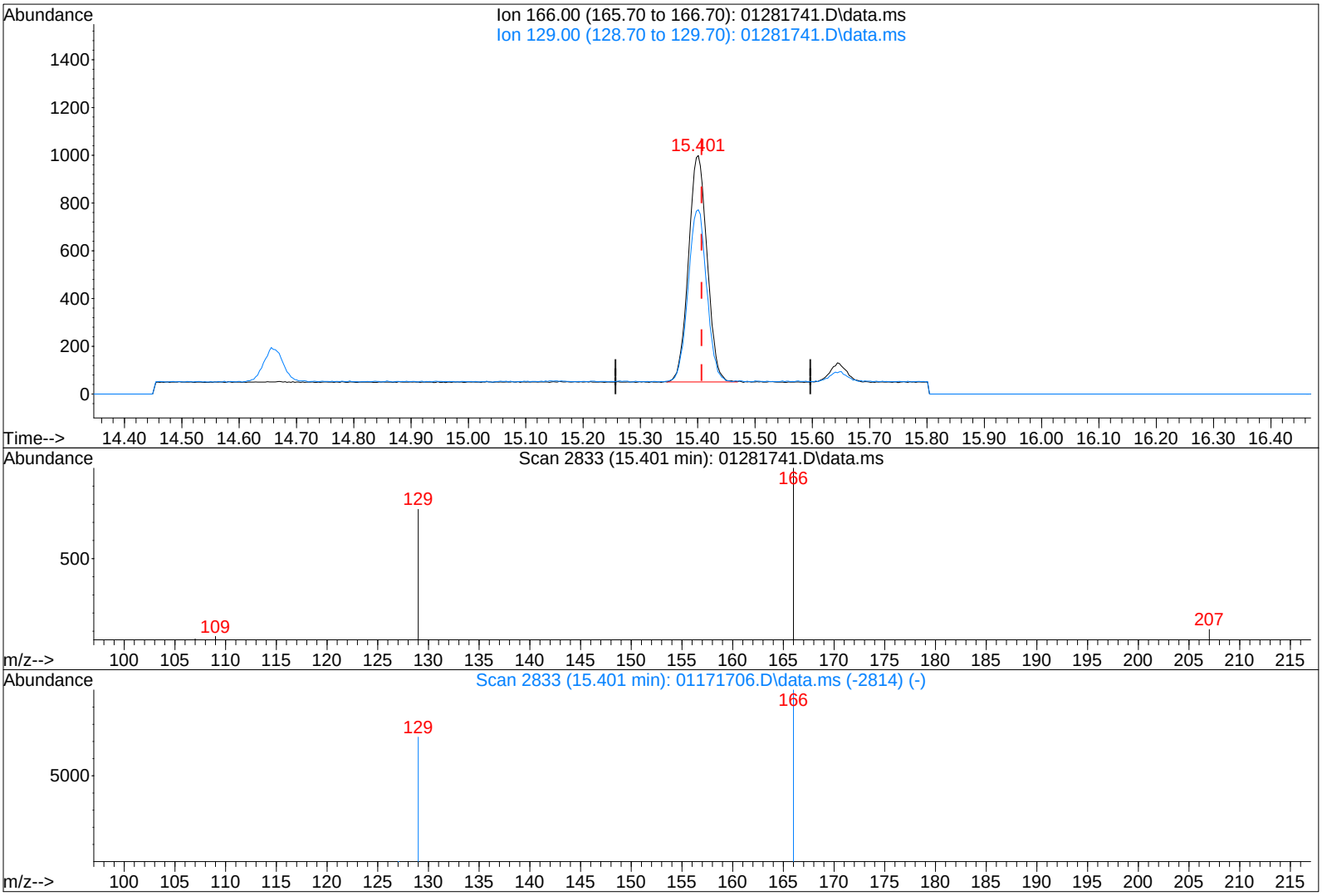
response 42088

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.05
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281741.D Vial: 9
Acq On : 29 Jan 2017 1:20 Operator: CL
Sample : P1700262-005 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:54 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281741.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 24.95pg

response 2139

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	76.34
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:20:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/3/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	47448	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228388	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35844	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	75816	922.634 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.26%		
33) Toluene-d8 (SS2)	14.14	98	233764	1030.403 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.04%		
45) Bromofluorobenzene (SS3)	17.55	174	71013	1082.955 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.30%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	212879	1775.953 pg	100
3) Chloromethane	4.64	52	9429	264.032 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	9483	80.411 pg	100
5) Vinyl Chloride	4.95	62	3057	26.677 pg	94
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	995	21.585 pg	93
8) Chloroethane	5.69	64	333	9.445 pg	93
9) Acrolein	6.27	56	5383	214.931 pg	98
10) Acetone	6.40	58	114289	3529.405 pg #	85
11) Trichlorofluoromethane	6.60	101	79259	966.751 pg	100
12) 1,1-Dichloroethene	7.34	96	368	7.165 pg #	88
13) Methylene Chloride	7.48	84	15625	280.327 pg	98
14) Trichlorotrifluoroethane	7.80	151	18273	356.592 pg	100
15) trans-1,2-Dichloroethene	8.52	96	1994	36.011 pg	99
16) 1,1-Dichloroethane	8.72	63	1360	13.844 pg	98
17) Methyl tert-Butyl Ether	8.81	73	825	5.628 pg	79
18) cis-1,2-Dichloroethene	9.59	96	20560	353.829 pg	99
19) Chloroform	9.89	83	13432	130.021 pg	99
21) 1,2-Dichloroethane	10.64	62	3508	44.113 pg	100
22) 1,1,1-Trichloroethane	10.91	97	1309	13.650 pg	100
23) Benzene	11.36	78	203073	892.201 pg	100
24) Carbon Tetrachloride	11.52	117	27759	360.494 pg	99
26) 1,2-Dichloropropane	12.18	63	1062	18.256 pg	97
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	5116	86.159 pg	98
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.26	75	150	N.D.	
31) trans-1,3-Dichloropropene	13.74	75	66	N.D.	
32) 1,1,2-Trichloroethane	13.95	83	204	N.D.	
34) Toluene	14.25	91	184904	872.617 pg	100
35) Dibromochloromethane	14.66	129	319	5.437 pg	94
36) 1,2-Dibromoethane	14.92	107	97	N.D.	
37) Tetrachloroethene	15.40	166	4781	77.655 pg	97
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	38433	188.617 pg	99
41) m,p-Xylene	16.65	91	93166	609.592 pg	100
42) Styrene	17.01	104	7127	66.561 pg	97
43) o-Xylene	17.12	106	18751	238.824 pg	99
44) 1,1,2,2-Tetrachloroethane	17.12	83	358	N.D.	
46) 1,3,5-Trimethylbenzene	18.38	105	8020	49.572 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	29250	184.198 pg	87
48) 1,3-Dichlorobenzene	18.92	146	233	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	4586	45.132 pg	98
50) 1,2-Dichlorobenzene	19.31	146	308	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.94	182	188	N.D.	
53) Naphthalene	21.06	128	12651	67.673 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 03 11:20:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

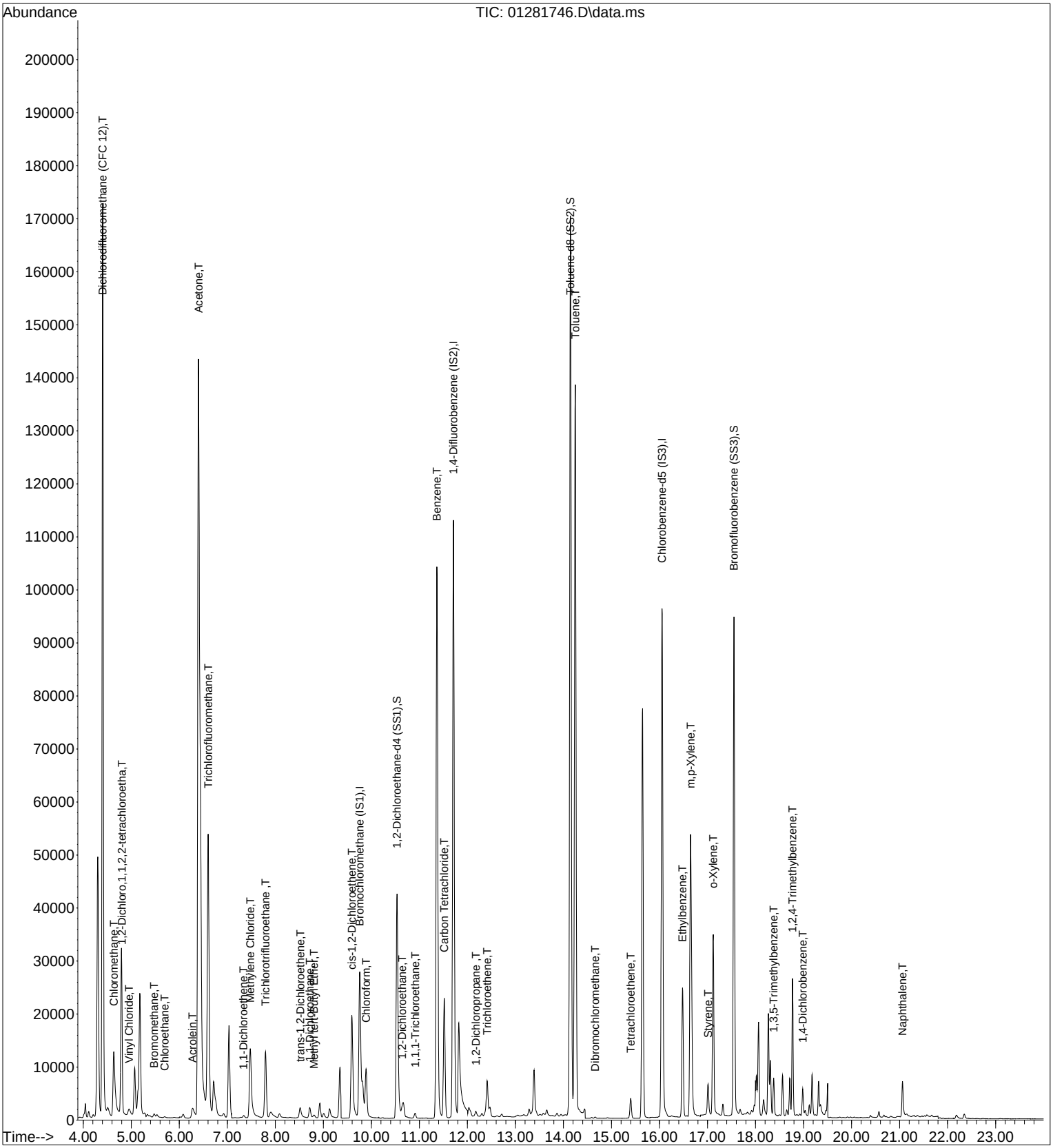
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	73	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

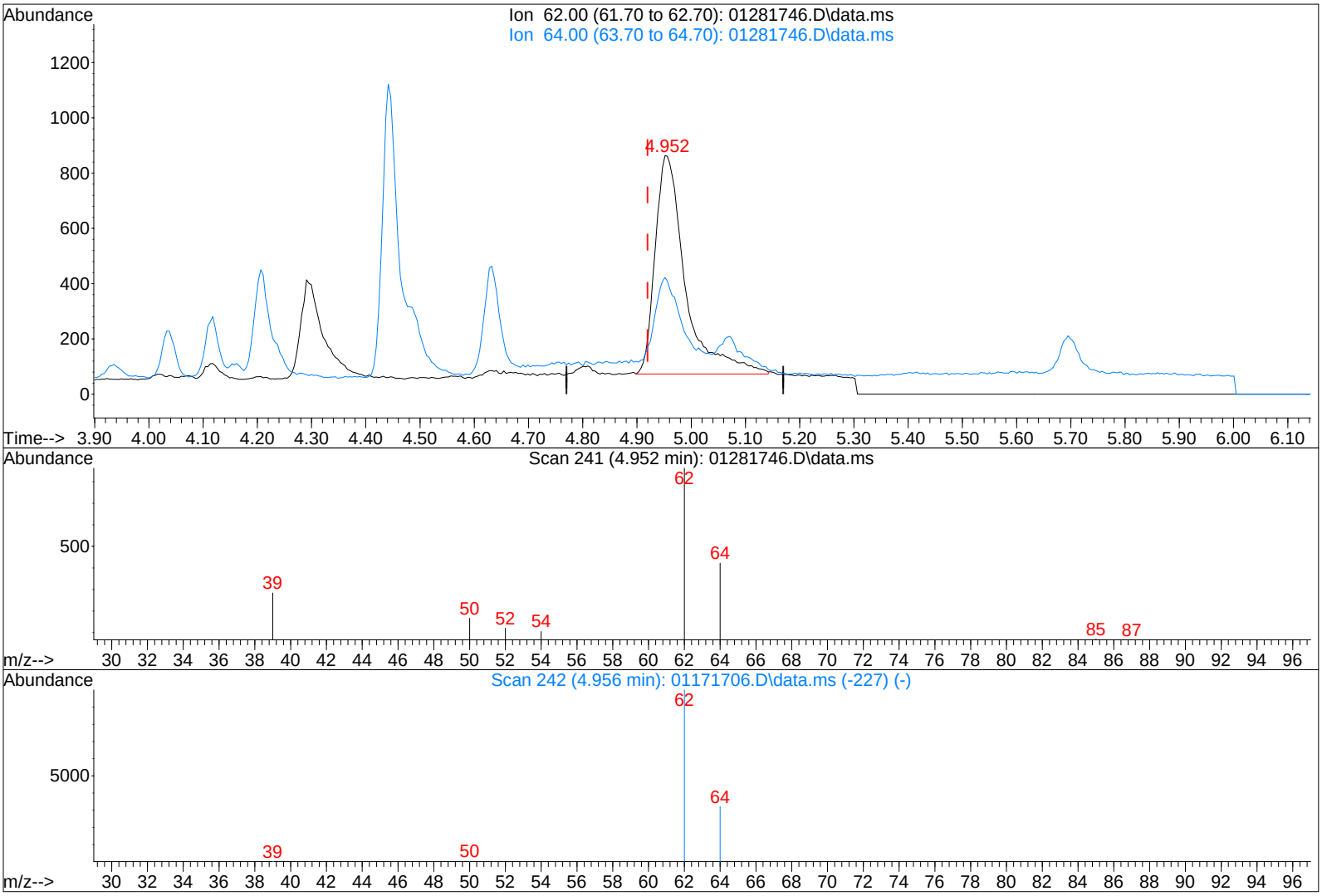
Quant Time: Feb 03 11:20:58 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281746.D\data.ms

(5) Vinyl Chloride (T)

4.952min (+0.032) 26.68pg

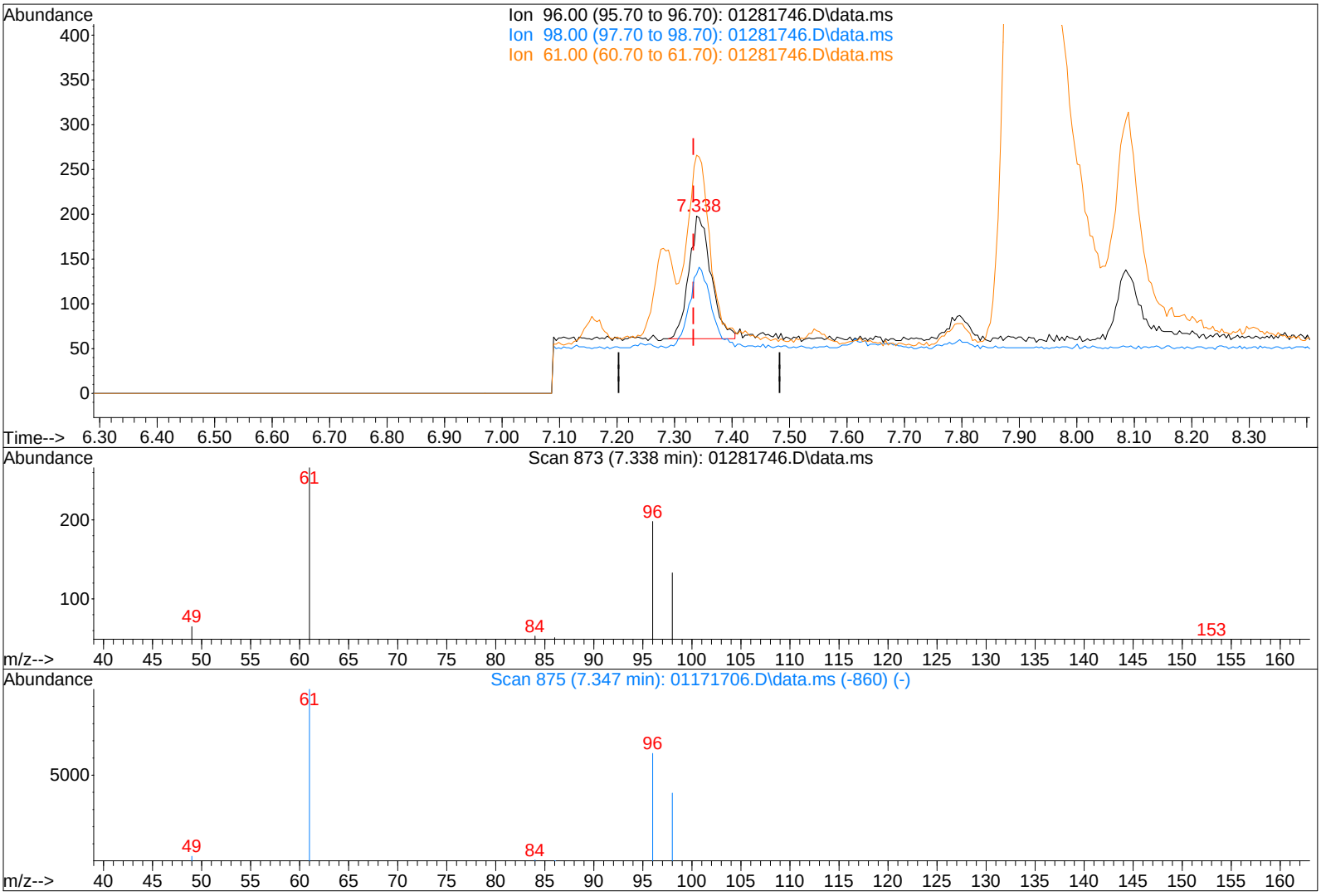
response 3057

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	35.33
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281746.D\data.ms

(12) 1,1-Dichloroethene (T)

7.338min (+0.005) 7.16pg

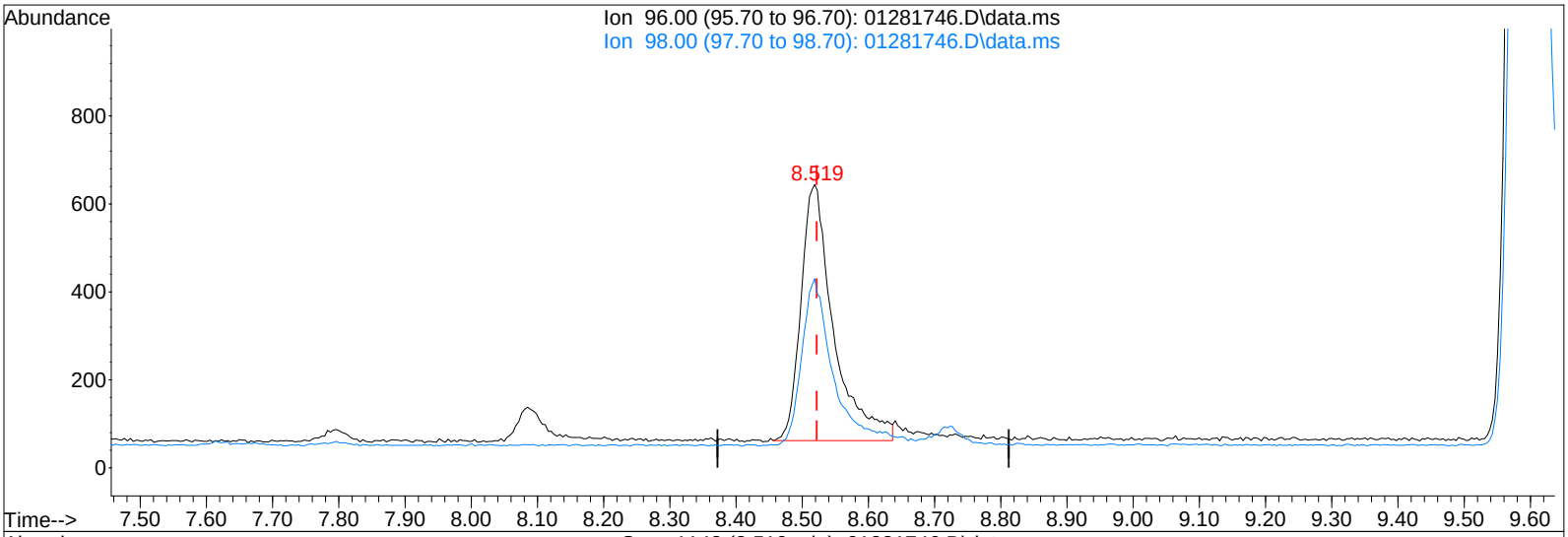
response 368

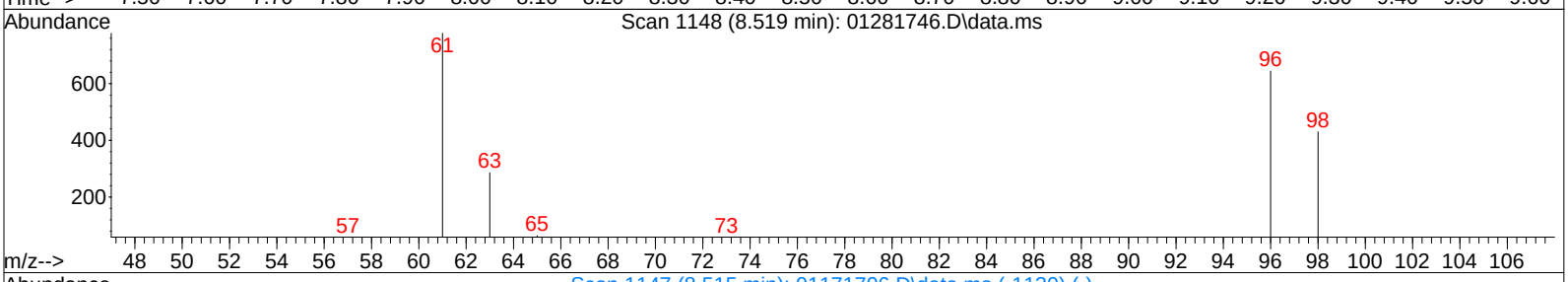
Ion	Exp%	Act%
96.00	100	100
98.00	63.50	63.59
61.00	162.10	140.76#
0.00	0.00	0.00

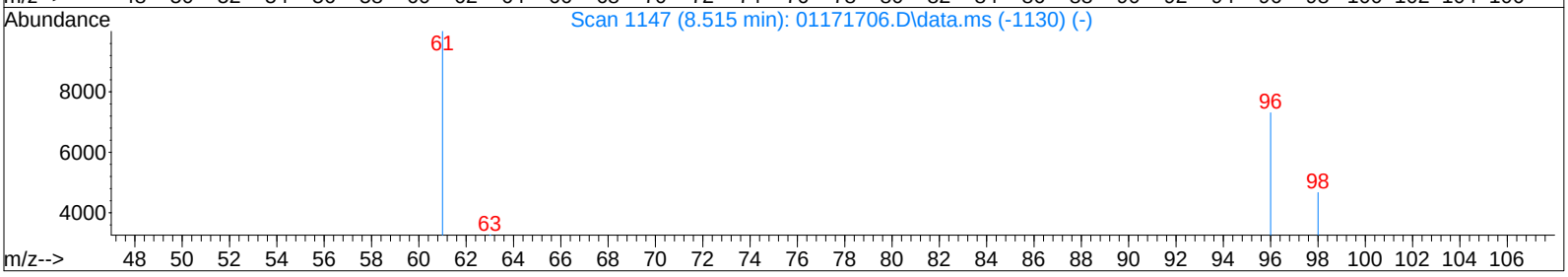
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281746.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.519min (-0.003) 36.01pg

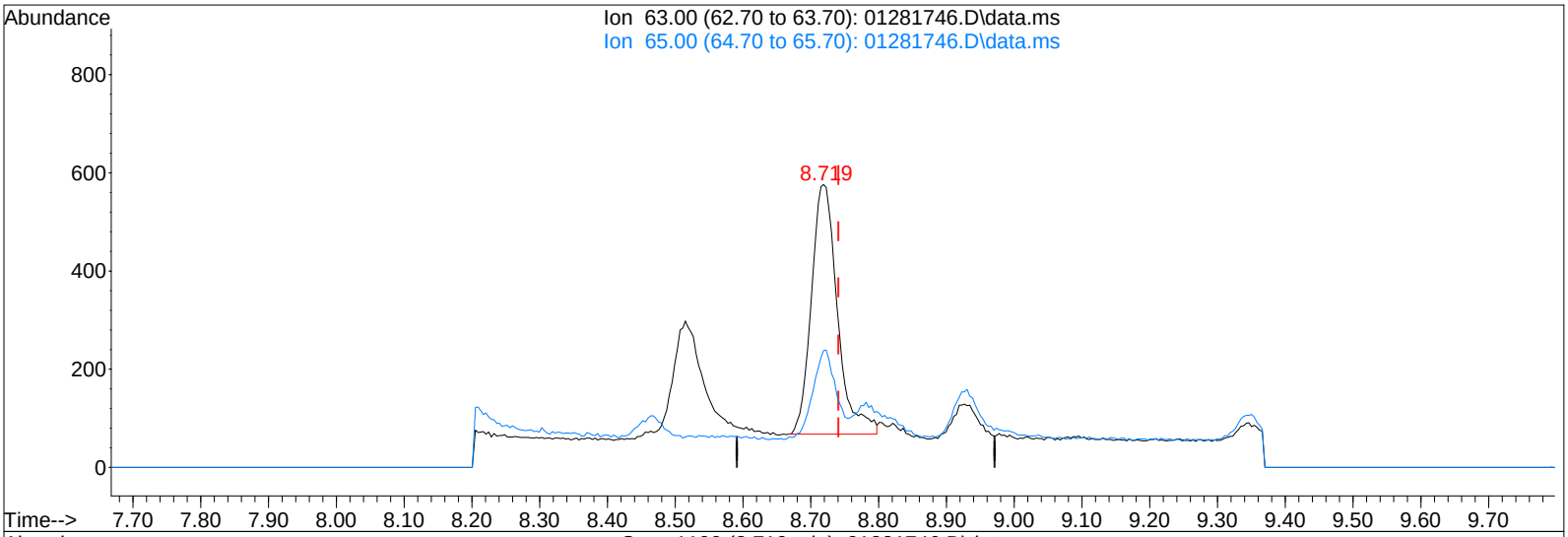
response 1994

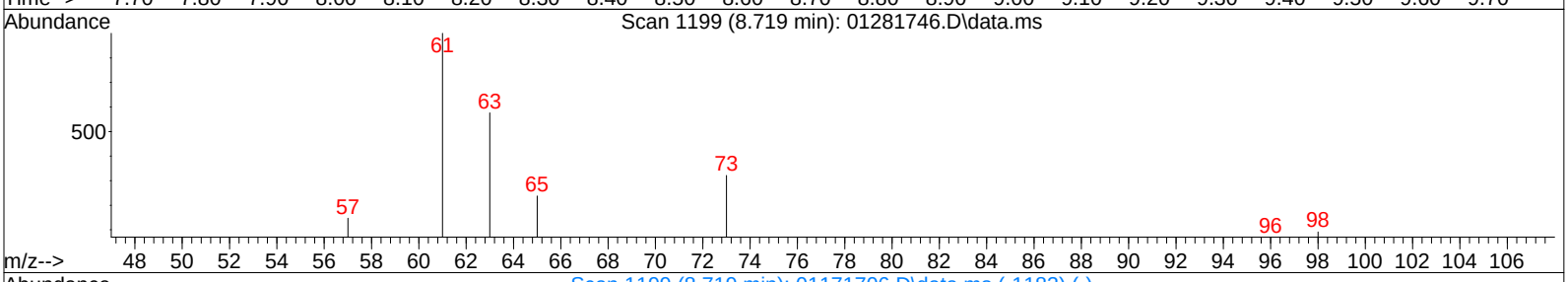
Ion	Exp%	Act%
96.00	100	100
98.00	61.90	62.89
0.00	0.00	0.00
0.00	0.00	0.00

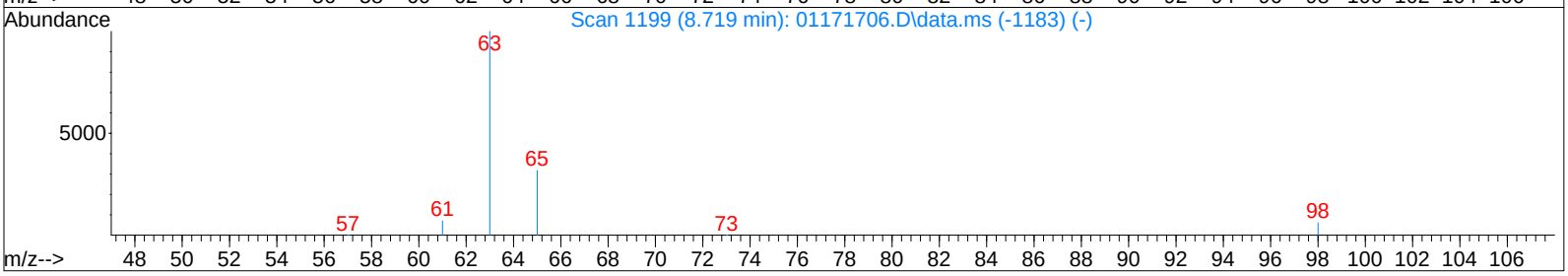
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281746.D\data.ms

(16) 1,1-Dichloroethane (T)

8.719min (-0.022) 13.84pg

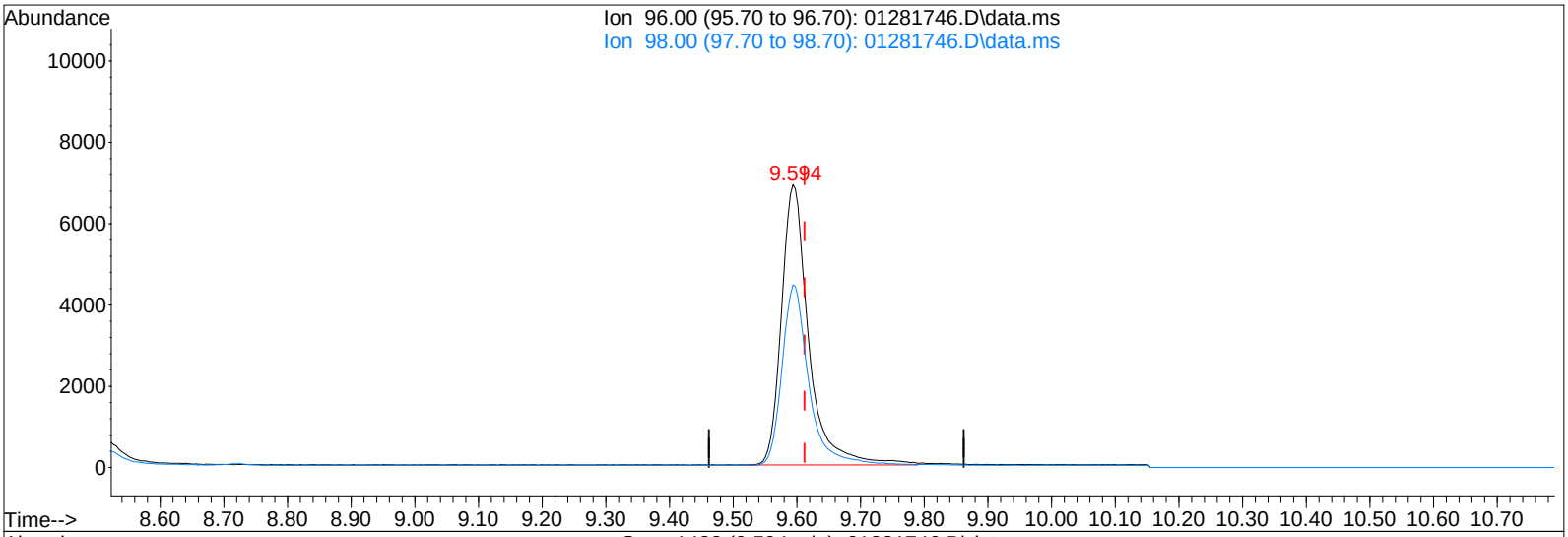
response 1360

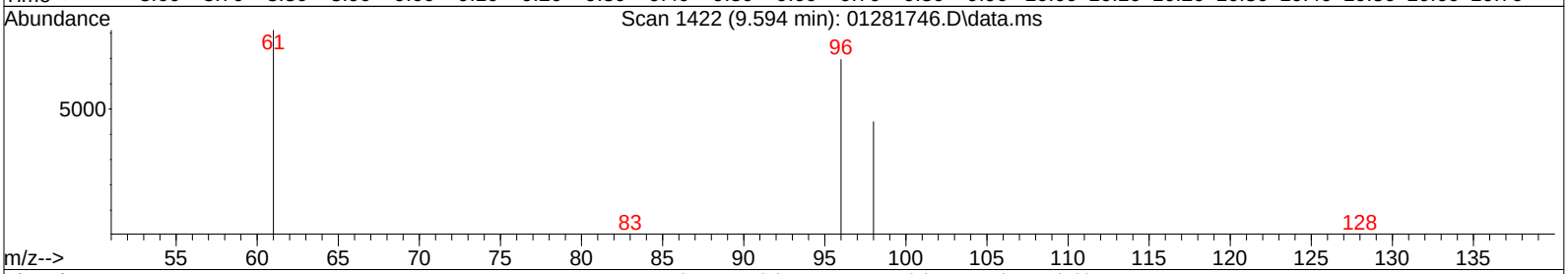
Ion	Exp%	Act%
63.00	100	100
65.00	31.70	30.66
0.00	0.00	0.00
0.00	0.00	0.00

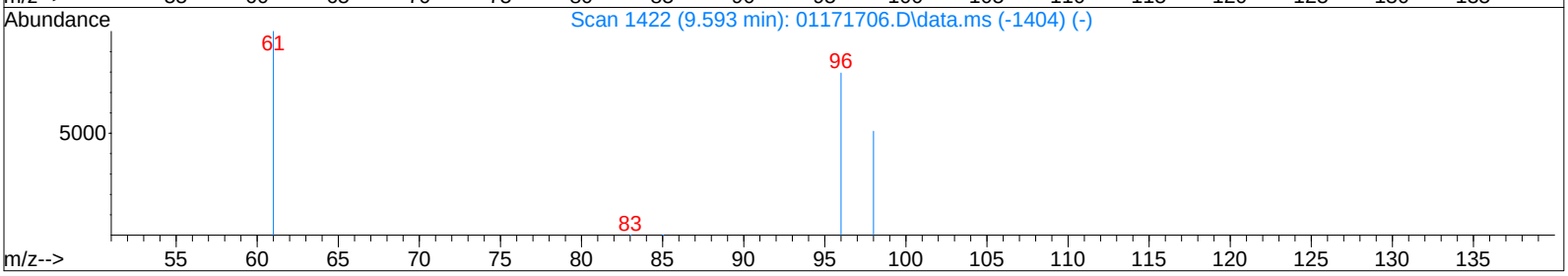
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281746.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.018) 353.83pg

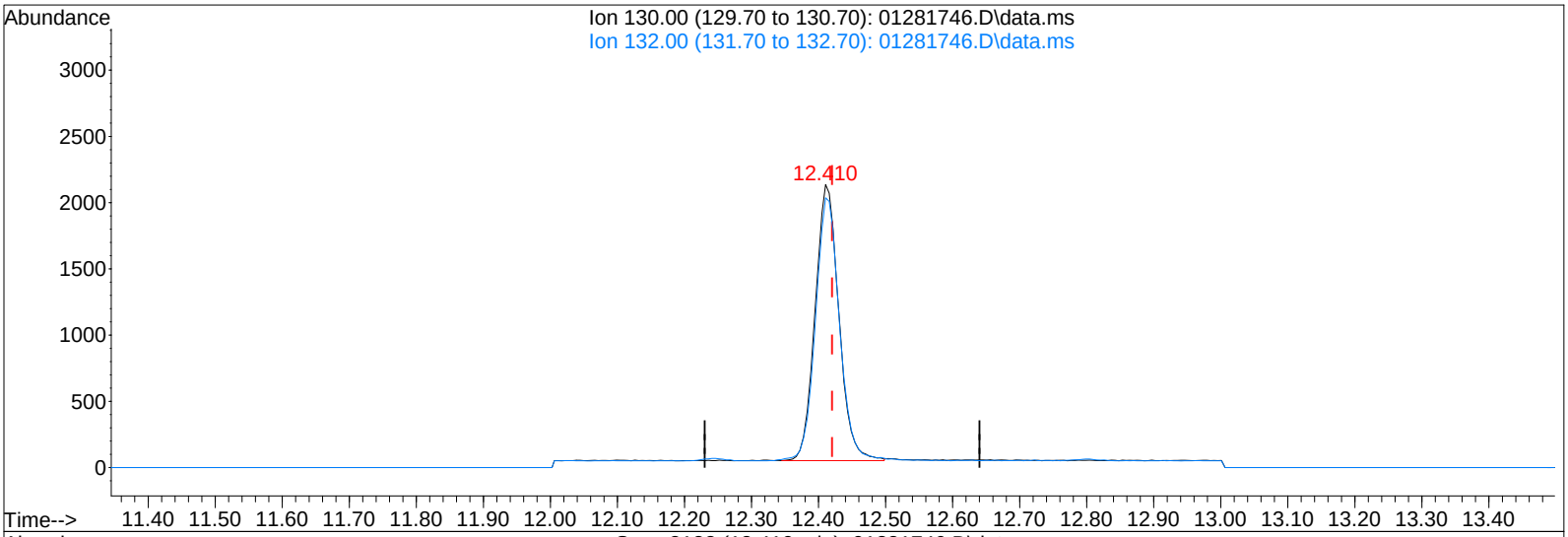
response 20560

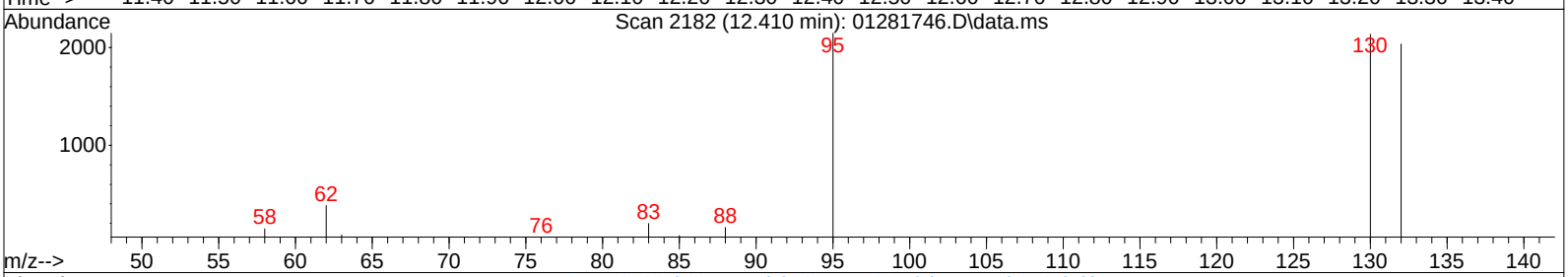
Ion	Exp%	Act%
96.00	100	100
98.00	63.80	63.11
0.00	0.00	0.00
0.00	0.00	0.00

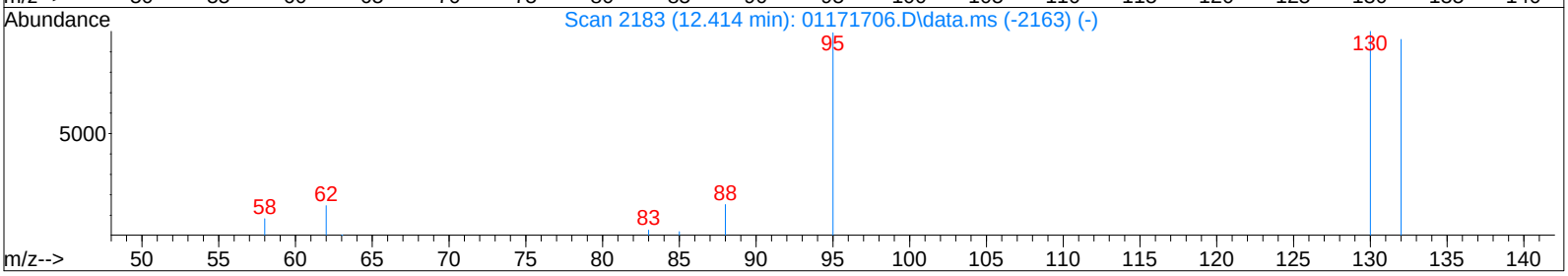
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01281746.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 86.16pg

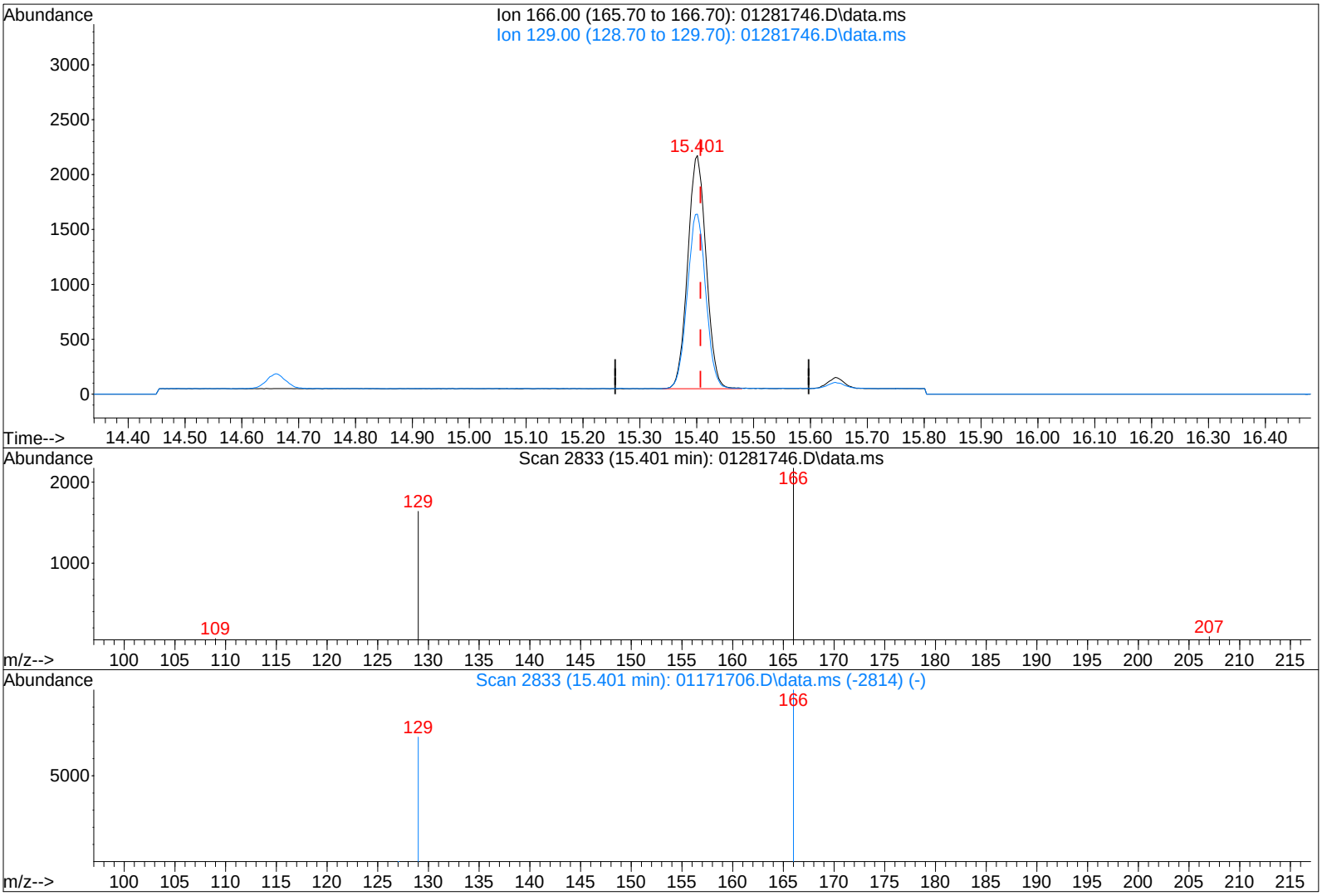
response 5116

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.03
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\28\01281746.D Vial: 13
Acq On : 29 Jan 2017 3:58 Operator: CL
Sample : P1700262-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Jan 29 09:54:59 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01281746.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.006) 77.66pg

response 4781

Ion	Exp%	Act%
166.00	100	100
129.00	72.80	75.38
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 09:28:57 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	40670	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	197229	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33202	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	67557	1059.482	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.95%			
33) Toluene-d8 (SS2)	14.15	98	201924	1018.434	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.84%			
45) Bromofluorobenzene (SS3)	17.55	174	68944	971.688	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.17%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	199730	2080.039	pg	100
3) Chloromethane	4.64	52	5521	257.059	pg	91
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	7182	79.226	pg	100
5) Vinyl Chloride	4.96	62	1582	18.669	pg	95
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.47	94	1042	31.016	pg	91
8) Chloroethane	5.69	64	294	10.999	pg	92
9) Acrolein	6.26	56	7263	330.533	pg	93
10) Acetone	6.39	58	221637	8126.391	pg	# 79
11) Trichlorofluoromethane	6.60	101	71408	966.310	pg	100
12) 1,1-Dichloroethene	7.34	96	553	12.760	pg	92
13) Methylene Chloride	7.48	84	38263	856.593	pg	90
14) Trichlorotrifluoroethane	7.80	151	22374	502.778	pg	100
15) trans-1,2-Dichloroethene	8.51	96	2786	63.606	pg	99
16) 1,1-Dichloroethane	8.72	63	1430	18.816	pg	99
17) Methyl tert-Butyl Ether	8.80	73	1043	7.470	pg	72
18) cis-1,2-Dichloroethene	9.59	96	12027	254.881	pg	100
19) Chloroform	9.89	83	74427	905.993	pg	99
21) 1,2-Dichloroethane	10.64	62	15323	253.471	pg	100
22) 1,1,1-Trichloroethane	10.91	97	6084	78.609	pg	100
23) Benzene	11.37	78	134630	754.253	pg	100
24) Carbon Tetrachloride	11.52	117	27061	375.413	pg	100
26) 1,2-Dichloropropane	12.18	63	860	19.590	pg	85
27) Bromodichloromethane	12.35	83	10494	164.003	pg	91
28) Trichloroethene	12.41	130	29307	581.425	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	13.26	75	172	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.94	83	150	N.D.		
34) Toluene	14.25	91	261916	1386.277	pg	100
35) Dibromochloromethane	14.66	129	1654	30.156	pg	100
36) 1,2-Dibromoethane	14.92	107	54	N.D.		
37) Tetrachloroethene	15.40	166	7704	143.036	pg	98
39) Chlorobenzene	0.00	112	0	N.D.	d	
40) Ethylbenzene	16.48	91	52103	248.382	pg	99
41) m,p-Xylene	16.65	91	118309	723.330	pg	99
42) Styrene	17.01	104	8914	71.134	pg	87
43) o-Xylene	17.12	106	22511	276.851	pg	98
44) 1,1,2,2-Tetrachloroethane	17.12	83	357	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	10136	57.454	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	31690	178.428	pg	87
48) 1,3-Dichlorobenzene	18.92	146	940	9.637	pg	99
49) 1,4-Dichlorobenzene	18.99	146	1872	18.185	pg	99
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.	d	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.95	182	130	N.D.		
53) Naphthalene	21.08	128	1932	8.645	pg	88

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 09:28:57 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

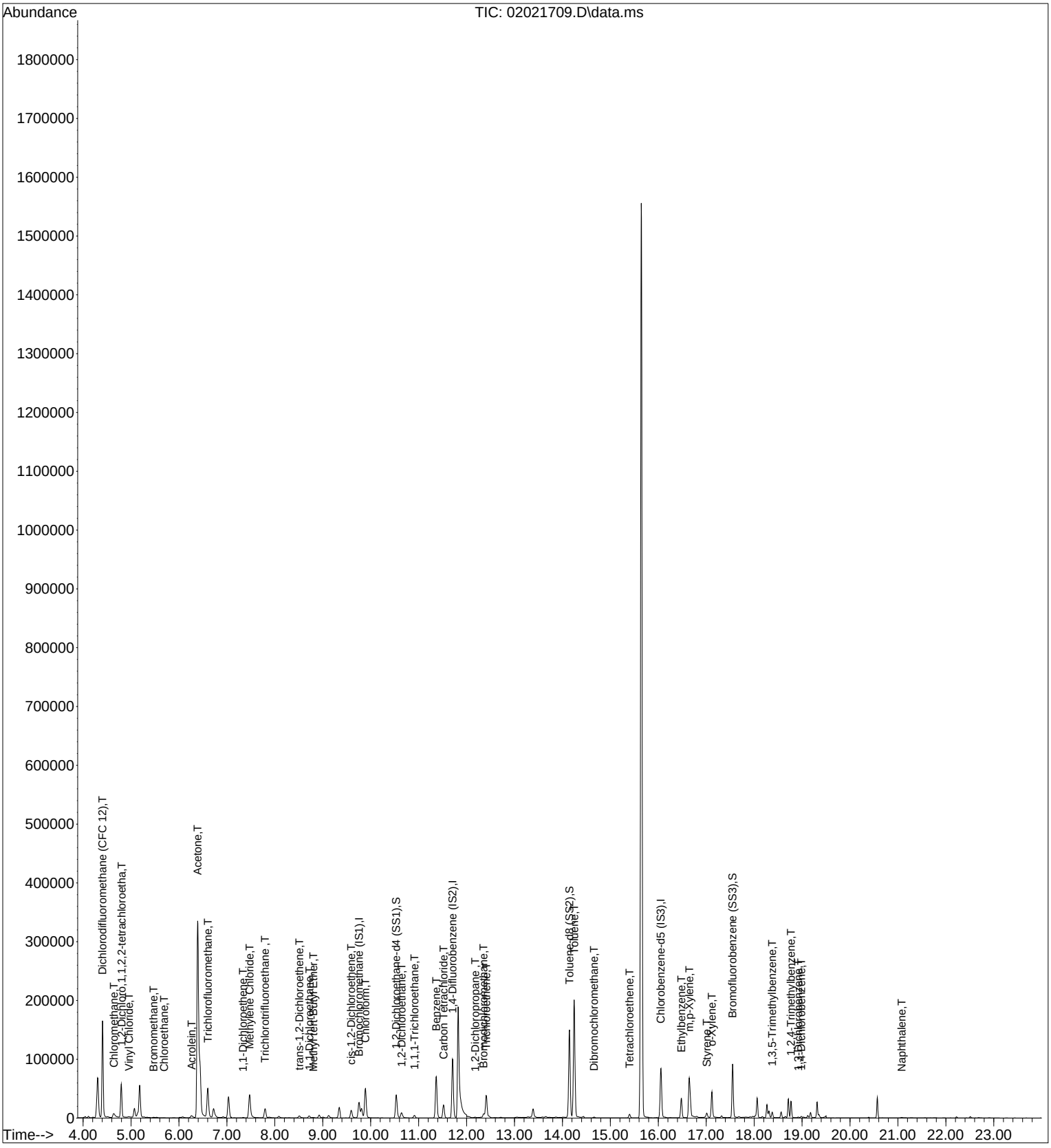
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

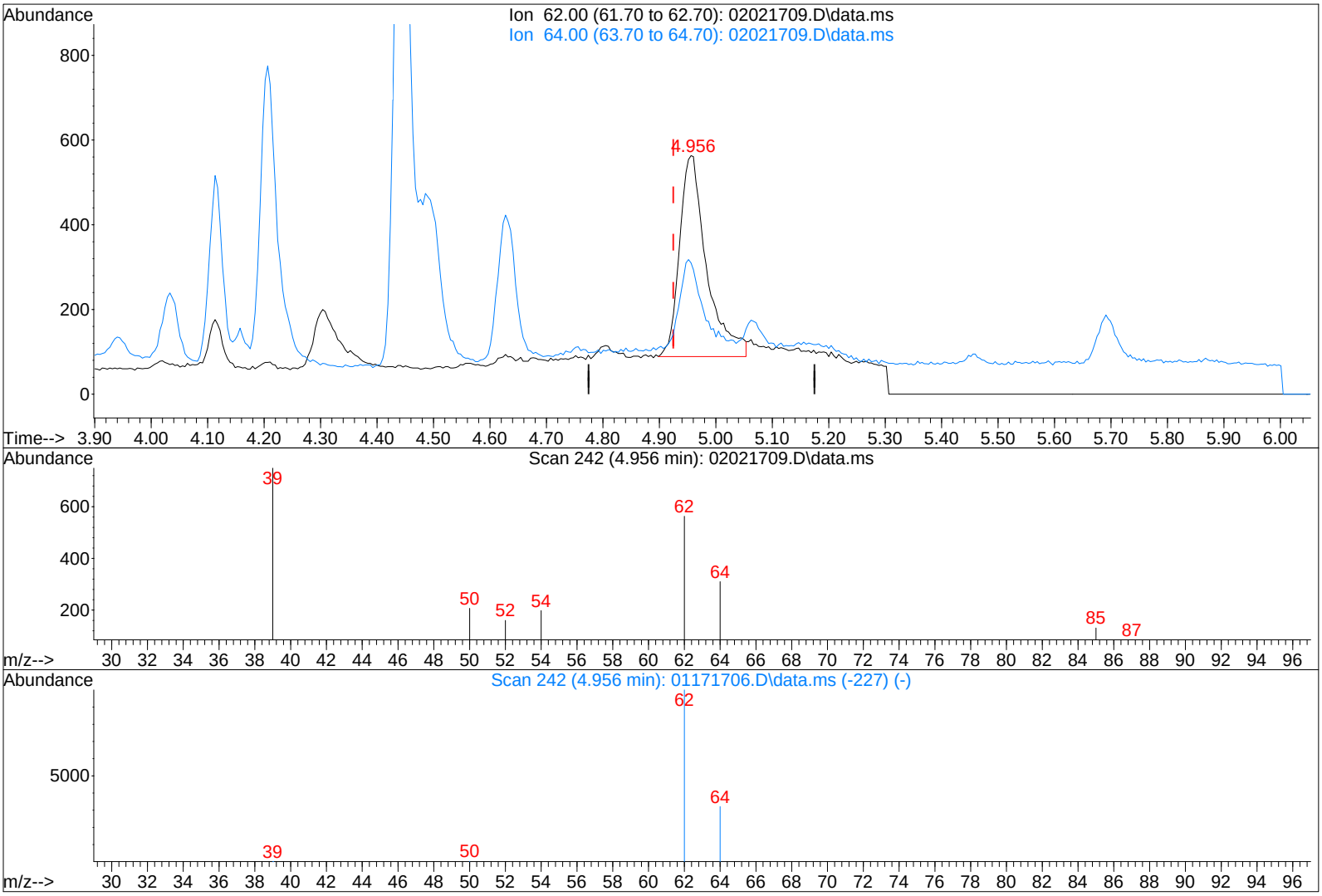
Quant Time: Feb 02 09:28:57 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(5) Vinyl Chloride (T)

4.956min (+0.031) 18.67pg

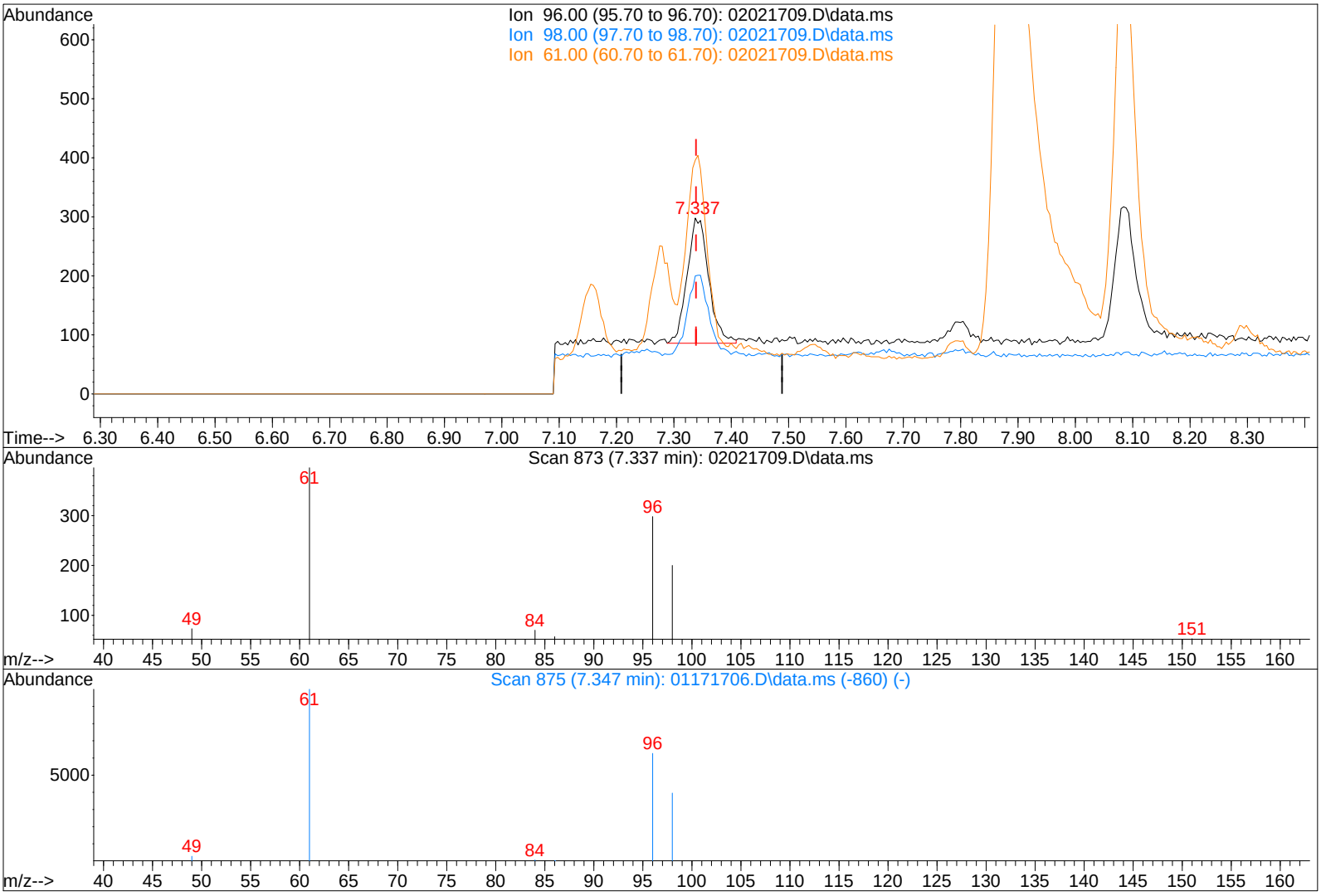
response 1582

Ion	Exp%	Act%
62.00	100	100
64.00	32.10	34.77
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(12) 1,1-Dichloroethene (T)

7.337min (-0.001) 12.76pg

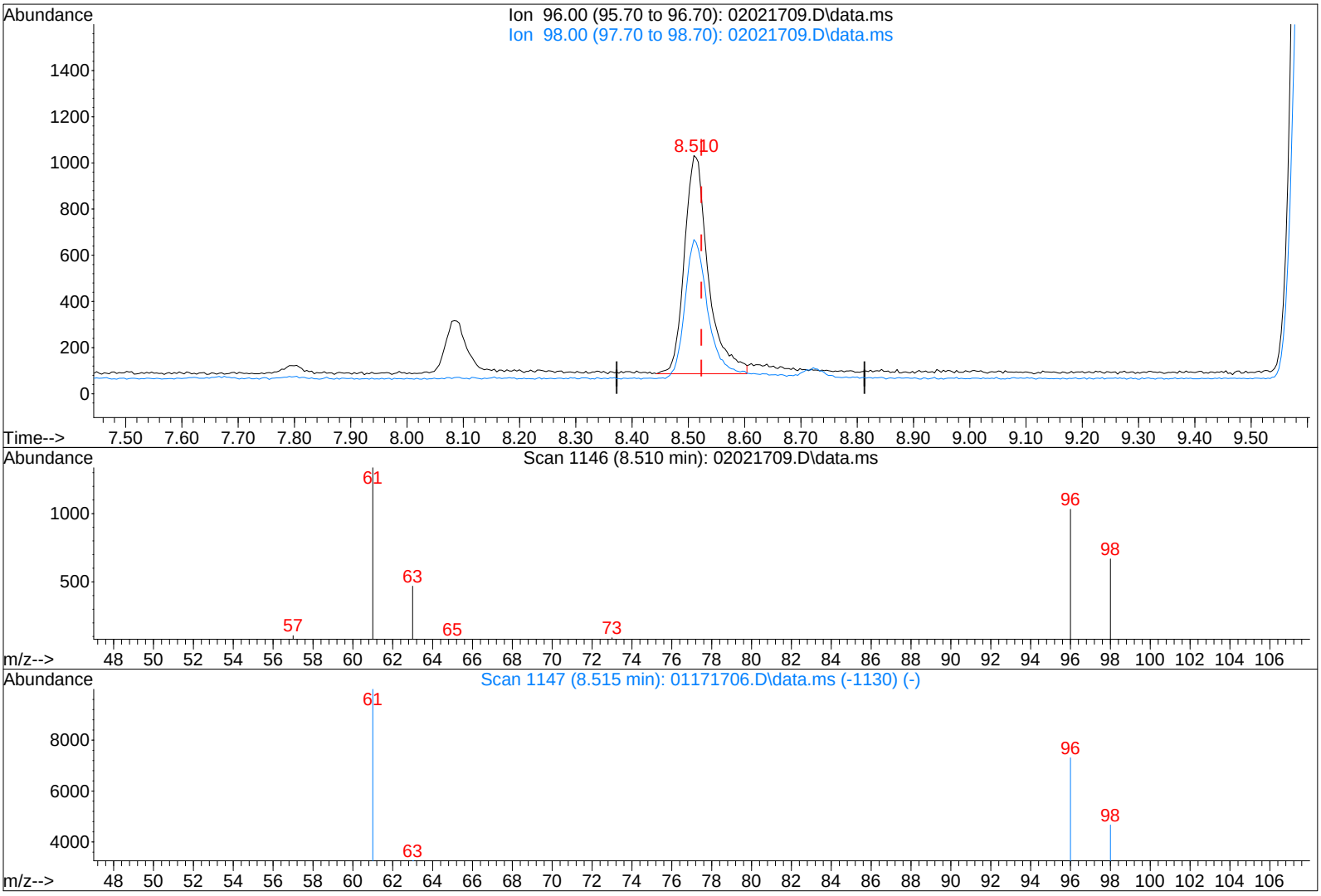
response 553

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	61.66
61.00	158.20	145.03
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.510min (-0.013) 63.61pg

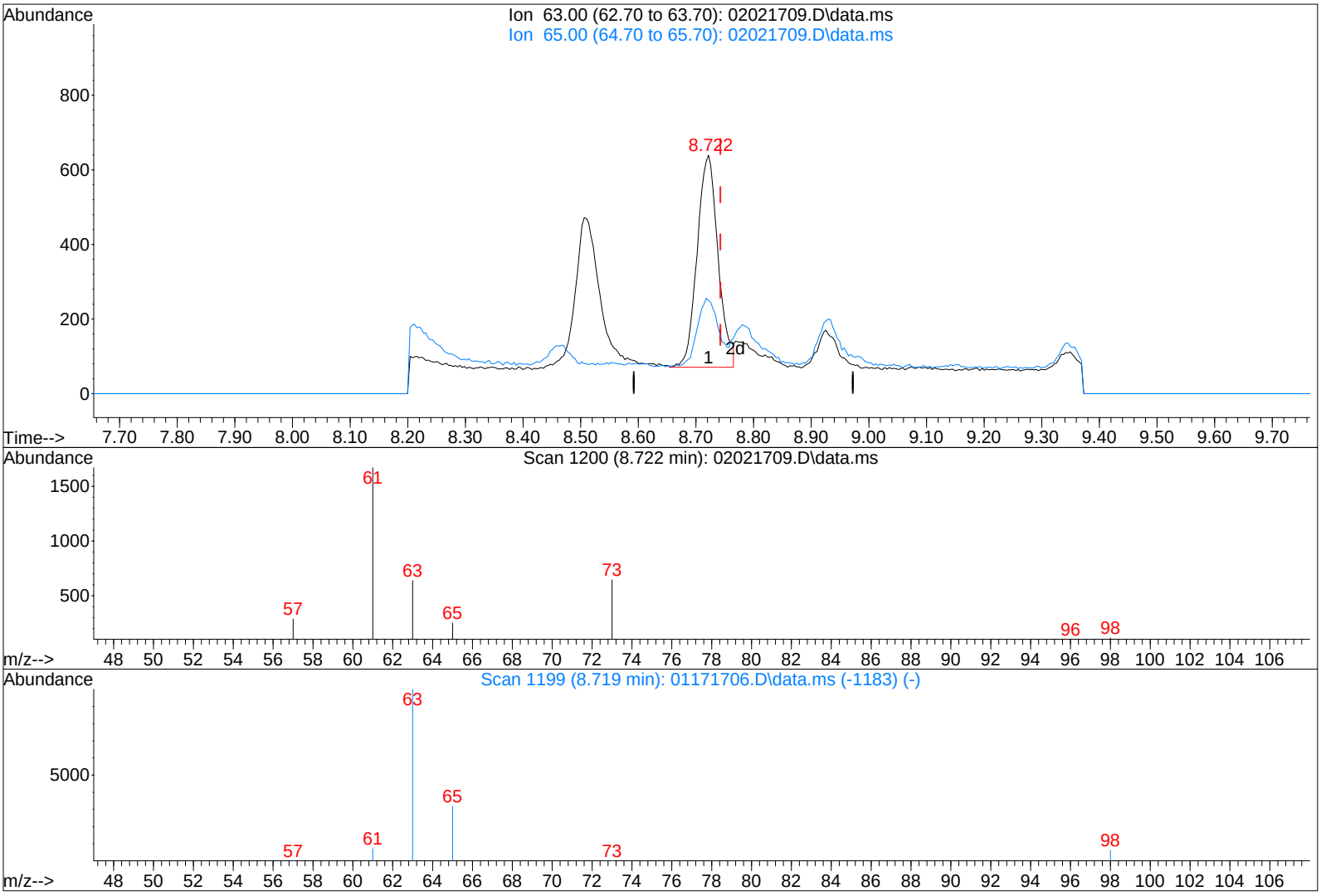
response 2786

Ion	Exp%	Act%
96.00	100	100
98.00	62.90	61.92
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(16) 1,1-Dichloroethane (T)

8.722min (-0.021) 18.82pg

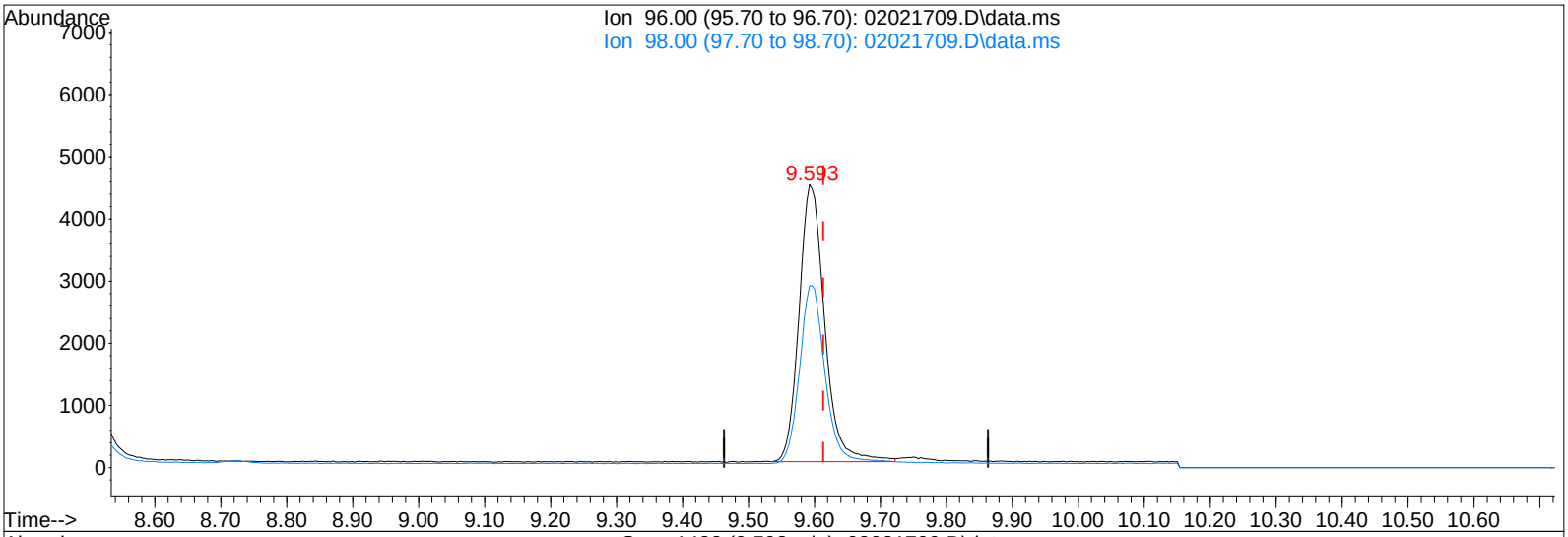
response 1430

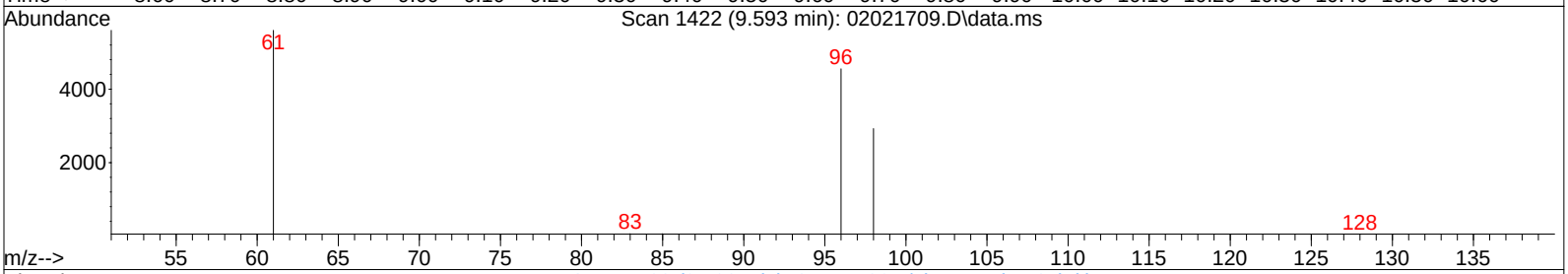
Ion	Exp%	Act%
63.00	100	100
65.00	31.60	32.24
0.00	0.00	0.00
0.00	0.00	0.00

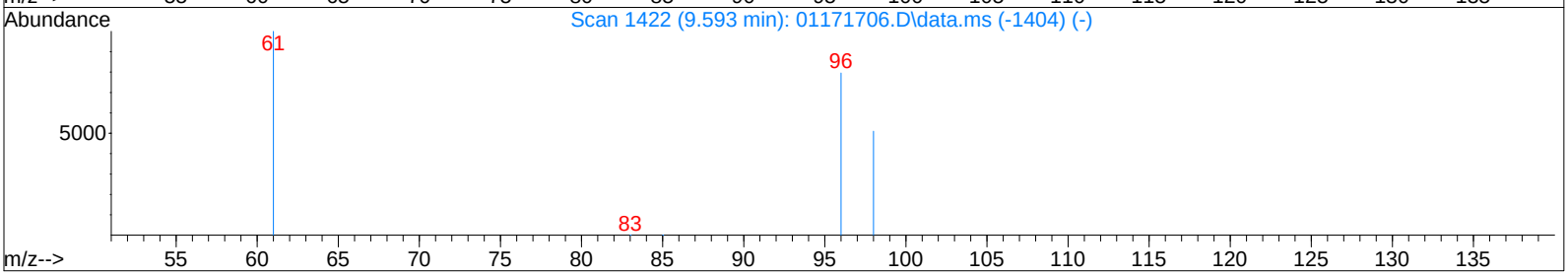
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02021709.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.593min (-0.021) 254.88pg

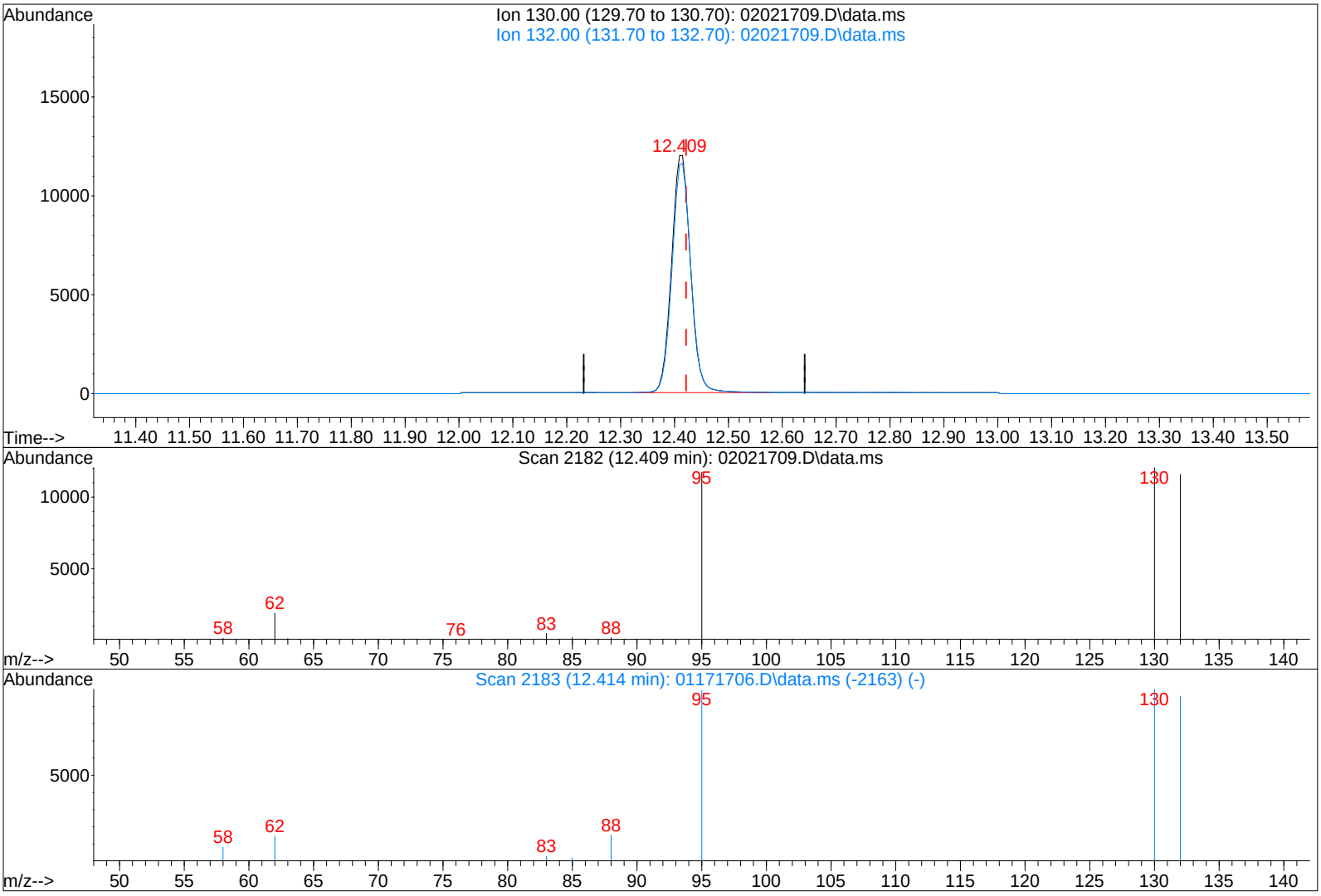
response 12027

Ion	Exp%	Act%
96.00	100	100
98.00	64.10	64.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(28) Trichloroethene (T)

12.409min (-0.012) 581.42pg

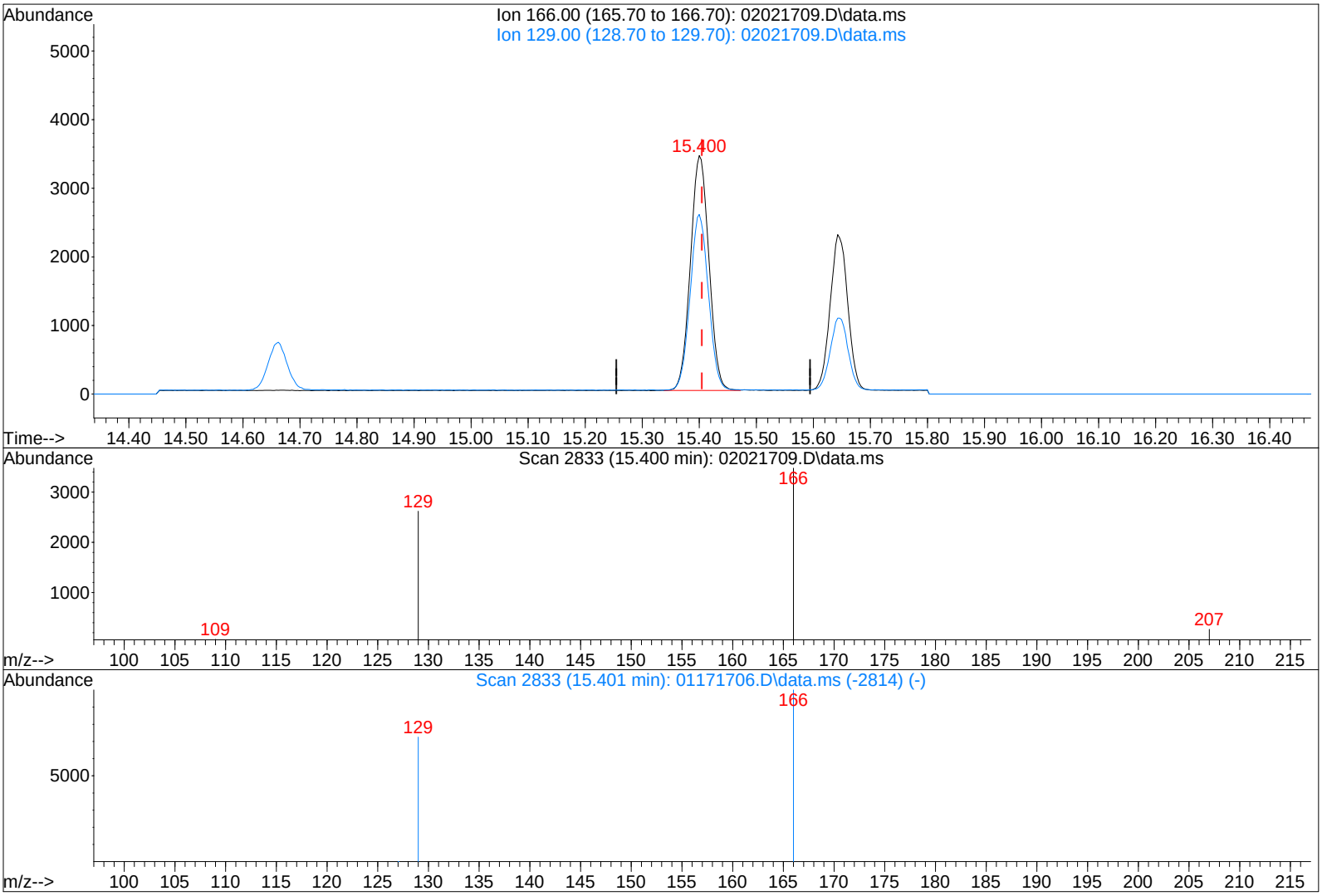
response 29307

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	96.59
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021709.D Vial: 10
Acq On : 2 Feb 2017 6:35 Operator: CL
Sample : P1700262-015 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 07:12:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021709.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.005) 143.04pg

response 7704

Ion	Exp%	Act%
166.00	100	100
129.00	72.30	74.30
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:15:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	40476	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	196875	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33223	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	66932	1054.711	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.47%			
33) Toluene-d8 (SS2)	14.15	98	202073	1021.018	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.10%			
45) Bromofluorobenzene (SS3)	17.55	174	69005	971.933	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.19%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	205996	2155.577	pg	100
3) Chloromethane	4.64	52	6071	284.022	pg	92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8298	91.976	pg	100
5) Vinyl Chloride	4.95	62	410	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.	d	
7) Bromomethane	5.47	94	877	26.230	pg	90
8) Chloroethane	5.68	64	387	14.548	pg	88
9) Acrolein	6.25	56	8193	374.644	pg	94
10) Acetone	6.38	58	966381	35602.494	pg	98
11) Trichlorofluoromethane	6.60	101	80416	1093.425	pg	100
12) 1,1-Dichloroethene	7.33	96	127	N.D.		
13) Methylene Chloride	7.47	84	16382	368.501	pg	94
14) Trichlorotrifluoroethane	7.79	151	18085	408.346	pg	100
15) trans-1,2-Dichloroethene	8.51	96	2445	56.088	pg	99
16) 1,1-Dichloroethane	8.72	63	614	8.118	pg	94
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
18) cis-1,2-Dichloroethene	9.60	96	2337	49.764	pg	99
19) Chloroform	9.89	83	20821	254.667	pg	98
21) 1,2-Dichloroethane	10.64	62	6624	110.099	pg	98
22) 1,1,1-Trichloroethane	10.91	97	1407	18.267	pg	99
23) Benzene	11.37	78	118255	665.689	pg	100
24) Carbon Tetrachloride	11.52	117	29635	413.092	pg	100
26) 1,2-Dichloropropane	12.17	63	978	22.318	pg	88
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.41	130	6204	123.303	pg	98
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.95	83	118	N.D.		
34) Toluene	14.25	91	206408	1094.447	pg	100
35) Dibromochloromethane	14.66	129	767	14.009	pg	98
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	2852	53.047	pg	98
39) Chlorobenzene	16.11	112	711	5.667	pg	80
40) Ethylbenzene	16.48	91	43344	206.496	pg	99
41) m,p-Xylene	16.65	91	101703	621.410	pg	99
42) Styrene	17.01	104	10737	85.627	pg	96
43) o-Xylene	17.12	106	19786	243.184	pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.38	105	10597	60.029	pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	36797	207.052	pg	86
48) 1,3-Dichlorobenzene	18.92	146	80	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	5155	50.046	pg	99
50) 1,2-Dichlorobenzene	19.31	146	3240	32.912	pg	99
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	66	N.D.		
53) Naphthalene	21.06	128	13895	62.136	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:15:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

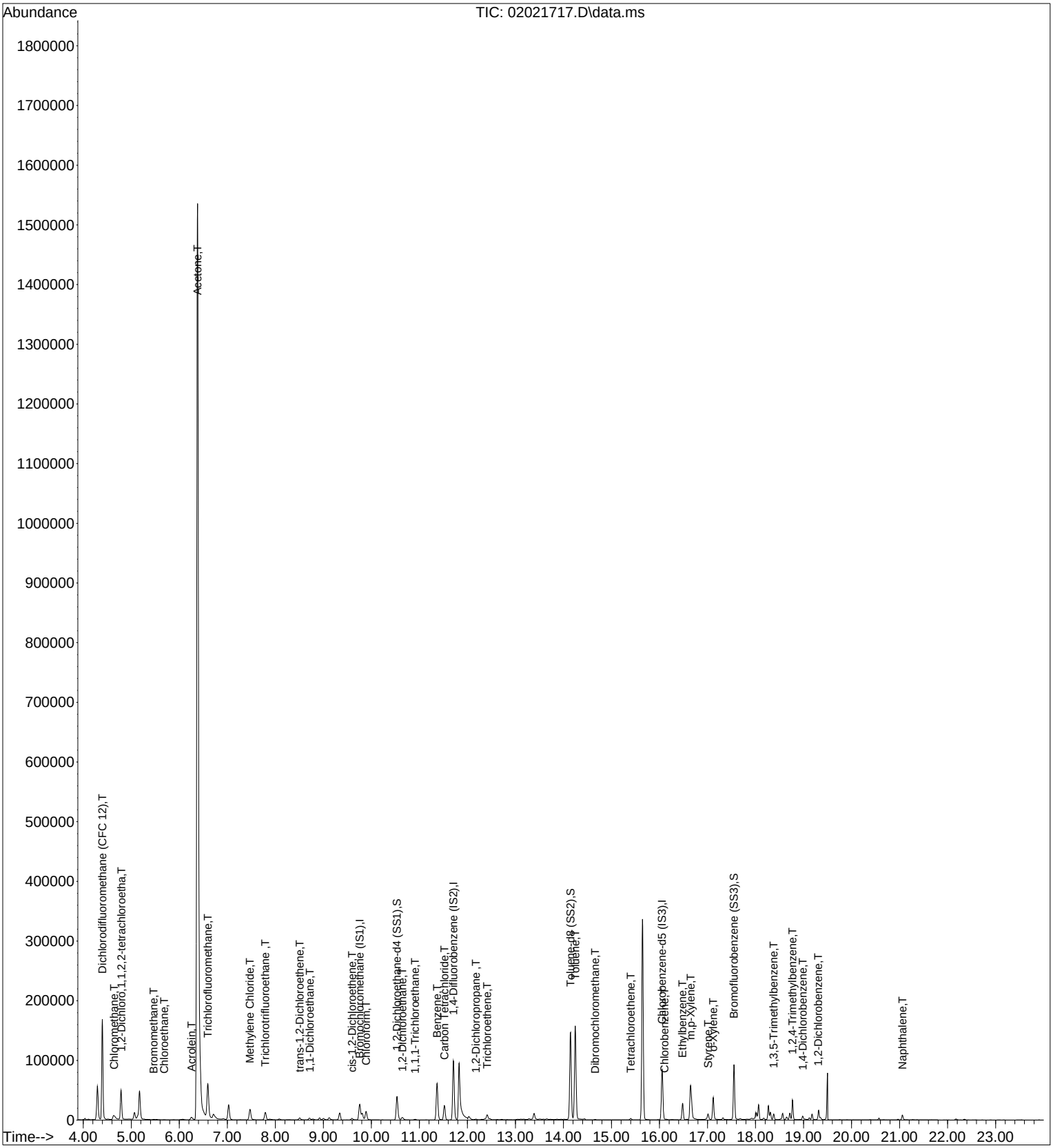
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

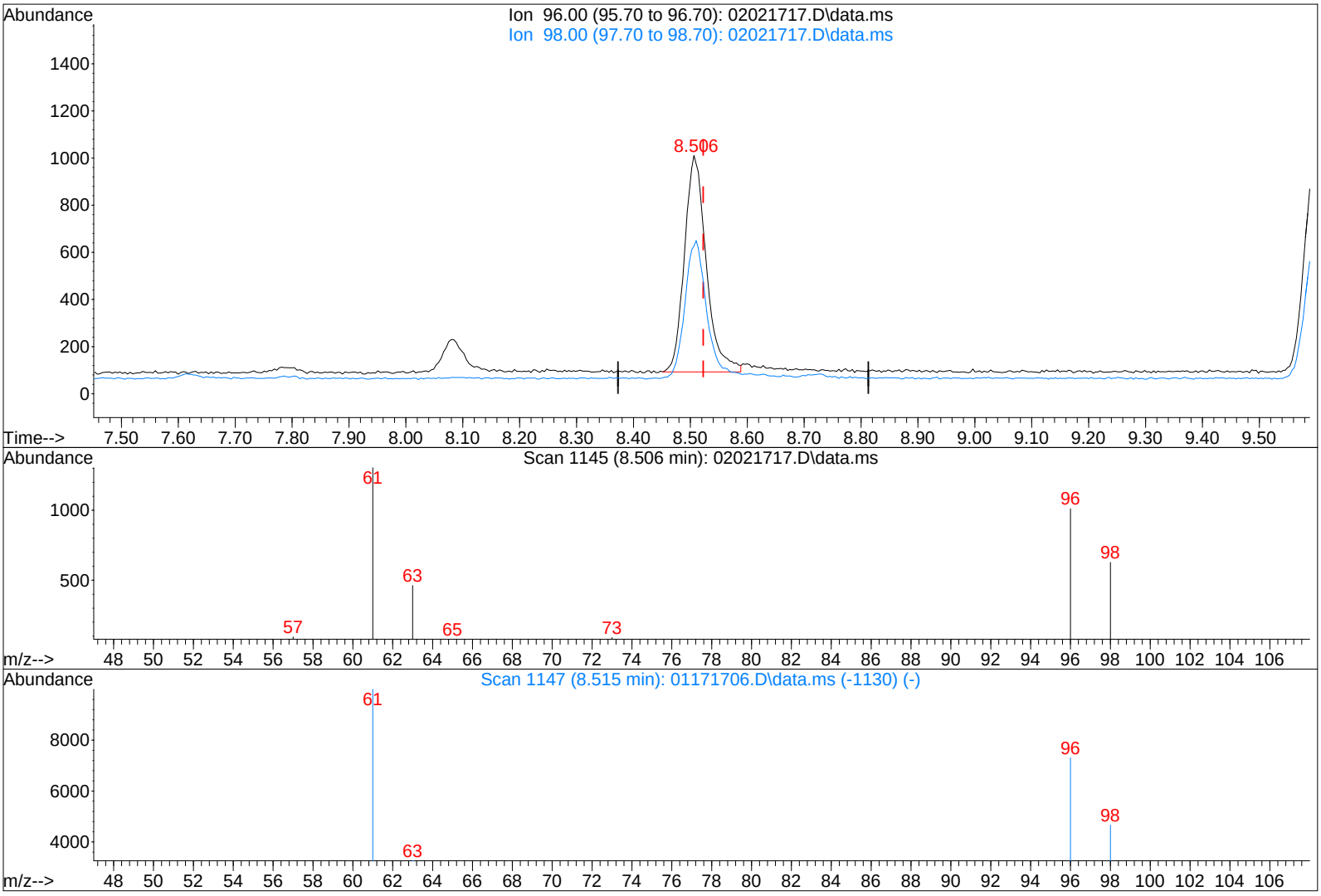
Quant Time: Feb 02 12:15:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:13:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021717.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.506min (-0.017) 56.09pg

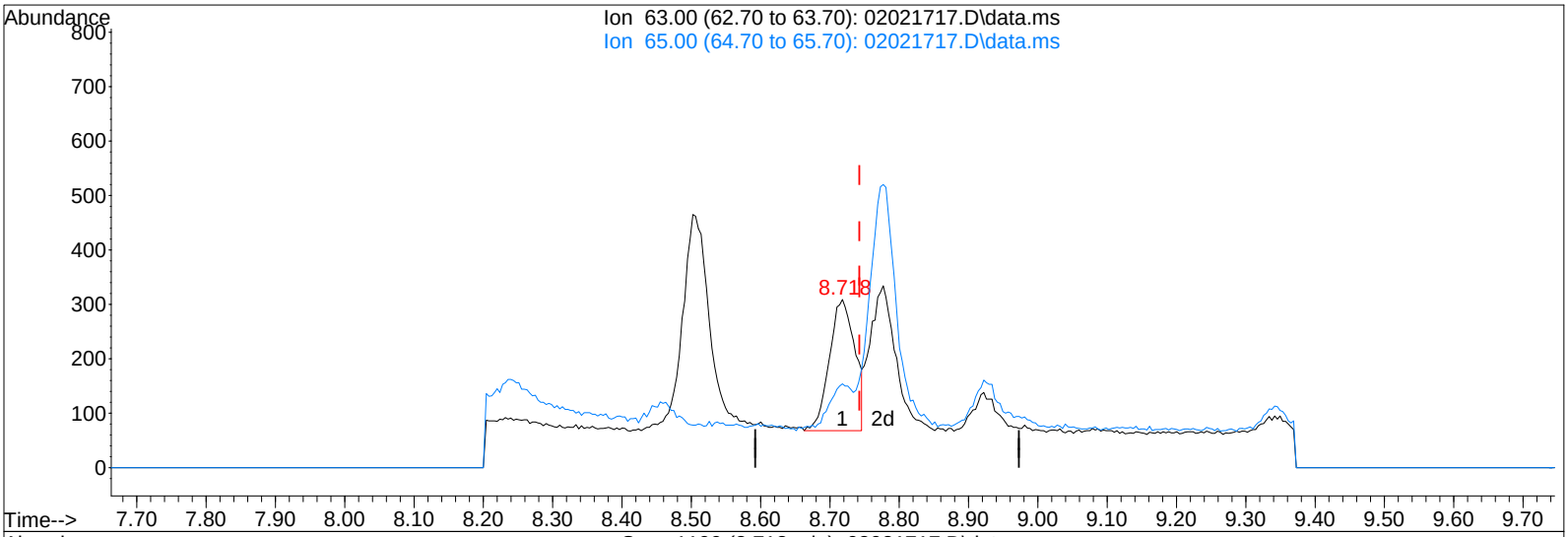
response 2445

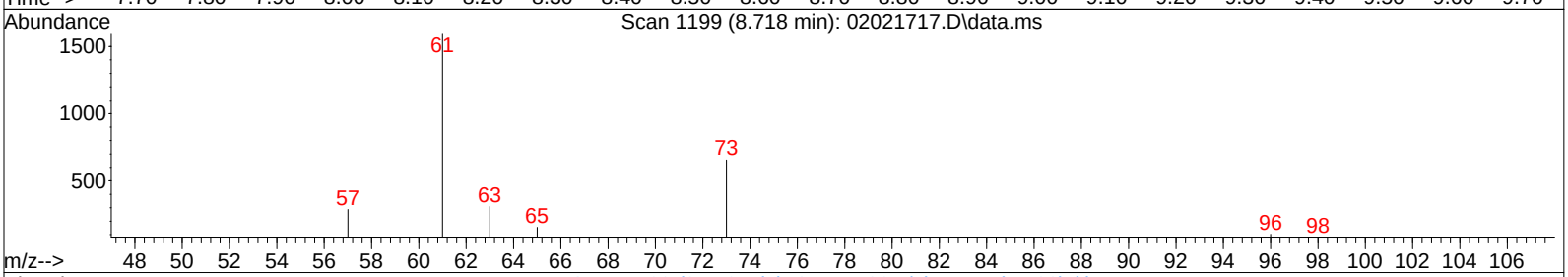
Ion	Exp%	Act%
96.00	100	100
98.00	62.90	64.05
0.00	0.00	0.00
0.00	0.00	0.00

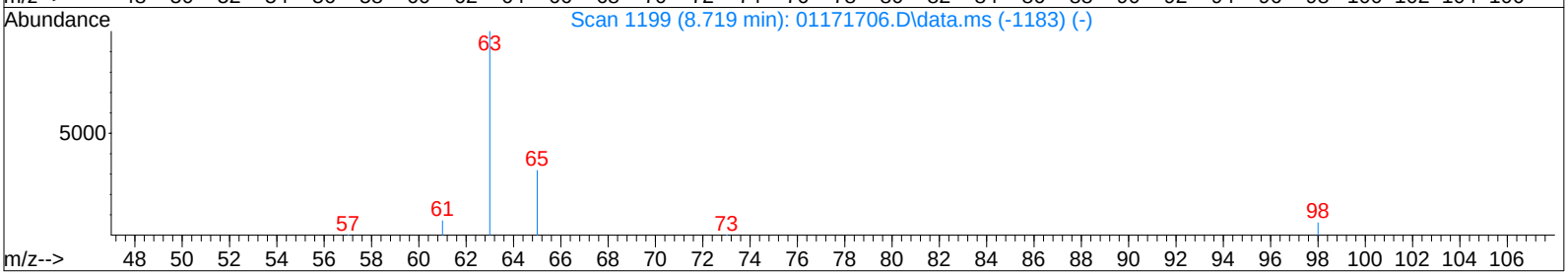
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:13:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02021717.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.024) 8.12pg

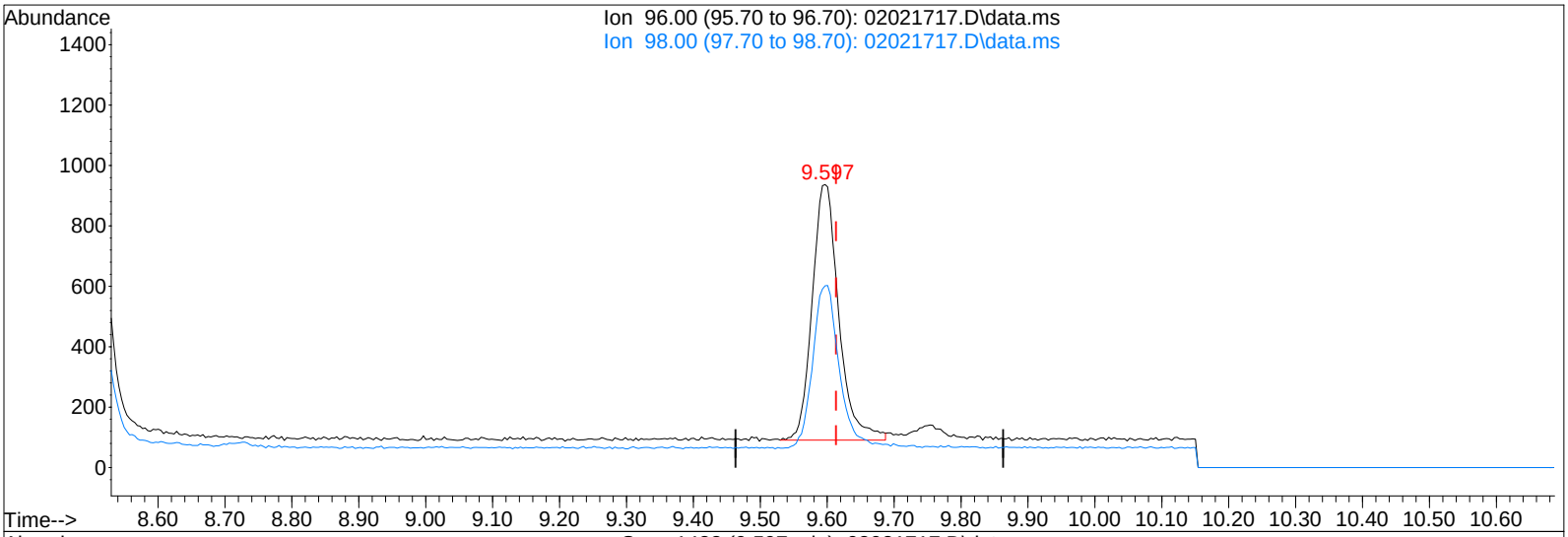
response 614

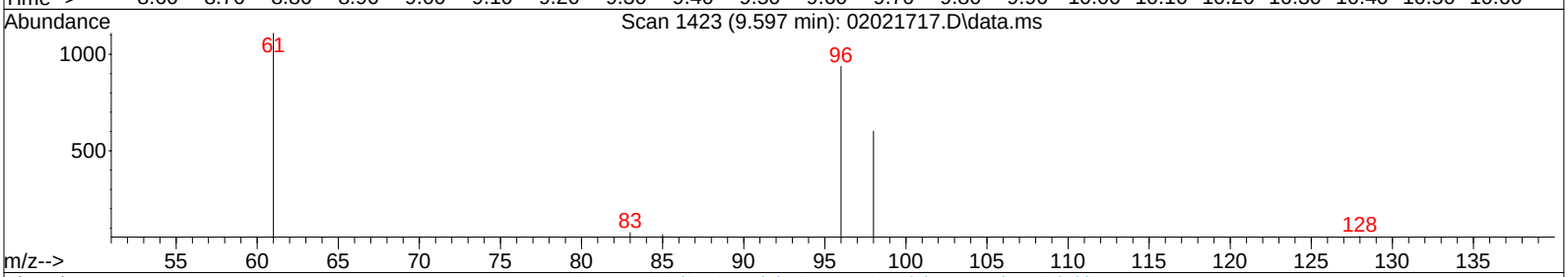
Ion	Exp%	Act%
63.00	100	100
65.00	31.60	28.01
0.00	0.00	0.00
0.00	0.00	0.00

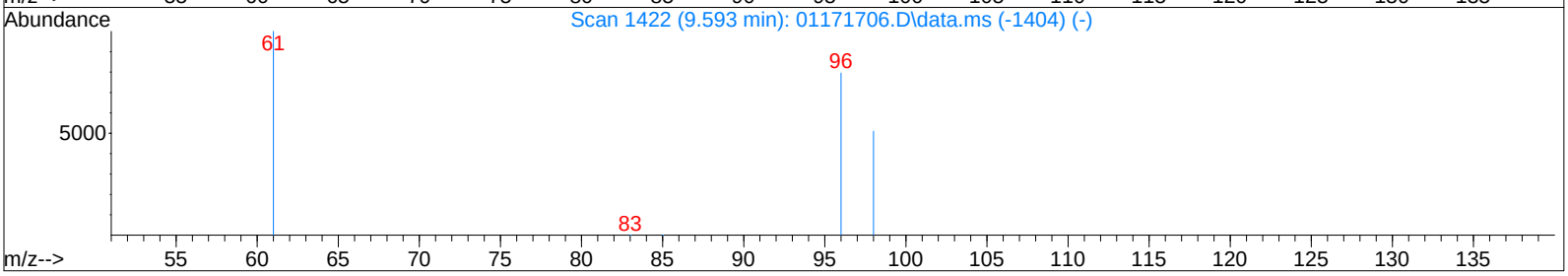
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:13:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02021717.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.597min (-0.017) 49.76pg

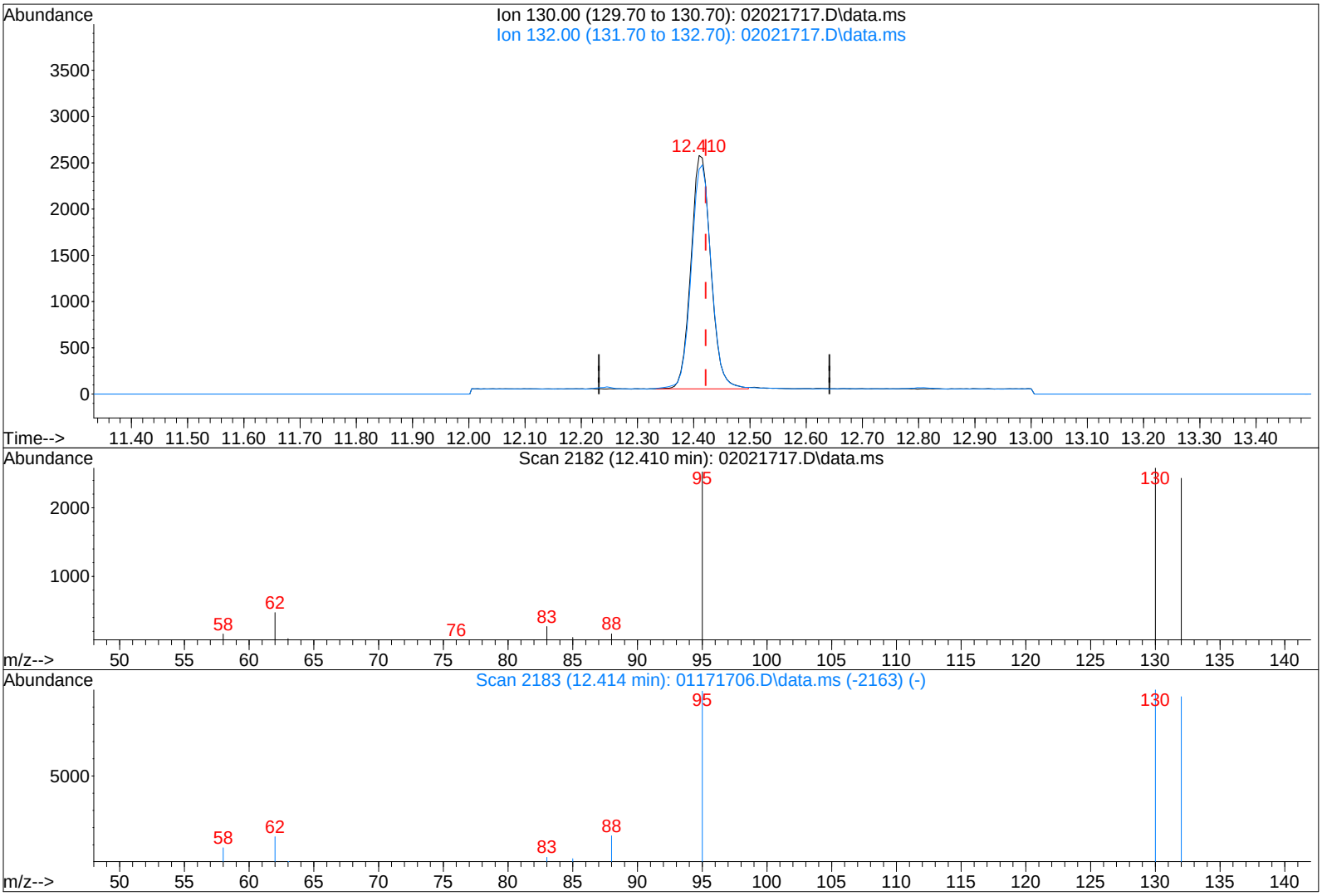
response 2337

Ion	Exp%	Act%
96.00	100	100
98.00	64.10	62.99
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:13:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021717.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.012) 123.30pg

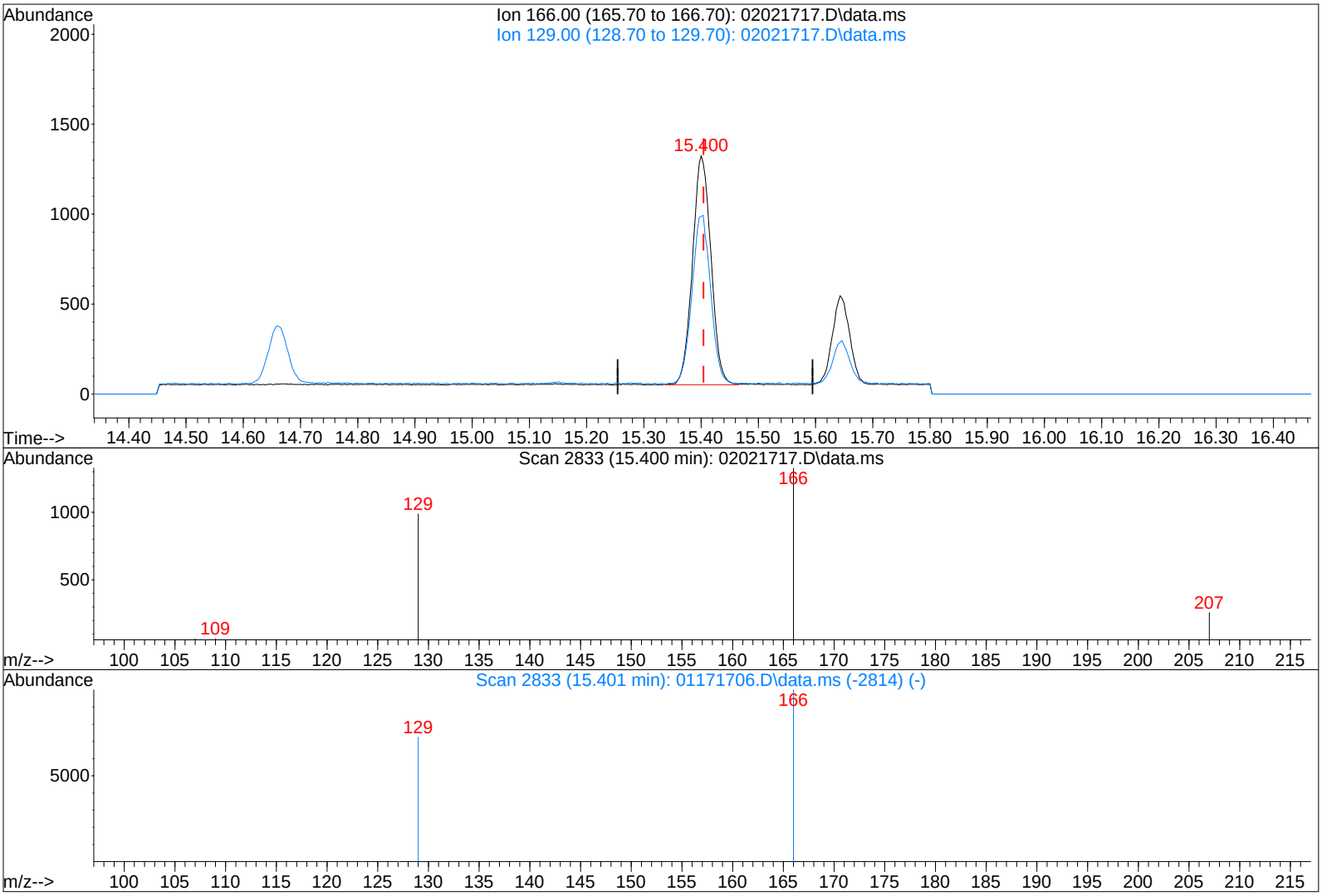
response 6204

Ion	Exp%	Act%
130.00	100	100
132.00	95.40	97.26
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\02\02021717.D Vial: 7
Acq On : 2 Feb 2017 11:47 Operator: CL
Sample : P1700262-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 02 12:13:54 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02021717.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.004) 53.05pg

response 2852

Ion	Exp%	Act%
166.00	100	100
129.00	72.30	74.26
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281729.D Vial: 2
Acq On : 28 Jan 2017 19:01 Operator: CL
Sample : MB2 S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 29 09:54:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/29/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	49742	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	221254	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33936	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	77913	904.427	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.44%			
33) Toluene-d8 (SS2)	14.15	98	219622	999.280	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.93%			
45) Bromofluorobenzene (SS3)	17.55	174	63049	1015.563	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.56%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	366	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.47	58	6941	204.463	pg #	74
11) Trichlorofluoromethane	6.64	101	54	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	620	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.74	73	118	N.D.		
18) cis-1,2-Dichloroethene	9.62	96	55	N.D.		
19) Chloroform	9.91	83	959	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	4698	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.43	130	126	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.25	91	1065	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.41	166	56	N.D.		
39) Chlorobenzene	16.11	112	143	N.D.		
40) Ethylbenzene	16.50	91	138	N.D.		
41) m,p-Xylene	16.66	91	119	N.D.		
42) Styrene	17.05	104	119	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.12	83	97	N.D.		
46) 1,3,5-Trimethylbenzene	18.40	105	62	N.D.		
47) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
48) 1,3-Dichlorobenzene	18.97	146	78	N.D.		
49) 1,4-Dichlorobenzene	18.97	146	78	N.D.		
50) 1,2-Dichlorobenzene	19.34	146	79	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.		
53) Naphthalene	0.00	128	0	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281729.D Vial: 2
Acq On : 28 Jan 2017 19:01 Operator: CL
Sample : MB2 S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 29 09:54:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

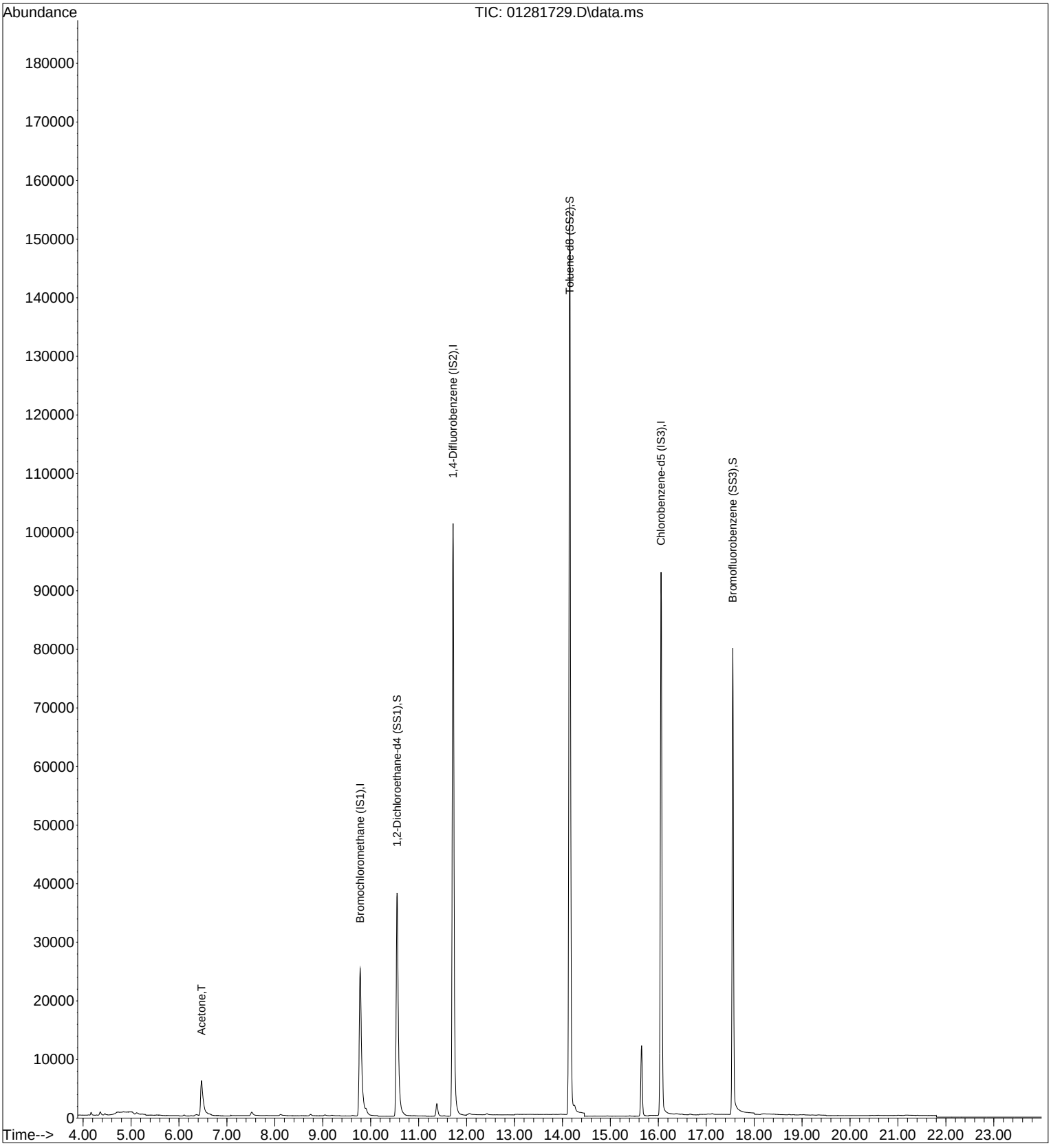
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281729.D Vial: 2
Acq On : 28 Jan 2017 19:01 Operator: CL
Sample : MB2 S19012817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Jan 29 09:54:42 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41818	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	202055	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	33539	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	67749	1033.325	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.33%				
33) Toluene-d8 (SS2)	14.15	98	202774	998.293	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.83%				
45) Bromofluorobenzene (SS3)	17.55	174	66747	931.271	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.13%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	81	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	2990	106.620	pg	#	90
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.52	84	217	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	803	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	2381	N.D.			
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	12.42	88	54	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.26	91	1045	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.10	112	92	N.D.			
40) Ethylbenzene	16.49	91	96	N.D.			
41) m,p-Xylene	16.67	91	289	N.D.			
42) Styrene	17.05	104	140	N.D.			
43) o-Xylene	17.13	106	56	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	169	N.D.			
46) 1,3,5-Trimethylbenzene	18.32	105	66	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	67	N.D.			
48) 1,3-Dichlorobenzene	18.94	146	59	N.D.			
49) 1,4-Dichlorobenzene	19.00	146	84	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	74	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	21.00	182	98	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

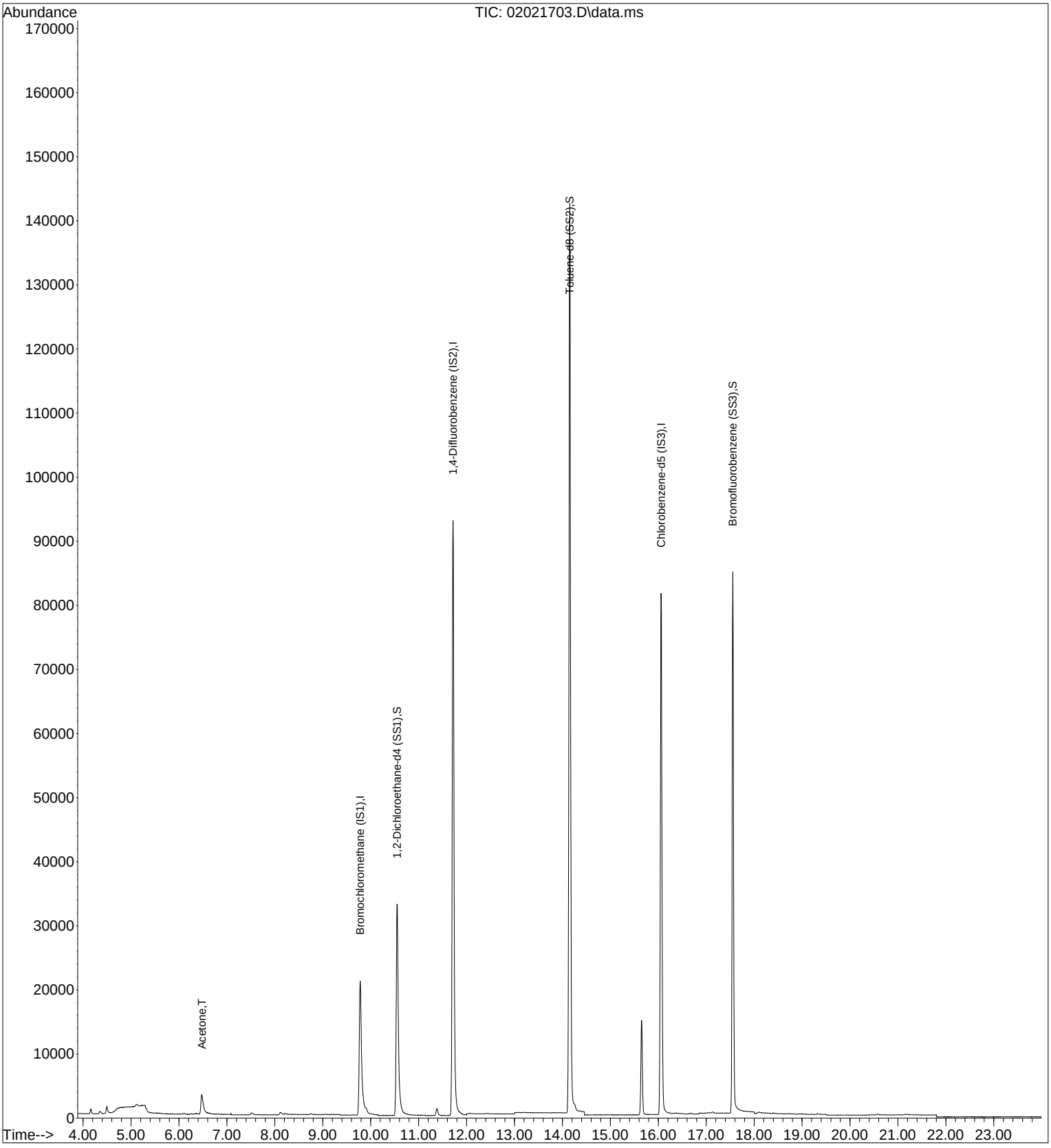
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281730.D Vial: 2
Acq On : 28 Jan 2017 19:33 Operator: CL
Sample : LCS2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 29 09:54:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/29/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50053	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	268245	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	35934	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	80955	933.900	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.39%			
33) Toluene-d8 (SS2)	14.15	98	256295	961.859	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.19%			
45) Bromofluorobenzene (SS3)	17.55	174	75304	1145.517	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.55%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	65252	516.036	pg	100
3) Chloromethane	4.65	52	14754	391.642	pg	91
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	61729	496.188	pg	100
5) Vinyl Chloride	4.95	62	54927	454.378	pg	99
6) 1,3-Butadiene	5.14	54	23687	329.577	pg	96
7) Bromomethane	5.47	94	23642	486.177	pg	99
8) Chloroethane	5.70	64	16331	439.103	pg	99
9) Acrolein	6.27	56	10102	382.357	pg	99
10) Acetone	6.40	58	83272	2437.720	pg	90
11) Trichlorofluoromethane	6.61	101	46884	542.099	pg	100
12) 1,1-Dichloroethene	7.35	96	26983	497.997	pg	93
13) Methylene Chloride	7.47	84	30548	519.537	pg	89
14) Trichlorotrifluoroethane	7.80	151	27310	505.209	pg	99
15) trans-1,2-Dichloroethene	8.51	96	28877	494.362	pg	98
16) 1,1-Dichloroethane	8.72	63	48263	465.713	pg	100
17) Methyl tert-Butyl Ether	8.79	73	74287	480.382	pg	97
18) cis-1,2-Dichloroethene	9.59	96	30366	495.388	pg	99
19) Chloroform	9.89	83	54438	499.530	pg	100
21) 1,2-Dichloroethane	10.64	62	38869	463.334	pg	99
22) 1,1,1-Trichloroethane	10.91	97	47978	474.267	pg	100
23) Benzene	11.36	78	144877	603.390	pg	100
24) Carbon Tetrachloride	11.52	117	46049	566.894	pg	100
26) 1,2-Dichloropropane	12.17	63	28944	423.617	pg	99
27) Bromodichloromethane	12.35	83	50599	536.280	pg	100
28) Trichloroethene	12.41	130	37292	534.723	pg	100
29) 1,4-Dioxane	12.38	88	26795	523.236	pg	94
30) cis-1,3-Dichloropropene	13.25	75	44450	483.674	pg	100
31) trans-1,3-Dichloropropene	13.77	75	39049	522.124	pg	100
32) 1,1,2-Trichloroethane	13.95	83	26216	453.612	pg	97
34) Toluene	14.25	91	125542	504.438	pg	100
35) Dibromochloromethane	14.66	129	30567	443.533	pg	100
36) 1,2-Dibromoethane	14.92	107	30077	461.441	pg	100
37) Tetrachloroethene	15.40	166	31741	438.949	pg	98
39) Chlorobenzene	16.10	112	78462	566.415	pg	100
40) Ethylbenzene	16.48	91	113070	553.521	pg	99
41) m,p-Xylene	16.66	91	179328	1170.417	pg	99
42) Styrene	17.01	104	61534	573.241	pg	100
43) o-Xylene	17.12	106	46767	594.161	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	48209	533.049	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	94782	584.388	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	94001	590.477	pg	99
48) 1,3-Dichlorobenzene	18.92	146	58317	596.017	pg	100
49) 1,4-Dichlorobenzene	18.98	146	56922	558.775	pg	100
50) 1,2-Dichlorobenzene	19.31	146	56464	566.275	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15097	500.864	pg	96
52) 1,2,4-Trichlorobenzene	20.95	182	19963	338.238	pg	98
53) Naphthalene	21.07	128	56083	299.249	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281730.D Vial: 2
Acq On : 28 Jan 2017 19:33 Operator: CL
Sample : LCS2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 29 09:54:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

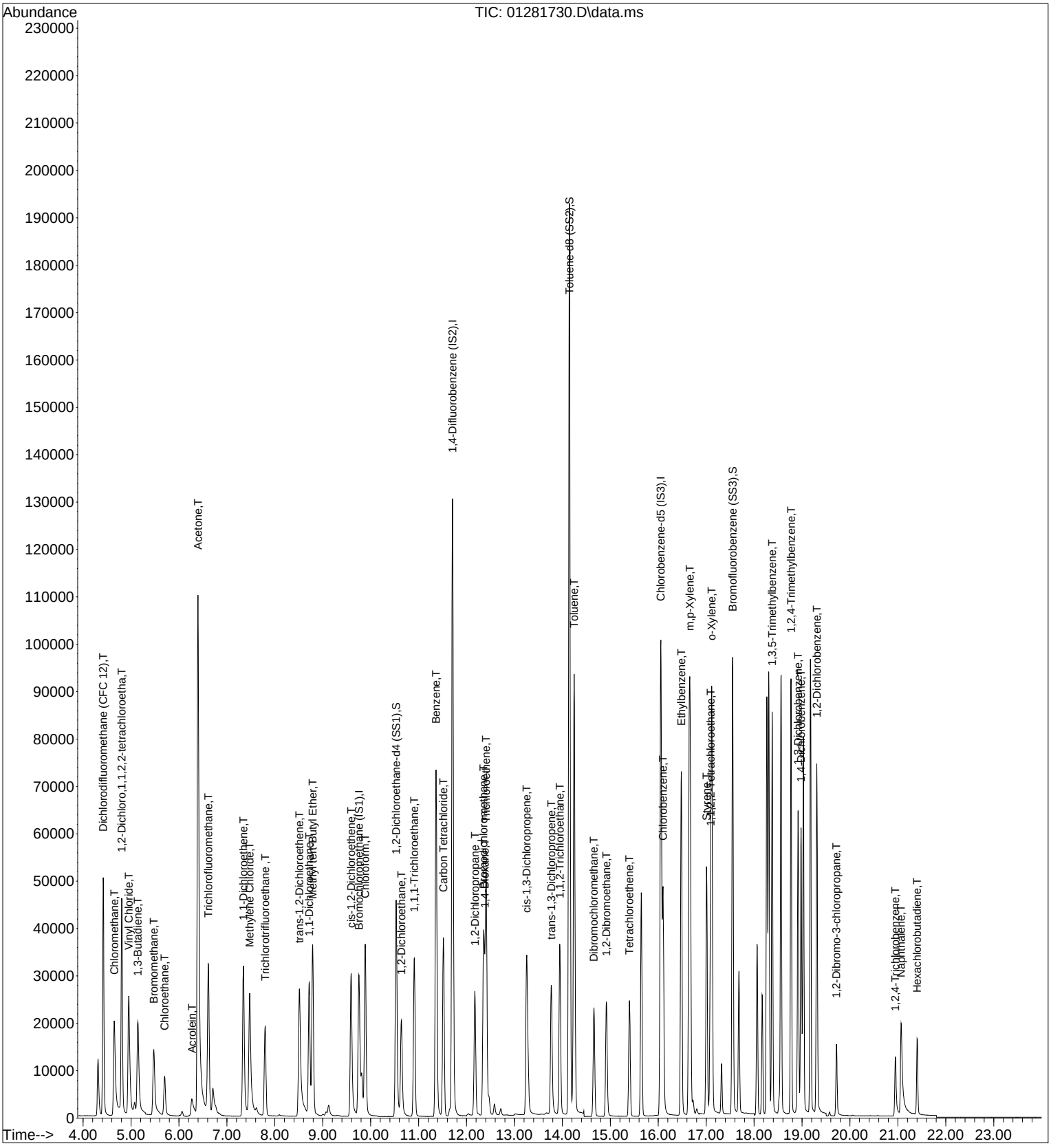
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	16101	344.824	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281730.D Vial: 2
Acq On : 28 Jan 2017 19:33 Operator: CL
Sample : LCS2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01171715 (2/17)

Quant Time: Jan 29 09:54:43 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	41544	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	200771	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33287	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	66481	1020.673	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.07%			
33) Toluene-d8 (SS2)	14.15	98	203563	1008.587	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.86%			
45) Bromofluorobenzene (SS3)	17.55	174	68951	969.305	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.93%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	52618	536.449	pg	100
3) Chloromethane	4.65	52	12976	591.455	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	45548	491.881	pg	100
5) Vinyl Chloride	4.96	62	44937	519.142	pg	100
6) 1,3-Butadiene	5.14	54	30823	584.497	pg	99
7) Bromomethane	5.48	94	18454	537.742	pg	100
8) Chloroethane	5.70	64	14309	524.080	pg	99
9) Acrolein	6.27	56	9823	437.632	pg	89
10) Acetone	6.40	58	91183	3272.919	pg	98
11) Trichlorofluoromethane	6.62	101	40045	530.498	pg	100
12) 1,1-Dichloroethene	7.35	96	23103	521.881	pg	99
13) Methylene Chloride	7.48	84	23691	519.212	pg	100
14) Trichlorotrifluoroethane	7.80	151	23010	506.192	pg	100
15) trans-1,2-Dichloroethene	8.51	96	24836	555.093	pg	99
16) 1,1-Dichloroethane	8.72	63	41367	532.845	pg	100
17) Methyl tert-Butyl Ether	8.79	73	74891	525.066	pg	100
18) cis-1,2-Dichloroethene	9.59	96	25833	535.945	pg	99
19) Chloroform	9.89	83	43947	523.709	pg	100
21) 1,2-Dichloroethane	10.64	62	33308	539.386	pg	100
22) 1,1,1-Trichloroethane	10.91	97	41899	529.975	pg	100
23) Benzene	11.37	78	101724	557.910	pg	100
24) Carbon Tetrachloride	11.52	117	38072	517.055	pg	100
26) 1,2-Dichloropropane	12.17	63	22934	513.208	pg	99
27) Bromodichloromethane	12.35	83	34034	522.508	pg	100
28) Trichloroethene	12.41	130	26818	522.659	pg	99
29) 1,4-Dioxane	12.38	88	19994	511.026	pg	100
30) cis-1,3-Dichloropropene	13.26	75	36974	509.044	pg	99
31) trans-1,3-Dichloropropene	13.77	75	32811	522.360	pg	99
32) 1,1,2-Trichloroethane	13.95	83	19941	527.062	pg	99
34) Toluene	14.25	91	96700	502.787	pg	100
35) Dibromochloromethane	14.66	129	27775	497.467	pg	100
36) 1,2-Dibromoethane	14.92	107	26241	522.285	pg	99
37) Tetrachloroethene	15.40	166	27966	510.069	pg	98
39) Chlorobenzene	16.10	112	65889	524.171	pg	100
40) Ethylbenzene	16.48	91	111486	530.112	pg	99
41) m,p-Xylene	16.66	91	171364	1045.029	pg	99
42) Styrene	17.01	104	63652	506.647	pg	100
43) o-Xylene	17.12	106	41970	514.850	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39527	507.613	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	91793	518.979	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	92014	516.754	pg	99
48) 1,3-Dichlorobenzene	18.92	146	52013	531.882	pg	100
49) 1,4-Dichlorobenzene	18.98	146	52259	506.369	pg	100
50) 1,2-Dichlorobenzene	19.31	146	50397	510.954	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	16783	472.897	pg	94
52) 1,2,4-Trichlorobenzene	20.94	182	30867	440.798	pg	99
53) Naphthalene	21.06	128	106866	476.970	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

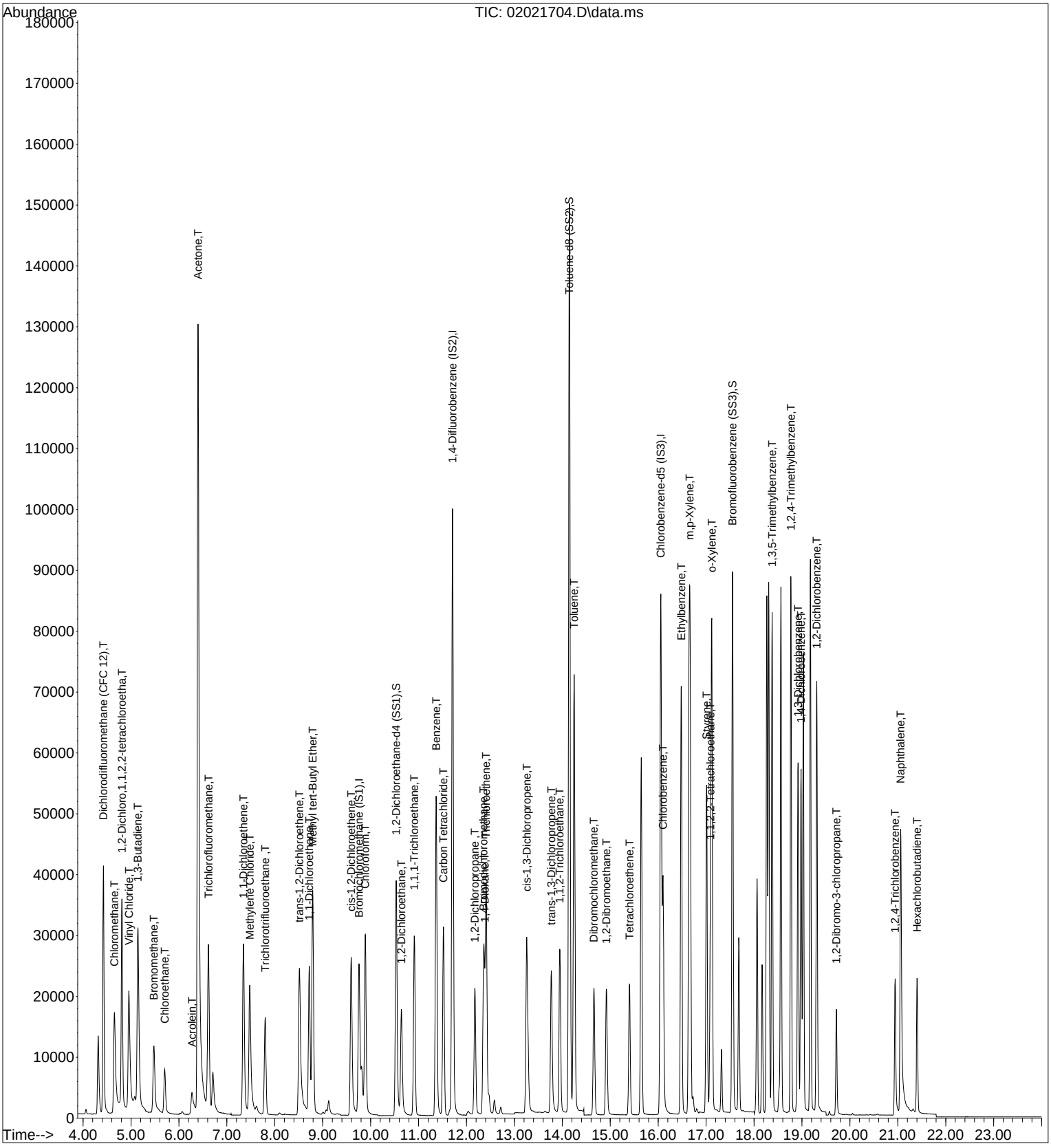
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	21632	474.077	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response Via : Initial Calibration

CL 1/18/17

Calibration Files
10 =01171702.D 20 =01171703.D 50 =01171704.D 100 =01171705.D 500 =01171706.D 1000=01171707.D 2000=01171708.D
5000=01171709.D 10K =01171710.D 50K =01171715.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.556	2.824	2.483	2.470	2.778	2.368	2.270	2.073	2.426	2.583		16.73
3)	T	Chloromethane			1.155	0.889	0.785	0.843	0.683	0.629	0.512	0.675	0.771	25.52
4)	T	1,2-Dichloro,1...	3.609	2.884	2.522	2.484	2.765	2.279	2.080	1.983	2.303	2.545		19.45
5)	T	Vinyl Chloride			2.959	2.551	2.502	2.811	2.337	2.185	2.089	2.468	2.488	11.82
6)	T	1,3-Butadiene	1.935	1.424	1.294	1.019	1.137	1.486	1.309	1.645	1.596	1.964	1.481	21.10
7)	T	Bromomethane			1.329	1.062	0.924	0.926	1.076	0.929	0.872	0.813	1.048	0.998	15.36
8)	T	Chloroethane			0.978	0.790	0.701	0.703	0.813	0.712	0.691	0.650	0.826	0.763	13.24
9)	T	Acrolein			0.667	0.527	0.461	0.448	0.542	0.517	0.523	0.513	0.685	0.543	15.08
10)	T	Acetone					0.851	0.661	0.748	0.651	0.613	0.588	0.850	0.709	15.32
11)	T	Trichlorofluor...			2.033	1.778	1.730	1.942	1.689	1.591	1.530	1.979	1.784	10.36
12)	T	1,1-Dichloroet...		1.353	1.102	0.978	1.002	1.173	1.062	1.030	1.003	1.348	1.117	12.98
13)	T	Methylene Chlo...			1.375	1.133	1.169	1.317	1.162	1.094	1.049	1.429	1.216	11.44
14)	T	Trichlorotrifl...		1.499	1.179	1.020	1.007	1.160	1.009	0.951	0.929	1.279	1.115	16.61
15)	T	trans-1,2-Dich...	1.519	1.317	1.126	1.027	1.079	1.244	1.133	1.080	1.049	1.428	1.200	14.20
16)	T	1,1-Dichloroet...		2.678	2.200	1.950	1.978	2.258	2.020	1.898	1.807	2.375	2.129	12.93
17)	T	Methyl tert-Bu...		3.518	2.828	2.523	2.783	3.410	3.225	3.173	3.093	4.212	3.196	15.46
18)	T	cis-1,2-Dichlo...	1.504	1.370	1.164	1.061	1.139	1.307	1.211	1.167	1.141	1.546	1.261	13.06
19)	T	Chloroform			2.963	2.329	2.105	2.314	2.071	1.920	1.852	2.445	2.250	15.73
20)	S	1,2-Dichloroet...	1.693	1.709	1.716	1.724	1.705	1.712	1.769	1.770	1.775	1.719	1.729	1.76
21)	T	1,2-Dichloroet...	2.196	1.923	1.656	1.502	1.564	1.768	1.637	1.536	1.494	1.945	1.722	13.52
22)	T	1,1,1-Trichlor...	3.341	2.501	1.989	1.764	1.779	1.992	1.815	1.690	1.651	2.225	2.075	24.89
23)	T	Benzene			6.330	4.775	4.641	5.183	4.741	4.314	4.220	5.429	4.954	13.85
24)	T	Carbon Tetrach...		2.175	1.735	1.527	1.537	1.714	1.545	1.443	1.435	1.988	1.678	15.24
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.416	0.324	0.258	0.222	0.217	0.245	0.227	0.212	0.208	0.280	0.261	25.01
27)	T	Bromodichlorom...	0.542	0.446	0.364	0.318	0.305	0.344	0.314	0.293	0.288	0.394	0.361	22.41
28)	T	Trichloroethene	0.381	0.335	0.277	0.237	0.232	0.261	0.232	0.213	0.208	0.293	0.267	20.95
29)	T	1,4-Dioxane	0.275	0.213	0.174	0.155	0.162	0.194	0.185	0.178	0.177	0.256	0.197	20.15
30)	T	cis-1,3-Dichlo...	0.402	0.345	0.312	0.283	0.300	0.359	0.351	0.345	0.351	0.488	0.354	16.40
31)	T	trans-1,3-Dich...	0.231	0.260	0.238	0.226	0.252	0.305	0.306	0.308	0.319	0.447	0.289	22.67
32)	T	1,1,2-Trichlor...	0.338	0.268	0.222	0.195	0.188	0.212	0.193	0.177	0.175	0.241	0.221	22.89
33)	S	Toluene-d8 (SS2)	1.014	1.013	1.003	0.991	0.960	0.970	0.991	0.976	0.999	1.007	0.992	1.89
34)	T	Toluene		1.263	1.008	0.871	0.851	0.979	0.905	0.839	0.831	1.031	0.953	14.53
35)	T	Dibromochlorom...	0.350	0.307	0.258	0.229	0.226	0.260	0.238	0.226	0.229	0.320	0.265	17.08
36)	T	1,2-Dibromoethane	0.280	0.279	0.247	0.221	0.223	0.255	0.239	0.224	0.226	0.307	0.250	11.95
37)	T	Tetrachloroethene	0.432	0.340	0.275	0.241	0.236	0.265	0.237	0.220	0.220	0.303	0.277	24.02
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	5.542	4.754	3.999	3.583	3.610	4.033	3.590	3.379	3.236	3.692	3.942	17.88
40)	T	Ethylbenzene	7.875	6.117	5.024	4.549	5.174	6.282	5.979	5.756	5.547	5.867	5.817	15.48
41)	T	m,p-Xylene	5.437	4.268	3.605	3.210	4.170	5.088	4.676	4.420	4.293	4.457	4.362	14.78

Method Path : I:\MS19\METHODS\
Method File : S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.707	2.326	2.182	2.128	2.890	3.627	3.590	3.646	3.605	4.125	3.083	23.46
43)	T	o-Xylene	2.782	2.139	1.782	1.701	2.157	2.570	2.342	2.236	2.180	2.638	2.253	15.46
44)	T	1,1,2,2-Tetrac...	3.735	2.841	2.404	2.250	2.407	2.685	2.422	2.279	2.196	2.543	2.576	17.58
45)	S	Bromofluoroben...	1.715	1.714	1.728	1.784	1.904	1.930	1.926	1.976	1.954	1.490	1.812	8.49
46)	T	1,3,5-Trimethy...	5.122	3.974	3.524	3.438	4.709	5.600	5.127	4.977	4.810	4.956	4.624	15.74
47)	T	1,2,4-Trimethy...	4.312	3.595	3.159	3.272	4.681	5.683	5.325	5.251	5.075	5.018	4.537	20.02
48)	T	1,3-Dichlorobe...	2.415	2.282	2.599	2.594	2.942	3.327	2.992	2.896	2.768	3.118	2.793	11.61
49)	T	1,4-Dichlorobe...	3.057	2.917	2.700	2.694	2.870	3.237	2.914	2.866	2.717	3.112	2.908	6.29
50)	T	1,2-Dichlorobe...	2.963	2.718	2.683	2.601	2.825	3.222	2.898	2.831	2.699	2.990	2.843	6.46
51)	T	1,2-Dibromo-3-...	0.826	0.675	0.621	0.624	0.823	0.981	0.952	1.005	0.993	1.170	0.867	21.30
52)	T	1,2,4-Trichlor...	1.755	1.631	1.384	1.351	1.582	1.775	1.715	1.813	1.758	2.167	1.693	13.67
53)	T	Naphthalene	5.658	4.561	3.758	3.901	5.665	6.055	5.882	6.021	5.773	6.159	5.343	17.10
54)	T	Hexachlorobuta...	1.874	1.579	1.316	1.189	1.196	1.330	1.211	1.183	1.126	1.304	1.331	17.24

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 1/18/17

0.2ng/L Std. ID: S29-01171711 | 20ng/L Std. ID: S29-01171704
1ng/L Std. ID: S29-01171716 | 200ng/L Std. ID: S29-01171703
4ng/L Std. ID: S29-01171706

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
	Source Std.	Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171711		20ng/L Std. ID:	S29-01171704	
1ng/L Std. ID:	S29-01171716		200ng/L Std. ID:	S29-01171703	
4ng/L Std. ID:	S29-01171706				

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
		Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	Source Std. mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19011717.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration

CL 1/18/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\17\01171702.D
2	20	21	1000	I:\MS19\DATA\2017_01\17\01171703.D
3	50	52	1000	I:\MS19\DATA\2017_01\17\01171704.D
4	100	105	1000	I:\MS19\DATA\2017_01\17\01171705.D
5	500	524	1000	I:\MS19\DATA\2017_01\17\01171706.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\17\01171707.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\17\01171708.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\17\01171709.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\17\01171710.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\17\01171715.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Jan 18 09:39 2017	Jan 18 07:27 2017	17 Jan 2017 16:28
2	20	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:00
3	50	Jan 18 09:39 2017	Jan 18 07:24 2017	17 Jan 2017 17:31
4	100	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:03
5	500	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 18:34
6	1000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:05
7	2000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 19:37
8	5000	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:08
9	10K	Jan 18 09:40 2017	Jan 18 07:24 2017	17 Jan 2017 20:40
10	50K	Jan 18 09:41 2017	Jan 18 09:38 2017	18 Jan 2017 8:36

S19011717.M Wed Jan 18 11:10:13 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43810	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	194571	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	33113	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	74154	1061.270	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.13%				
33) Toluene-d8 (SS2)	14.15	98	197376	1075.129	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.51%				
45) Bromofluorobenzene (SS3)	17.56	174	56798	895.720	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.57%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2301	21.440	pg		99
3) Chloromethane	4.69	52	1022	35.320	pg	#	82
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2147	19.020	pg		100
5) Vinyl Chloride	5.02	62	2253	22.059	pg	#	1
6) 1,3-Butadiene	5.22	54	896m	16.029	pg		
7) Bromomethane	5.53	94	807	19.758	pg		97
8) Chloroethane	5.76	64	575	19.795	pg		100
9) Acrolein	6.37	56	510m	25.498	pg		
10) Acetone	6.48	58	5437	196.580	pg	#	85
11) Trichlorofluoromethane	6.65	101	1615	20.450	pg		99
12) 1,1-Dichloroethene	7.39	96	828	17.419	pg		97
13) Methylene Chloride	7.52	84	1141	22.018	pg		95
14) Trichlorotrifluoroethane	7.82	151	916	18.924	pg		100
15) trans-1,2-Dichloroethene	8.56	96	710	13.929	pg		99
16) 1,1-Dichloroethane	8.75	63	1616	19.395	pg		99
17) Methyl tert-Butyl Ether	8.83	73	2202	15.800	pg		99
18) cis-1,2-Dichloroethene	9.62	96	701	12.923	pg		98
19) Chloroform	9.90	83	2904	31.200	pg		100
21) 1,2-Dichloroethane	10.66	62	1012	14.626	pg		98
22) 1,1,1-Trichloroethane	10.93	97	1572	18.618	pg		100
23) Benzene	11.38	78	5937	27.096	pg		99
24) Carbon Tetrachloride	11.53	117	1361	18.624	pg		99
26) 1,2-Dichloropropane	12.19	63	859	20.570	pg		99
27) Bromodichloromethane	12.37	83	1125	18.266	pg		100
28) Trichloroethene	12.42	130	786	15.804	pg		100
29) 1,4-Dioxane	12.41	88	568	15.412	pg		96
30) cis-1,3-Dichloropropene	13.28	75	873	13.152	pg		96
31) trans-1,3-Dichloropropene	13.80	75	479	8.318	pg		96
32) 1,1,2-Trichloroethane	13.96	83	698	18.482	pg		97
34) Toluene	14.25	91	3486	19.108	pg		99
35) Dibromochloromethane	14.67	129	723	14.583	pg		98
36) 1,2-Dibromoethane	14.94	107	576	11.684	pg		99
37) Tetrachloroethene	15.40	166	891	16.613	pg		99
39) Chlorobenzene	16.11	112	1947	12.729	pg		98
40) Ethylbenzene	16.49	91	2751	11.761	pg		99
41) m,p-Xylene	16.67	91	3822	21.597	pg		97
42) Styrene	17.03	104	951	7.316	pg		99
43) o-Xylene	17.13	106	971	10.535	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	1306	14.093	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	1779	9.338	pg		92
47) 1,2,4-Trimethylbenzene	18.78	105	1502	7.629	pg		96
48) 1,3-Dichlorobenzene	18.93	146	846	7.206	pg		97
49) 1,4-Dichlorobenzene	19.00	146	1071	9.203	pg		81
50) 1,2-Dichlorobenzene	19.33	146	1038	8.952	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	288	7.943	pg		100
52) 1,2,4-Trichlorobenzene	21.01	182	606	9.413	pg		99
53) Naphthalene	21.15	128	2029m	9.746	pg		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

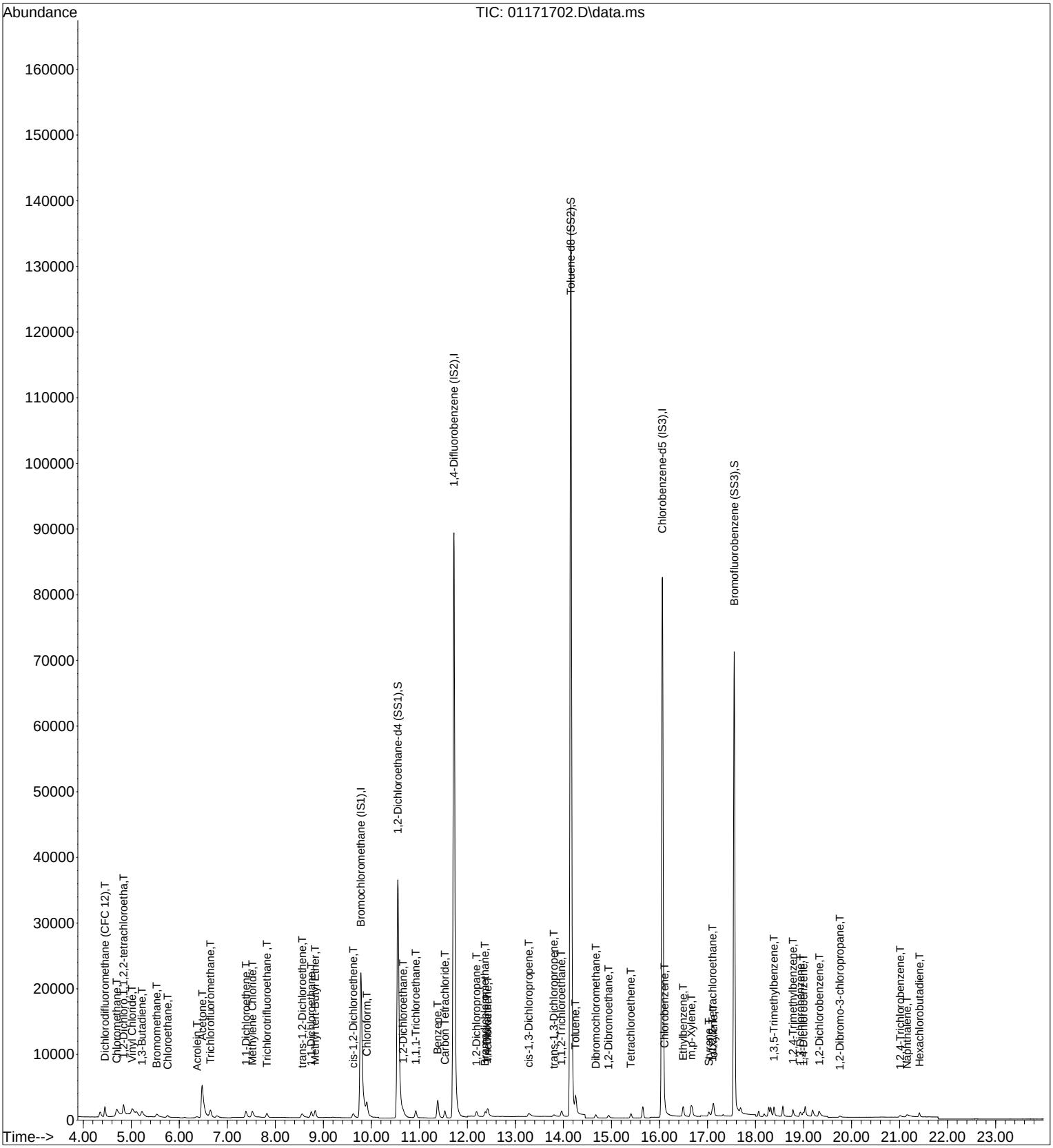
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	657	13.925	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

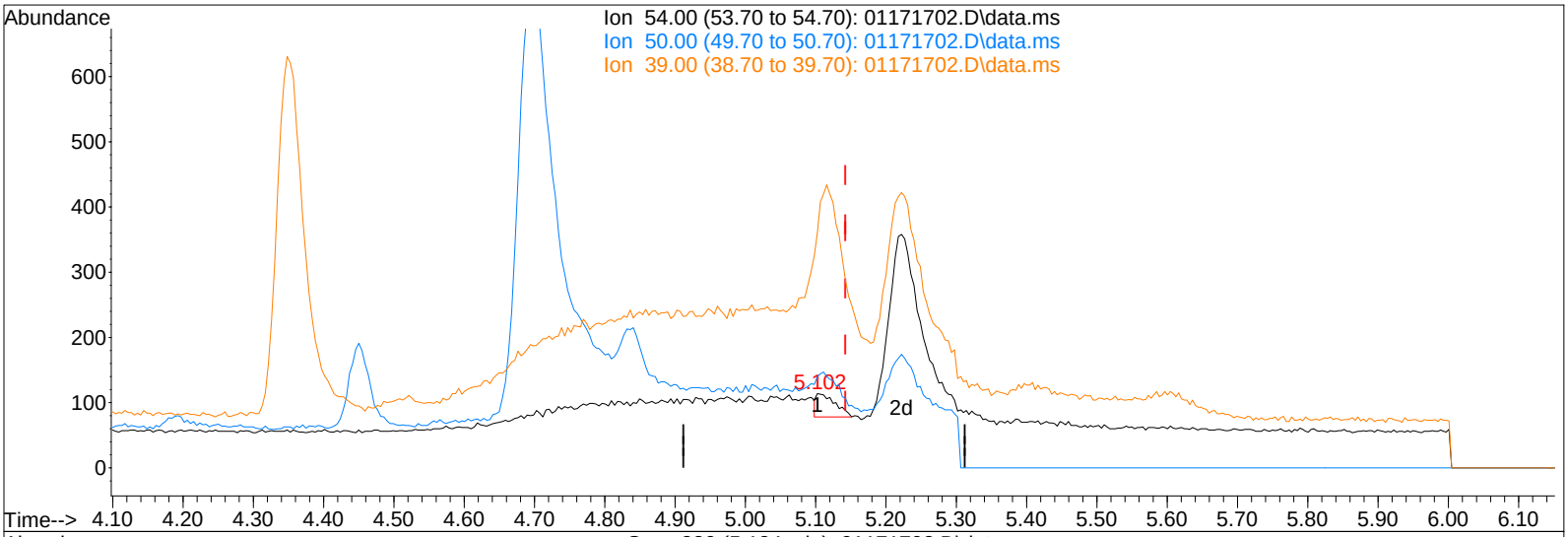
Quant Time: Jan 18 07:27:12 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

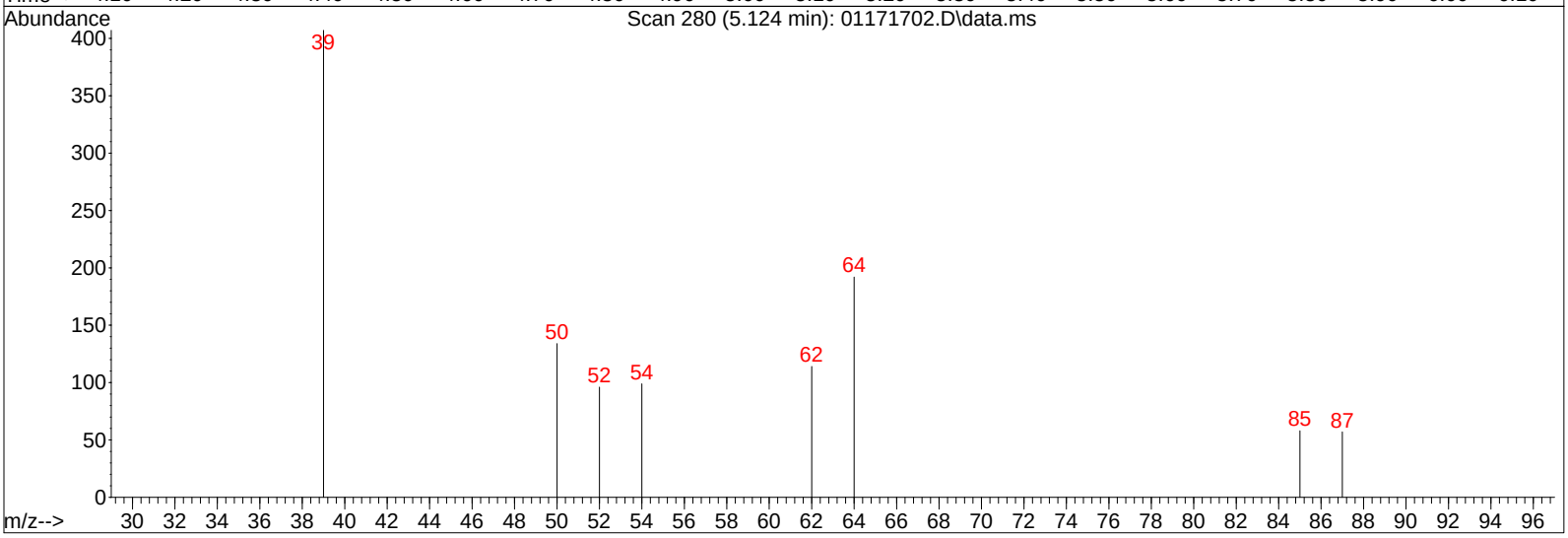


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.102min (-0.040) 1.20pg

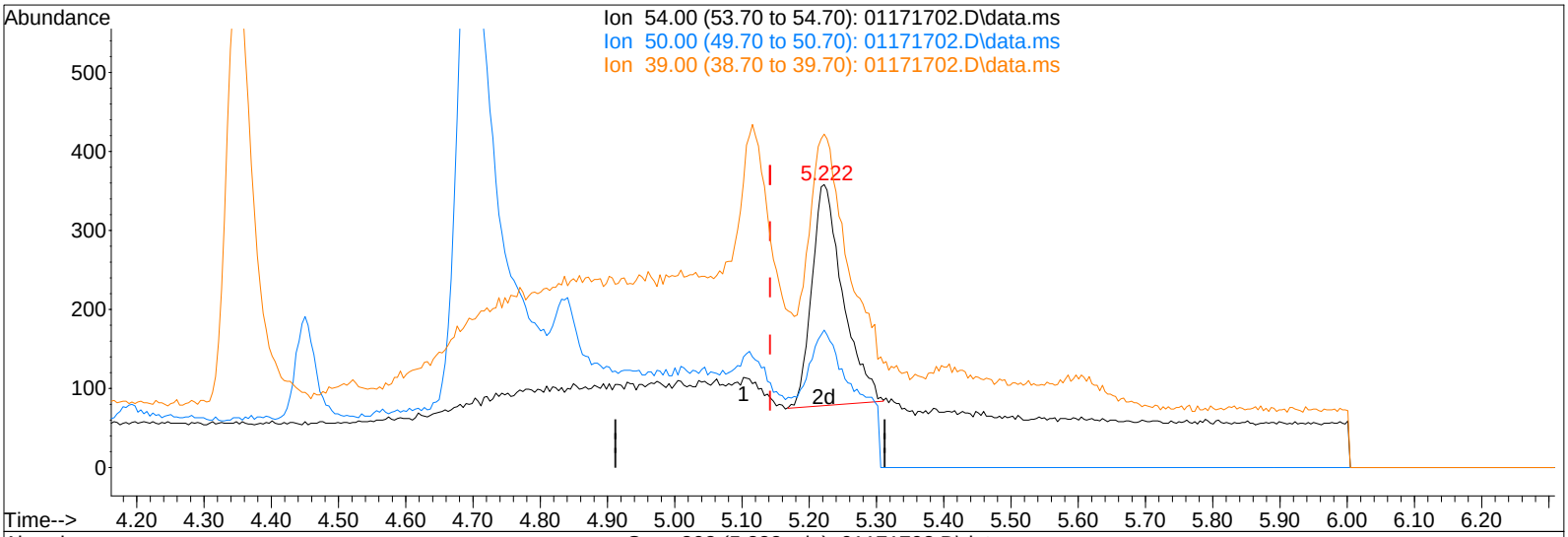
response 67

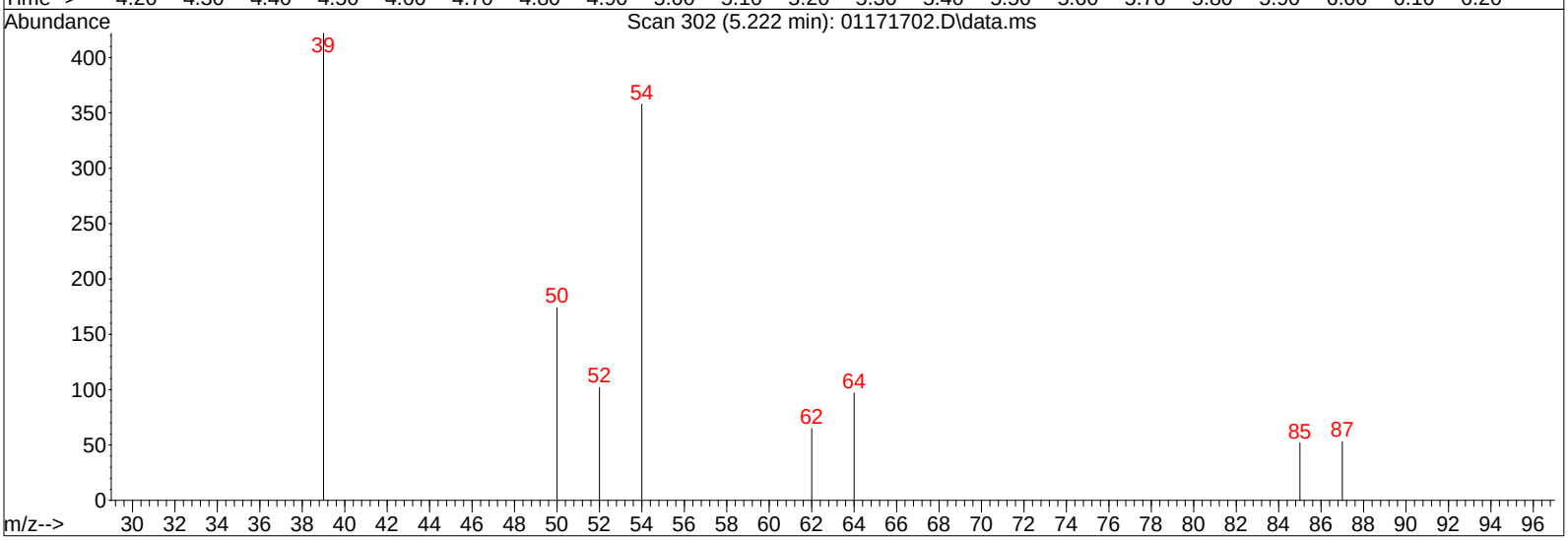
Ion	Exp%	Act%
54.00	100	100
50.00	31.00	222.39#
39.00	89.80	967.16#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(6) 1,3-Butadiene (T)

5.222min (+0.080) 16.03pg m

response 896

Ion	Exp%	Act%
54.00	100	100
50.00	31.00	16.63#
39.00	89.80	72.32
0.00	0.00	0.00

WP

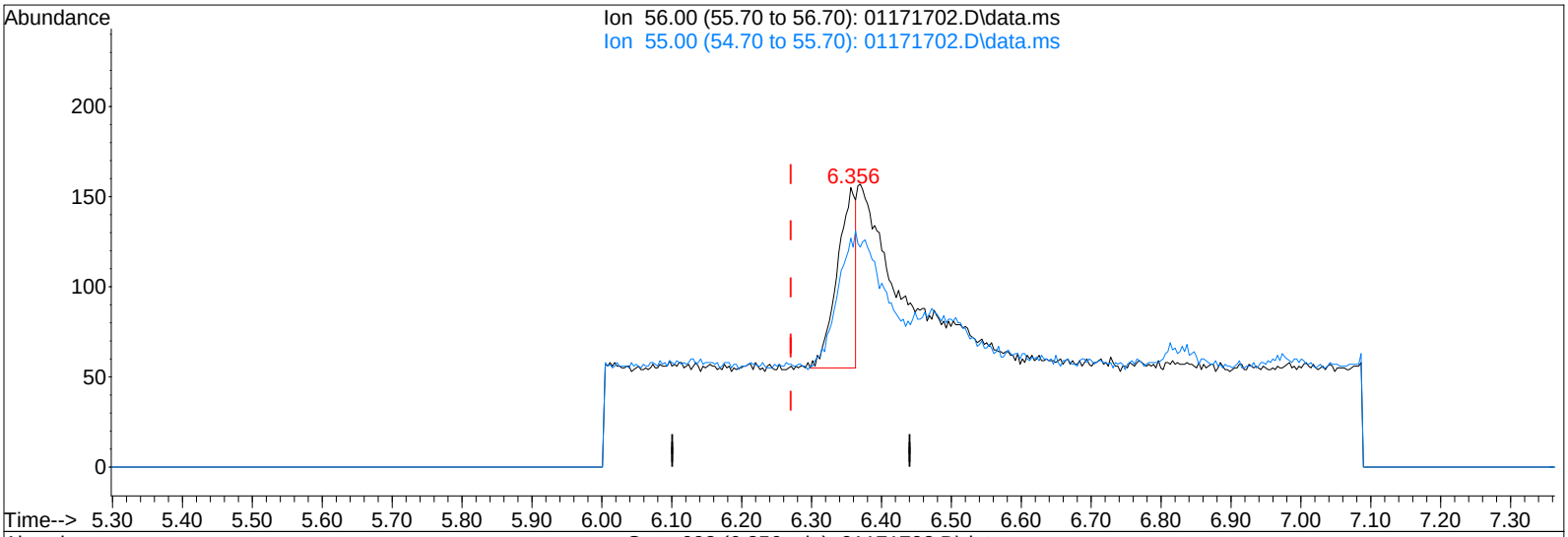
CL 1/18/17

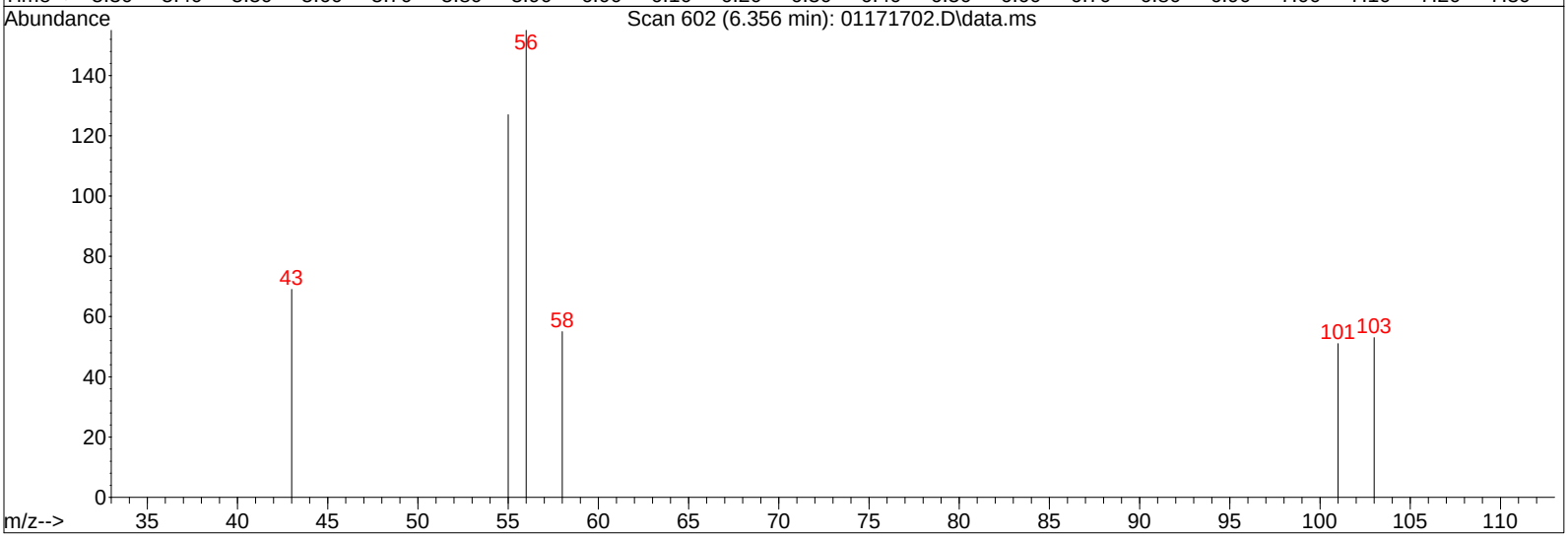
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 9.15pg

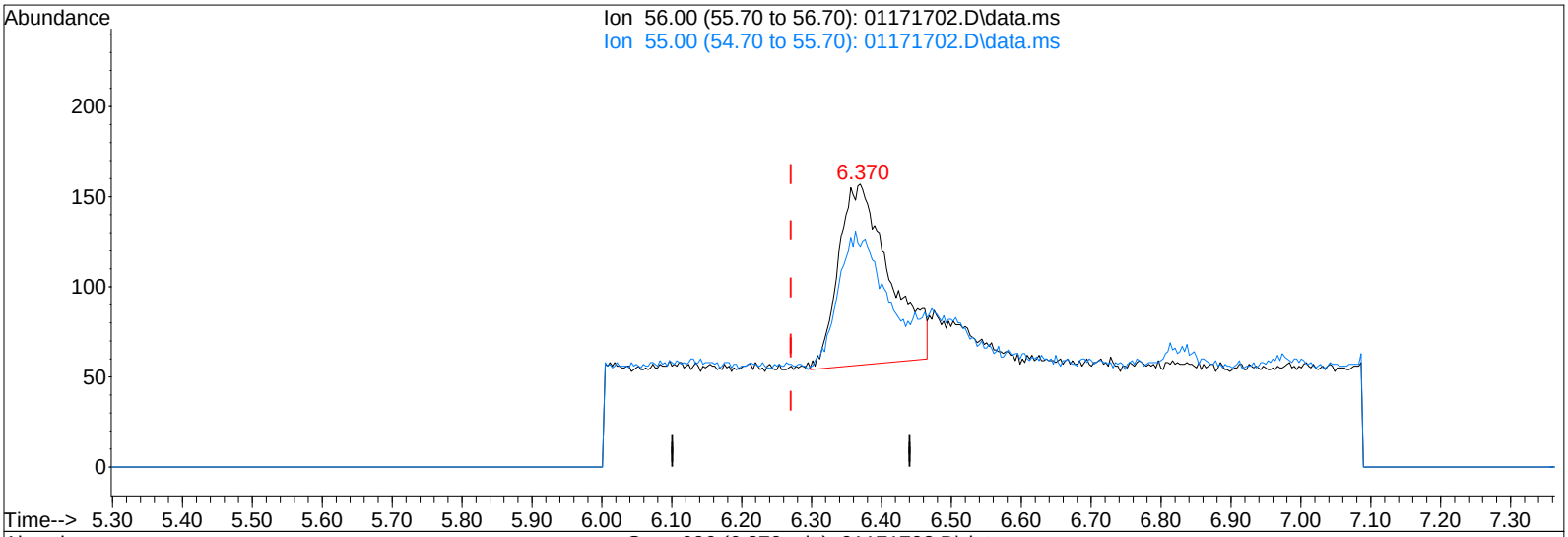
response 183

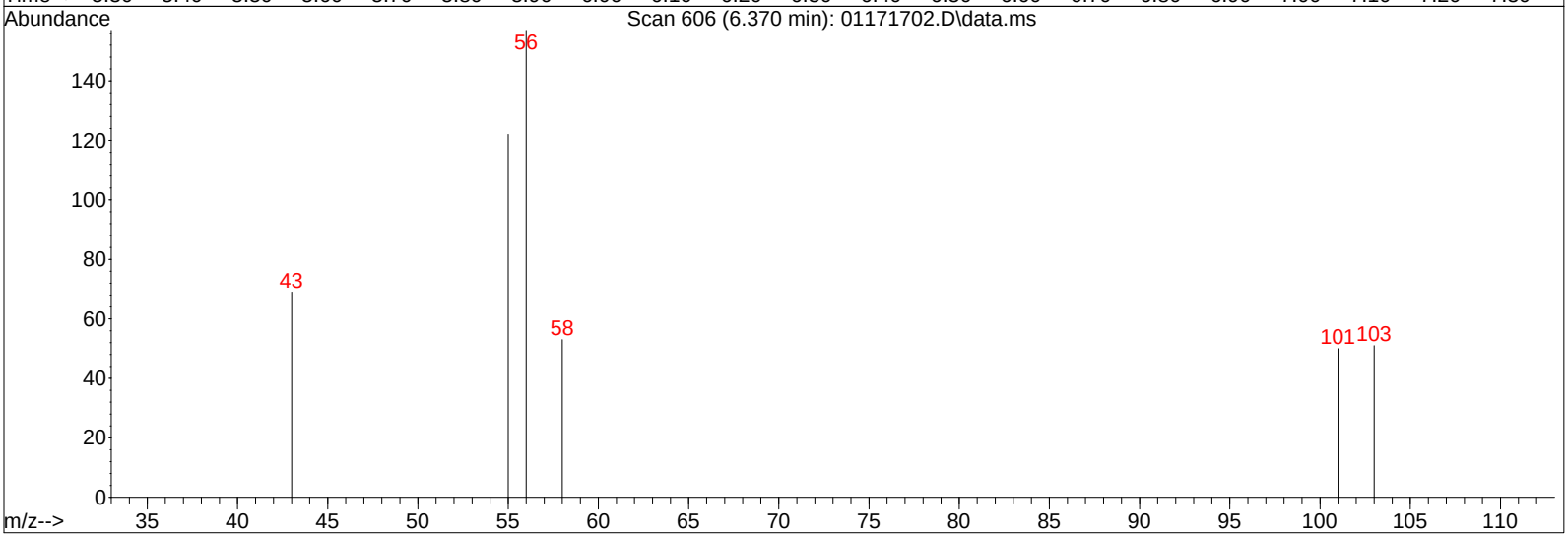
Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(9) Acrolein (T)

6.370min (+0.099) 25.50pg m

response 510

Ion	Exp%	Act%
56.00	100	100
55.00	66.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

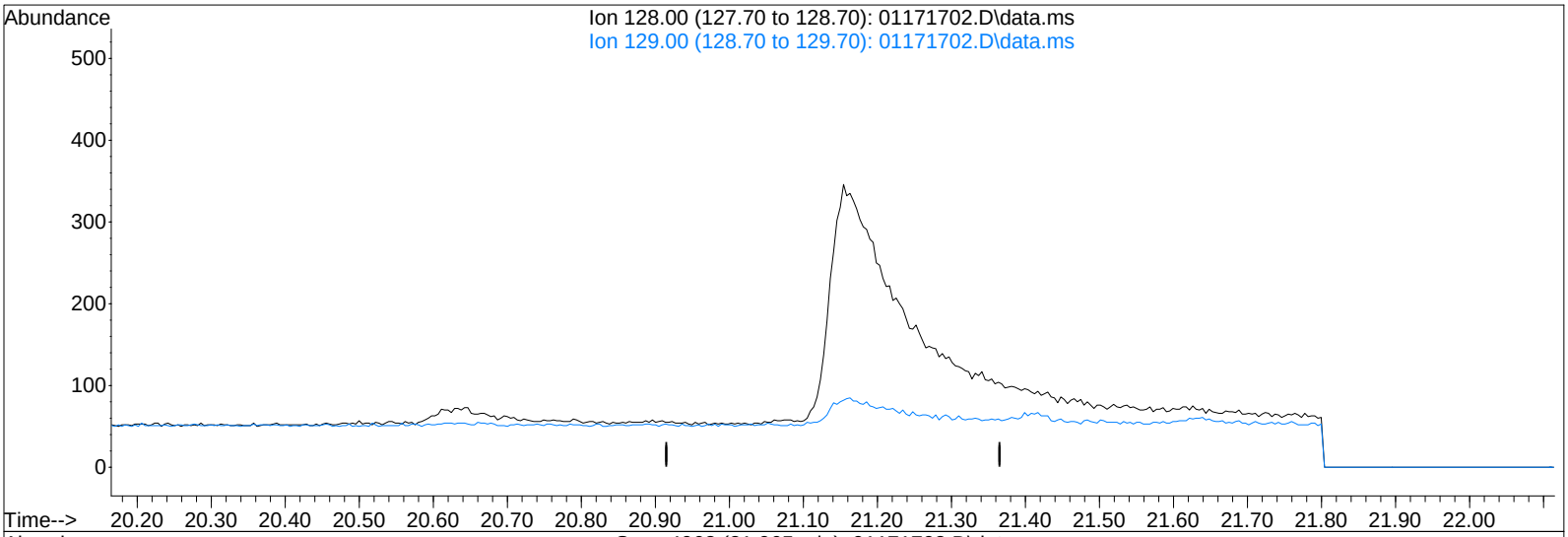
CL 1/18/17

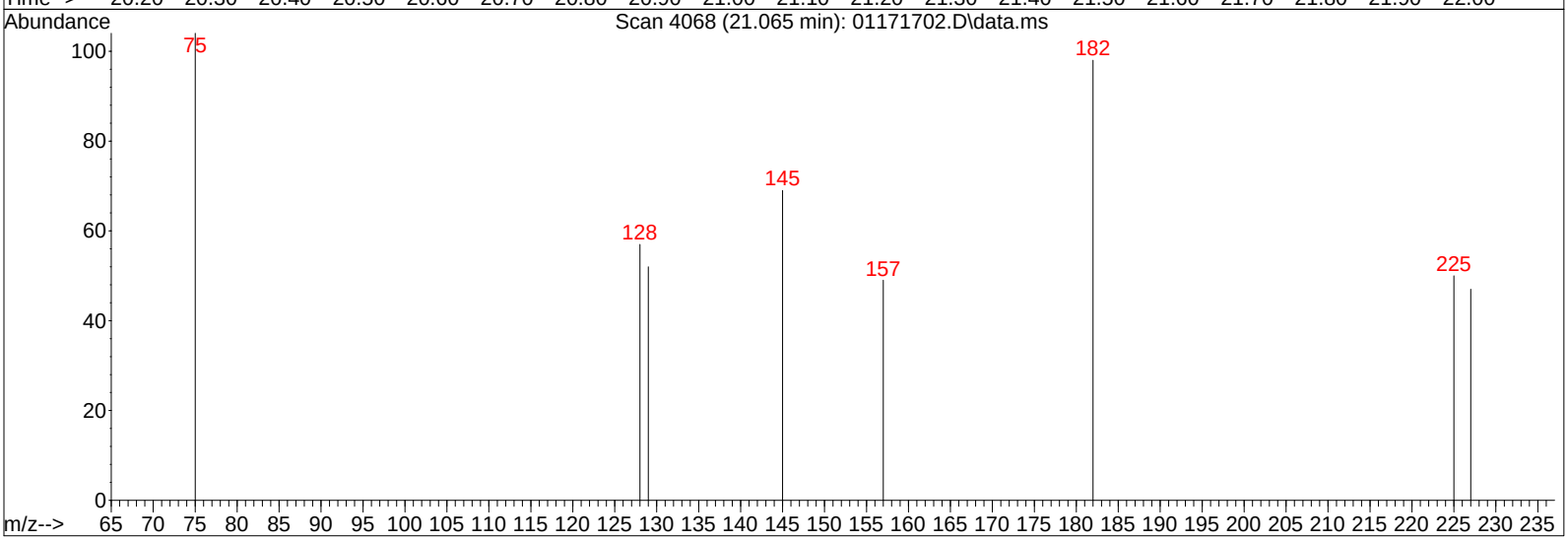
LH 1/19/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.065min (-21.065) 0.00pg

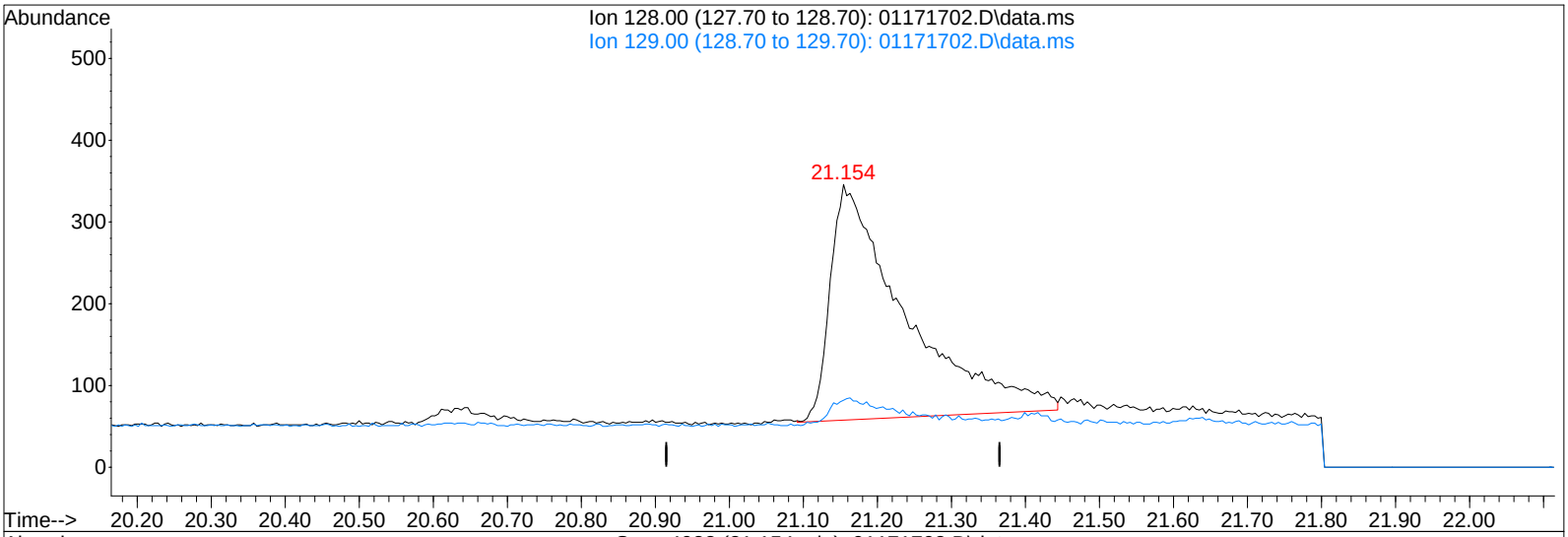
response 0

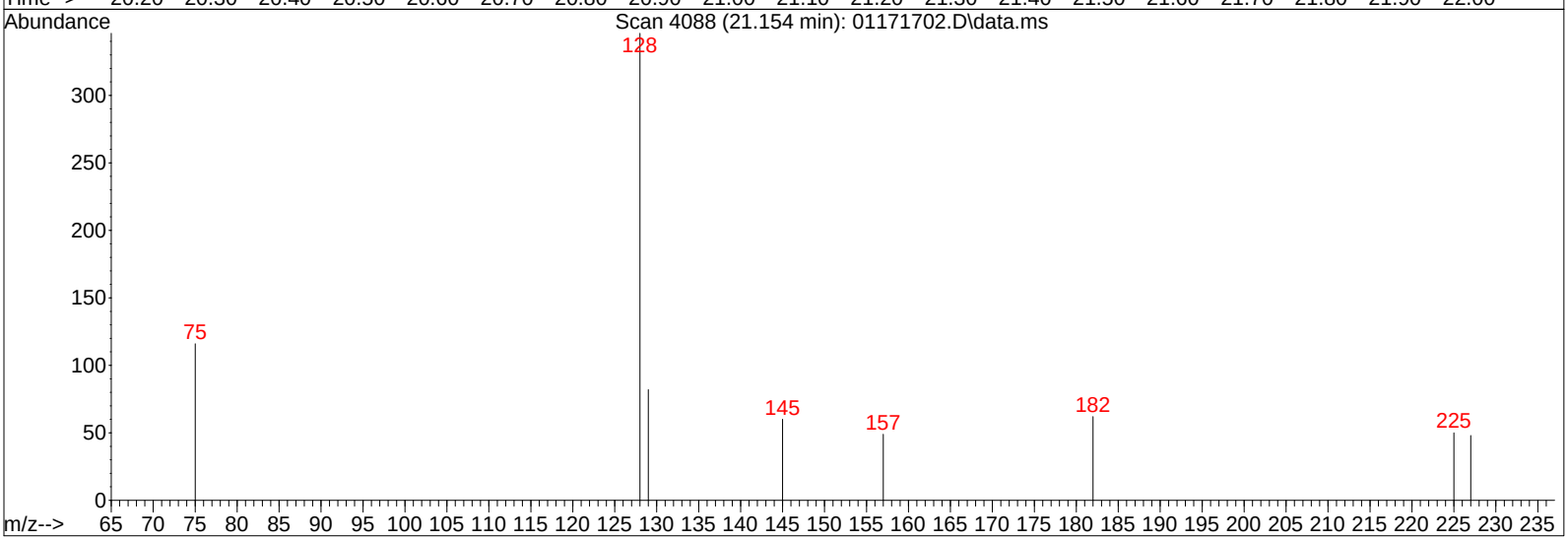
Ion	Exp%	Act%
128.00	100	0.00
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\17\01171702.D Vial: 11
Acq On : 17 Jan 2017 16:28 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171711 (2/15)

Quant Time: Jan 18 07:24:22 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01171702.D\data.ms

(53) Naphthalene (T)

21.154min (+0.089) 9.75pg m

response 2029

Ion	Exp%	Act%
128.00	100	100
129.00	10.90	0.00
0.00	0.00	0.00
0.00	0.00	0.00

MP

CL 1/18/17

LH 1/19/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43076	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	191402	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32562	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	73612	1071.464	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.15%				
33) Toluene-d8 (SS2)	14.15	98	193948	1073.948	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.40%				
45) Bromofluorobenzene (SS3)	17.56	174	55805	894.953	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	3208	30.400	pg		100
3) Chloromethane	4.69	52	1359	47.767	pg	#	84
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	3125	28.156	pg		100
5) Vinyl Chloride	5.01	62	3081	30.680	pg	#	56
6) 1,3-Butadiene	5.22	54	1297	23.597	pg	#	67
7) Bromomethane	5.52	94	1137	28.312	pg		97
8) Chloroethane	5.75	64	850	29.761	pg		99
9) Acrolein	6.36	56	598	30.407	pg		91
10) Acetone	6.47	58	6813	250.528	pg		90
11) Trichlorofluoromethane	6.65	101	2302	29.645	pg		100
12) 1,1-Dichloroethene	7.39	96	1234	26.402	pg		99
13) Methylene Chloride	7.52	84	1599	31.381	pg		98
14) Trichlorotrifluoroethane	7.82	151	1355	28.470	pg		99
15) trans-1,2-Dichloroethene	8.56	96	1211	24.162	pg		97
16) 1,1-Dichloroethane	8.75	63	2353	28.721	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3231	23.579	pg		100
18) cis-1,2-Dichloroethene	9.63	96	1256	23.548	pg		100
19) Chloroform	9.91	83	3649	39.872	pg		100
21) 1,2-Dichloroethane	10.66	62	1743	25.619	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2314	27.873	pg		99
23) Benzene	11.38	78	7406	34.376	pg		99
24) Carbon Tetrachloride	11.53	117	1977	27.514	pg		100
26) 1,2-Dichloropropane	12.19	63	1318	32.084	pg		99
27) Bromodichloromethane	12.37	83	1822	30.073	pg		100
28) Trichloroethene	12.42	130	1358	27.757	pg		99
29) 1,4-Dioxane	12.41	88	865	23.860	pg		93
30) cis-1,3-Dichloropropene	13.28	75	1472	22.543	pg		99
31) trans-1,3-Dichloropropene	13.80	75	1061	18.730	pg		94
32) 1,1,2-Trichloroethane	13.96	83	1090	29.339	pg		99
34) Toluene	14.25	91	5092	28.373	pg		99
35) Dibromochloromethane	14.67	129	1250	25.629	pg		97
36) 1,2-Dibromoethane	14.94	107	1128	23.260	pg		97
37) Tetrachloroethene	15.40	166	1381	26.175	pg		100
39) Chlorobenzene	16.11	112	3285	21.839	pg		98
40) Ethylbenzene	16.49	91	4203	18.273	pg		99
41) m,p-Xylene	16.67	91	5901	33.908	pg		98
42) Styrene	17.03	104	1607	12.572	pg		100
43) o-Xylene	17.13	106	1468	16.197	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	1954	21.442	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	2715	14.493	pg		97
47) 1,2,4-Trimethylbenzene	18.78	105	2463	12.722	pg		99
48) 1,3-Dichlorobenzene	18.93	146	1572	13.616	pg		96
49) 1,4-Dichlorobenzene	18.99	146	2010	17.565	pg		99
50) 1,2-Dichlorobenzene	19.32	146	1873	16.427	pg		99
51) 1,2-Dibromo-3-chloropr...	19.76	157	463	12.986	pg		93
52) 1,2,4-Trichlorobenzene	21.00	182	1108	17.501	pg		99
53) Naphthalene	21.15	128	3217	15.713	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

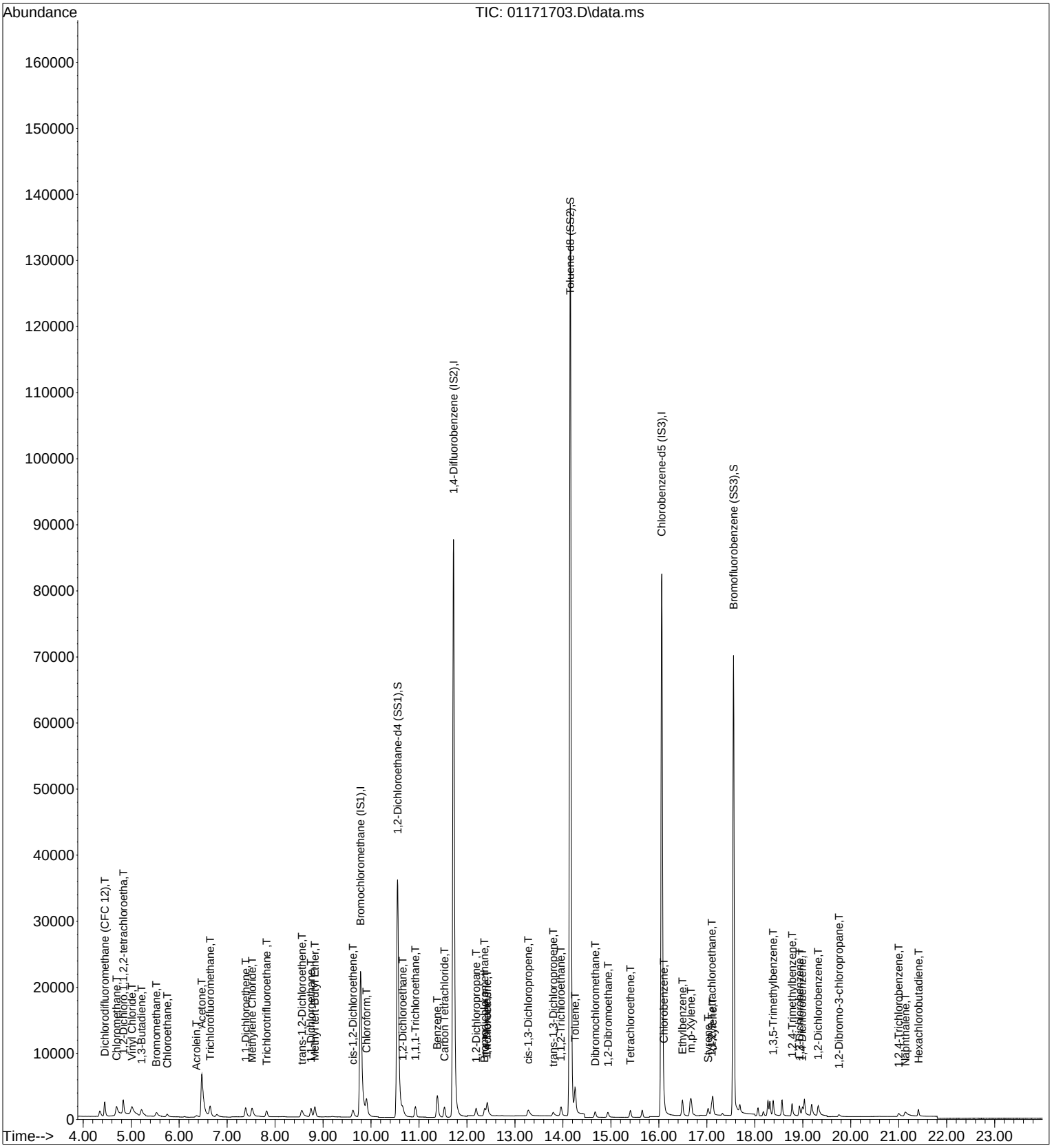
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1089	23.472	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171703.D Vial: 12
Acq On : 17 Jan 2017 17:00 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:24 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42312	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	190926	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	32305	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	72602	1075.844	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.58%				
33) Toluene-d8 (SS2)	14.15	98	191549	1063.308	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.33%				
45) Bromofluorobenzene (SS3)	17.56	174	55825	902.396	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.24%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	6255	60.345	pg		100
3) Chloromethane	4.68	52	2456	87.883	pg		90
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	6131	56.237	pg		100
5) Vinyl Chloride	5.00	62	6403	64.912	pg		69
6) 1,3-Butadiene	5.20	54	2893	53.585	pg	#	69
7) Bromomethane	5.51	94	2232	56.581	pg		99
8) Chloroethane	5.74	64	1686	60.098	pg		100
9) Acrolein	6.34	56	1161	60.101	pg		92
10) Acetone	6.46	58	11915	446.050	pg		92
11) Trichlorofluoromethane	6.64	101	4512	59.155	pg		99
12) 1,1-Dichloroethene	7.38	96	2470	53.802	pg		98
13) Methylene Chloride	7.51	84	3074	61.419	pg		98
14) Trichlorotrifluoroethane	7.81	151	2616	55.957	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2542	51.634	pg		98
16) 1,1-Dichloroethane	8.74	63	4748	59.001	pg		100
17) Methyl tert-Butyl Ether	8.82	73	6377	47.378	pg		99
18) cis-1,2-Dichloroethene	9.62	96	2621	50.028	pg		100
19) Chloroform	9.90	83	6631	73.765	pg		100
21) 1,2-Dichloroethane	10.66	62	3686	55.157	pg		95
22) 1,1,1-Trichloroethane	10.92	97	4520	55.428	pg		99
23) Benzene	11.38	78	14088	66.573	pg		100
24) Carbon Tetrachloride	11.53	117	3873	54.874	pg		100
26) 1,2-Dichloropropane	12.19	63	2612	63.741	pg		98
27) Bromodichloromethane	12.37	83	3707	61.338	pg		100
28) Trichloroethene	12.42	130	2805	57.476	pg		99
29) 1,4-Dioxane	12.40	88	1764	48.778	pg		96
30) cis-1,3-Dichloropropene	13.27	75	3325	51.049	pg		99
31) trans-1,3-Dichloropropene	13.79	75	2419	42.809	pg		98
32) 1,1,2-Trichloroethane	13.96	83	2252	60.768	pg		100
34) Toluene	14.25	91	10128	56.574	pg		99
35) Dibromochloromethane	14.67	129	2614	53.729	pg		100
36) 1,2-Dibromoethane	14.93	107	2485	51.369	pg		96
37) Tetrachloroethene	15.40	166	2790	53.013	pg		100
39) Chlorobenzene	16.11	112	6853	45.922	pg		99
40) Ethylbenzene	16.49	91	8561	37.516	pg		99
41) m,p-Xylene	16.66	91	12362	71.600	pg		98
42) Styrene	17.02	104	3739	29.485	pg		100
43) o-Xylene	17.13	106	3033	33.730	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4100	45.348	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	5971	32.127	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	5368	27.948	pg		96
48) 1,3-Dichlorobenzene	18.93	146	4441	38.773	pg		100
49) 1,4-Dichlorobenzene	18.99	146	4614	40.641	pg		98
50) 1,2-Dichlorobenzene	19.31	146	4585	40.533	pg		100
51) 1,2-Dibromo-3-chloropr...	19.73	157	1057	29.881	pg		97
52) 1,2,4-Trichlorobenzene	20.99	182	2332	37.127	pg		100
53) Naphthalene	21.12	128	6574	32.366	pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

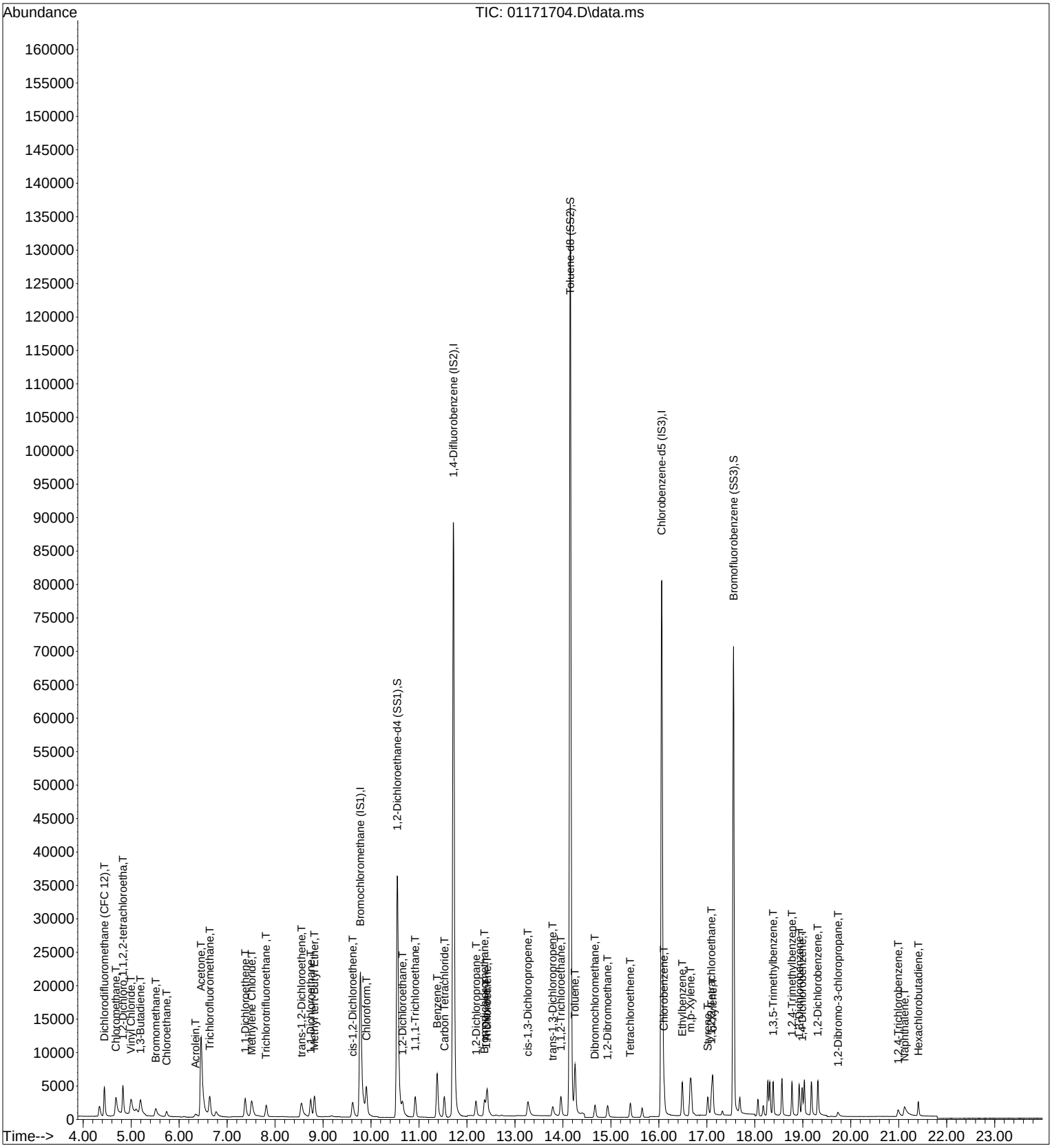
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	2251	48.903	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171704.D Vial: 12
Acq On : 17 Jan 2017 17:31 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45005	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	208640	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34806	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	77609	1081.224	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%				
33) Toluene-d8 (SS2)	14.15	98	206701	1050.000	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.00%				
45) Bromofluorobenzene (SS3)	17.56	174	62097	931.654	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.16%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11702	106.140	pg		100
3) Chloromethane	4.68	52	4022	135.307	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11405	98.352	pg		100
5) Vinyl Chloride	4.99	62	11745	111.943	pg		98
6) 1,3-Butadiene	5.19	54	4849	84.441	pg	#	88
7) Bromomethane	5.50	94	4128	98.383	pg		100
8) Chloroethane	5.73	64	3182	106.637	pg		100
9) Acrolein	6.33	56	2159	105.077	pg		97
10) Acetone	6.44	58	20346	716.095	pg		94
11) Trichlorofluoromethane	6.63	101	8394	103.465	pg		100
12) 1,1-Dichloroethene	7.37	96	4661	95.451	pg		99
13) Methylene Chloride	7.50	84	5391	101.267	pg		96
14) Trichlorotrifluoroethane	7.81	151	4817	96.872	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4931	94.167	pg		98
16) 1,1-Dichloroethane	8.73	63	8953	104.597	pg		100
17) Methyl tert-Butyl Ether	8.81	73	12102	84.531	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5082	91.197	pg		100
19) Chloroform	9.90	83	11091	115.996	pg		100
21) 1,2-Dichloroethane	10.65	62	7112	100.055	pg		99
22) 1,1,1-Trichloroethane	10.92	97	8527	98.308	pg		100
23) Benzene	11.38	78	22606	100.432	pg		100
24) Carbon Tetrachloride	11.53	117	7250	96.575	pg		100
26) 1,2-Dichloropropane	12.18	63	4916	109.781	pg		99
27) Bromodichloromethane	12.36	83	7064	106.960	pg		100
28) Trichloroethene	12.42	130	5234	98.142	pg		99
29) 1,4-Dioxane	12.40	88	3443	87.123	pg		99
30) cis-1,3-Dichloropropene	13.26	75	6586	92.530	pg		100
31) trans-1,3-Dichloropropene	13.78	75	5019	81.281	pg		98
32) 1,1,2-Trichloroethane	13.95	83	4311	106.452	pg		99
34) Toluene	14.25	91	19131	97.792	pg		100
35) Dibromochloromethane	14.67	129	5077	95.495	pg		99
36) 1,2-Dibromoethane	14.93	107	4870	92.124	pg		99
37) Tetrachloroethene	15.40	166	5324	92.572	pg		100
39) Chlorobenzene	16.11	112	13233	82.303	pg		100
40) Ethylbenzene	16.48	91	16705	67.945	pg		100
41) m,p-Xylene	16.66	91	23722	127.524	pg		100
42) Styrene	17.02	104	7858	57.514	pg		100
43) o-Xylene	17.12	106	6242	64.429	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8269	84.888	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	12552	62.683	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	11979	57.887	pg		98
48) 1,3-Dichlorobenzene	18.92	146	9551	77.394	pg		99
49) 1,4-Dichlorobenzene	18.98	146	9921	81.108	pg		99
50) 1,2-Dichlorobenzene	19.31	146	9578	78.589	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	2286	59.981	pg		94
52) 1,2,4-Trichlorobenzene	20.97	182	4905	72.480	pg		99
53) Naphthalene	21.10	128	14706	67.200	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

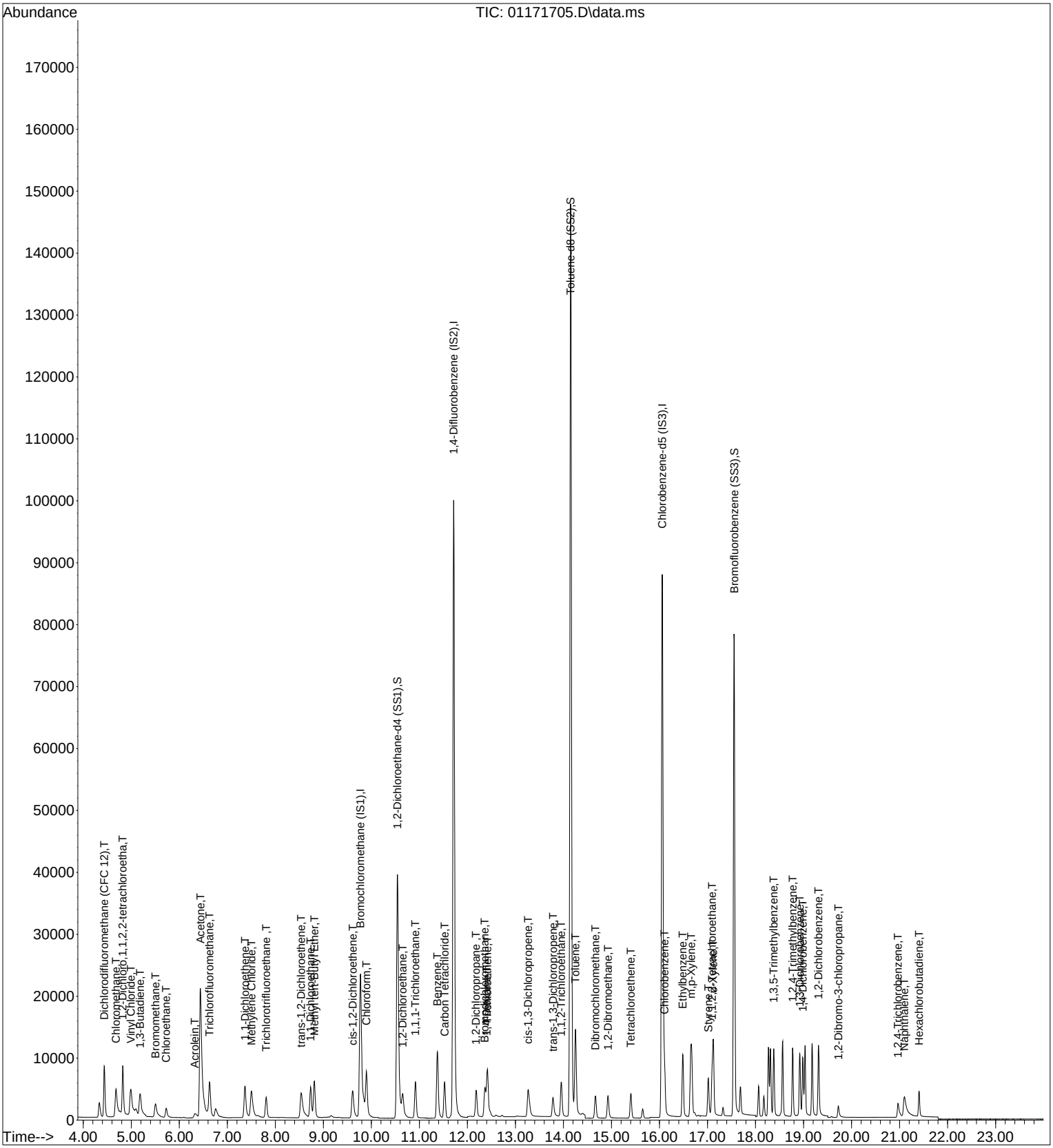
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4381	88.338	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171705.D Vial: 12
Acq On : 17 Jan 2017 18:03 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171716 (2/15)

Quant Time: Jan 18 07:24:26 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44783	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	223857	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	35971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	76373	1069.279	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.93%			
33) Toluene-d8 (SS2)	14.15	98	214856	1017.234	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.72%			
45) Bromofluorobenzene (SS3)	17.55	174	68493	994.333	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.43%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	57903	527.796	pg	100
3) Chloromethane	4.65	52	17671	597.432	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	55908	484.520	pg	100
5) Vinyl Chloride	4.96	62	57304	548.880	pg	98
6) 1,3-Butadiene	5.14	54	26914	471.005	pg	98
7) Bromomethane	5.47	94	20583	492.986	pg	99
8) Chloroethane	5.70	64	15883	534.918	pg	100
9) Acrolein	6.27	56	10449	511.065	pg	97
10) Acetone	6.40	58	78599	2780.075	pg	100
11) Trichlorofluoromethane	6.62	101	40646	503.487	pg	100
12) 1,1-Dichloroethene	7.35	96	23761	489.006	pg	100
13) Methylene Chloride	7.48	84	27670	522.344	pg	100
14) Trichlorotrifluoroethane	7.80	151	23647	477.910	pg	100
15) trans-1,2-Dichloroethene	8.51	96	25773	494.624	pg	100
16) 1,1-Dichloroethane	8.72	63	45178	530.427	pg	100
17) Methyl tert-Butyl Ether	8.79	73	66425	466.273	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27137	489.391	pg	100
19) Chloroform	9.89	83	49859	524.039	pg	100
21) 1,2-Dichloroethane	10.64	62	36835	520.779	pg	100
22) 1,1,1-Trichloroethane	10.91	97	42781	495.670	pg	100
23) Benzene	11.37	78	109329	488.127	pg	100
24) Carbon Tetrachloride	11.52	117	36299	485.923	pg	100
26) 1,2-Dichloropropane	12.18	63	25842	537.860	pg	100
27) Bromodichloromethane	12.35	83	36426	514.056	pg	100
28) Trichloroethene	12.41	130	27480	480.245	pg	100
29) 1,4-Dioxane	12.38	88	19294	455.035	pg	100
30) cis-1,3-Dichloropropene	13.26	75	37513	491.210	pg	100
31) trans-1,3-Dichloropropene	13.77	75	29982	452.542	pg	100
32) 1,1,2-Trichloroethane	13.95	83	22333	513.982	pg	100
34) Toluene	14.24	91	100318	477.936	pg	100
35) Dibromochloromethane	14.66	129	26901	471.596	pg	100
36) 1,2-Dibromoethane	14.92	107	26301	463.706	pg	100
37) Tetrachloroethene	15.40	166	28001	453.778	pg	100
39) Chlorobenzene	16.10	112	68884	414.549	pg	100
40) Ethylbenzene	16.48	91	98170	386.357	pg	100
41) m,p-Xylene	16.66	91	159206	828.133	pg	100
42) Styrene	17.01	104	55147	390.556	pg	100
43) o-Xylene	17.12	106	40898	408.468	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	45719	454.141	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	88844	429.303	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	88573	414.156	pg	100
48) 1,3-Dichlorobenzene	18.92	146	55988	438.991	pg	100
49) 1,4-Dichlorobenzene	18.98	146	54609	431.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	53756	426.789	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15593	395.886	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	29680	424.369	pg	100
53) Naphthalene	21.06	128	110354	487.941	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

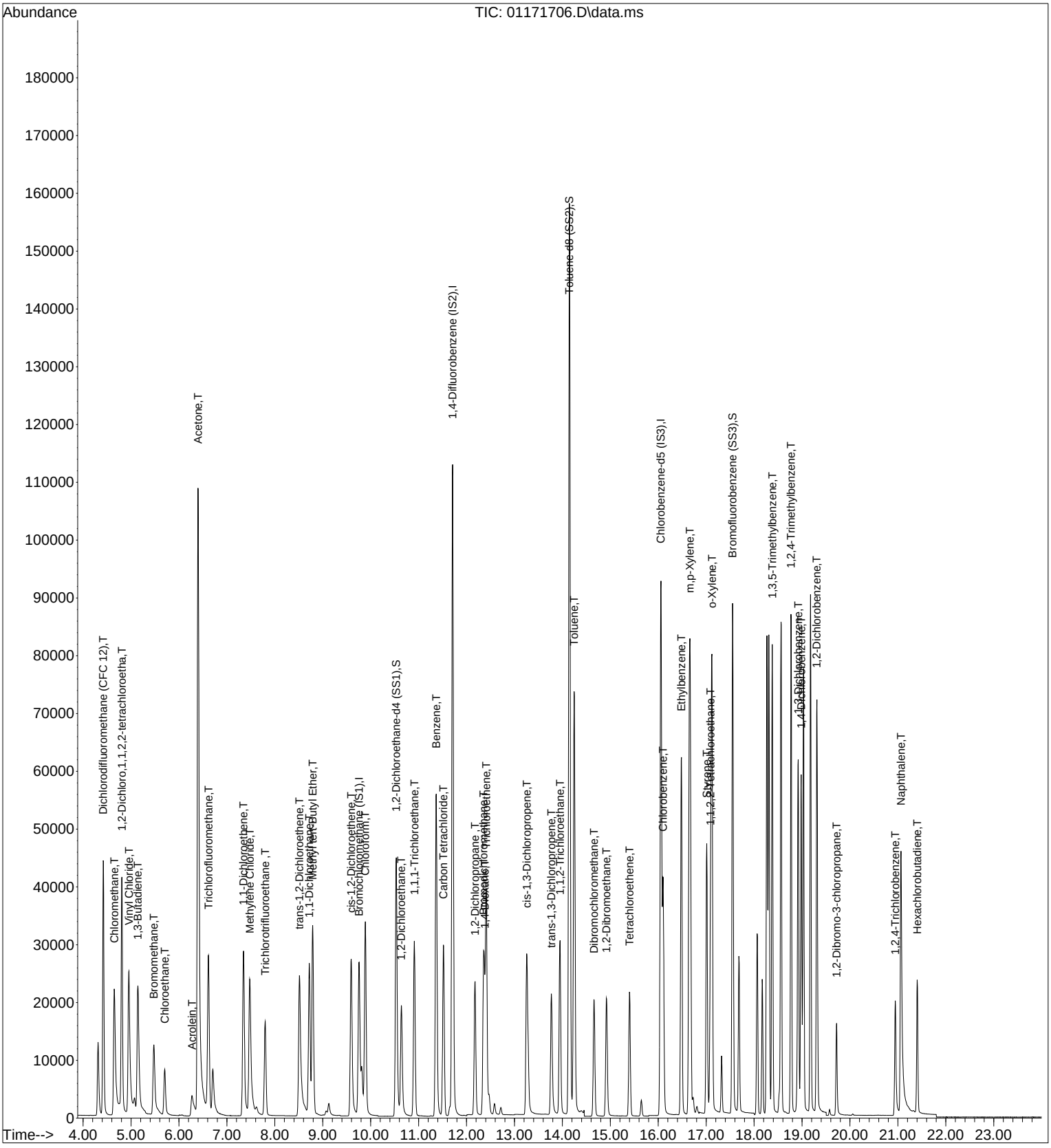
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22781	444.477	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171706.D Vial: 13
Acq On : 17 Jan 2017 18:34 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171706 (2/15)

Quant Time: Jan 18 07:24:27 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41854	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	211388	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	34552	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	71659	1073.490 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.35%		
33) Toluene-d8 (SS2)	14.15	98	204946	1027.551 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.76%		
45) Bromofluorobenzene (SS3)	17.55	174	66677	1007.722 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	121731	1187.250 pg	100
3) Chloromethane	4.64	52	35441	1282.063 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	116305	1078.480 pg	100
5) Vinyl Chloride	4.94	62	120378	1233.719 pg	100
6) 1,3-Butadiene	5.12	54	65737	1230.929 pg	95
7) Bromomethane	5.46	94	44725	1146.180 pg	99
8) Chloroethane	5.69	64	34327	1236.992 pg	100
9) Acrolein	6.26	56	23627	1236.477 pg	97
10) Acetone	6.39	58	166227	6290.964 pg	99
11) Trichlorofluoromethane	6.61	101	85251	1129.916 pg	100
12) 1,1-Dichloroethene	7.34	96	51989	1144.819 pg	99
13) Methylene Chloride	7.47	84	58254	1176.655 pg	98
14) Trichlorotrifluoroethane	7.80	151	50943	1101.618 pg	99
15) trans-1,2-Dichloroethene	8.51	96	55543	1140.554 pg	100
16) 1,1-Dichloroethane	8.72	63	96395	1210.958 pg	100
17) Methyl tert-Butyl Ether	8.78	73	152126	1142.583 pg	100
18) cis-1,2-Dichloroethene	9.59	96	58195	1122.938 pg	100
19) Chloroform	9.89	83	102450	1152.147 pg	100
21) 1,2-Dichloroethane	10.64	62	77861	1177.847 pg	100
22) 1,1,1-Trichloroethane	10.91	97	89539	1110.018 pg	100
23) Benzene	11.36	78	228212	1090.215 pg	100
24) Carbon Tetrachloride	11.52	117	75686	1084.088 pg	100
26) 1,2-Dichloropropane	12.17	63	55087	1214.178 pg	100
27) Bromodichloromethane	12.35	83	77510	1158.369 pg	100
28) Trichloroethene	12.41	130	58583	1084.198 pg	100
29) 1,4-Dioxane	12.38	88	43626	1089.578 pg	99
30) cis-1,3-Dichloropropene	13.25	75	84776	1175.571 pg	100
31) trans-1,3-Dichloropropene	13.76	75	68577	1096.142 pg	100
32) 1,1,2-Trichloroethane	13.95	83	47633	1160.911 pg	100
34) Toluene	14.25	91	217931	1099.513 pg	100
35) Dibromochloromethane	14.66	129	58454	1085.190 pg	100
36) 1,2-Dibromoethane	14.92	107	56919	1062.718 pg	100
37) Tetrachloroethene	15.40	166	59431	1019.938 pg	100
39) Chlorobenzene	16.10	112	147852	926.327 pg	100
40) Ethylbenzene	16.48	91	229006	938.287 pg	100
41) m,p-Xylene	16.66	91	373197	2020.962 pg	100
42) Styrene	17.01	104	132963	980.329 pg	100
43) o-Xylene	17.12	106	93607	973.294 pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	97982	1013.258 pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	202965	1021.026 pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	206583	1005.626 pg	100
48) 1,3-Dichlorobenzene	18.92	146	121633	992.867 pg	100
49) 1,4-Dichlorobenzene	18.98	146	118331	974.511 pg	100
50) 1,2-Dichlorobenzene	19.31	146	117767	973.396 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	35678	943.018 pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	63949	951.904 pg	100
53) Naphthalene	21.06	128	226576	1042.971 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

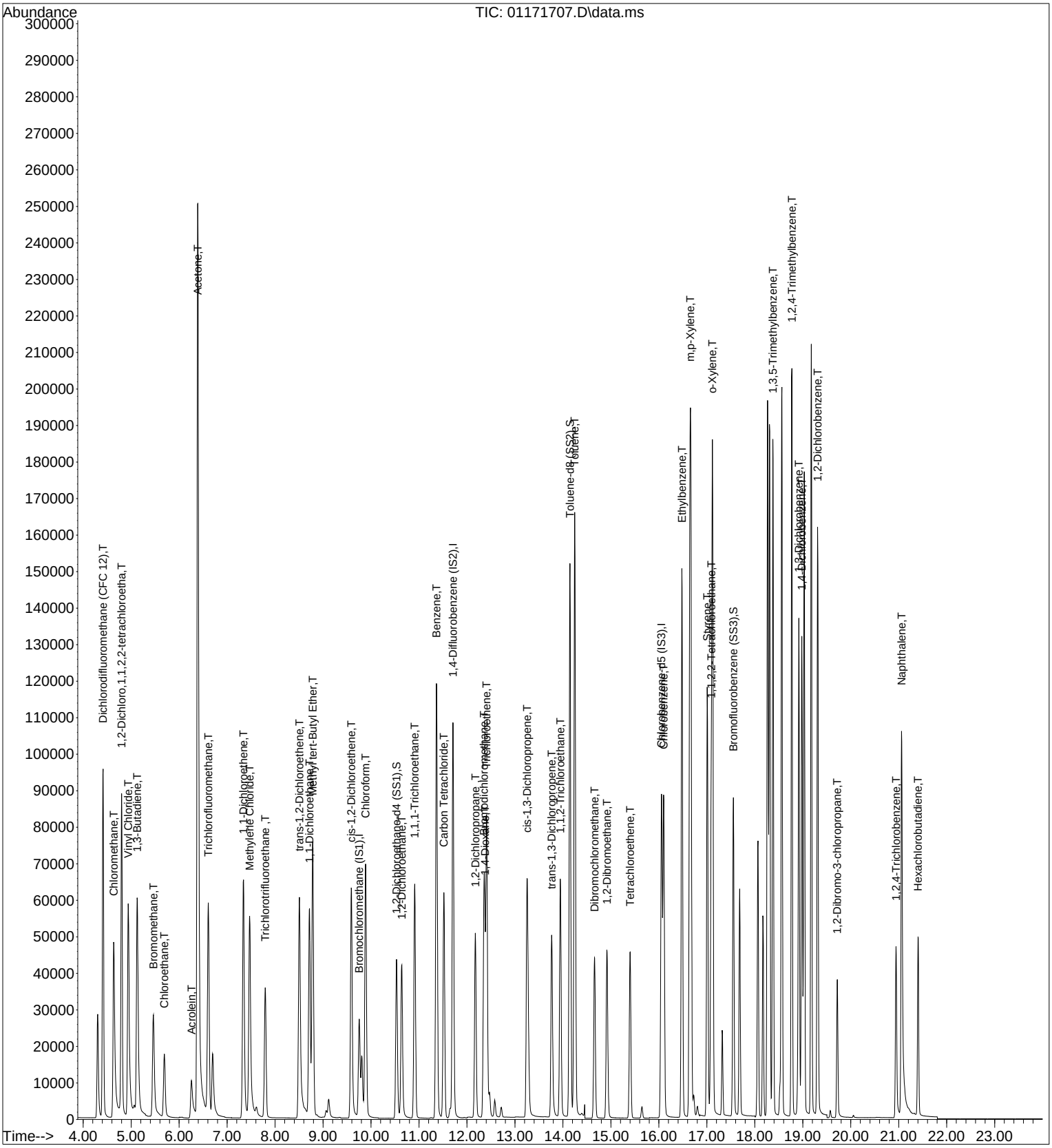
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	48651	988.207	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171707.D Vial: 14
Acq On : 17 Jan 2017 19:05 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:28 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	49899	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	257639	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43299	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88262	1109.038	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.90%			
33) Toluene-d8 (SS2)	14.15	98	255288	1050.178	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.02%			
45) Bromofluorobenzene (SS3)	17.55	174	83405	1005.894	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	247453	2024.319	pg	100
3) Chloromethane	4.62	52	68490	2078.144	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	228623	1778.193	pg	100
5) Vinyl Chloride	4.92	62	238576	2050.883	pg	100
6) 1,3-Butadiene	5.11	54	138108	2169.137	pg	96
7) Bromomethane	5.45	94	92015	1977.908	pg	99
8) Chloroethane	5.68	64	71654	2165.791	pg	100
9) Acrolein	6.24	56	53675	2356.106	pg	98
10) Acetone	6.38	58	345329	10962.102	pg	99
11) Trichlorofluoromethane	6.60	101	176787	1965.360	pg	100
12) 1,1-Dichloroethene	7.33	96	112198	2072.314	pg	99
13) Methylene Chloride	7.46	84	122524	2075.820	pg	96
14) Trichlorotrifluoroethane	7.79	151	105633	1915.981	pg	100
15) trans-1,2-Dichloroethene	8.50	96	120597	2077.152	pg	100
16) 1,1-Dichloroethane	8.71	63	205600	2166.421	pg	100
17) Methyl tert-Butyl Ether	8.78	73	343119	2161.595	pg	100
18) cis-1,2-Dichloroethene	9.59	96	128614	2081.629	pg	100
19) Chloroform	9.89	83	218678	2062.749	pg	100
21) 1,2-Dichloroethane	10.64	62	171849	2180.525	pg	99
22) 1,1,1-Trichloroethane	10.91	97	194583	2023.336	pg	100
23) Benzene	11.36	78	497703	1994.293	pg	100
24) Carbon Tetrachloride	11.52	117	162647	1954.070	pg	100
26) 1,2-Dichloropropane	12.17	63	124072	2243.757	pg	99
27) Bromodichloromethane	12.36	83	172250	2112.113	pg	100
28) Trichloroethene	12.41	130	126555	1921.697	pg	100
29) 1,4-Dioxane	12.37	88	101211	2074.002	pg	100
30) cis-1,3-Dichloropropene	13.25	75	201886	2296.947	pg	100
31) trans-1,3-Dichloropropene	13.77	75	167726	2199.670	pg	100
32) 1,1,2-Trichloroethane	13.95	83	105668	2113.019	pg	99
34) Toluene	14.25	91	491292	2033.714	pg	99
35) Dibromochloromethane	14.66	129	130445	1986.954	pg	100
36) 1,2-Dibromoethane	14.92	107	129865	1989.398	pg	100
37) Tetrachloroethene	15.40	166	129671	1825.880	pg	99
39) Chlorobenzene	16.10	112	329882	1649.268	pg	100
40) Ethylbenzene	16.48	91	546206	1785.832	pg	100
41) m,p-Xylene	16.65	91	859634	3714.745	pg	100
42) Styrene	17.01	104	329876	1940.828	pg	100
43) o-Xylene	17.12	106	213725	1773.316	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	221503	1827.884	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	465772	1869.753	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	485157	1884.602	pg	100
48) 1,3-Dichlorobenzene	18.92	146	274169	1785.884	pg	100
49) 1,4-Dichlorobenzene	18.98	146	266980	1754.536	pg	100
50) 1,2-Dichlorobenzene	19.31	146	265562	1751.568	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	86836	1831.532	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	154909	1840.057	pg	100
53) Naphthalene	21.05	128	551610	2026.216	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

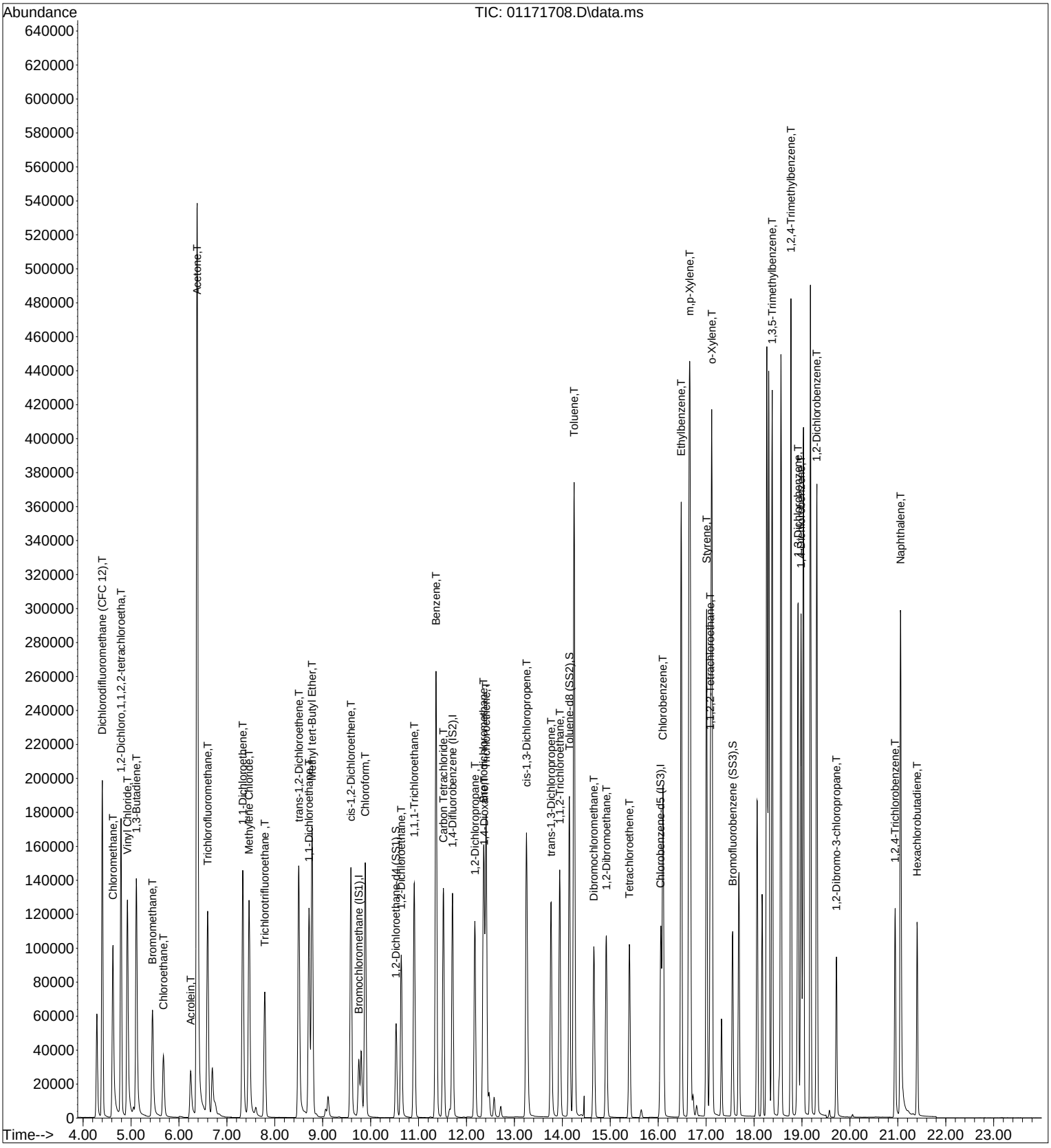
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	111017	1799.455	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171708.D Vial: 14
Acq On : 17 Jan 2017 19:37 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:29 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	51471	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	264394	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44009	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91124	1110.030	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.00%			
33) Toluene-d8 (SS2)	14.14	98	257959	1034.054	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.40%			
45) Bromofluorobenzene (SS3)	17.55	174	86940	1031.611	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	611787	4851.944	pg	100
3) Chloromethane	4.61	52	162688	4785.564	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.78	85	538033	4056.926	pg	100
5) Vinyl Chloride	4.91	62	575174	4793.389	pg	100
6) 1,3-Butadiene	5.10	54	447352	6811.564	pg	99
7) Bromomethane	5.44	94	222851	4643.991	pg	100
8) Chloroethane	5.66	64	179461	5258.665	pg	100
9) Acrolein	6.24	56	140240	5967.932	pg	99
10) Acetone	6.38	58	838814	25814.022	pg	100
11) Trichlorofluoromethane	6.59	101	429622	4630.282	pg	100
12) 1,1-Dichloroethene	7.33	96	280850	5028.913	pg	99
13) Methylene Chloride	7.47	84	297672	4889.177	pg	95
14) Trichlorotrifluoroethane	7.79	151	256794	4515.498	pg	100
15) trans-1,2-Dichloroethene	8.50	96	296591	4952.436	pg	98
16) 1,1-Dichloroethane	8.72	63	498199	5089.227	pg	100
17) Methyl tert-Butyl Ether	8.77	73	870563	5316.907	pg	100
18) cis-1,2-Dichloroethene	9.59	96	319642	5015.430	pg	100
19) Chloroform	9.89	83	522733	4780.247	pg	100
21) 1,2-Dichloroethane	10.64	62	415972	5116.905	pg	99
22) 1,1,1-Trichloroethane	10.91	97	467116	4708.873	pg	100
23) Benzene	11.36	78	1167900	4536.841	pg	100
24) Carbon Tetrachloride	11.52	117	391780	4563.159	pg	100
26) 1,2-Dichloropropane	12.18	63	298095	5253.114	pg	99
27) Bromodichloromethane	12.36	83	413069	4935.606	pg	100
28) Trichloroethene	12.41	130	299094	4425.611	pg	100
29) 1,4-Dioxane	12.37	88	249371	4979.520	pg	98
30) cis-1,3-Dichloropropene	13.25	75	509471	5648.385	pg	100
31) trans-1,3-Dichloropropene	13.76	75	433329	5537.769	pg	99
32) 1,1,2-Trichloroethane	13.95	83	248128	4834.991	pg	99
34) Toluene	14.25	91	1167322	4708.699	pg	99
35) Dibromochloromethane	14.66	129	317694	4715.519	pg	100
36) 1,2-Dibromoethane	14.92	107	312953	4671.632	pg	100
37) Tetrachloroethene	15.40	166	308906	4238.535	pg	100
39) Chlorobenzene	16.10	112	788966	3880.853	pg	100
40) Ethylbenzene	16.48	91	1336188	4298.214	pg	99
41) m,p-Xylene	16.66	91	2064784	8778.622	pg	100
42) Styrene	17.01	104	851189	4927.183	pg	99
43) o-Xylene	17.12	106	518661	4234.000	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	529607	4299.908	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1148790	4537.200	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	1215602	4645.849	pg	100
48) 1,3-Dichlorobenzene	18.92	146	674217	4320.868	pg	99
49) 1,4-Dichlorobenzene	18.98	146	667180	4313.829	pg	100
50) 1,2-Dichlorobenzene	19.31	146	659140	4277.354	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	232958	4834.246	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	416069	4862.465	pg	100
53) Naphthalene	21.06	128	1434819	5185.458	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

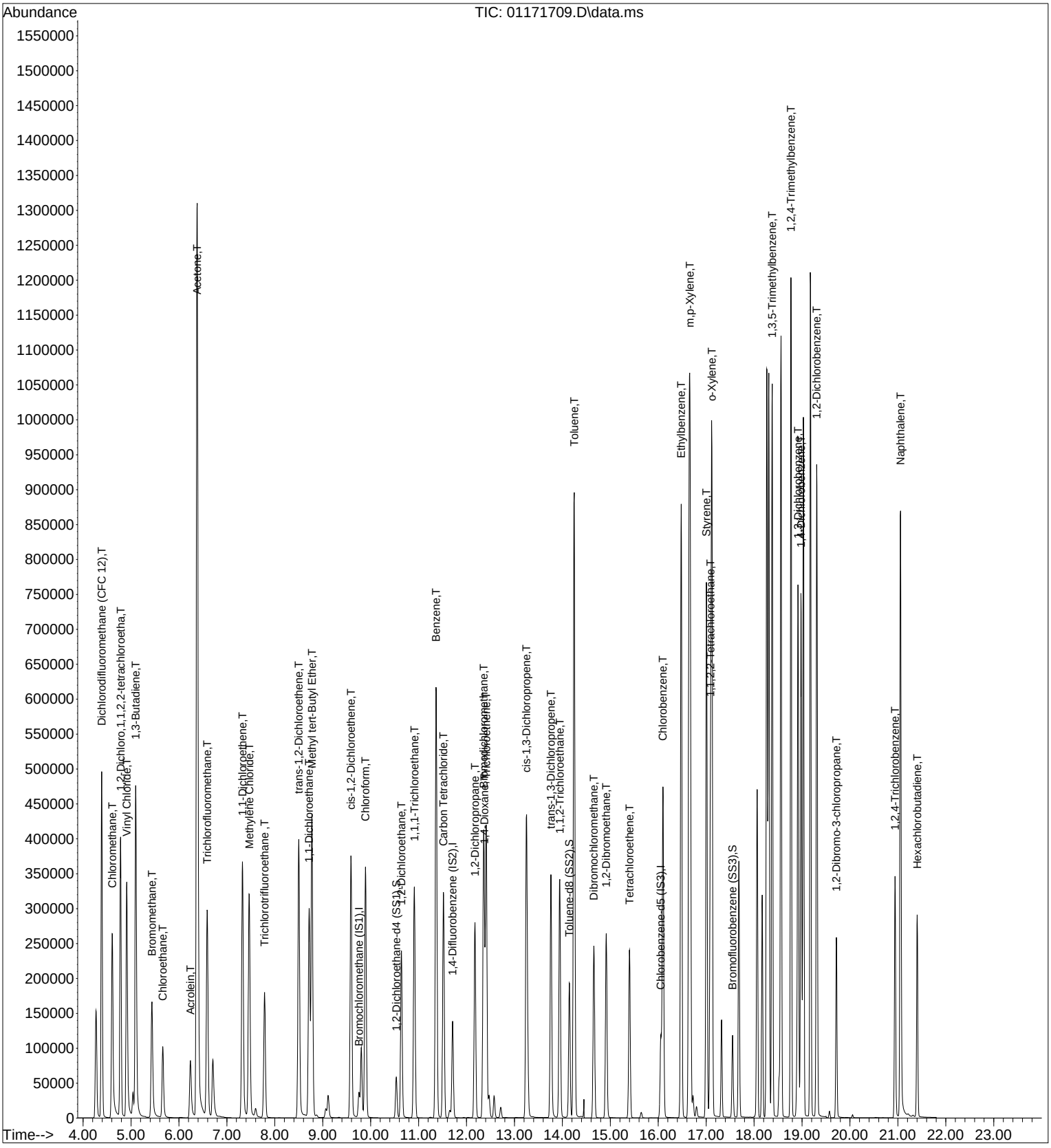
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	275708	4396.805	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171709.D Vial: 14
Acq On : 17 Jan 2017 20:08 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:31 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	53379	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	279881	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	48593	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	94759	1113.049 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.30%		
33) Toluene-d8 (SS2)	14.15	98	279681	1059.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.91%		
45) Bromofluorobenzene (SS3)	17.55	174	94952	1020.395 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1158767	8861.430 pg	99
3) Chloromethane	4.61	52	274485	7785.534 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1063755	7734.316 pg	99
5) Vinyl Chloride	4.92	62	1140580	9165.610 pg	99
6) 1,3-Butadiene	5.10	54	900496	13221.217 pg	100
7) Bromomethane	5.44	94	431171	8664.001 pg	100
8) Chloroethane	5.67	64	349873	9885.714 pg	100
9) Acrolein	6.25	56	284896	11690.431 pg	98
10) Acetone	6.39	58	1668142	49501.140 pg	97
11) Trichlorofluoromethane	6.60	101	856479	8900.816 pg	100
12) 1,1-Dichloroethene	7.33	96	567179	9792.915 pg	100
13) Methylene Chloride	7.48	84	591936	9374.858 pg	95
14) Trichlorotrifluoroethane	7.79	151	519911	8815.399 pg	100
15) trans-1,2-Dichloroethene	8.51	96	597200	9615.523 pg	98
16) 1,1-Dichloroethane	8.73	63	984096	9693.455 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1759796	10363.665 pg	99
18) cis-1,2-Dichloroethene	9.60	96	647815	9801.386 pg	99
19) Chloroform	9.90	83	1045644	9220.330 pg	100
21) 1,2-Dichloroethane	10.64	62	839148	9953.459 pg	99
22) 1,1,1-Trichloroethane	10.92	97	946619	9201.522 pg	100
23) Benzene	11.37	78	2369768	8876.584 pg	100
24) Carbon Tetrachloride	11.52	117	807906	9073.532 pg	100
26) 1,2-Dichloropropane	12.18	63	618002	10287.981 pg	99
27) Bromodichloromethane	12.35	83	857971	9684.309 pg	100
28) Trichloroethene	12.42	130	618303	8642.613 pg	100
29) 1,4-Dioxane	12.37	88	524841	9900.280 pg	98
30) cis-1,3-Dichloropropene	13.25	75	1095423	11472.680 pg	100
31) trans-1,3-Dichloropropene	13.76	75	948476	11450.426 pg	99
32) 1,1,2-Trichloroethane	13.95	83	519685	9566.173 pg	98
34) Toluene	14.25	91	2448345	9329.557 pg	97
35) Dibromochloromethane	14.66	129	682022	9563.063 pg	99
36) 1,2-Dibromoethane	14.92	107	669068	9434.914 pg	100
37) Tetrachloroethene	15.40	166	652501	8457.631 pg	100
39) Chlorobenzene	16.10	112	1668556	7433.228 pg	99
40) Ethylbenzene	16.48	91	2843791	8284.875 pg	98
41) m,p-Xylene	16.66	91	4428786	17053.134 pg	99
42) Styrene	17.01	104	1858705	9744.306 pg	99
43) o-Xylene	17.12	106	1116713	8256.132 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	1127006	8287.040 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2451635	8769.420 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	2594315	8979.749 pg	99
48) 1,3-Dichlorobenzene	18.92	146	1422881	8258.624 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1396602	8178.249 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1387349	8153.630 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	507964	9546.668 pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	890866	9429.122 pg	100
53) Naphthalene	21.06	128	3037991	9943.615 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

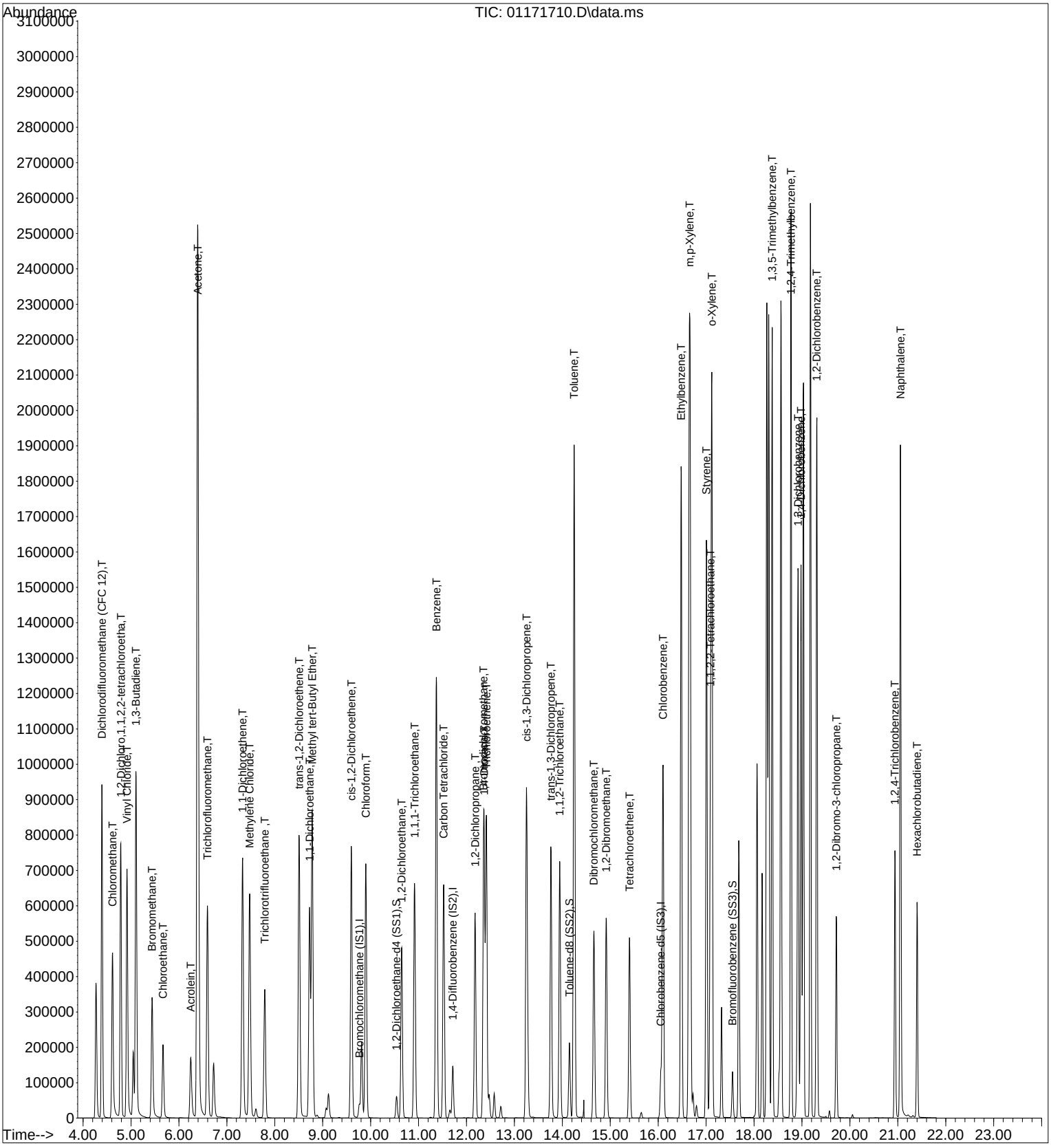
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	579610	8371.273	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171710.D Vial: 14
Acq On : 17 Jan 2017 20:40 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171704 (2/15)

Quant Time: Jan 18 07:24:32 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:23:41 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	48994	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	259610	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	51950	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	84223	992.600	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
33) Toluene-d8 (SS2)	14.15	98	261389	1013.605	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%				
45) Bromofluorobenzene (SS3)	17.55	174	77405	814.465	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.39	85	6222820	50276.018	pg		96
3) Chloromethane	4.61	52	1662075	45073.048	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5669332	46556.083	pg		97
5) Vinyl Chloride	4.92	62	6184642	52267.677	pg		97
6) 1,3-Butadiene	5.12	54	5086663	72304.786	pg		96
7) Bromomethane	5.45	94	2549125	53553.608	pg		99
8) Chloroethane	5.68	64	2042004	56091.573	pg		98
9) Acrolein	6.27	56	1747738	67581.094	pg		97
10) Acetone	6.42	58	11057699	330702.026	pg	#	65
11) Trichlorofluoromethane	6.60	101	5086782	60087.511	pg		98
12) 1,1-Dichloroethene	7.33	96	3496273	65921.805	pg		96
13) Methylene Chloride	7.50	84	3700171	64289.836	pg		96
14) Trichlorotrifluoroethane	7.79	151	3286834	62117.553	pg		99
15) trans-1,2-Dichloroethene	8.52	96	3732175	65274.350	pg		97
16) 1,1-Dichloroethane	8.74	63	5933631	58494.039	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10999461	72666.236	pg		98
18) cis-1,2-Dichloroethene	9.61	96	4030033	67166.715	pg		98
19) Chloroform	9.92	83	6335999	59396.627	pg		97
21) 1,2-Dichloroethane	10.66	62	5012880	61047.099	pg		97
22) 1,1,1-Trichloroethane	10.93	97	5852926	59107.330	pg		98
23) Benzene	11.38	78	13991141	59530.393	pg		98
24) Carbon Tetrachloride	11.53	117	5137103	64608.175	pg		99
26) 1,2-Dichloropropane	12.19	63	3853612	58276.449	pg		99
27) Bromodichloromethane	12.37	83	5446581	59646.331	pg		98
28) Trichloroethene	12.42	130	4035166	59783.930	pg		99
29) 1,4-Dioxane	12.38	88	3524162	71106.670	pg		99
30) cis-1,3-Dichloropropene	13.26	75	7075457	79551.009	pg		96
31) trans-1,3-Dichloropropene	13.77	75	6168468	85221.866	pg		96
32) 1,1,2-Trichloroethane	13.95	83	3319226	59342.367	pg		97
34) Toluene	14.25	91	14094915	58518.318	pg		90
35) Dibromochloromethane	14.66	129	4412882	66161.605	pg		99
36) 1,2-Dibromoethane	14.92	107	4212936	66784.684	pg		97
37) Tetrachloroethene	15.40	166	4173932	59641.517	pg		99
39) Chlorobenzene	16.10	112	10175088	50808.203	pg		95
40) Ethylbenzene	16.48	91	16076899	54438.811	pg		88
41) m,p-Xylene	16.67	91	24577992	110958.064	pg		88
42) Styrene	17.01	104	11369546	73263.041	pg		99
43) o-Xylene	17.13	106	7223082	63475.652	pg	#	86
44) 1,1,2,2-Tetrachloroethane	17.10	83	6976652	53358.799	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	13504870	57595.146	pg		89
47) 1,2,4-Trimethylbenzene	18.77	105	13712903	59582.631	pg		93
48) 1,3-Dichlorobenzene	18.93	146	8569906	60584.241	pg		95
49) 1,4-Dichlorobenzene	18.98	146	8550972	58062.079	pg		97
50) 1,2-Dichlorobenzene	19.31	146	8216491	56998.294	pg		97
51) 1,2-Dibromo-3-chloropr...	19.72	157	3200974	73456.615	pg		95
52) 1,2,4-Trichlorobenzene	20.94	182	5870013	68794.795	pg		97
53) Naphthalene	21.06	128	17325529	63945.198	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

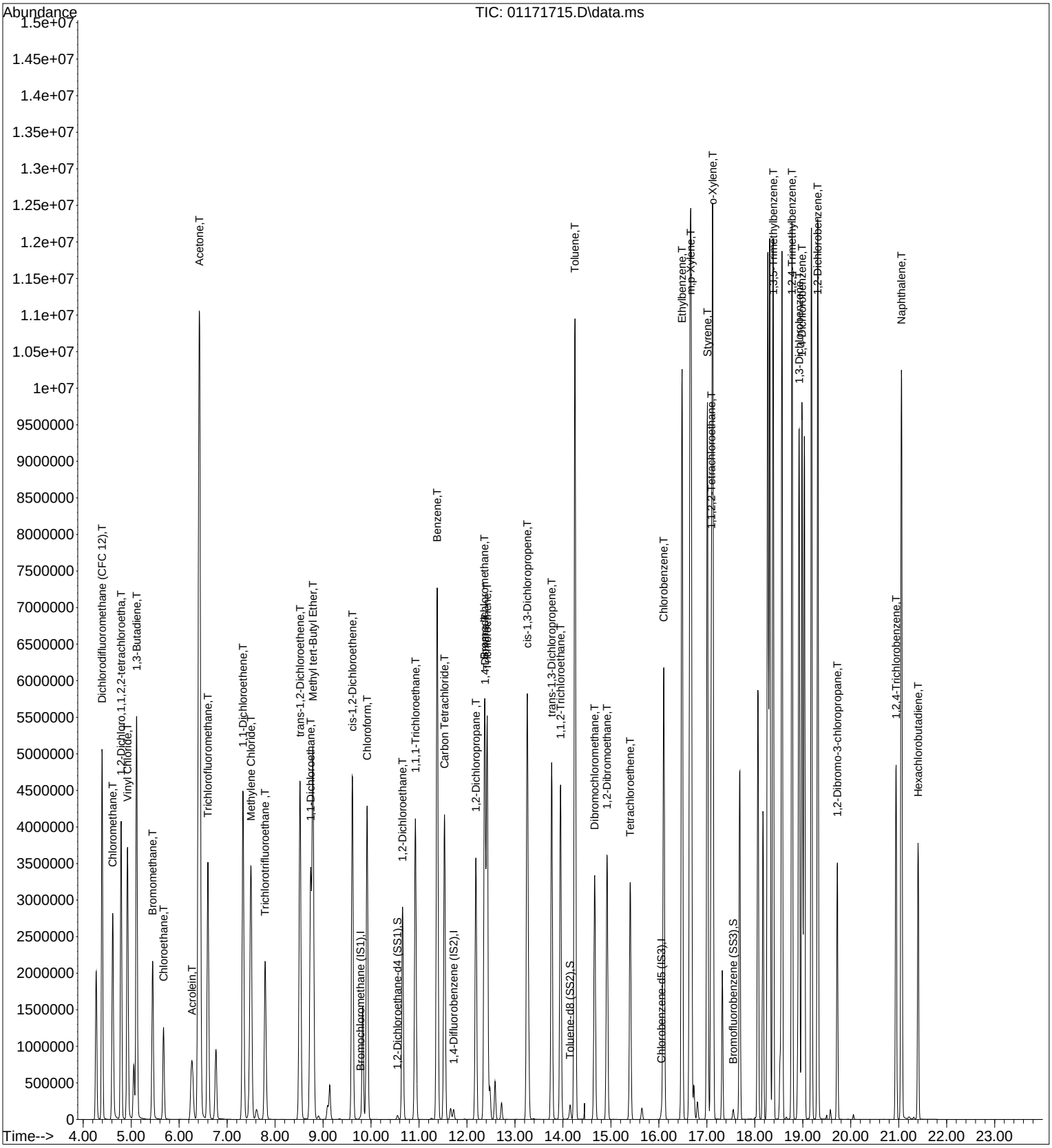
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3585940	53121.132	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171715.D Vial: 15
Acq On : 18 Jan 2017 8:36 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-12201602/S29-01171703 (2/15)

Quant Time: Jan 18 09:38:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:59:36 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/18/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	56871	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	293517	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	48017	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	98896	1005.592	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.56%			
33) Toluene-d8 (SS2)	14.14	98	290339	996.780	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.68%			
45) Bromofluorobenzene (SS3)	17.55	174	90799	1043.534	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	69338	471.957	pg	100
3) Chloromethane	4.65	52	17844	406.769	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	56555	390.672	pg	100
5) Vinyl Chloride	4.96	62	61652	435.788	pg	99
6) 1,3-Butadiene	5.14	54	37733	448.010	pg	99
7) Bromomethane	5.48	94	26516	467.340	pg	99
8) Chloroethane	5.70	64	19726	454.881	pg	99
9) Acrolein	6.27	56	13399	434.203	pg	90
10) Acetone	6.40	58	96846	2402.494	pg	98
11) Trichlorofluoromethane	6.62	101	49134	484.265	pg	100
12) 1,1-Dichloroethene	7.35	96	29796	469.131	pg	100
13) Methylene Chloride	7.48	84	33858	489.608	pg	99
14) Trichlorotrifluoroethane	7.80	151	28980	457.096	pg	100
15) trans-1,2-Dichloroethene	8.51	96	32477	475.859	pg	100
16) 1,1-Dichloroethane	8.72	63	57248	472.741	pg	100
17) Methyl tert-Butyl Ether	8.79	73	91659	504.283	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34339	478.798	pg	100
19) Chloroform	9.89	83	59448	464.658	pg	100
21) 1,2-Dichloroethane	10.64	62	45246	461.957	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51296	434.739	pg	100
23) Benzene	11.37	78	136420	484.201	pg	100
24) Carbon Tetrachloride	11.52	117	43769	458.771	pg	100
26) 1,2-Dichloropropane	12.18	63	31806	415.382	pg	100
27) Bromodichloromethane	12.36	83	43667	412.346	pg	100
28) Trichloroethene	12.41	130	33704	430.145	pg	100
29) 1,4-Dioxane	12.38	88	26461	457.975	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48404	466.274	pg	100
31) trans-1,3-Dichloropropene	13.77	75	41760	491.977	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27236	419.834	pg	99
34) Toluene	14.25	91	129232	461.961	pg	99
35) Dibromochloromethane	14.66	129	31679	408.009	pg	100
36) 1,2-Dibromoethane	14.92	107	32956	448.940	pg	99
37) Tetrachloroethene	15.40	166	34244	421.401	pg	99
39) Chlorobenzene	16.10	112	87017	459.730	pg	100
40) Ethylbenzene	16.48	91	136951	490.315	pg	100
41) m,p-Xylene	16.66	91	215620	1029.387	pg	99
42) Styrene	17.01	104	74141	500.898	pg	100
43) o-Xylene	17.12	106	53980	499.013	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	53699	434.078	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	115462	520.067	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	118789	545.246	pg	99
48) 1,3-Dichlorobenzene	18.92	146	69325	516.869	pg	100
49) 1,4-Dichlorobenzene	18.98	146	68725	492.131	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66421	486.560	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19760	474.596	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	40364	496.517	pg	100
53) Naphthalene	21.07	128	139369	543.202	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

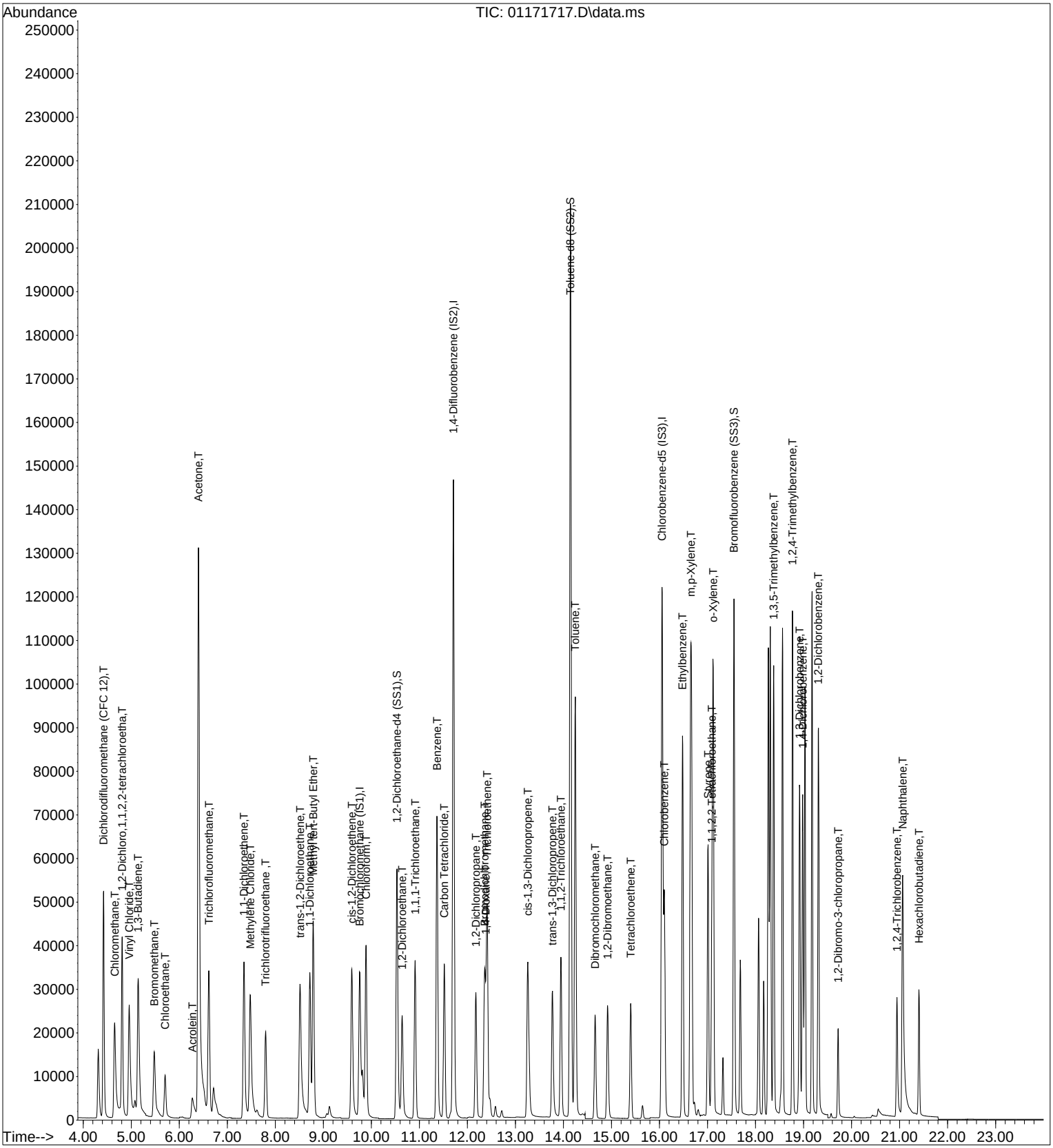
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	28497	446.007	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\17\01171717.D Vial: 9
Acq On : 18 Jan 2017 10:23 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-12201602/S29-01171714 (2/15)

Quant Time: Jan 18 10:48:25 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 09:41:20 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 01171717.D
Data File Path: I:\MS19\DATA\2017_01\17\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-12201602/S29-01171714 (2/15)
Date Acquired: 1/18/17 10:23 CL 1/18/17
Acq. Method File: TO15SIM.M

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.42	525	472.0	89.9	70	130	*
3)	Chloromethane	4.65	524.5	406.8	77.6	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.81	527.5	390.7	74.1	70	130	*
5)	Vinyl Chloride	4.96	525	435.8	83.0	70	130	*
6)	*1,3-Butadiene*	5.14	525	448.0	85.3	70	130	*
7)	Bromomethane	5.48	525	467.3	89.0	70	130	*
8)	Chloroethane	5.70	524.5	454.9	86.7	70	130	*
9)	*Acrolein*	6.27	530.5	434.2	81.8	70	130	*
10)	Acetone	6.40	2661	2402.5	90.3	70	130	*
11)	Trichlorofluoromethane	6.62	525.5	484.3	92.2	70	130	*
12)	1,1-Dichloroethene	7.35	531.5	469.1	88.3	70	130	*
13)	Methylene Chloride	7.48	531	489.6	92.2	70	130	*
14)	Trichlorotrifluoroethane	7.80	529	457.1	86.4	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	475.9	89.2	70	130	*
16)	1,1-Dichloroethane	8.72	531	472.7	89.0	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	504.3	94.8	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	478.8	90.4	70	130	*
19)	Chloroform	9.89	529.5	464.7	87.8	70	130	*
21)	1,2-Dichloroethane	10.64	530	462.0	87.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	434.7	82.1	70	130	*
25)	Benzene	11.37	530.5	484.2	91.3	70	130	*
24)	Carbon Tetrachloride	11.52	532	458.8	86.2	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	415.4	78.3	70	130	*
27)	Bromodichloromethane	12.36	534	412.3	77.2	70	130	*
28)	Trichloroethene	12.41	531	430.1	81.0	70	130	*
29)	1,4-Dioxane	12.38	532	458.0	86.1	70	130	*
30)	cis-1,3-Dichloropropene	13.26	525.5	466.3	88.7	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	492.0	92.2	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	419.8	79.1	70	130	*
34)	Toluene	14.14	529	462.0	87.3	70	130	*
35)	*Dibromochloromethane*	14.66	532	408.0	76.7	70	130	*
36)	1,2-Dibromoethane	14.92	529	448.9	84.9	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	459.7	86.7	70	130	*
40)	Ethylbenzene	16.48	529	490.3	92.7	70	130	*
41)	m,p-Xylene	16.66	1060.5	1029.4	97.1	70	130	*
42)	*Styrene*	17.01	529.5	500.9	94.6	70	130	*
43)	o-Xylene	17.12	529	499.0	94.3	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	434.1	81.9	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	520.1	98.0	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	545.2	102.8	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	516.9	97.6	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	492.1	92.3	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	486.6	91.6	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	474.6	89.6	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	496.5	93.7	70	130	*
53)	Naphthalene	19.31	534	543.2	101.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	446.0	83.9	70	130	*

Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response Via : Initial Calibration

CL 2/1/17

Calibration Files
10 =01311715.D 20 =01311716.D 50 =01311717.D 100 =01311718.D 500 =01311719.D 1000=01311720.D 2000=01311721.D
5000=01311722.D 10K =01311723.D 50K =01311725.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	2.608	2.820	2.639	2.389	2.332	2.624	2.277	2.121	1.991	1.810	2.361	13.58
3)	T	Chloromethane			0.722	0.582	0.495	0.720	0.567	0.439	0.268	0.433	0.528	29.04
4)	T	1,2-Dichloro,1...	2.506	2.728	2.524	2.214	2.212	2.453	2.105	1.960	1.845	1.743	2.229	14.46
5)	T	Vinyl Chloride	2.663	2.164	2.406	2.063	2.012	2.274	1.955	1.854	1.767	1.677	2.084	14.51
6)	T	1,3-Butadiene		1.373	0.773	1.008	1.147	1.606	1.340	1.428	1.357	1.393	1.269	19.82
7)	T	Bromomethane	0.848	0.944	0.863	0.807	0.819	0.917	0.815	0.767	0.735	0.745	0.826	8.38
8)	T	Chloroethane	0.639	0.757	0.678	0.658	0.651	0.730	0.640	0.620	0.602	0.596	0.657	7.96
9)	T	Acrolein			0.641	0.565	0.484	0.567	0.514	0.516	0.509	0.528	0.540	9.11
10)	T	Acetone				0.927	0.642	0.710	0.613	0.580	0.565	0.657	0.671	18.39
11)	T	Trichlorofluor...	1.889	2.169	2.029	1.820	1.775	1.978	1.713	1.642	1.571	1.583	1.817	10.99
12)	T	1,1-Dichloroet...	1.063	1.220	1.141	1.044	1.040	1.179	1.038	1.000	0.964	0.967	1.066	8.22
13)	T	Methylene Chlo...		1.370	1.220	1.075	1.059	1.181	1.034	0.993	0.964	0.989	1.098	12.17
14)	T	Trichlorotrifl...	1.138	1.282	1.192	1.063	1.060	1.208	1.049	1.008	0.944	0.999	1.094	9.77
15)	T	trans-1,2-Dich...	1.075	1.096	1.026	1.058	1.085	1.246	1.103	1.060	1.012	1.009	1.077	6.31
16)	T	1,1-Dichloroet...	1.843	2.111	1.994	1.821	1.872	2.104	1.837	1.744	1.677	1.683	1.869	8.37
17)	T	Methyl tert-Bu...	3.545	4.009	3.704	3.377	3.408	3.797	3.293	3.114	2.997	3.088	3.433	9.63
18)	T	cis-1,2-Dichlo...	1.158	1.080	1.249	1.134	1.174	1.327	1.174	1.131	1.089	1.088	1.160	6.70
19)	T	Chloroform			2.631	2.164	1.969	2.189	1.899	1.809	1.738	1.760	2.020	14.87
20)	S	1,2-Dichloroet...	1.545	1.552	1.558	1.566	1.600	1.551	1.560	1.577	1.604	1.567	1.568	1.28
21)	T	1,2-Dichloroet...	1.442	1.617	1.548	1.425	1.455	1.671	1.477	1.433	1.389	1.406	1.486	6.36
22)	T	1,1,1-Trichlor...	1.944	2.218	2.057	1.856	1.876	2.111	1.845	1.755	1.679	1.688	1.903	9.47
23)	T	Benzene			5.575	4.588	4.295	4.800	4.160	3.970	3.819	3.904	4.389	13.37
24)	T	Carbon Tetrach...	2.006	2.025	1.906	1.717	1.714	1.922	1.679	1.609	1.555	1.590	1.772	9.97
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.256	0.234	0.231	0.210	0.213	0.244	0.216	0.209	0.202	0.212	0.223	7.87
27)	T	Bromodichlorom...	0.314	0.380	0.346	0.312	0.311	0.355	0.315	0.303	0.291	0.318	0.324	8.39
28)	T	Trichloroethene	0.268	0.294	0.272	0.248	0.249	0.283	0.247	0.234	0.223	0.238	0.256	8.90
29)	T	1,4-Dioxane	0.197	0.220	0.202	0.186	0.191	0.215	0.190	0.182	0.173	0.192	0.195	7.42
30)	T	cis-1,3-Dichlo...	0.354	0.361	0.359	0.336	0.349	0.406	0.366	0.358	0.347	0.383	0.362	5.51
31)	T	trans-1,3-Dich...	0.276	0.284	0.293	0.287	0.304	0.360	0.331	0.330	0.322	0.342	0.313	8.98
32)	T	1,1,2-Trichlor...	0.199	0.210	0.196	0.177	0.182	0.209	0.184	0.177	0.169	0.181	0.188	7.48
33)	S	Toluene-d8 (SS2)	1.002	1.004	1.005	1.006	1.012	1.015	1.013	1.006	1.000	0.991	1.005	0.70
34)	T	Toluene	1.177	1.131	1.031	0.915	0.903	1.024	0.899	0.856	0.814	0.830	0.958	13.18
35)	T	Dibromochlorom...	0.256	0.310	0.296	0.270	0.265	0.305	0.274	0.269	0.261	0.275	0.278	6.78
36)	T	1,2-Dibromoethane	0.243	0.258	0.256	0.239	0.243	0.283	0.253	0.246	0.237	0.244	0.250	5.39
37)	T	Tetrachloroethene	0.276	0.304	0.285	0.259	0.264	0.302	0.269	0.261	0.250	0.261	0.273	6.77
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	4.147	4.403	4.142	3.703	3.717	4.228	3.718	3.529	3.298	2.878	3.776	12.41
40)	T	Ethylbenzene	6.758	7.267	6.938	6.280	6.372	7.205	6.271	5.889	5.468	4.732	6.318	12.59
41)	T	m,p-Xylene	5.487	5.879	5.505	4.783	4.870	5.477	4.740	4.490	4.271	3.761	4.926	13.36

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	3.409	3.984	3.895	3.642	3.755	4.367	3.917	3.831	3.661	3.283	3.774	8.09
43)	T	o-Xylene	2.601	2.846	2.666	2.400	2.404	2.709	2.365	2.258	2.153	2.089	2.449	10.19
44)	T	1,1,2,2-Tetrac...	2.558	2.718	2.475	2.246	2.274	2.580	2.277	2.198	2.097	1.971	2.339	10.06
45)	S	Bromofluoroben...	2.101	2.135	2.143	2.135	2.150	2.173	2.208	2.245	2.217	1.863	2.137	4.95
46)	T	1,3,5-Trimethy...	5.354	6.071	5.706	5.192	5.320	6.016	5.271	5.108	4.886	4.211	5.314	10.27
47)	T	1,2,4-Trimethy...	4.773	5.865	5.673	5.206	5.357	6.143	5.444	5.330	5.135	4.566	5.349	8.86
48)	T	1,3-Dichlorobe...	2.261	2.915	3.101	2.893	2.965	3.499	3.117	3.073	2.910	2.645	2.938	11.00
49)	T	1,4-Dichlorobe...	2.987	3.454	3.363	3.076	3.006	3.456	3.111	3.056	2.909	2.586	3.100	8.63
50)	T	1,2-Dichlorobe...	2.752	3.125	3.134	2.878	2.894	3.368	3.014	2.963	2.817	2.687	2.963	6.90
51)	T	1,2-Dibromo-3-...	1.023	0.919	1.026	0.972	1.032	1.236	1.155	1.176	1.136	0.986	1.066	9.65
52)	T	1,2,4-Trichlor...	2.244	2.238	2.104	1.943	1.957	2.364	2.177	2.153	2.045	1.811	2.104	7.91
53)	T	Naphthalene	7.624	6.628	7.035	6.524	6.421	7.586	6.914	6.734	6.395	5.449	6.731	9.34
54)	T	Hexachlorobuta...	1.522	1.509	1.440	1.296	1.319	1.522	1.366	1.329	1.247	1.157	1.371	9.13

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 2/1/17

0.2ng/L Std. ID: S29-01171712 | 20ng/L Std. ID: S29-01301703
1ng/L Std. ID: S29-01301707 | 200ng/L Std. ID: S29-01301701
4ng/L Std. ID: S29-01301704

Dilution Factors: 5 | 50 | 250 | 1000 | 5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301703	
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01301701	
4ng/L Std. ID:	S29-01301704				
Dilution Factors:	5	50	250	1000	5000

Compounds	Source Std. mg/m³	Primary Working Standards 200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
							ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19013117.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration

CL 2/1/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\31\01311715.D
2	20	21	1000	I:\MS19\DATA\2017_01\31\01311716.D
3	50	52	1000	I:\MS19\DATA\2017_01\31\01311717.D
4	100	105	1000	I:\MS19\DATA\2017_01\31\01311718.D
5	500	524	1000	I:\MS19\DATA\2017_01\31\01311719.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\31\01311720.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\31\01311721.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\31\01311722.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\31\01311723.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\31\01311725.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Feb 01 07:43 2017	Feb 01 07:15 2017	31 Jan 2017 15:23
2	20	Feb 01 07:43 2017	Feb 01 07:38 2017	31 Jan 2017 15:54
3	50	Feb 01 07:43 2017	Feb 01 07:39 2017	31 Jan 2017 16:25
4	100	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 16:57
5	500	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 17:28
6	1000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:00
7	2000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:31
8	5000	Feb 01 07:43 2017	Feb 01 07:13 2017	31 Jan 2017 19:02
9	10K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 19:34
10	50K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 20:37

S19013117.M Wed Feb 01 08:33:20 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43243	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	212631	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34615	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66797	891.924	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.19%				
33) Toluene-d8 (SS2)	14.15	98	213056	1008.718	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.87%				
45) Bromofluorobenzene (SS3)	17.56	174	72725	1148.441	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.84%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	1181	10.811	pg		99
3) Chloromethane	4.70	52	341m	10.477	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	1089	10.132	pg		96
5) Vinyl Chloride	5.01	62	1178	11.280	pg	#	58
6) 1,3-Butadiene	5.22	54	815	13.126	pg	#	76
7) Bromomethane	5.53	94	364	8.664	pg		99
8) Chloroethane	5.75	64	279	8.683	pg		94
9) Acrolein	6.37	56	545m	23.877	pg		
10) Acetone	6.47	58	8870	300.554	pg	#	67
11) Trichlorofluoromethane	6.64	101	857	11.470	pg		97
12) 1,1-Dichloroethene	7.38	96	487	10.404	pg		94
13) Methylene Chloride	7.52	84	736	14.489	pg		96
14) Trichlorotrifluoroethane	7.82	151	516	11.049	pg		99
15) trans-1,2-Dichloroethene	8.55	96	496	9.829	pg		93
16) 1,1-Dichloroethane	8.75	63	813	9.080	pg		97
17) Methyl tert-Butyl Ether	8.83	73	1634	12.230	pg		89
18) cis-1,2-Dichloroethene	9.62	96	533	10.065	pg		90
19) Chloroform	9.90	83	2277	24.184	pg		98
21) 1,2-Dichloroethane	10.66	62	656	9.051	pg		96
22) 1,1,1-Trichloroethane	10.92	97	903	10.332	pg		98
23) Benzene	11.38	78	3668	17.682	pg		99
24) Carbon Tetrachloride	11.53	117	915	13.038	pg		98
26) 1,2-Dichloropropane	12.19	63	577	10.654	pg		87
27) Bromodichloromethane	12.37	83	711	9.507	pg		99
28) Trichloroethene	12.42	130	603	10.908	pg		99
29) 1,4-Dioxane	12.42	88	445	10.962	pg		99
30) cis-1,3-Dichloropropene	13.28	75	840	11.531	pg		91
31) trans-1,3-Dichloropropene	13.80	75	624	10.526	pg	#	82
32) 1,1,2-Trichloroethane	13.96	83	449	9.801	pg		96
34) Toluene	14.25	91	2635	13.357	pg		100
35) Dibromochloromethane	14.67	129	577	10.562	pg		94
36) 1,2-Dibromoethane	14.94	107	546	10.568	pg		95
37) Tetrachloroethene	15.41	166	622	10.851	pg		96
39) Chlorobenzene	16.11	112	1523	11.413	pg		99
40) Ethylbenzene	16.49	91	2468	12.542	pg		98
41) m,p-Xylene	16.67	91	4032	27.318	pg		98
42) Styrene	17.03	104	1252	12.108	pg		99
43) o-Xylene	17.13	106	949	12.516	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	935	10.732	pg		93
46) 1,3,5-Trimethylbenzene	18.39	105	1944	12.443	pg		96
47) 1,2,4-Trimethylbenzene	18.79	105	1738	11.333	pg		96
48) 1,3-Dichlorobenzene	18.94	146	828	8.785	pg		96
49) 1,4-Dichlorobenzene	19.00	146	1094	11.148	pg		97
50) 1,2-Dichlorobenzene	19.34	146	1008	10.494	pg		96
51) 1,2-Dibromo-3-chloropr...	19.75	157	373	12.846	pg		90
52) 1,2,4-Trichlorobenzene	21.00	182	810	14.247	pg		99
53) Naphthalene	21.14	128	2858	15.831	pg		90

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

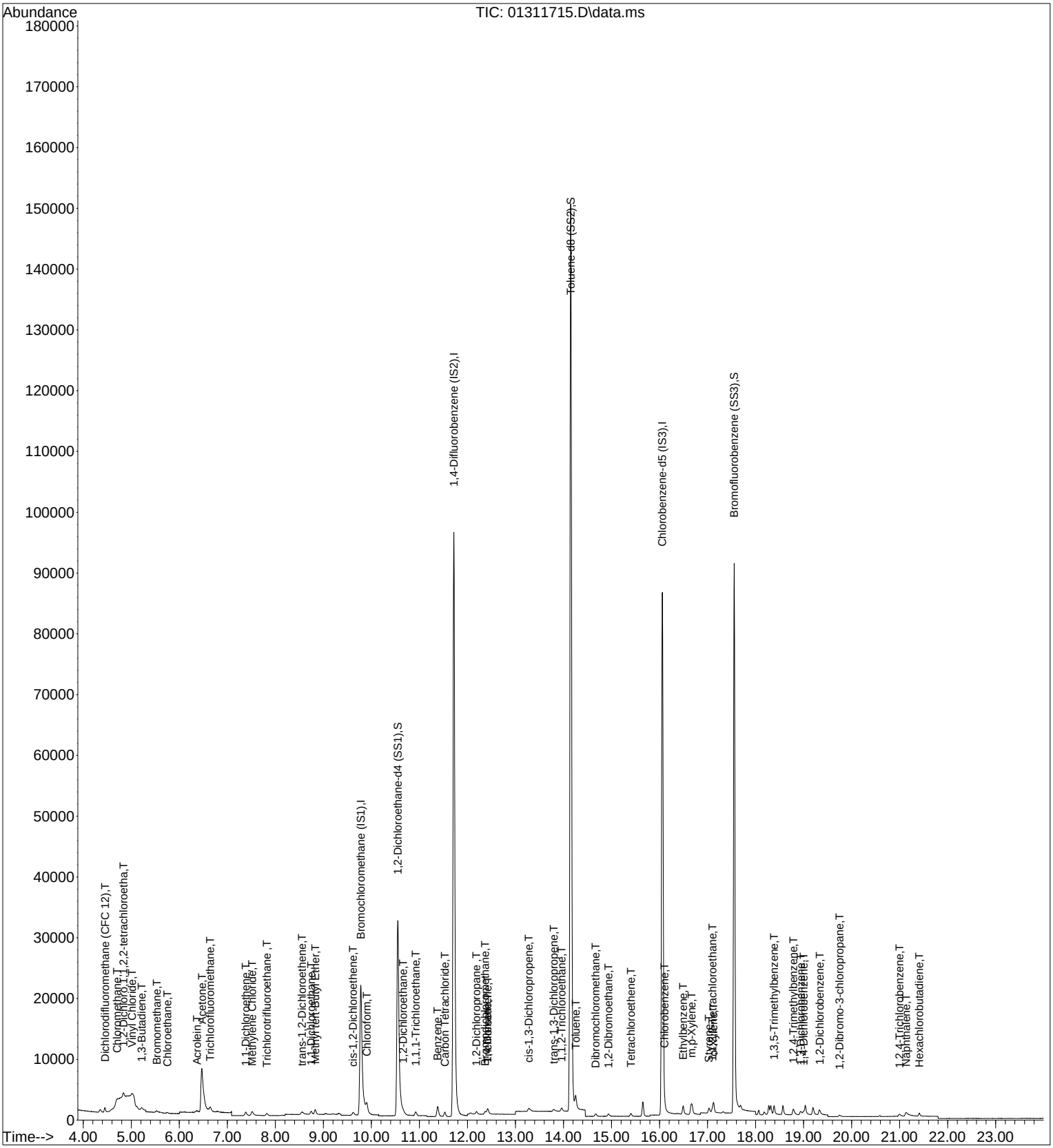
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	558	12.406	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

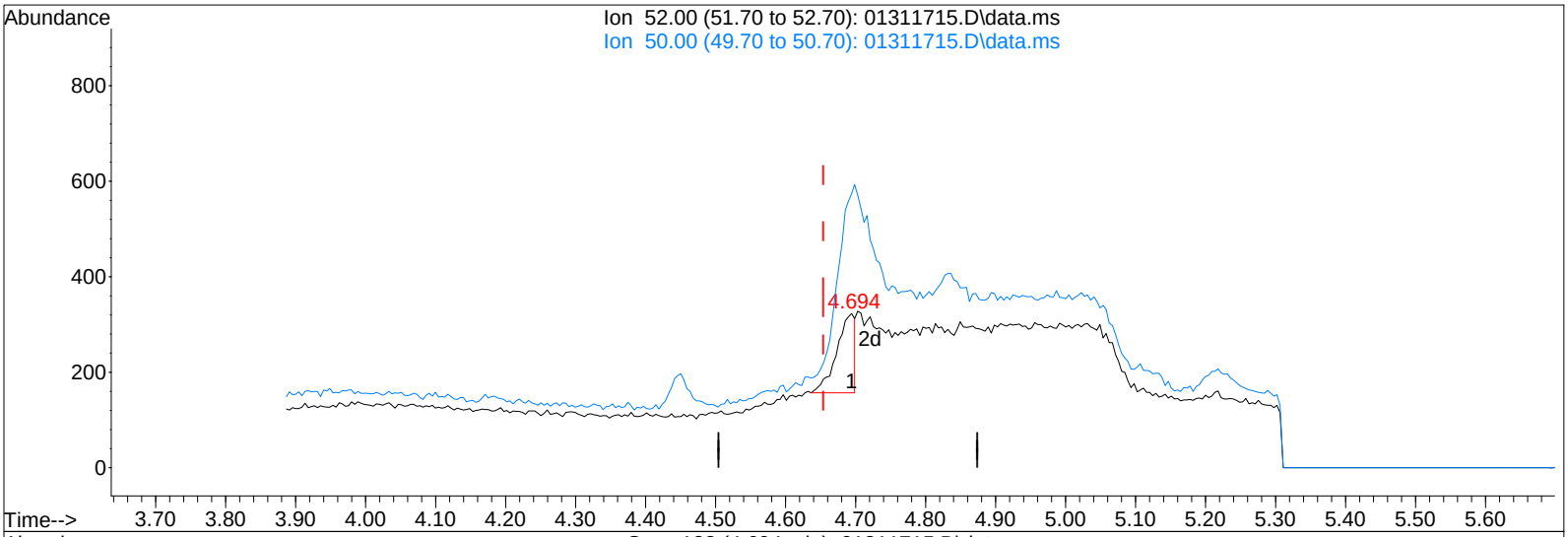
Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

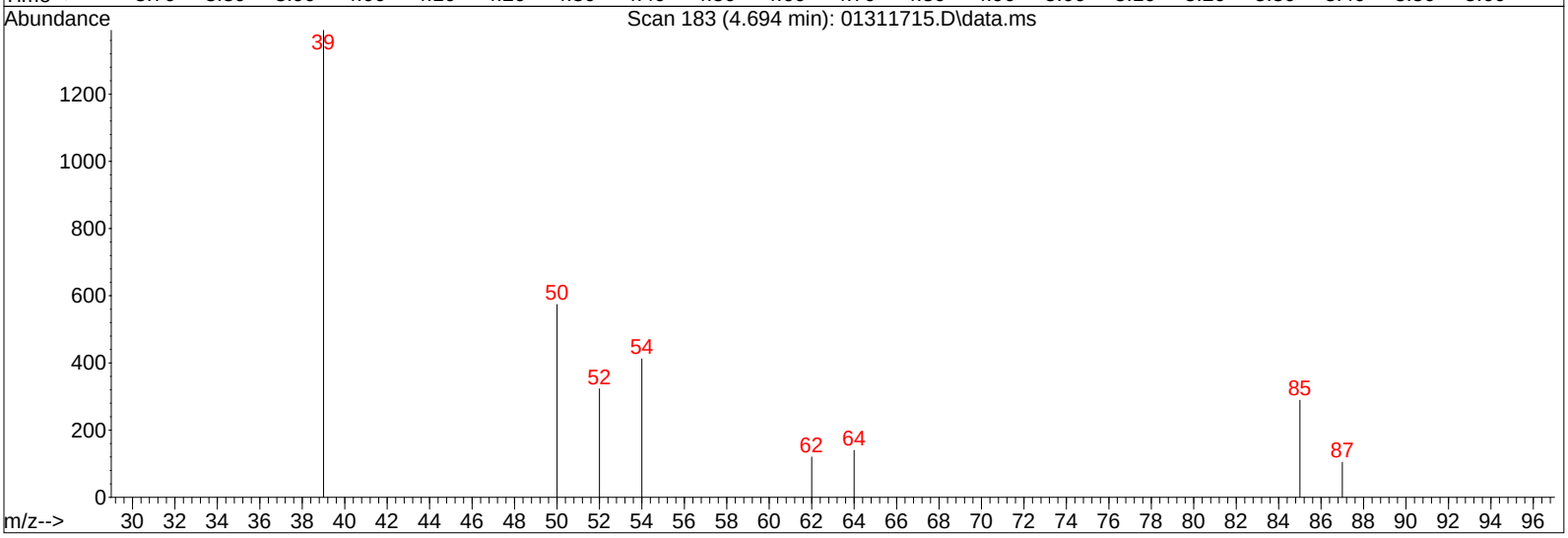


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 9.25pg

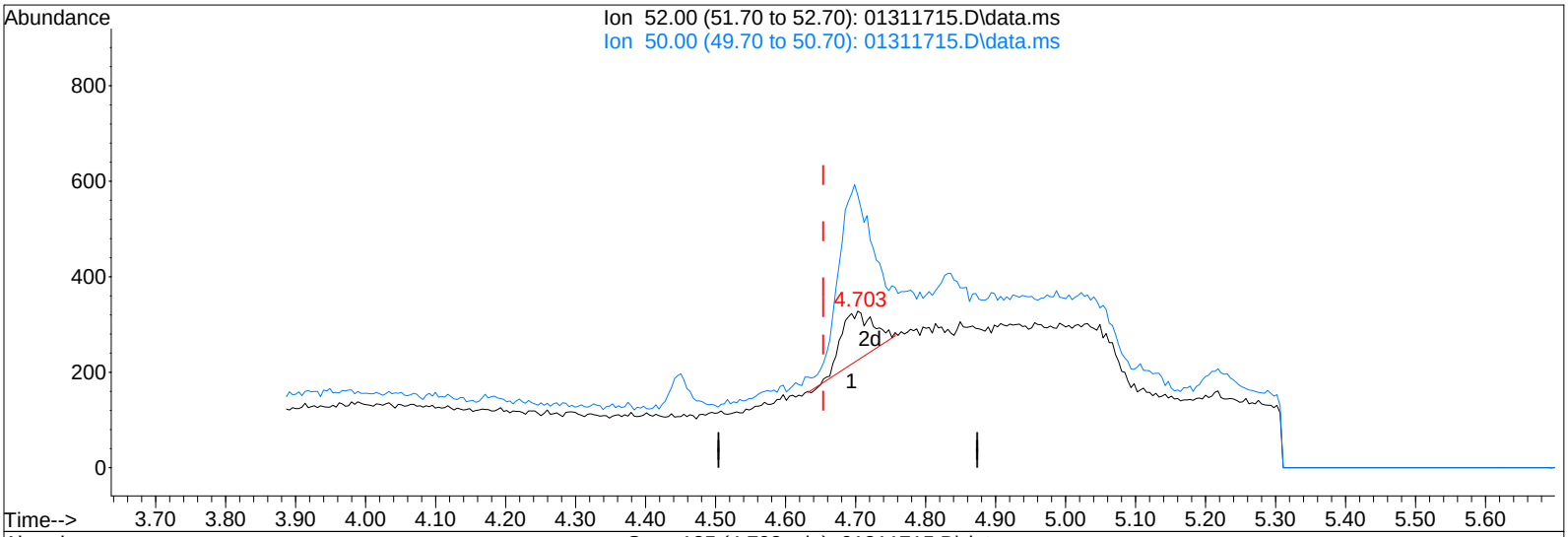
response 301

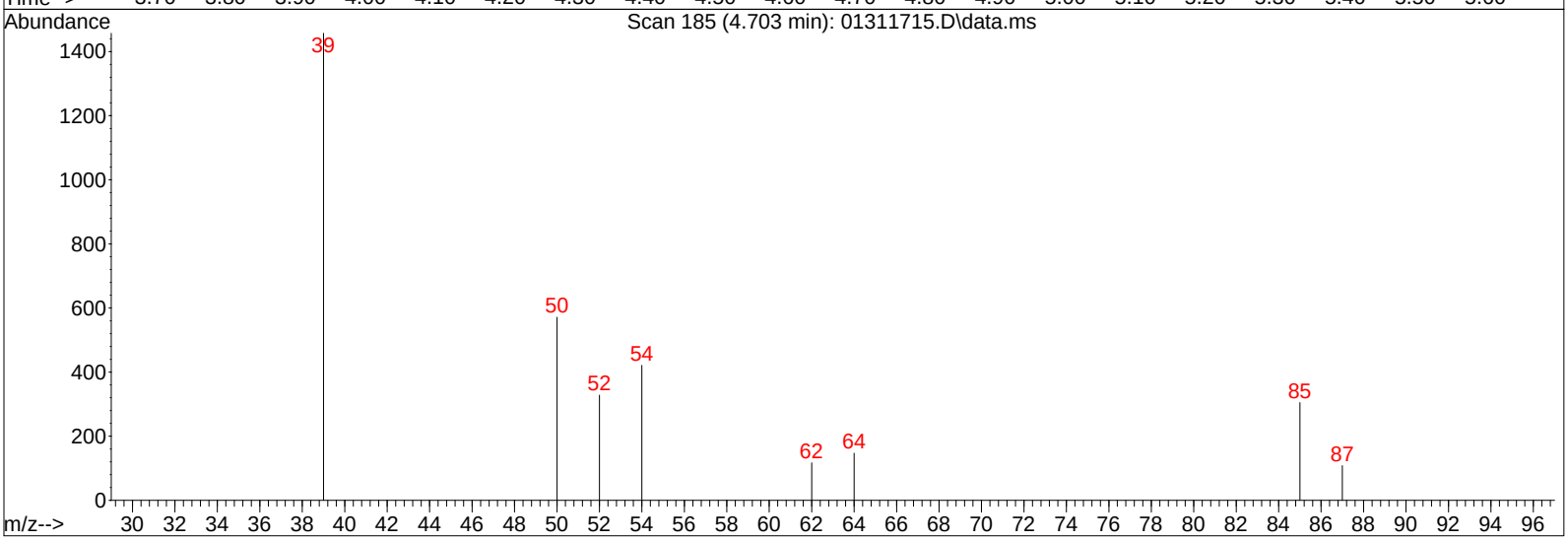
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	749.50#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 10.48pg m

response 341

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	661.58#
0.00	0.00	0.00
0.00	0.00	0.00

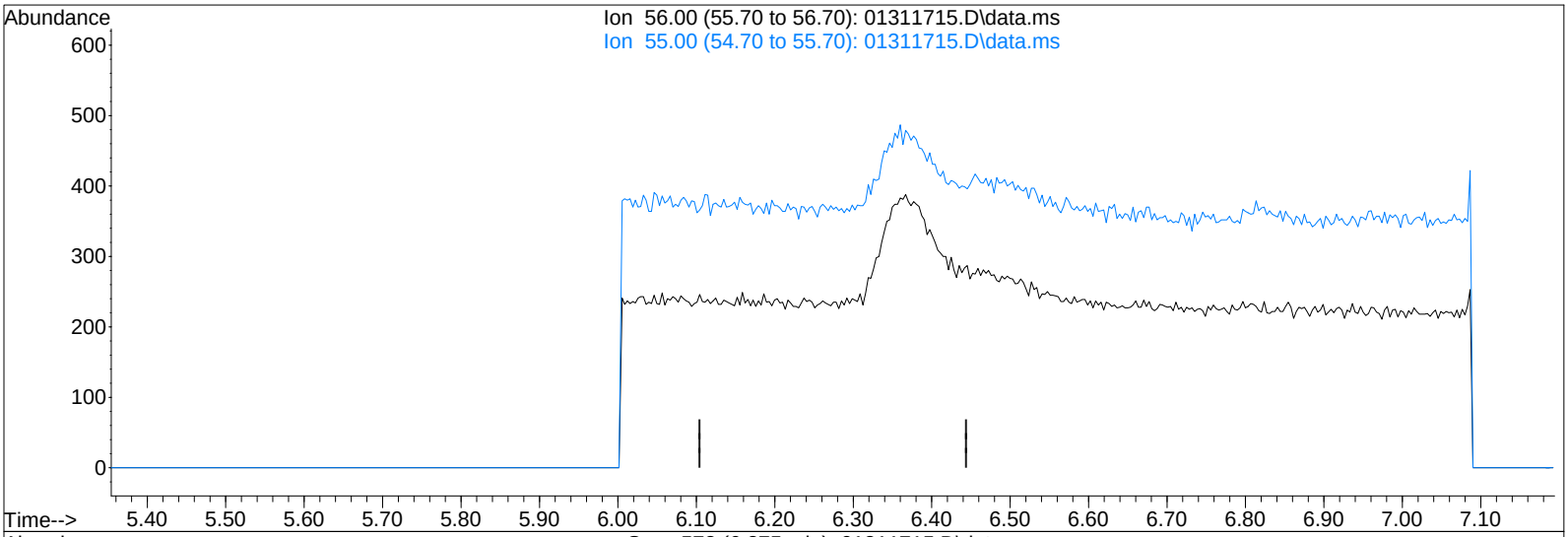
BLC

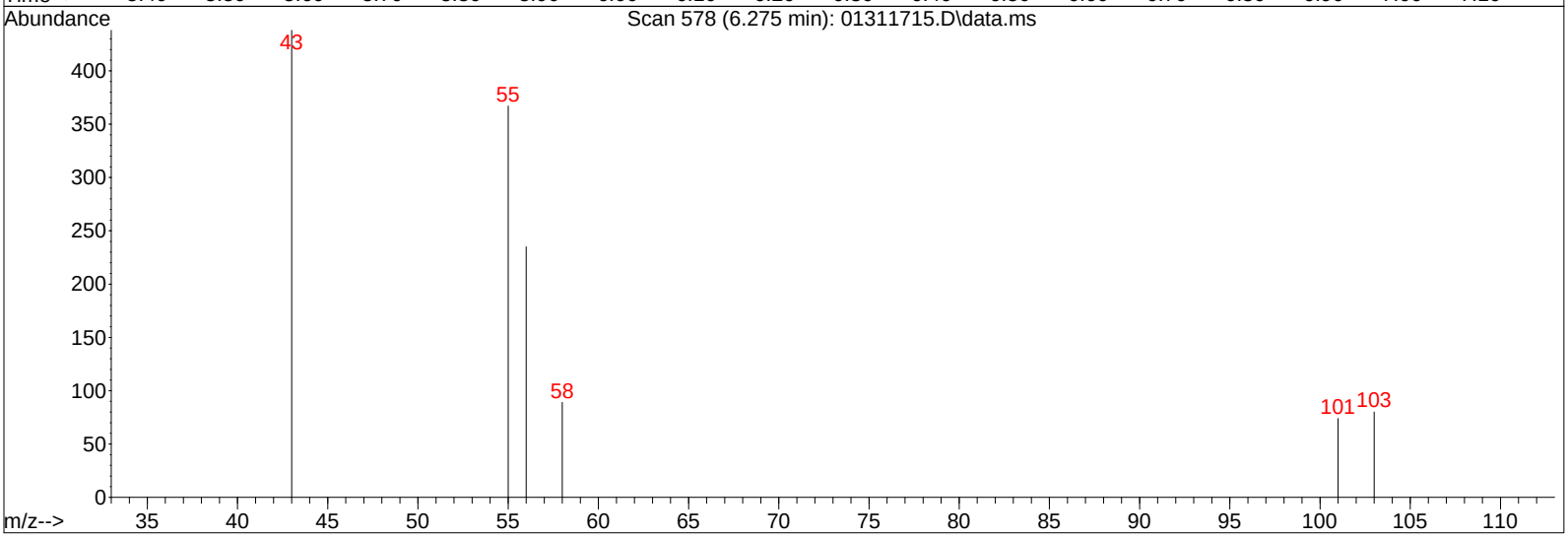
CL 2/1/17 VOA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.274min (-6.274) 0.00pg

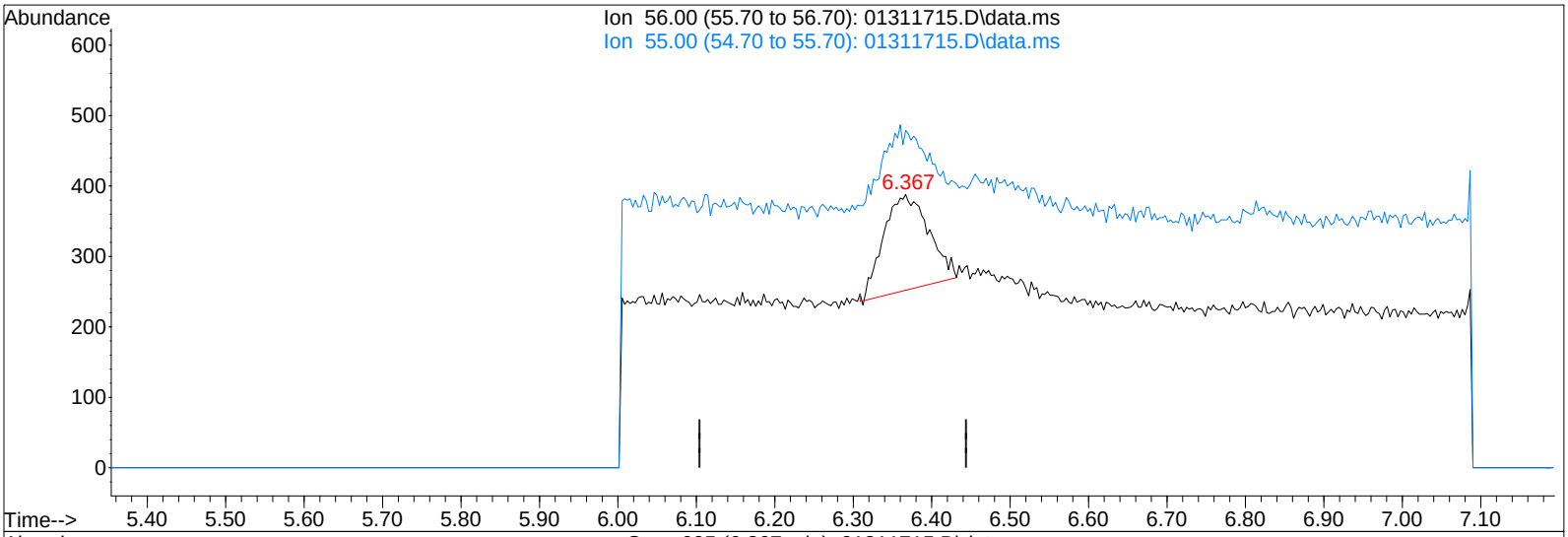
response 0

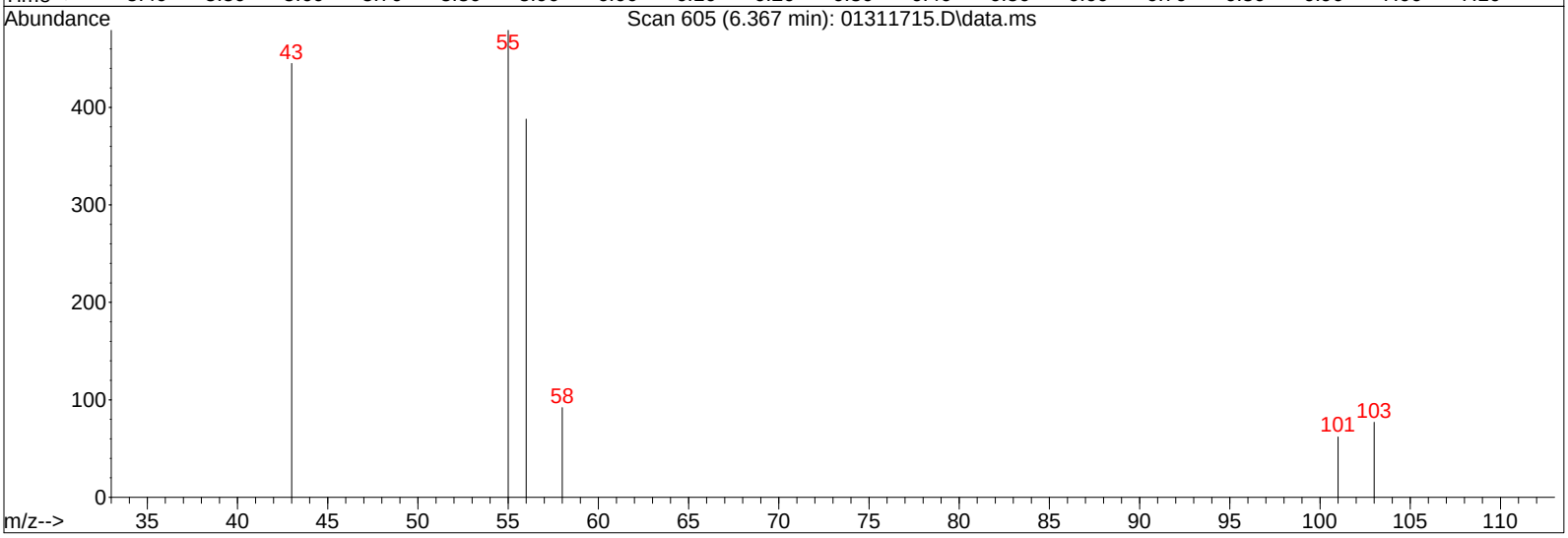
Ion	Exp%	Act%
56.00	100	0.00
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.367min (+0.093) 23.88pg m

response 545

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

PIM

CL 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	43136	1000.000	pg		0.03
25) 1,4-Difluorobenzene (IS2)	11.72	114	212326	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	34375	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66952	896.211	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.62%				
33) Toluene-d8 (SS2)	14.15	98	213118	1010.461	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.05%				
45) Bromofluorobenzene (SS3)	17.56	174	73387	1166.986	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2547	23.373	pg		98
3) Chloromethane	4.70	52	642m	19.774	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2365	22.059	pg		100
5) Vinyl Chloride	5.02	62	1910	18.334	pg	#	62
6) 1,3-Butadiene	5.22	54	1252	20.213	pg	#	50
7) Bromomethane	5.53	94	809	19.304	pg		99
8) Chloroethane	5.76	64	659	20.560	pg		95
9) Acrolein	6.37	56	700m	30.743	pg		
10) Acetone	6.48	58	5971	202.825	pg		100
11) Trichlorofluoromethane	6.65	101	1963	26.337	pg		99
12) 1,1-Dichloroethene	7.39	96	1115	23.878	pg		99
13) Methylene Chloride	7.53	84	1249	24.648	pg		92
14) Trichlorotrifluoroethane	7.83	151	1160	24.900	pg		100
15) trans-1,2-Dichloroethene	8.57	96	1009	20.044	pg		99
16) 1,1-Dichloroethane	8.75	63	1858	20.804	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3687	27.665	pg		94
18) cis-1,2-Dichloroethene	9.62	96	991	18.760	pg		88
19) Chloroform	9.91	83	3149	33.529	pg		100
21) 1,2-Dichloroethane	10.67	62	1468	20.305	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2055	23.571	pg		98
23) Benzene	11.39	78	6687	32.316	pg		99
24) Carbon Tetrachloride	11.53	117	1843	26.327	pg		96
26) 1,2-Dichloropropane	12.19	63	1057	19.544	pg		96
27) Bromodichloromethane	12.37	83	1721	23.044	pg		99
28) Trichloroethene	12.43	130	1324	23.984	pg		95
29) 1,4-Dioxane	12.41	88	994	24.522	pg		94
30) cis-1,3-Dichloropropene	13.28	75	1711	23.521	pg		95
31) trans-1,3-Dichloropropene	13.80	75	1283	21.673	pg	#	88
32) 1,1,2-Trichloroethane	13.96	83	947	20.701	pg		98
34) Toluene	14.26	91	5057	25.671	pg		100
35) Dibromochloromethane	14.67	129	1397	25.609	pg		99
36) 1,2-Dibromoethane	14.94	107	1158	22.445	pg		98
37) Tetrachloroethene	15.40	166	1368	23.901	pg		99
39) Chlorobenzene	16.11	112	3212	24.239	pg		98
40) Ethylbenzene	16.49	91	5271	26.974	pg		100
41) m,p-Xylene	16.67	91	8581	58.545	pg		98
42) Styrene	17.02	104	2906	28.300	pg		100
43) o-Xylene	17.13	106	2062	27.385	pg		99
44) 1,1,2,2-Tetrachloroethane	17.10	83	1973	22.805	pg		92
46) 1,3,5-Trimethylbenzene	18.38	105	4378	28.217	pg		98
47) 1,2,4-Trimethylbenzene	18.78	105	4242	27.855	pg		100
48) 1,3-Dichlorobenzene	18.93	146	2120	22.650	pg		99
49) 1,4-Dichlorobenzene	18.99	146	2512	25.777	pg		98
50) 1,2-Dichlorobenzene	19.32	146	2273	23.830	pg		99
51) 1,2-Dibromo-3-chloropr...	19.74	157	665	23.063	pg		85
52) 1,2,4-Trichlorobenzene	20.98	182	1605	28.427	pg		99
53) Naphthalene	21.11	128	4935	27.527	pg		93

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

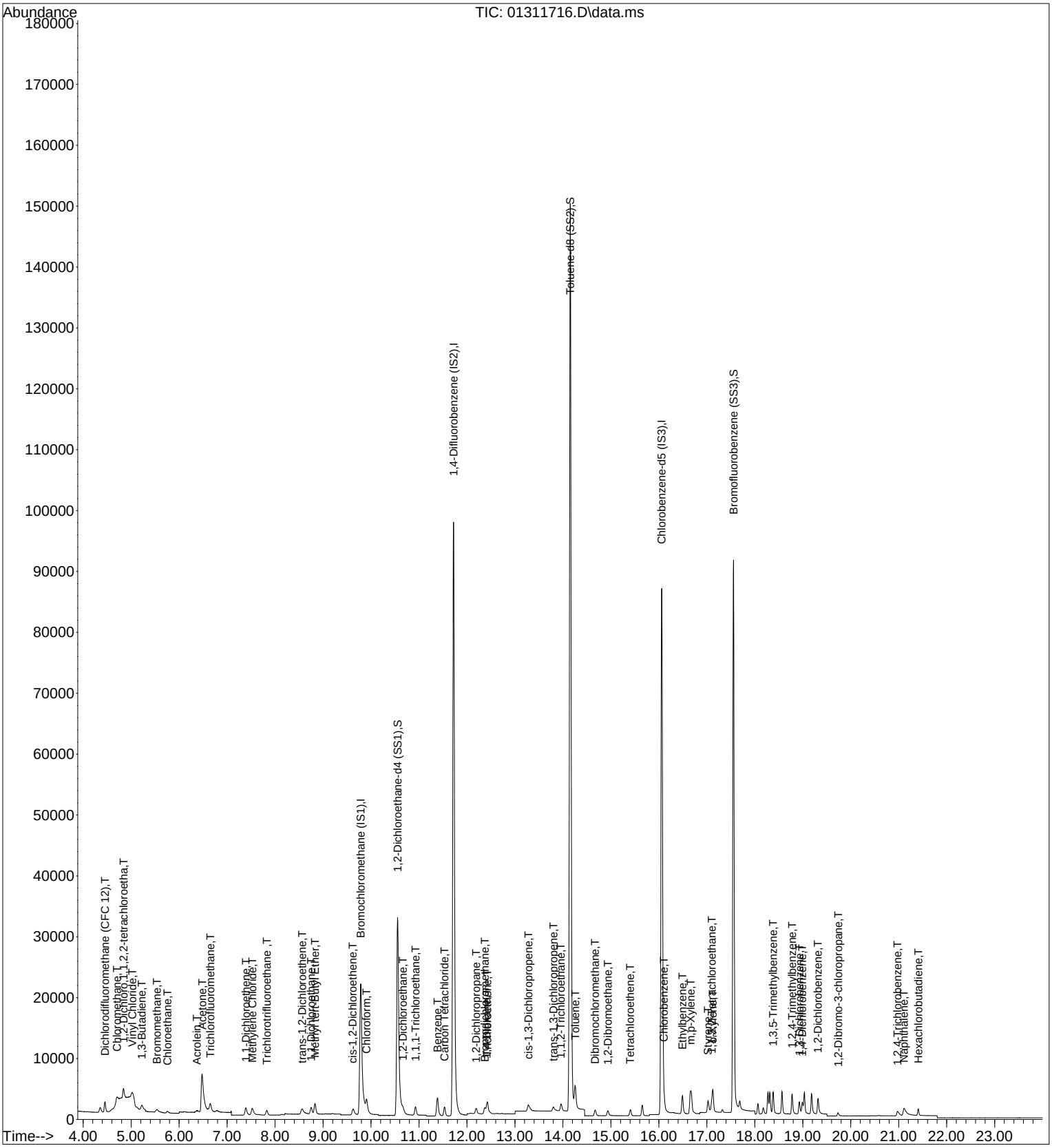
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1099	24.604	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

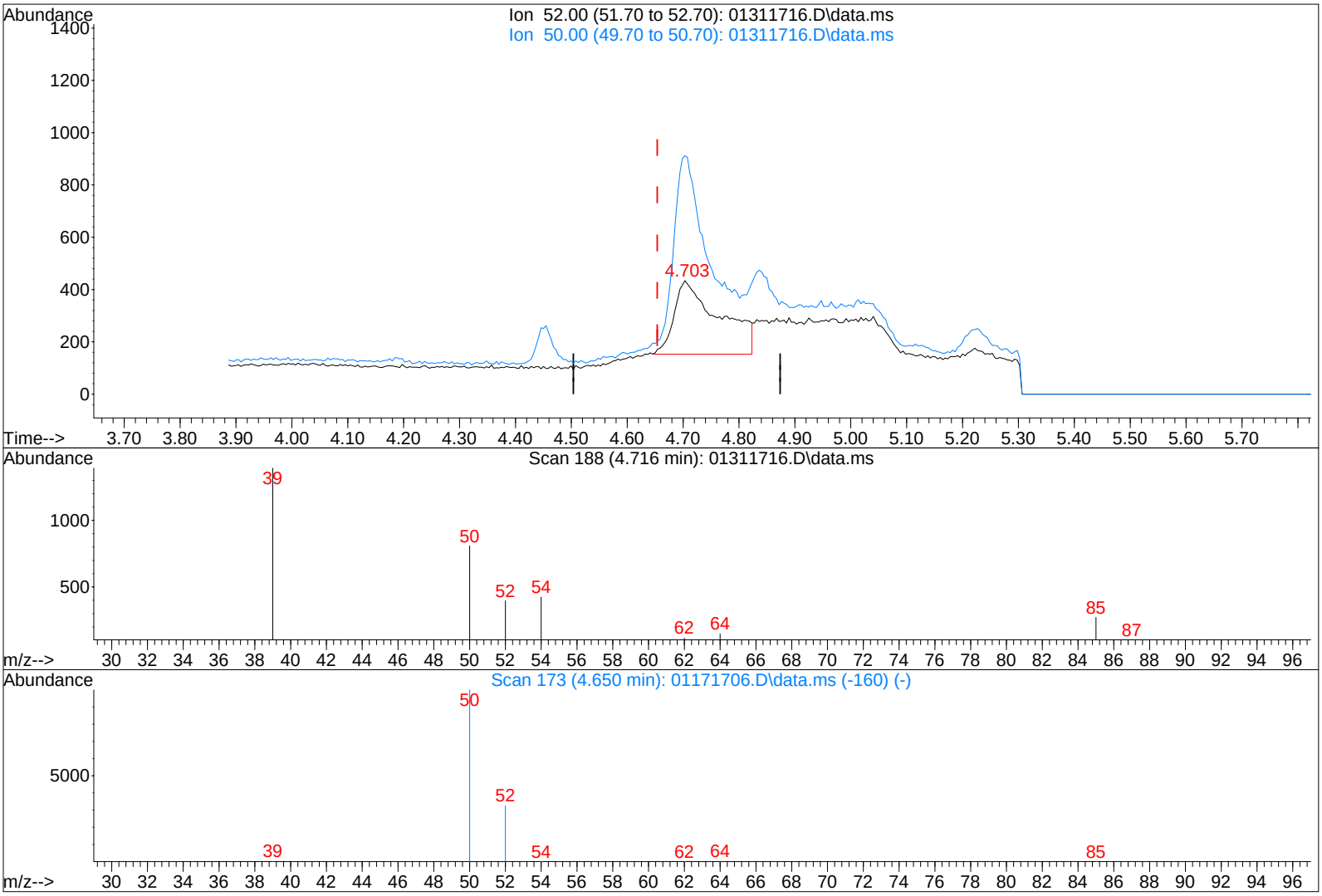
Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 48.79pg

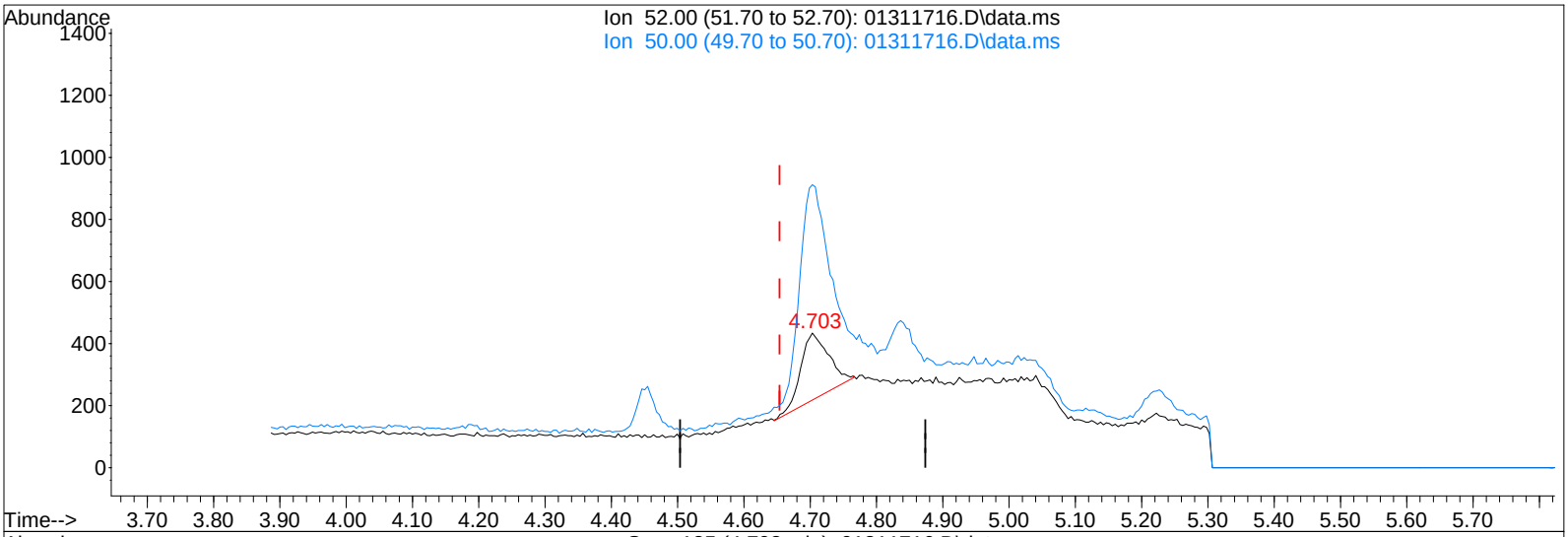
response 1584

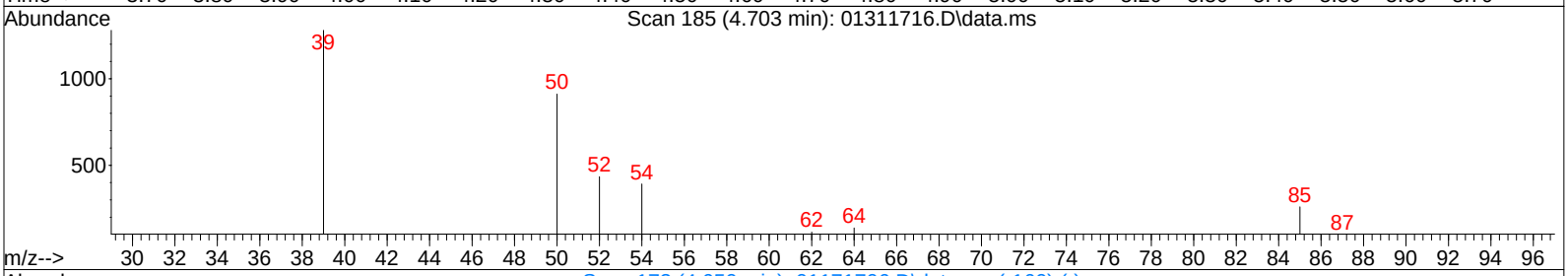
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.55#
0.00	0.00	0.00
0.00	0.00	0.00

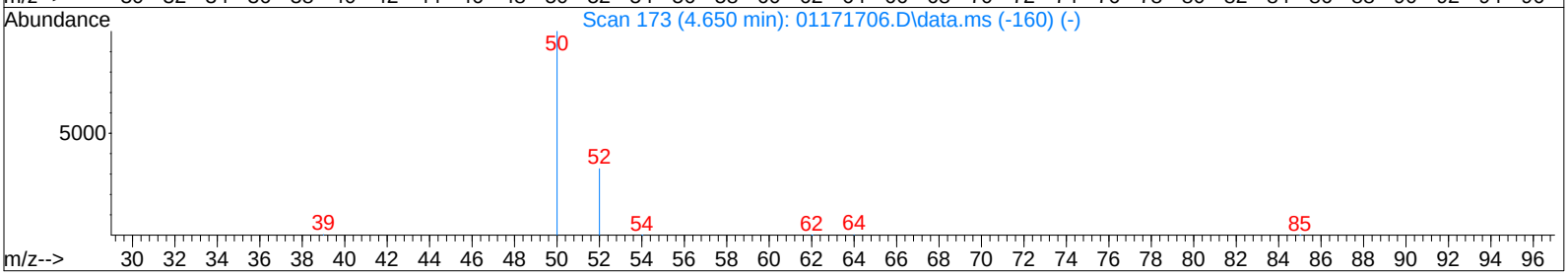
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 19.77pg m

response 642

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	566.36#
0.00	0.00	0.00
0.00	0.00	0.00

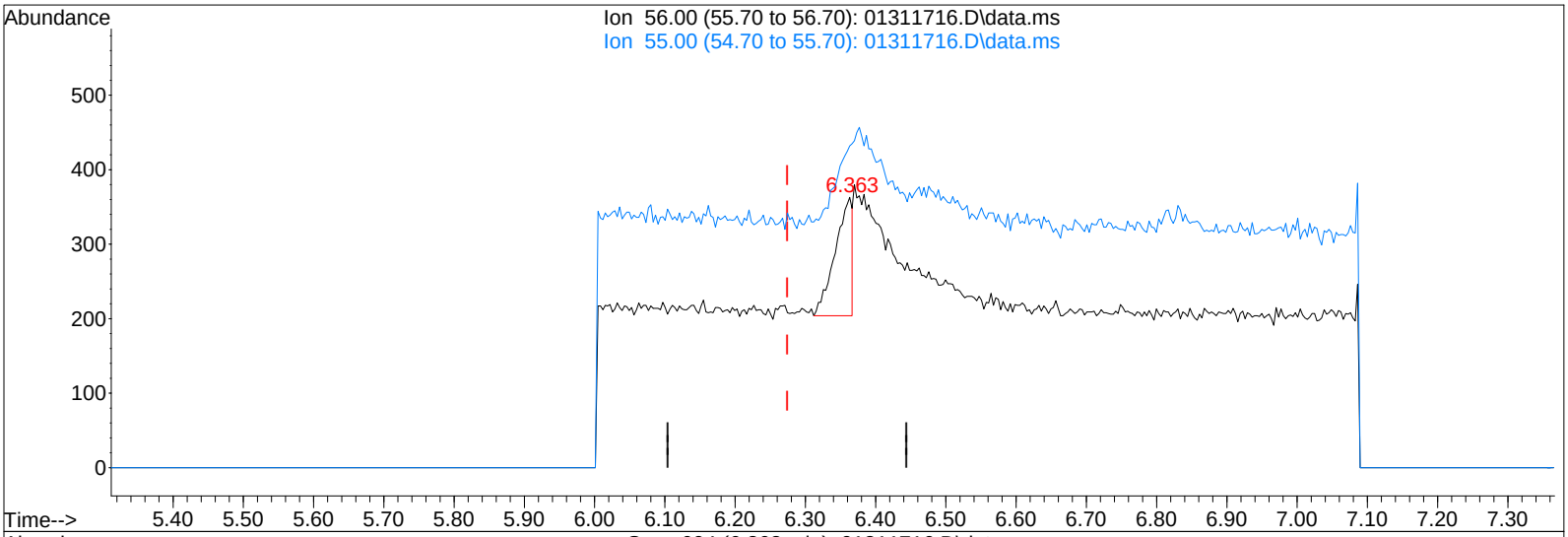
BLC

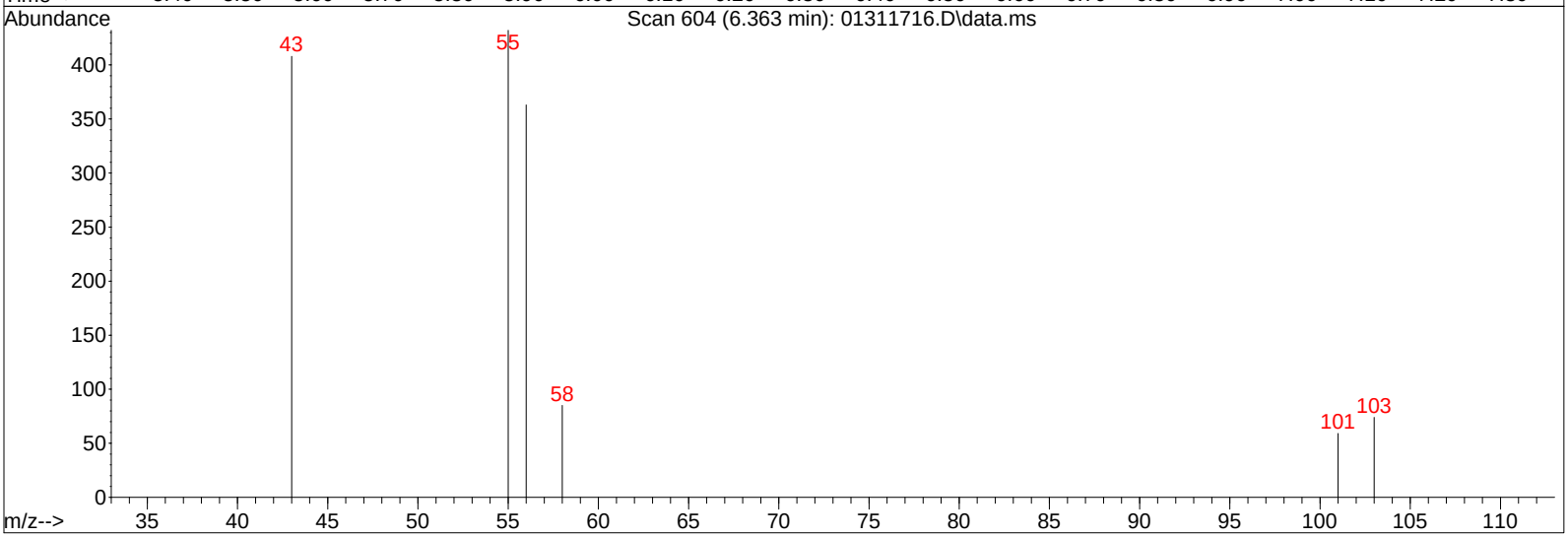
CL 2/1/17 WA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.363min (+0.089) 11.81pg

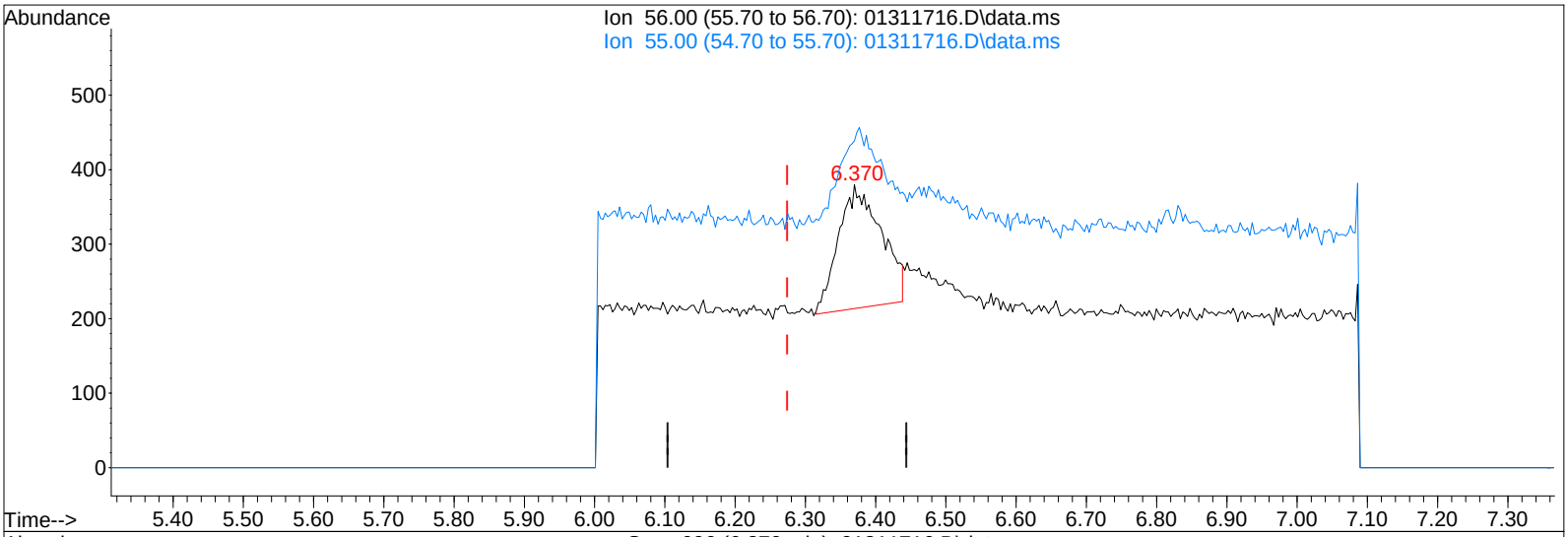
response 269

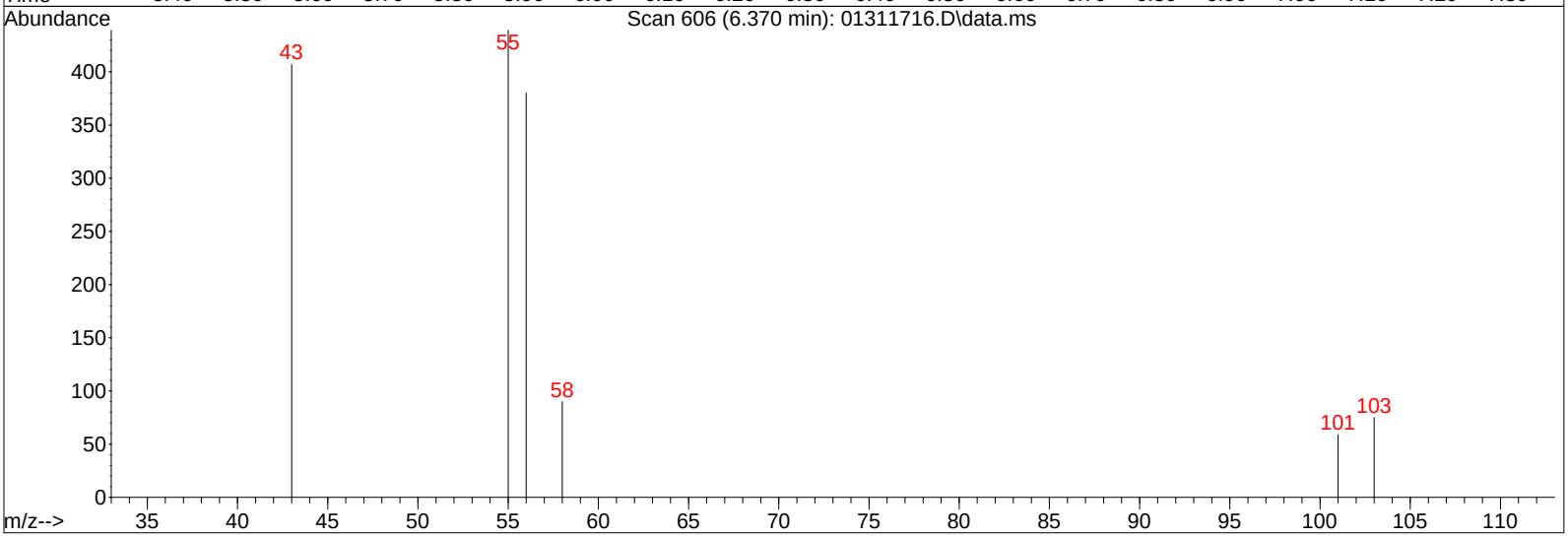
Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.370min (+0.096) 30.74pg m

response 700

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WDA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41753	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	205331	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33355	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	65059	899.718	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.97%			
33) Toluene-d8 (SS2)	14.15	98	206339	1011.648	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.16%			
45) Bromofluorobenzene (SS3)	17.55	174	71476	1171.355	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	5768	54.683	pg	100
3) Chloromethane	4.69	52	1515m	48.210	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	5296	51.033	pg	98
5) Vinyl Chloride	5.00	62	5139	50.963	pg	85
6) 1,3-Butadiene	5.20	54	1706m	28.456	pg	
7) Bromomethane	5.53	94	1789	44.102	pg	99
8) Chloroethane	5.74	64	1428	46.028	pg	97
9) Acrolein	6.35	56	1392	63.160	pg	98
10) Acetone	6.47	58	12155	426.562	pg	93
11) Trichlorofluoromethane	6.64	101	4444	61.599	pg	100
12) 1,1-Dichloroethene	7.38	96	2523	55.821	pg	99
13) Methylene Chloride	7.52	84	2693	54.905	pg	93
14) Trichlorotrifluoroethane	7.82	151	2611	57.903	pg	99
15) trans-1,2-Dichloroethene	8.55	96	2286	46.915	pg	92
16) 1,1-Dichloroethane	8.74	63	4247	49.128	pg	100
17) Methyl tert-Butyl Ether	8.82	73	8243	63.900	pg	100
18) cis-1,2-Dichloroethene	9.62	96	2774	54.251	pg	98
19) Chloroform	9.90	83	5811	63.922	pg	99
21) 1,2-Dichloroethane	10.66	62	3400	48.586	pg	98
22) 1,1,1-Trichloroethane	10.92	97	4612	54.653	pg	99
23) Benzene	11.38	78	12243	61.126	pg	98
24) Carbon Tetrachloride	11.53	117	4199	61.968	pg	100
26) 1,2-Dichloropropane	12.19	63	2514	48.068	pg	99
27) Bromodichloromethane	12.37	83	3783	52.380	pg	98
28) Trichloroethene	12.42	130	2963	55.504	pg	99
29) 1,4-Dioxane	12.40	88	2201	56.149	pg	99
30) cis-1,3-Dichloropropene	13.27	75	4118	58.539	pg	99
31) trans-1,3-Dichloropropene	13.79	75	3202	55.932	pg	97
32) 1,1,2-Trichloroethane	13.96	83	2132	48.193	pg	99
34) Toluene	14.25	91	11143	58.492	pg	99
35) Dibromochloromethane	14.67	129	3231	61.247	pg	98
36) 1,2-Dibromoethane	14.93	107	2770	55.519	pg	99
37) Tetrachloroethene	15.40	166	3108	56.150	pg	99
39) Chlorobenzene	16.10	112	7329	56.999	pg	99
40) Ethylbenzene	16.49	91	12207	64.378	pg	100
41) m,p-Xylene	16.66	91	19492	137.055	pg	98
42) Styrene	17.02	104	6892	69.169	pg	99
43) o-Xylene	17.12	106	4686	64.137	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	4359	51.924	pg	98
46) 1,3,5-Trimethylbenzene	18.38	105	9983	66.310	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	9954	67.362	pg	100
48) 1,3-Dichlorobenzene	18.92	146	5471	60.239	pg	100
49) 1,4-Dichlorobenzene	18.99	146	5934	62.755	pg	98
50) 1,2-Dichlorobenzene	19.31	146	5529	59.737	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	1802	64.406	pg	99
52) 1,2,4-Trichlorobenzene	20.96	182	3660	66.807	pg	99
53) Naphthalene	21.09	128	12706	73.039	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

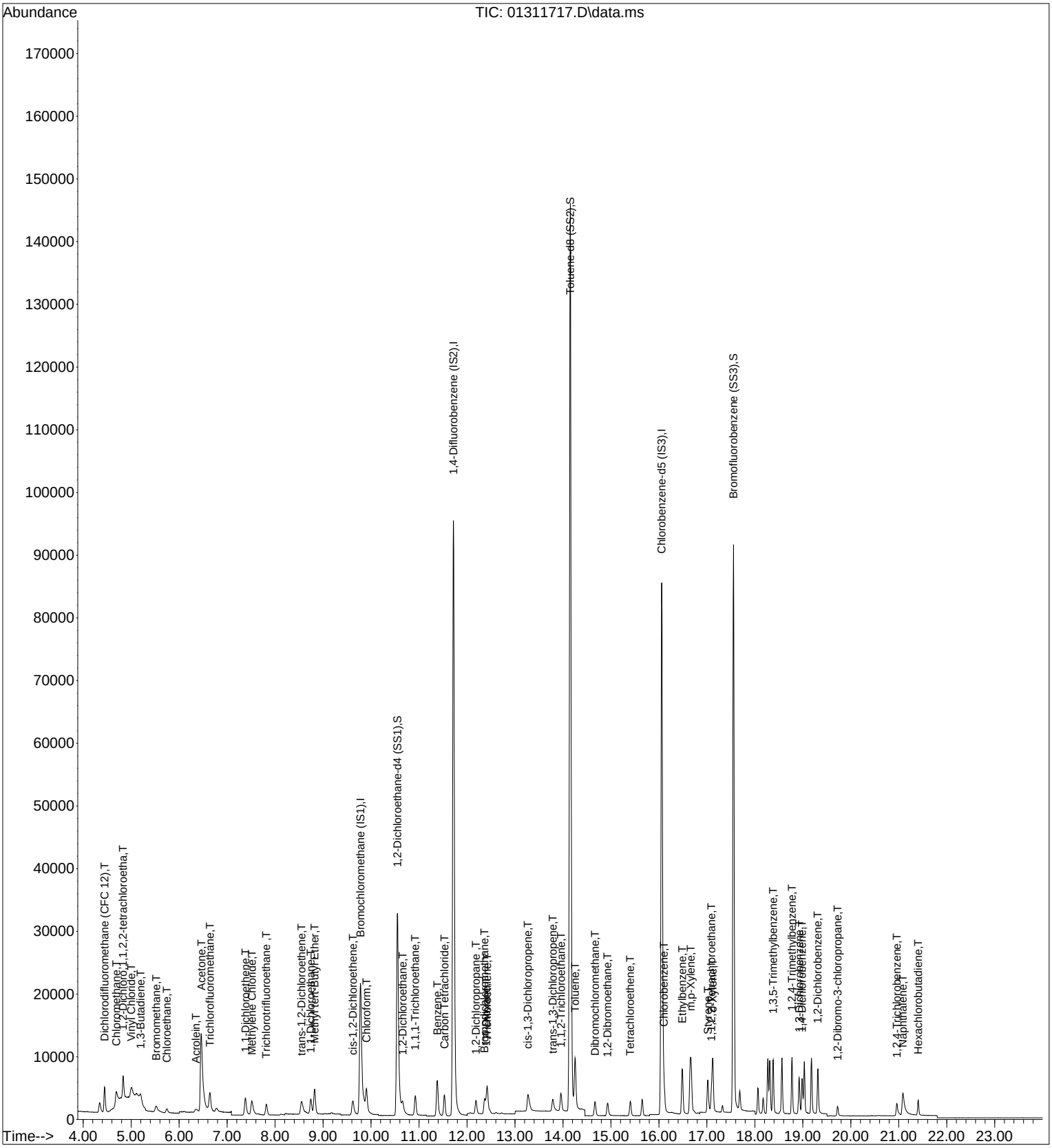
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	2543	58.673	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

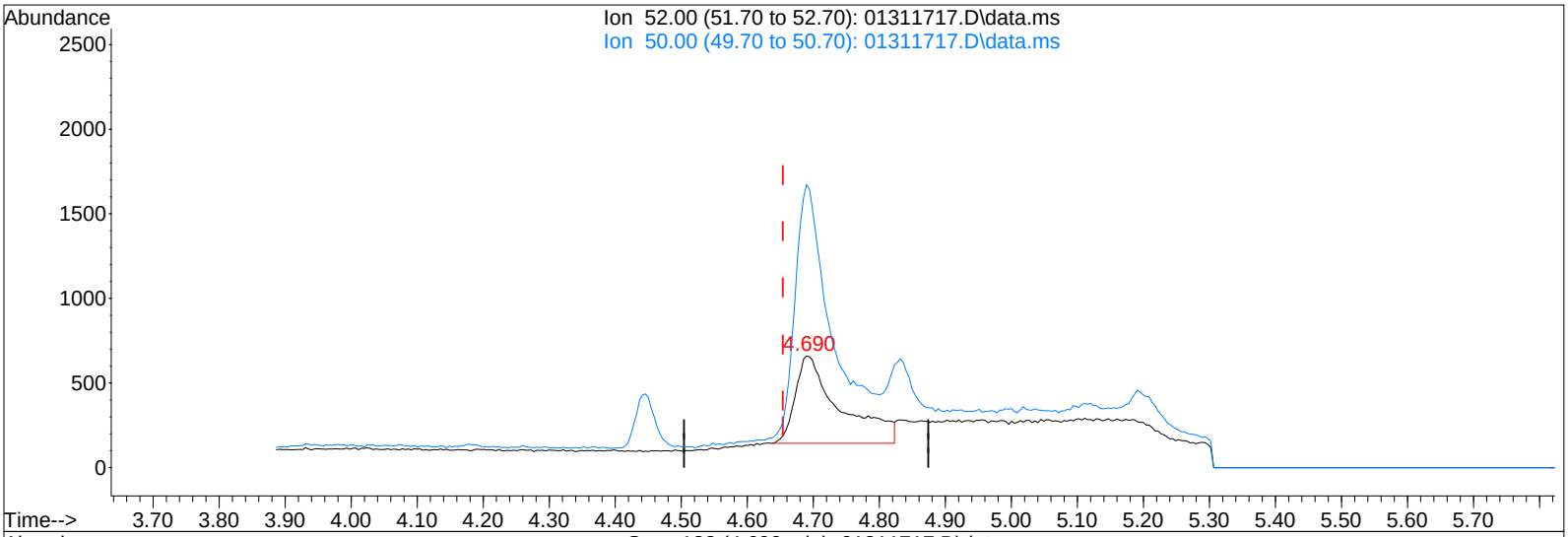
Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

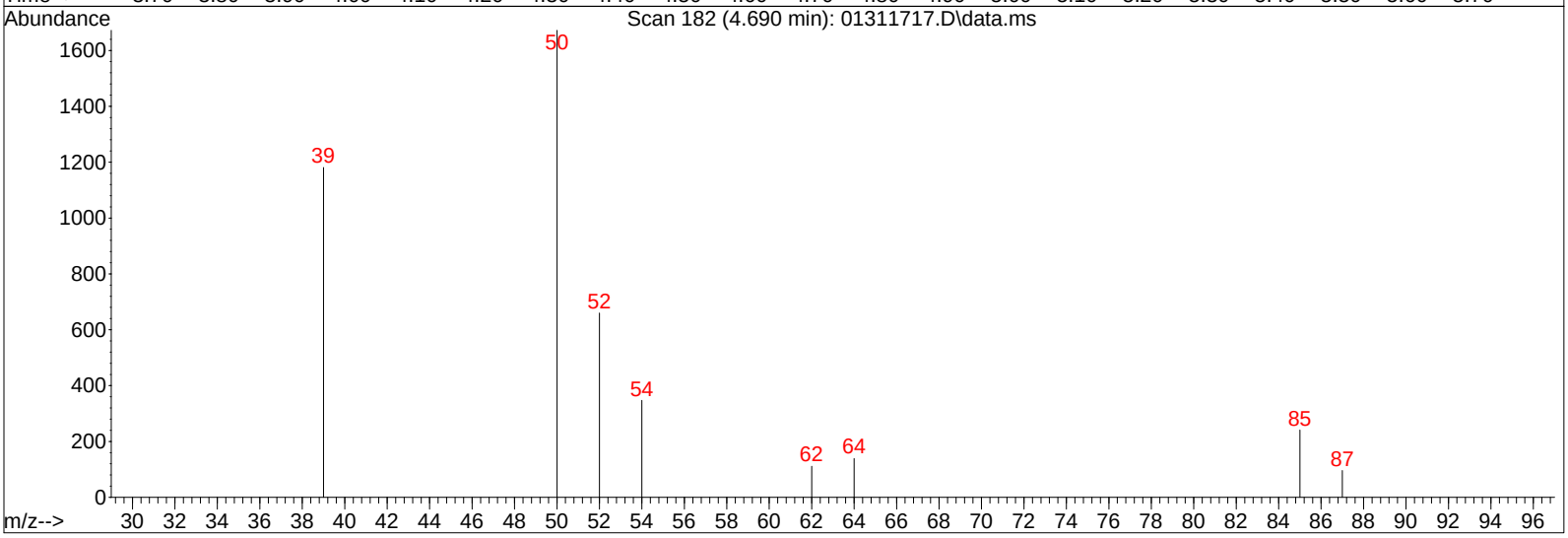


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 77.39pg

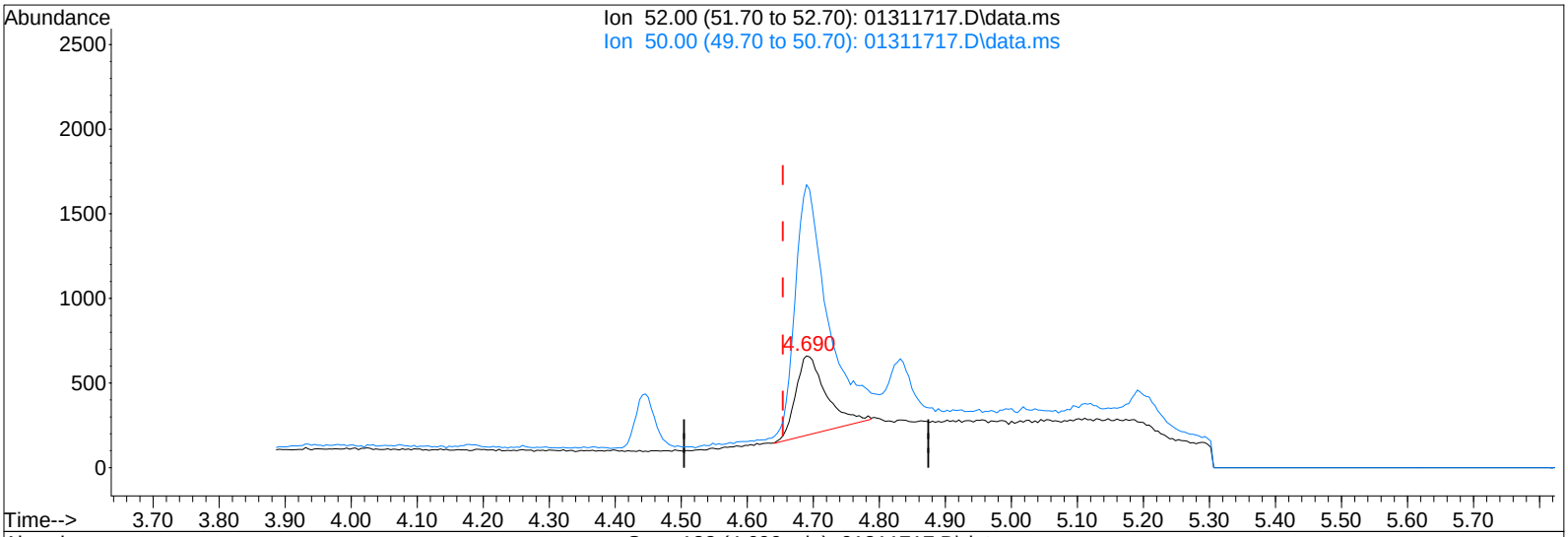
response 2432

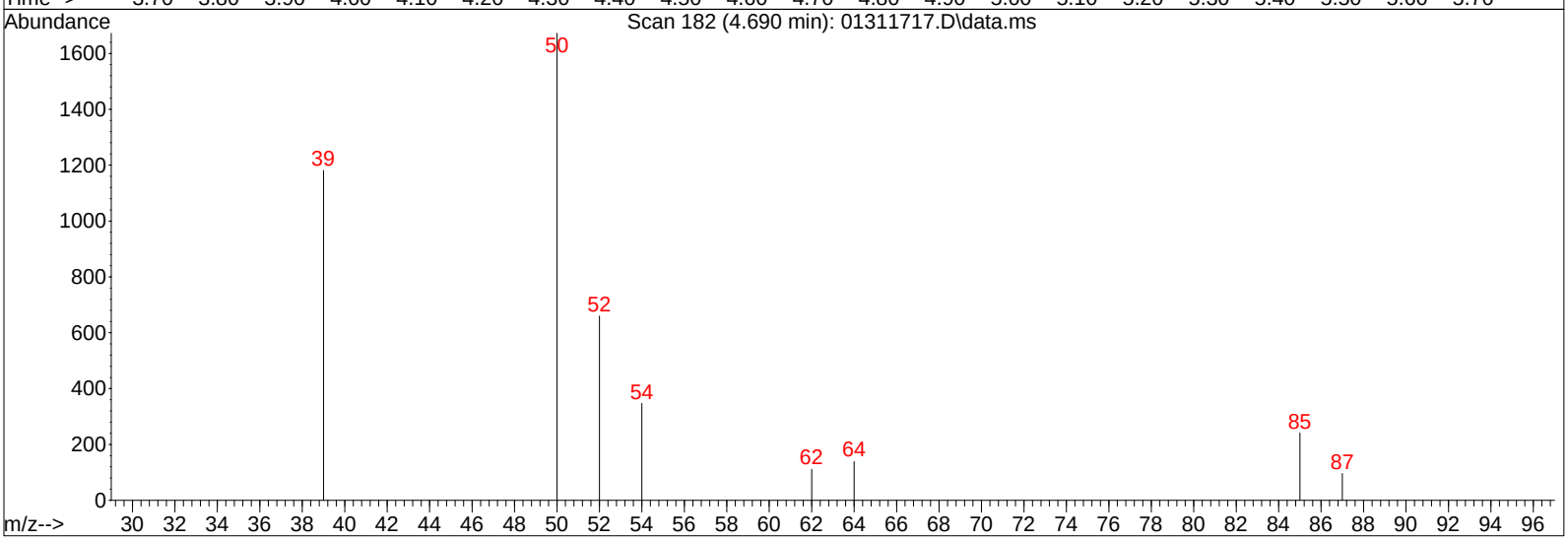
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	243.30#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 48.21pg m

response 1515

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	390.56#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

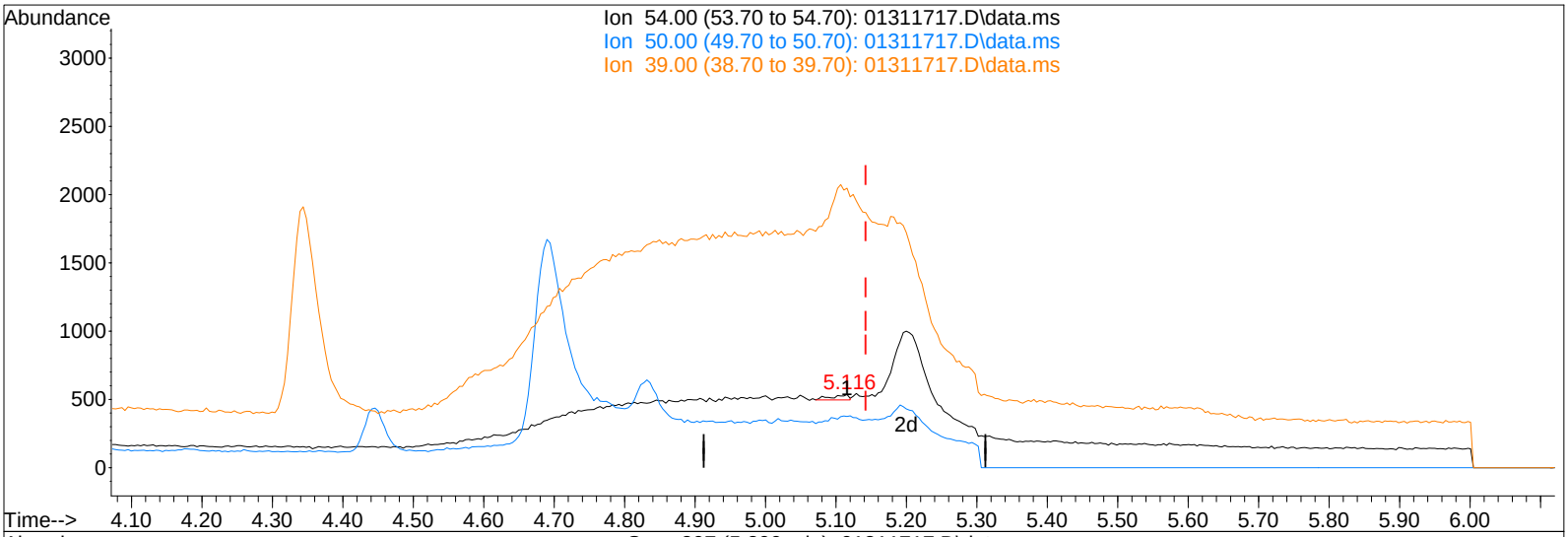
CL 2/1/17

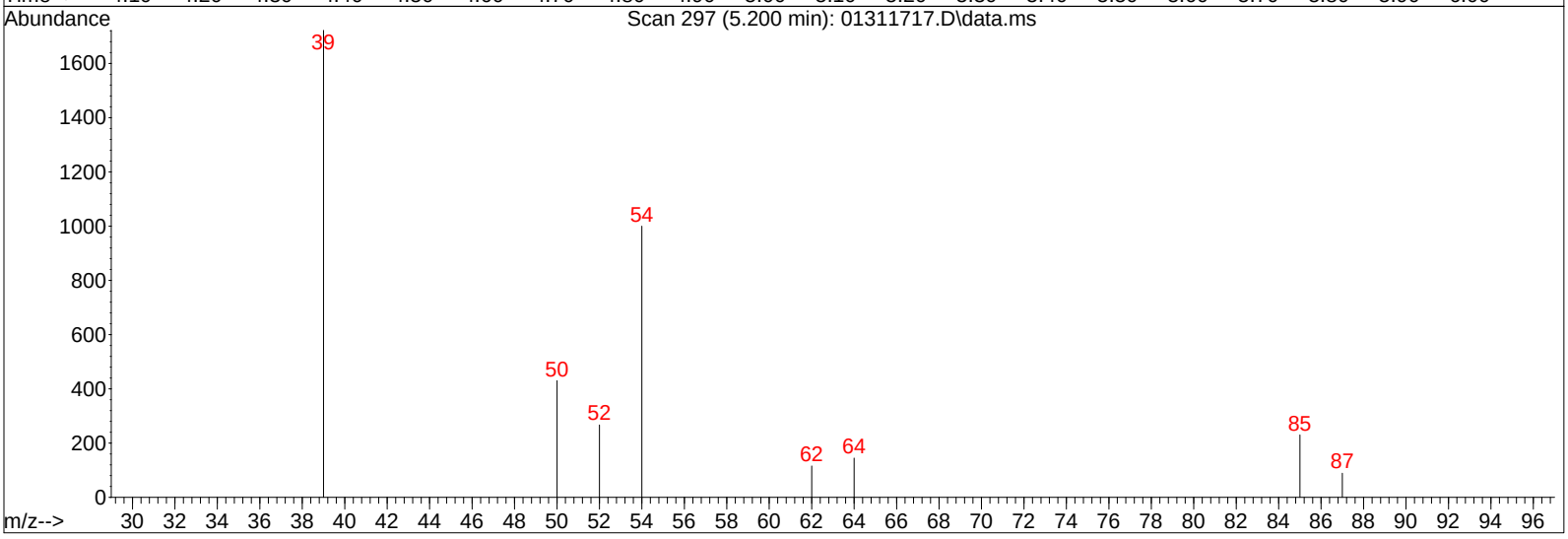
2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.116min (-0.027) 1.10pg

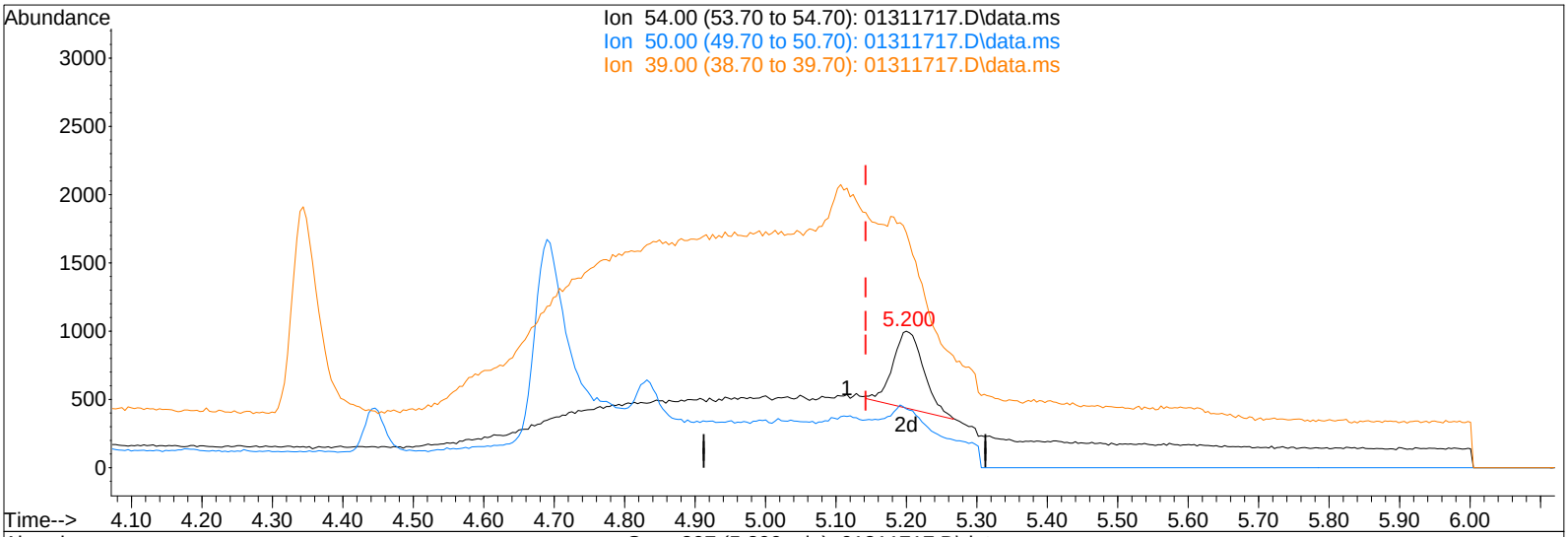
response 66

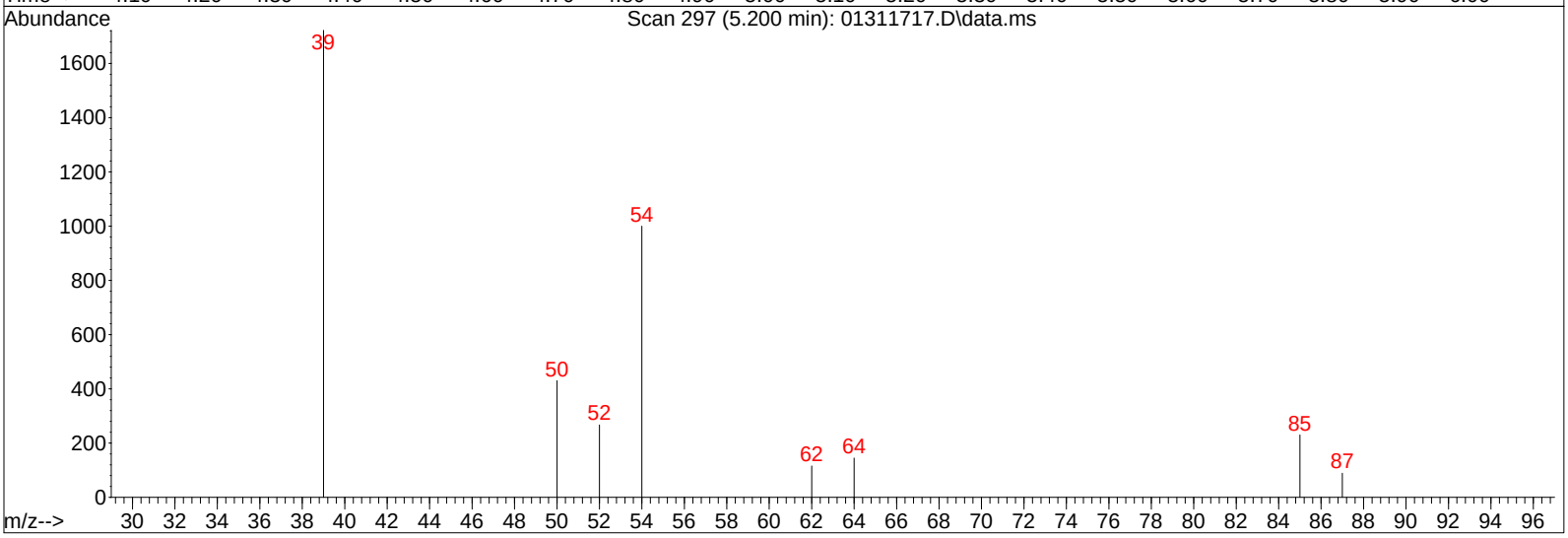
Ion	Exp%	Act%
54.00	100	100
50.00	33.40	1819.70#
39.00	114.60	17968.18#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.058) 28.46pg m

response 1706

BLC

CL 2/1/17 WDA 2/1/17

Ion	Exp%	Act%
54.00	100	100
50.00	33.40	70.40#
39.00	114.60	695.13#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45285	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	222412	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	36515	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	70924	904.327	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.43%				
33) Toluene-d8 (SS2)	14.15	98	223732	1012.681	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.27%				
45) Bromofluorobenzene (SS3)	17.55	174	77950	1166.901	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.69%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11328	99.018	pg		100
3) Chloromethane	4.69	52	2647m	77.662	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	10078	89.538	pg		100
5) Vinyl Chloride	4.99	62	9555	87.365	pg		86
6) 1,3-Butadiene	5.19	54	4827	74.233	pg	#	83
7) Bromomethane	5.51	94	3629	82.485	pg		95
8) Chloroethane	5.73	64	3008	89.394	pg		96
9) Acrolein	6.33	56	2662	111.364	pg		92
10) Acetone	6.44	58	22310	721.872	pg	#	89
11) Trichlorofluoromethane	6.63	101	8644	110.470	pg		99
12) 1,1-Dichloroethene	7.37	96	5006	102.118	pg		99
13) Methylene Chloride	7.51	84	5144	96.696	pg		94
14) Trichlorotrifluoroethane	7.81	151	5048	103.215	pg		99
15) trans-1,2-Dichloroethene	8.54	96	5113	96.749	pg		98
16) 1,1-Dichloroethane	8.74	63	8410	89.697	pg		98
17) Methyl tert-Butyl Ether	8.81	73	16302	116.517	pg		99
18) cis-1,2-Dichloroethene	9.61	96	5464	98.525	pg		98
19) Chloroform	9.90	83	10370	105.175	pg		100
21) 1,2-Dichloroethane	10.66	62	6787	89.422	pg		96
22) 1,1,1-Trichloroethane	10.92	97	9029	98.650	pg		100
23) Benzene	11.38	78	21857	100.615	pg		100
24) Carbon Tetrachloride	11.53	117	8203	111.617	pg		100
26) 1,2-Dichloropropane	12.19	63	4956	87.482	pg		100
27) Bromodichloromethane	12.36	83	7398	94.566	pg		99
28) Trichloroethene	12.42	130	5856	101.272	pg		100
29) 1,4-Dioxane	12.40	88	4393	103.462	pg		100
30) cis-1,3-Dichloropropene	13.26	75	8329	109.307	pg		99
31) trans-1,3-Dichloropropene	13.78	75	6788	109.466	pg		99
32) 1,1,2-Trichloroethane	13.96	83	4185	87.335	pg		98
34) Toluene	14.25	91	21436	103.881	pg		100
35) Dibromochloromethane	14.67	129	6389	111.810	pg		100
36) 1,2-Dibromoethane	14.93	107	5612	103.842	pg		98
37) Tetrachloroethene	15.40	166	6110	101.908	pg		100
39) Chlorobenzene	16.10	112	14346	101.916	pg		99
40) Ethylbenzene	16.48	91	24193	116.549	pg		100
41) m,p-Xylene	16.66	91	37076	238.133	pg		100
42) Styrene	17.01	104	14110	129.355	pg		100
43) o-Xylene	17.12	106	9237	115.486	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8659	94.220	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	19888	120.670	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	19999	123.627	pg		100
48) 1,3-Dichlorobenzene	18.92	146	11178	112.425	pg		99
49) 1,4-Dichlorobenzene	18.98	146	11885	114.813	pg		100
50) 1,2-Dichlorobenzene	19.31	146	11117	109.718	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	3739	122.073	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	7401	123.402	pg		99
53) Naphthalene	21.07	128	25799	135.469	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

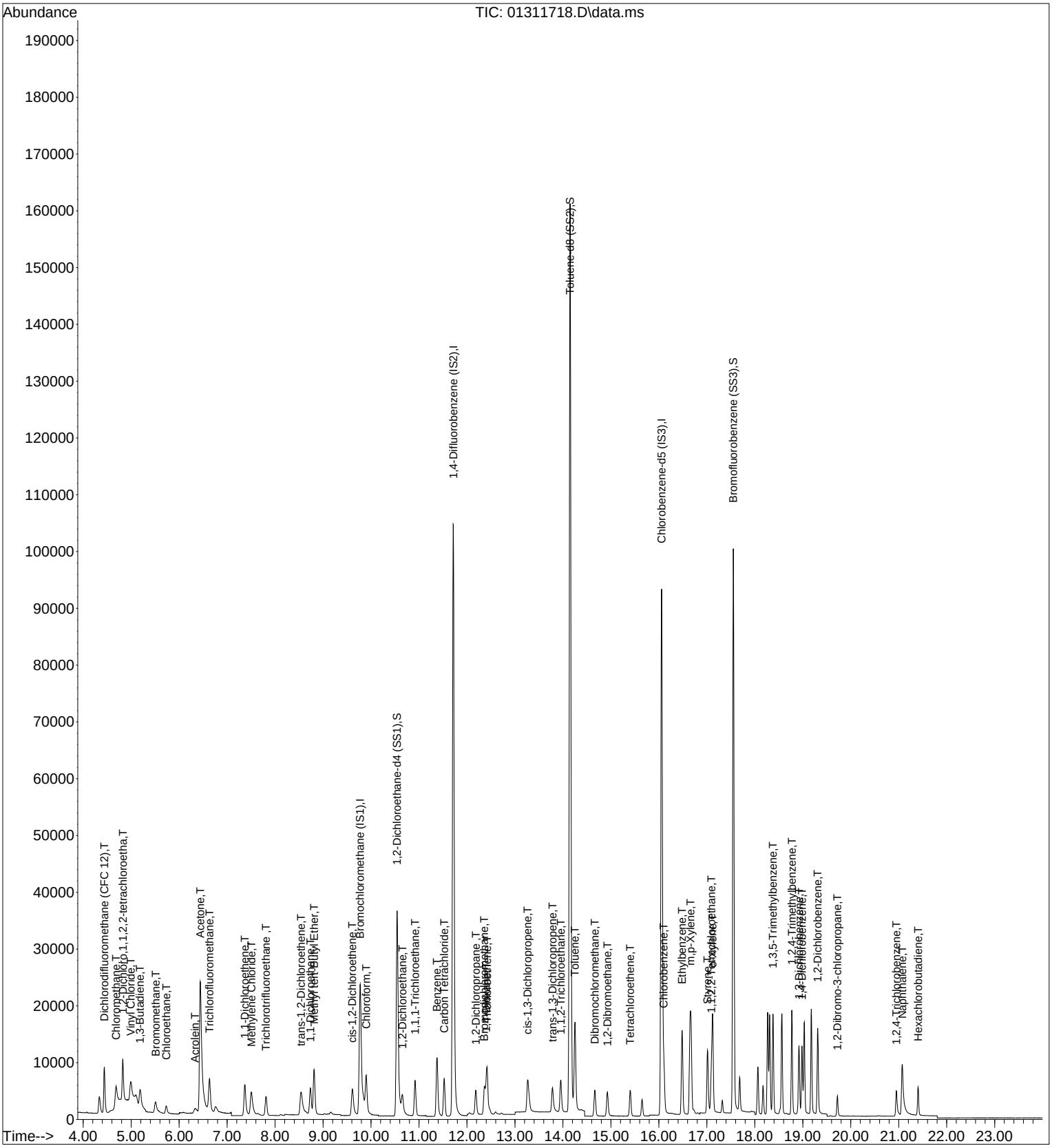
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	5012	105.631	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

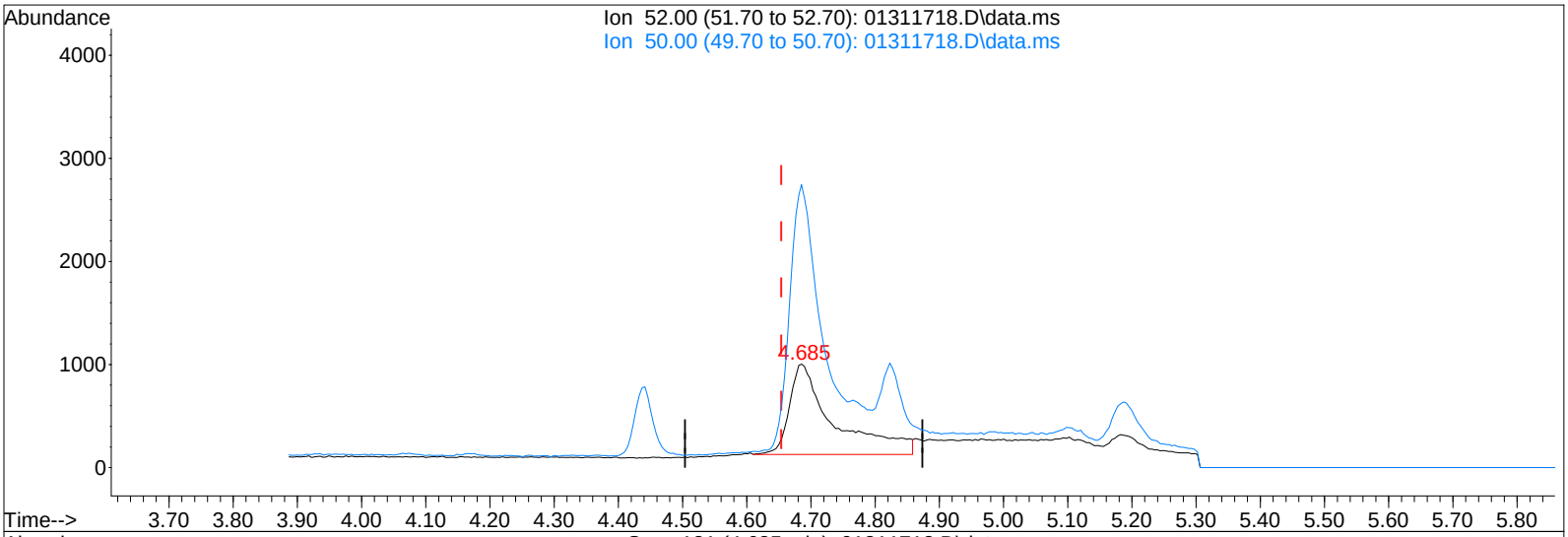
Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

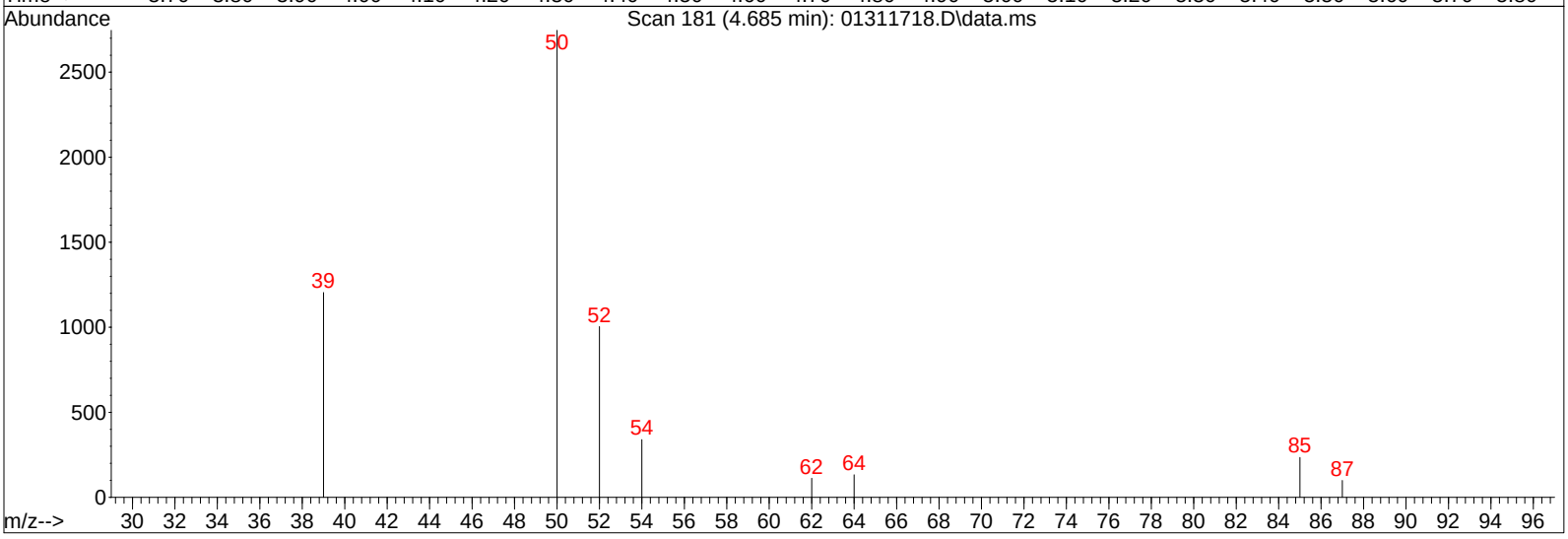


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 123.73pg

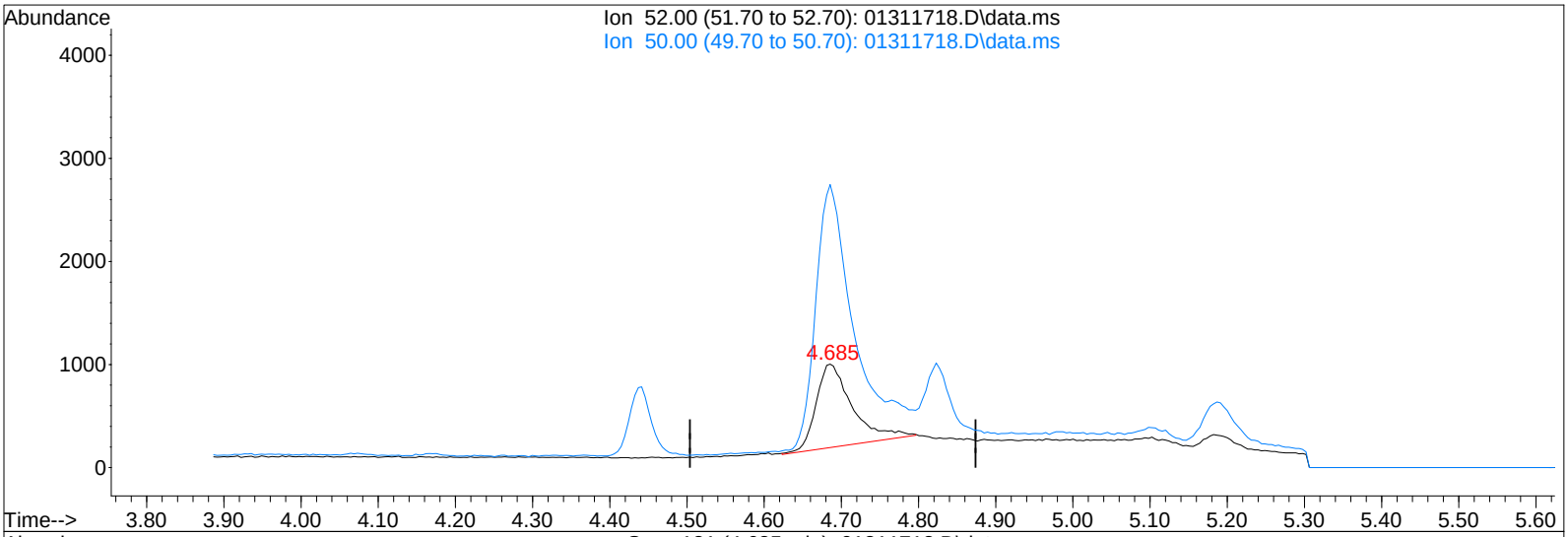
response 4217

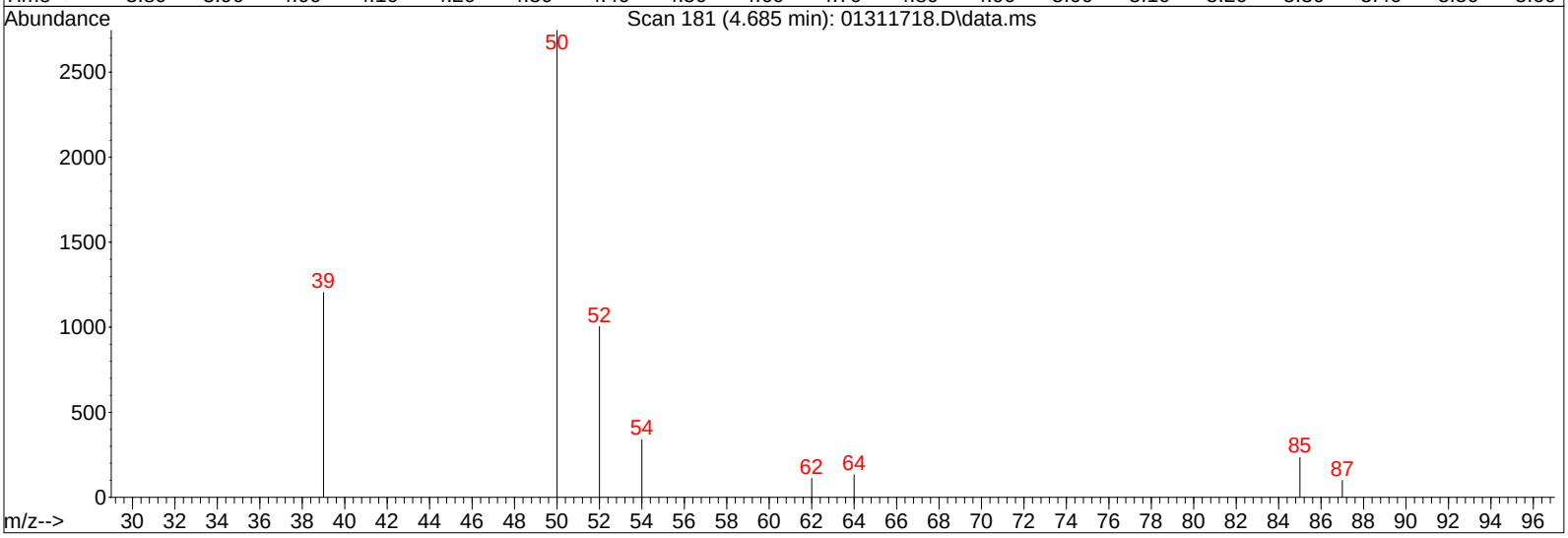
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.83#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 77.66pg m

response 2647

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44789	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	219635	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	36216	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71641	923.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.36%			
33) Toluene-d8 (SS2)	14.15	98	222183	1018.385	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.84%			
45) Bromofluorobenzene (SS3)	17.55	174	77862	1175.207	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54680	483.252	pg	100
3) Chloromethane	4.65	52	11134m	330.285	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	49784	447.204	pg	100
5) Vinyl Chloride	4.96	62	46092	426.104	pg	100
6) 1,3-Butadiene	5.14	54	27149	422.143	pg	97
7) Bromomethane	5.48	94	18208	418.438	pg	100
8) Chloroethane	5.70	64	14708	441.943	pg	100
9) Acrolein	6.27	56	11290	477.545	pg	99
10) Acetone	6.40	58	76435	2500.552	pg	100
11) Trichlorofluoromethane	6.62	101	41690	538.697	pg	100
12) 1,1-Dichloroethene	7.35	96	24654	508.490	pg	100
13) Methylene Chloride	7.48	84	25077	476.615	pg	100
14) Trichlorotrifluoroethane	7.80	151	24901	514.784	pg	100
15) trans-1,2-Dichloroethene	8.52	96	25919	495.873	pg	100
16) 1,1-Dichloroethane	8.72	63	42758	461.084	pg	100
17) Methyl tert-Butyl Ether	8.79	73	81366	587.998	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27973	509.983	pg	100
19) Chloroform	9.89	83	46651	478.387	pg	100
21) 1,2-Dichloroethane	10.64	62	34289	456.777	pg	100
22) 1,1,1-Trichloroethane	10.91	97	45127	498.513	pg	100
23) Benzene	11.37	78	101187	470.958	pg	100
24) Carbon Tetrachloride	11.52	117	40496	557.125	pg	100
26) 1,2-Dichloropropane	12.18	63	24877	444.675	pg	100
27) Bromodichloromethane	12.36	83	36381	470.928	pg	100
28) Trichloroethene	12.41	130	29035	508.469	pg	100
29) 1,4-Dioxane	12.38	88	22240	530.407	pg	100
30) cis-1,3-Dichloropropene	13.26	75	42729	567.850	pg	100
31) trans-1,3-Dichloropropene	13.77	75	35546	580.476	pg	100
32) 1,1,2-Trichloroethane	13.95	83	21252	449.105	pg	100
34) Toluene	14.25	91	104379	512.227	pg	100
35) Dibromochloromethane	14.66	129	30904	547.669	pg	100
36) 1,2-Dibromoethane	14.92	107	28232	528.997	pg	100
37) Tetrachloroethene	15.40	166	30762	519.562	pg	100
39) Chlorobenzene	16.10	112	71422	511.579	pg	100
40) Ethylbenzene	16.48	91	121724	591.245	pg	100
41) m,p-Xylene	16.65	91	187213	1212.365	pg	100
42) Styrene	17.01	104	72134	666.756	pg	100
43) o-Xylene	17.12	106	45881	578.366	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	43481	477.028	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	101046	618.158	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	102046	636.021	pg	100
48) 1,3-Dichlorobenzene	18.92	146	56800	575.993	pg	100
49) 1,4-Dichlorobenzene	18.98	146	57596	560.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	55446	551.735	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19674	647.629	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	36959	621.329	pg	100
53) Naphthalene	21.06	128	125927	666.692	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

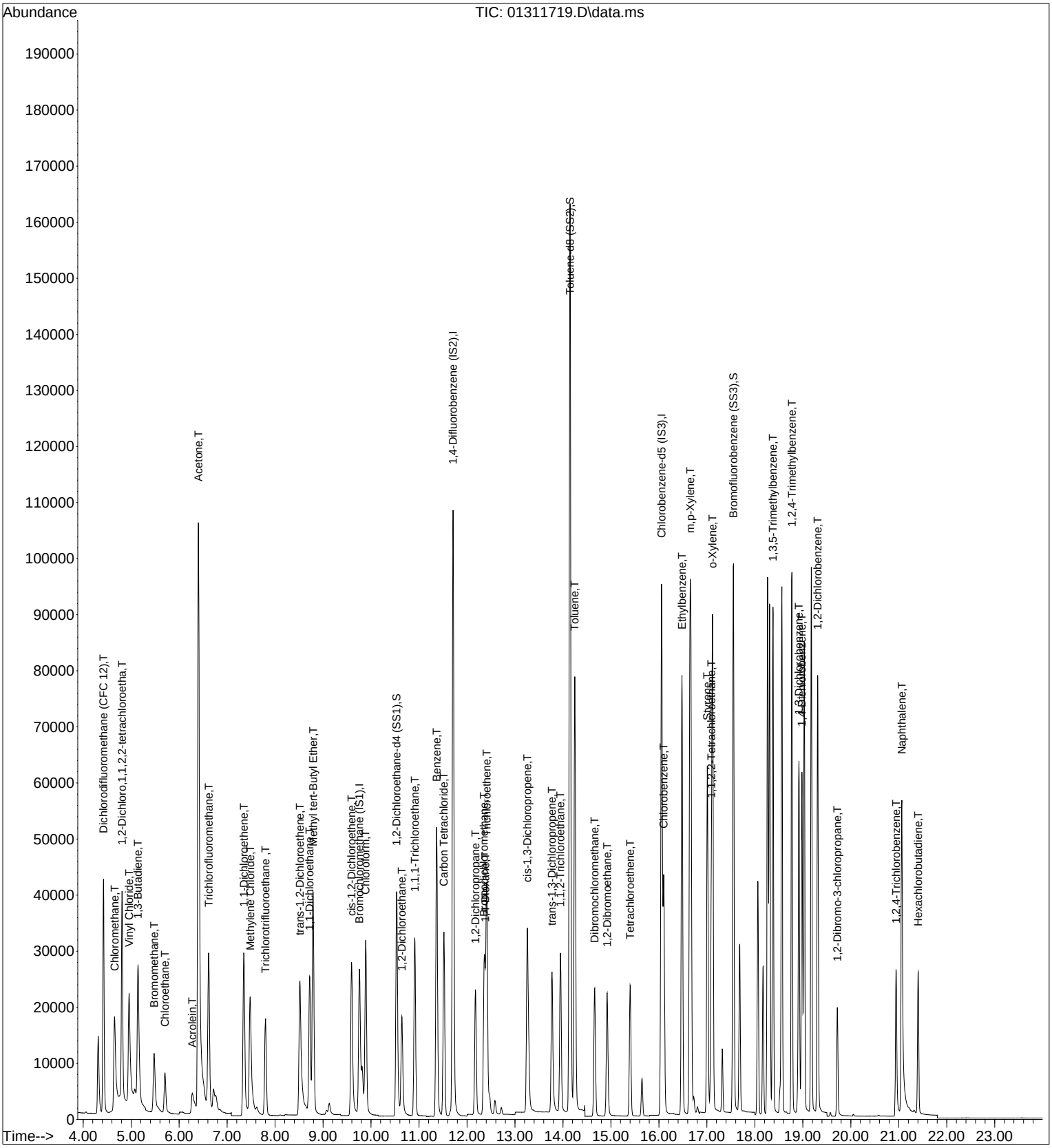
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	25291	537.422	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

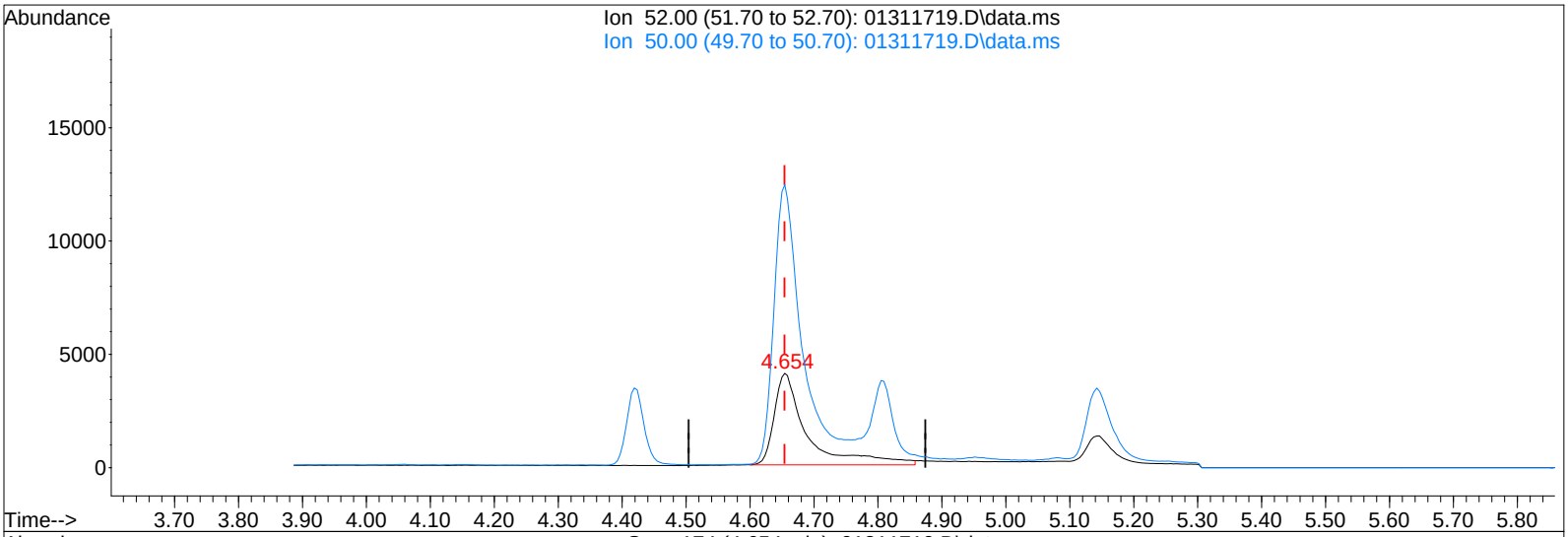
Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

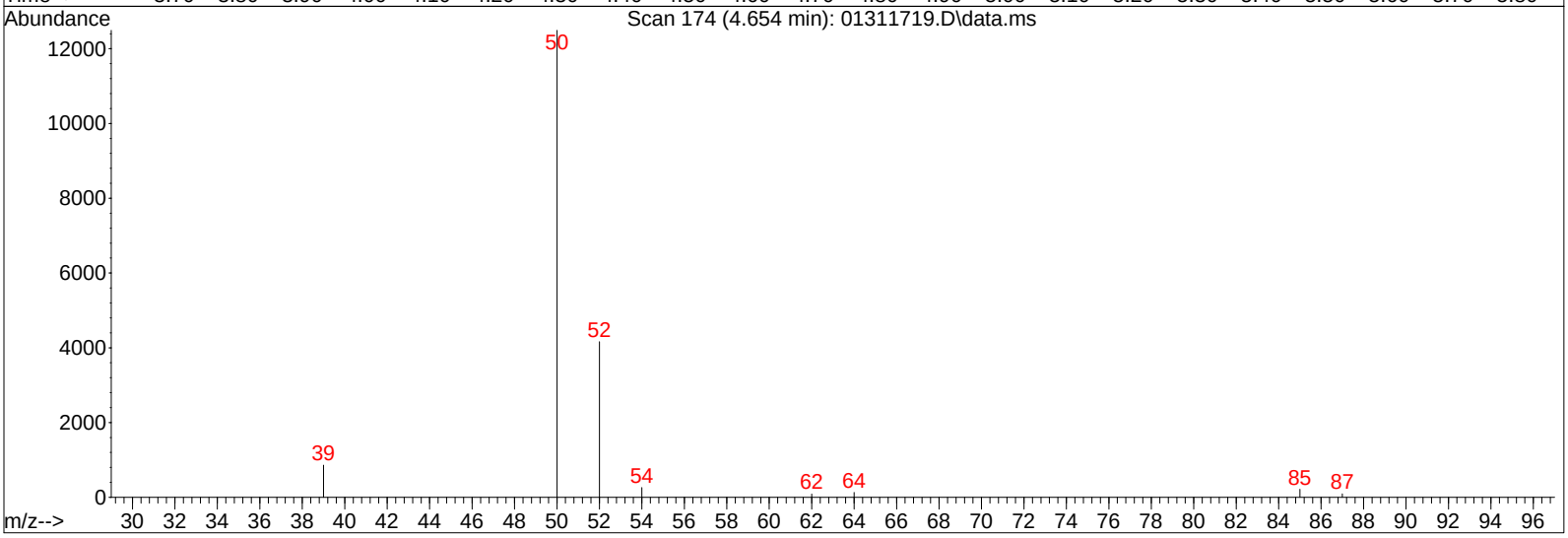


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 425.98pg

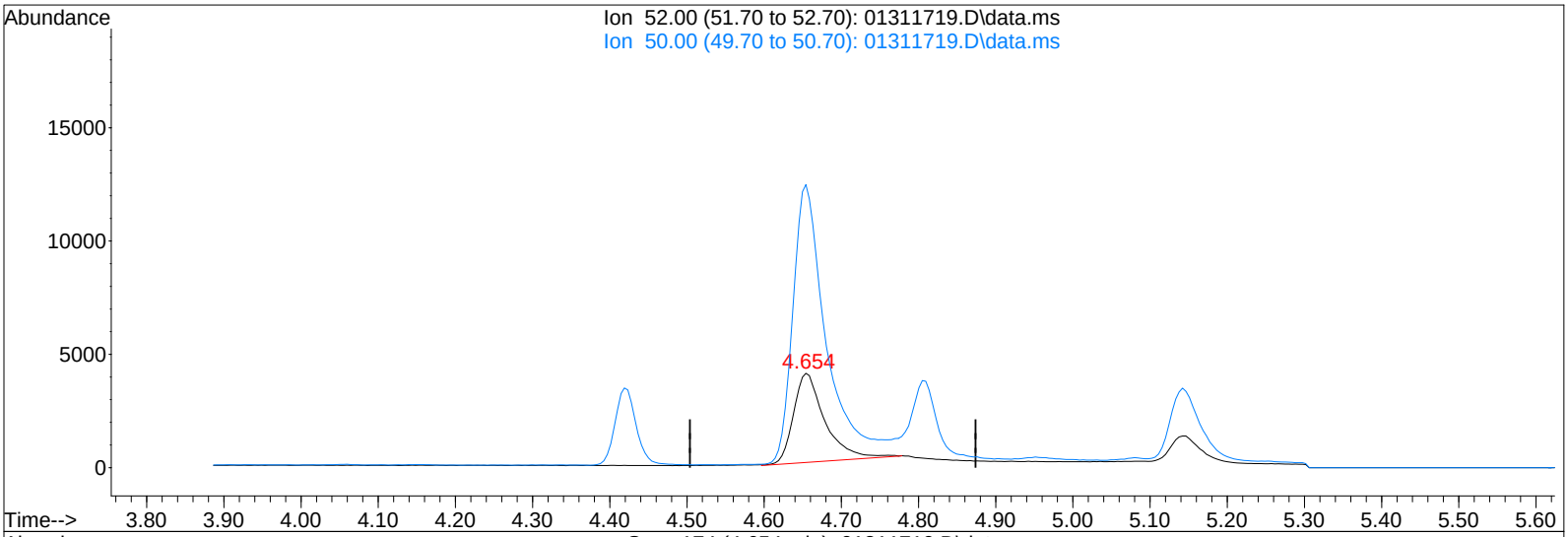
response 14360

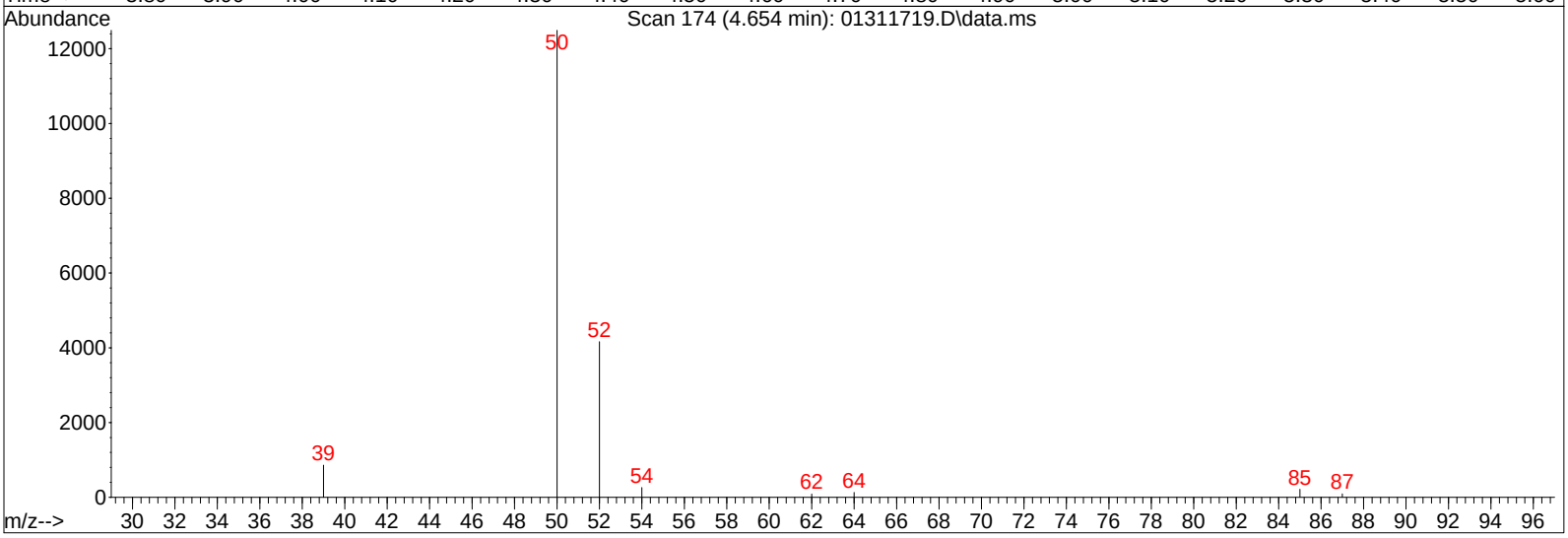
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	273.80
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 330.29pg m

response 11134

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41256	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	201950	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33722	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	63980	895.455	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.55%			
33) Toluene-d8 (SS2)	14.14	98	205034	1022.080	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.21%			
45) Bromofluorobenzene (SS3)	17.55	174	73290	1188.011	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	113332	1087.382	pg	100
3) Chloromethane	4.64	52	26928m	867.214	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	101721	991.998	pg	100
5) Vinyl Chloride	4.94	62	95990	963.386	pg	100
6) 1,3-Butadiene	5.12	54	70019	1181.968	pg	96
7) Bromomethane	5.46	94	37586	937.734	pg	100
8) Chloroethane	5.69	64	30402	991.743	pg	99
9) Acrolein	6.26	56	24355	1118.389	pg	87
10) Acetone	6.39	58	155710	5530.245	pg	100
11) Trichlorofluoromethane	6.60	101	85620	1201.080	pg	100
12) 1,1-Dichloroethene	7.34	96	51528	1153.780	pg	100
13) Methylene Chloride	7.47	84	51520	1063.046	pg	99
14) Trichlorotrifluoroethane	7.79	151	52266	1173.037	pg	100
15) trans-1,2-Dichloroethene	8.51	96	54829	1138.798	pg	99
16) 1,1-Dichloroethane	8.71	63	88528	1036.400	pg	100
17) Methyl tert-Butyl Ether	8.78	73	166983	1310.054	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58245	1152.816	pg	100
19) Chloroform	9.89	83	95528	1063.489	pg	100
21) 1,2-Dichloroethane	10.64	62	72512	1048.681	pg	99
22) 1,1,1-Trichloroethane	10.91	97	93518	1121.552	pg	100
23) Benzene	11.36	78	208308	1052.561	pg	100
24) Carbon Tetrachloride	11.52	117	83663	1249.564	pg	100
26) 1,2-Dichloropropane	12.18	63	52269	1016.124	pg	100
27) Bromodichloromethane	12.36	83	76414	1075.747	pg	100
28) Trichloroethene	12.41	130	60477	1151.837	pg	100
29) 1,4-Dioxane	12.38	88	46199	1198.297	pg	99
30) cis-1,3-Dichloropropene	13.25	75	91457	1321.861	pg	100
31) trans-1,3-Dichloropropene	13.77	75	77319	1373.212	pg	100
32) 1,1,2-Trichloroethane	13.95	83	44749	1028.464	pg	100
34) Toluene	14.25	91	217850	1162.691	pg	100
35) Dibromochloromethane	14.66	129	65423	1260.932	pg	100
36) 1,2-Dibromoethane	14.92	107	60364	1230.120	pg	100
37) Tetrachloroethene	15.40	166	64784	1190.005	pg	99
39) Chlorobenzene	16.10	112	151267	1163.622	pg	100
40) Ethylbenzene	16.48	91	256326	1337.123	pg	100
41) m,p-Xylene	16.66	91	392109	2727.040	pg	100
42) Styrene	17.01	104	156256	1551.139	pg	100
43) o-Xylene	17.12	106	96286	1303.527	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	91871	1082.455	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	212828	1398.287	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	217940	1458.812	pg	100
48) 1,3-Dichlorobenzene	18.92	146	124843	1359.628	pg	100
49) 1,4-Dichlorobenzene	18.98	146	123287	1289.634	pg	100
50) 1,2-Dichlorobenzene	19.31	146	120177	1284.308	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	43897	1551.872	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	83154	1501.315	pg	100
53) Naphthalene	21.06	128	277042	1575.213	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

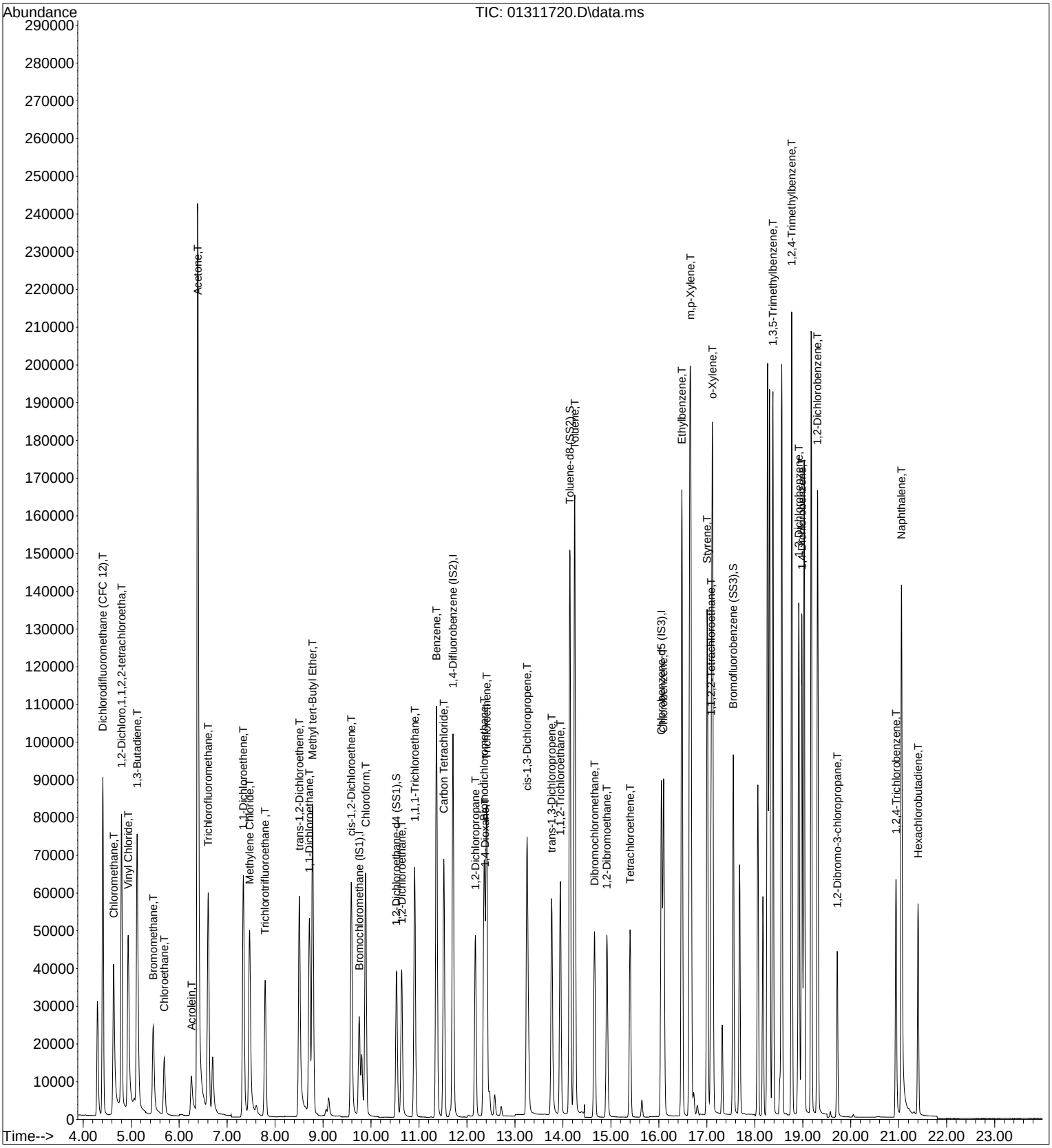
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	54368	1240.737	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

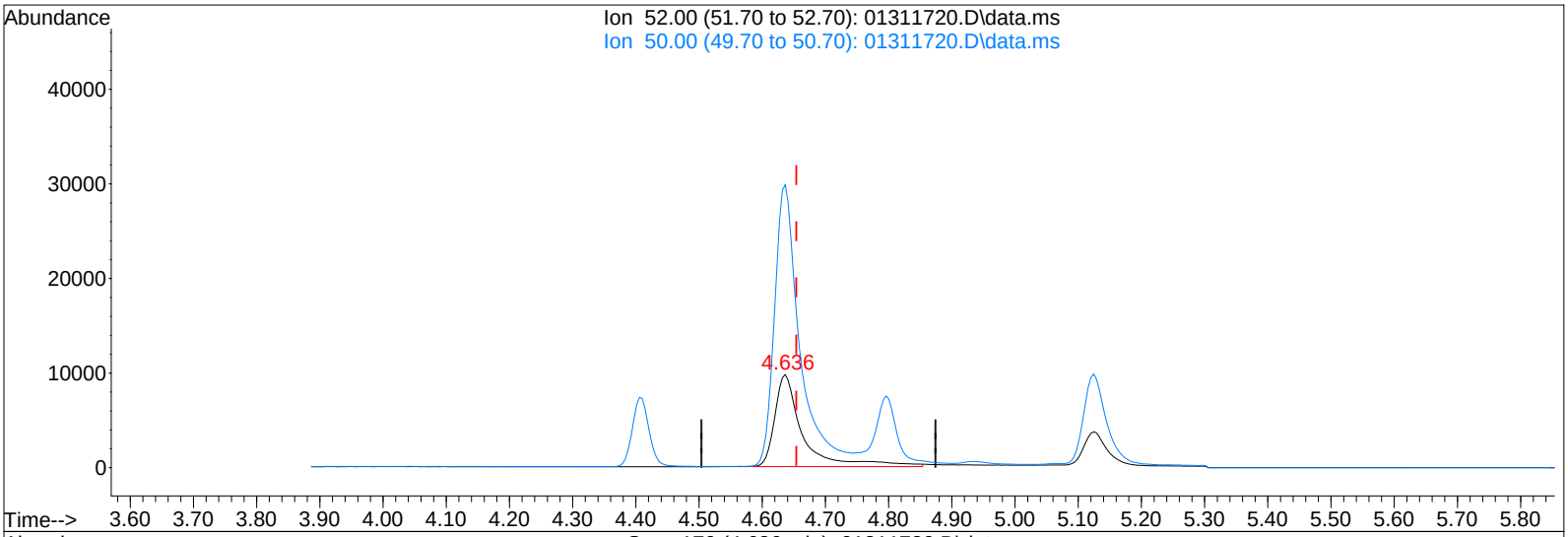
Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

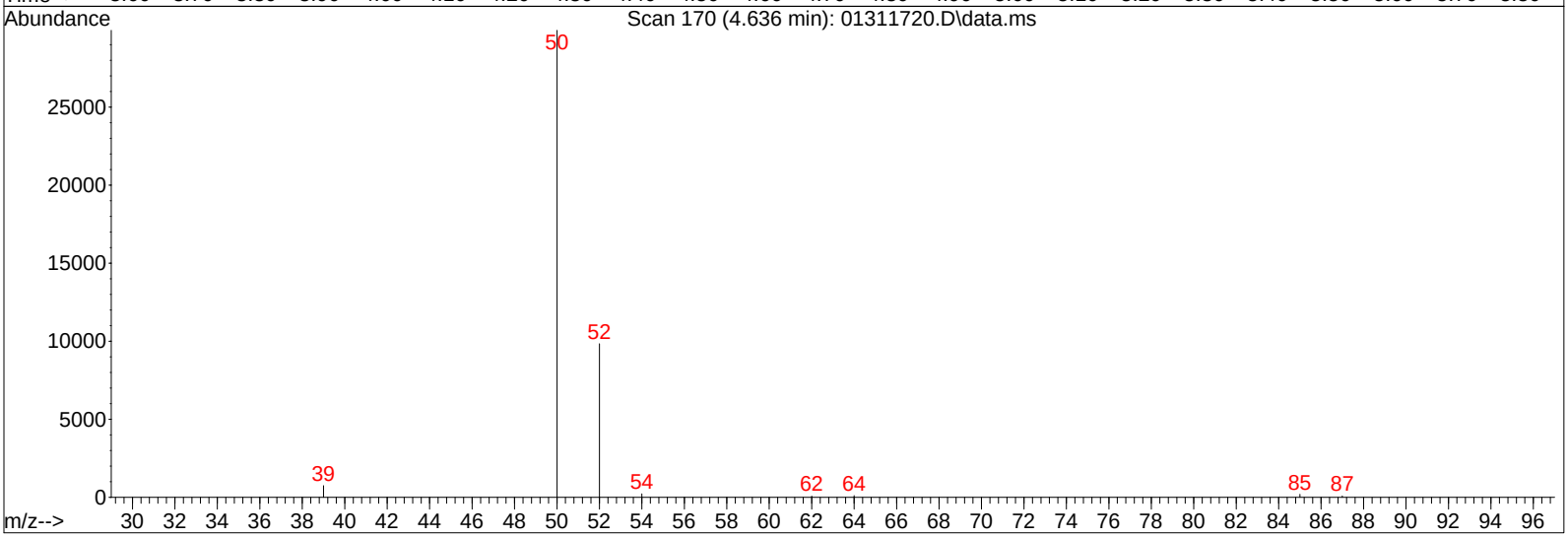


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 960.90pg

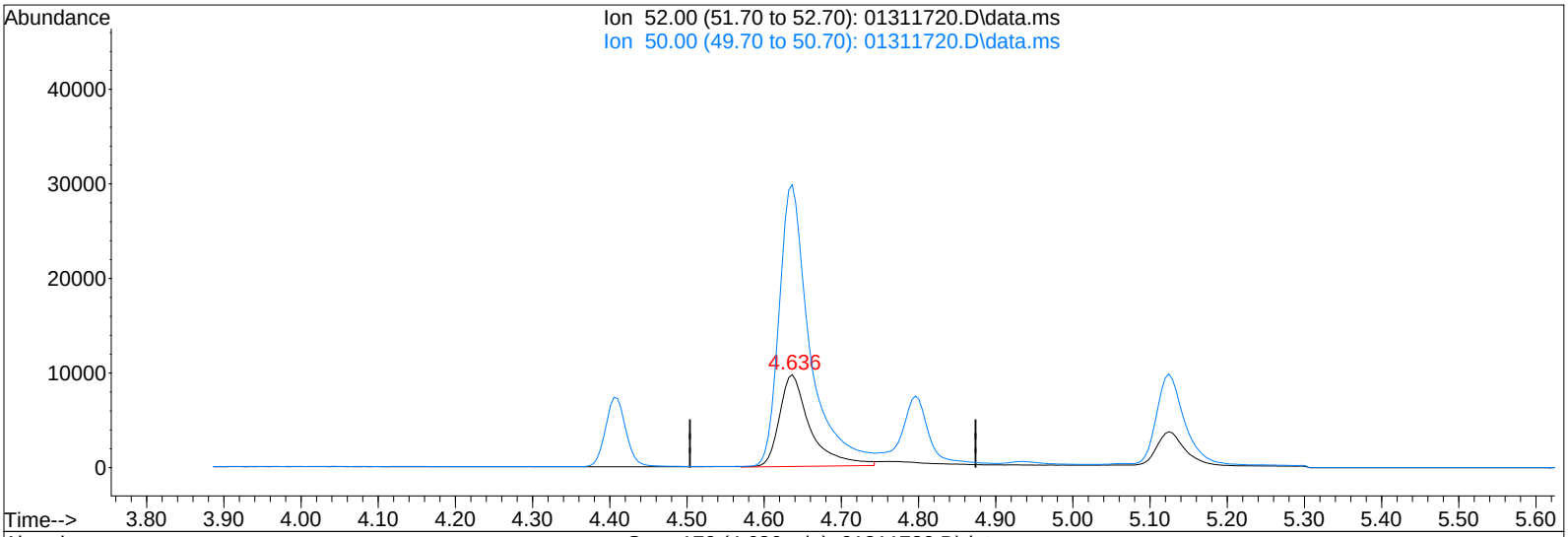
response 29837

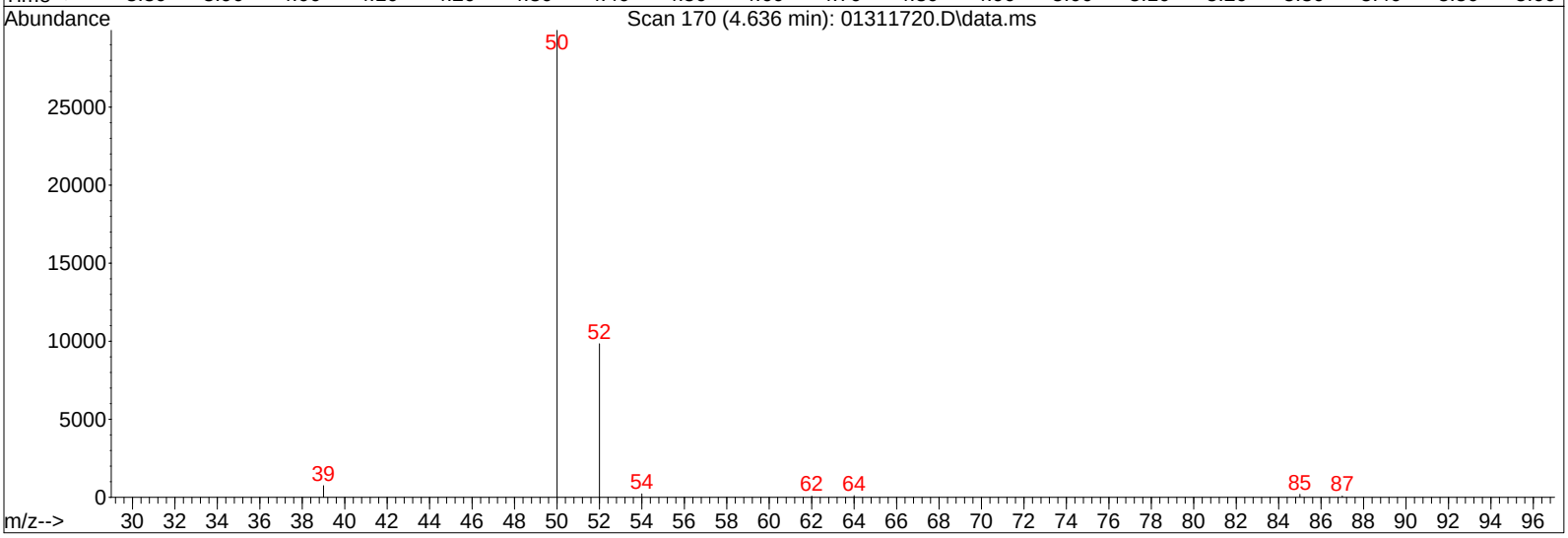
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	282.21
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 867.21pg m

response 26928

BLC

CL 2/1/17 VOA 2/1/17

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46260	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	226658	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38224	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	72163	900.732	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.07%			
33) Toluene-d8 (SS2)	14.14	98	229595	1019.751	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%			
45) Bromofluorobenzene (SS3)	17.55	174	84385	1206.753	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 120.68%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	220557	1887.260	pg	100
3) Chloromethane	4.63	52	52734	1514.587	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	195750	1702.486	pg	100
5) Vinyl Chloride	4.93	62	185043	1656.260	pg	100
6) 1,3-Butadiene	5.12	54	131000	1972.162	pg	99
7) Bromomethane	5.46	94	74906	1666.677	pg	99
8) Chloroethane	5.68	64	59772	1738.906	pg	100
9) Acrolein	6.25	56	49479	2026.316	pg	89
10) Acetone	6.39	58	301398	9546.622	pg	100
11) Trichlorofluoromethane	6.60	101	166282	2080.289	pg	100
12) 1,1-Dichloroethene	7.34	96	101668	2030.230	pg	100
13) Methylene Chloride	7.47	84	101112	1860.632	pg	97
14) Trichlorotrifluoroethane	7.80	151	101840	2038.413	pg	100
15) trans-1,2-Dichloroethene	8.51	96	108910	2017.370	pg	100
16) 1,1-Dichloroethane	8.72	63	173363	1810.026	pg	100
17) Methyl tert-Butyl Ether	8.78	73	324803	2272.577	pg	100
18) cis-1,2-Dichloroethene	9.59	96	115529	2039.266	pg	100
19) Chloroform	9.89	83	185900	1845.709	pg	100
21) 1,2-Dichloroethane	10.64	62	143714	1853.592	pg	100
22) 1,1,1-Trichloroethane	10.91	97	183355	1961.094	pg	100
23) Benzene	11.36	78	404925	1824.725	pg	100
24) Carbon Tetrachloride	11.52	117	163921	2183.439	pg	100
26) 1,2-Dichloropropane	12.18	63	103854	1798.865	pg	100
27) Bromodichloromethane	12.36	83	152005	1906.637	pg	100
28) Trichloroethene	12.41	130	118710	2014.470	pg	100
29) 1,4-Dioxane	12.37	88	91438	2113.156	pg	98
30) cis-1,3-Dichloropropene	13.25	75	184937	2381.581	pg	100
31) trans-1,3-Dichloropropene	13.77	75	159452	2523.214	pg	100
32) 1,1,2-Trichloroethane	13.95	83	88554	1813.371	pg	100
34) Toluene	14.25	91	428948	2039.785	pg	100
35) Dibromochloromethane	14.66	129	131890	2264.884	pg	100
36) 1,2-Dibromoethane	14.92	107	121296	2202.363	pg	100
37) Tetrachloroethene	15.40	166	129617	2121.366	pg	99
39) Chlorobenzene	16.10	112	301544	2046.425	pg	100
40) Ethylbenzene	16.48	91	505745	2327.488	pg	100
41) m,p-Xylene	16.65	91	769225	4719.710	pg	100
42) Styrene	17.01	104	317729	2782.583	pg	100
43) o-Xylene	17.12	106	190542	2275.751	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	183818	1910.717	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	422729	2450.230	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	437807	2585.368	pg	100
48) 1,3-Dichlorobenzene	18.92	146	252089	2422.071	pg	99
49) 1,4-Dichlorobenzene	18.98	146	251599	2321.857	pg	100
50) 1,2-Dichlorobenzene	19.31	146	243739	2297.999	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	93012	2900.929	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	173590	2764.971	pg	99
53) Naphthalene	21.06	128	572431	2871.402	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

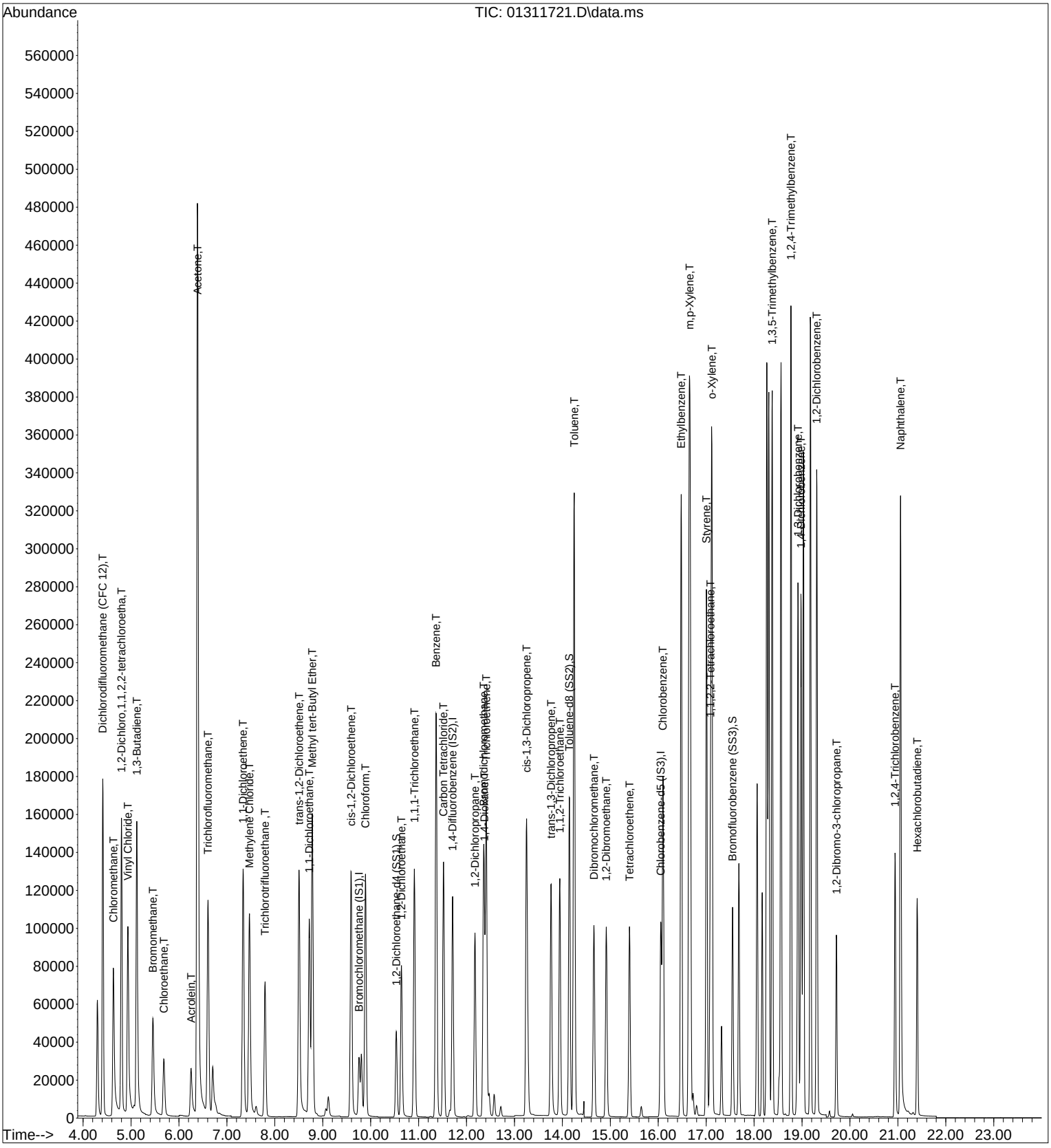
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	110571	2226.153	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46202	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	228263	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38988	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	72838	910.299	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.03%			
33) Toluene-d8 (SS2)	14.15	98	229599	1012.598	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.26%			
45) Bromofluorobenzene (SS3)	17.55	174	87524	1227.115	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 122.71%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	512896	4394.253	pg	100
3) Chloromethane	4.62	52	101977	2932.585	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	454932	3961.623	pg	100
5) Vinyl Chloride	4.92	62	438115	3926.349	pg	100
6) 1,3-Butadiene	5.11	54	348673	5255.748	pg	99
7) Bromomethane	5.44	94	175953	3919.913	pg	99
8) Chloroethane	5.67	64	144617	4212.525	pg	100
9) Acrolein	6.25	56	124001	5084.593	pg	91
10) Acetone	6.39	58	711848	22575.713	pg	99
11) Trichlorofluoromethane	6.60	101	397999	4985.460	pg	100
12) 1,1-Dichloroethene	7.33	96	244670	4892.002	pg	100
13) Methylene Chloride	7.47	84	242354	4465.323	pg	96
14) Trichlorotrifluoroethane	7.79	151	244226	4894.525	pg	100
15) trans-1,2-Dichloroethene	8.51	96	261214	4844.613	pg	100
16) 1,1-Dichloroethane	8.72	63	410941	4295.885	pg	100
17) Methyl tert-Butyl Ether	8.78	73	766770	5371.660	pg	99
18) cis-1,2-Dichloroethene	9.59	96	277890	4911.346	pg	100
19) Chloroform	9.90	83	442175	4395.649	pg	100
21) 1,2-Dichloroethane	10.65	62	348344	4498.505	pg	99
22) 1,1,1-Trichloroethane	10.91	97	435529	4664.096	pg	100
23) Benzene	11.37	78	964790	4353.119	pg	100
24) Carbon Tetrachloride	11.52	117	392094	5229.275	pg	100
26) 1,2-Dichloropropane	12.18	63	253346	4357.376	pg	100
27) Bromodichloromethane	12.36	83	368912	4594.819	pg	100
28) Trichloroethene	12.41	130	283057	4769.610	pg	100
29) 1,4-Dioxane	12.37	88	220451	5058.858	pg	98
30) cis-1,3-Dichloropropene	13.25	75	456001	5830.998	pg	100
31) trans-1,3-Dichloropropene	13.76	75	400676	6295.829	pg	100
32) 1,1,2-Trichloroethane	13.95	83	213984	4351.062	pg	100
34) Toluene	14.25	91	1028667	4857.246	pg	99
35) Dibromochloromethane	14.66	129	325836	5556.082	pg	100
36) 1,2-Dibromoethane	14.92	107	296590	5347.298	pg	100
37) Tetrachloroethene	15.40	166	315696	5130.483	pg	98
39) Chlorobenzene	16.10	112	729817	4855.838	pg	99
40) Ethylbenzene	16.48	91	1211043	5464.123	pg	99
41) m,p-Xylene	16.66	91	1858111	11177.347	pg	99
42) Styrene	17.01	104	792274	6802.551	pg	100
43) o-Xylene	17.12	106	463877	5431.779	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	452508	4611.475	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1044605	5936.113	pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	1092958	6327.736	pg	99
48) 1,3-Dichlorobenzene	18.92	146	633841	5970.608	pg	99
49) 1,4-Dichlorobenzene	18.98	146	630188	5701.667	pg	100
50) 1,2-Dichlorobenzene	19.31	146	611111	5648.722	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	241334	7379.414	pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	437718	6835.425	pg	99
53) Naphthalene	21.06	128	1421593	6991.193	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

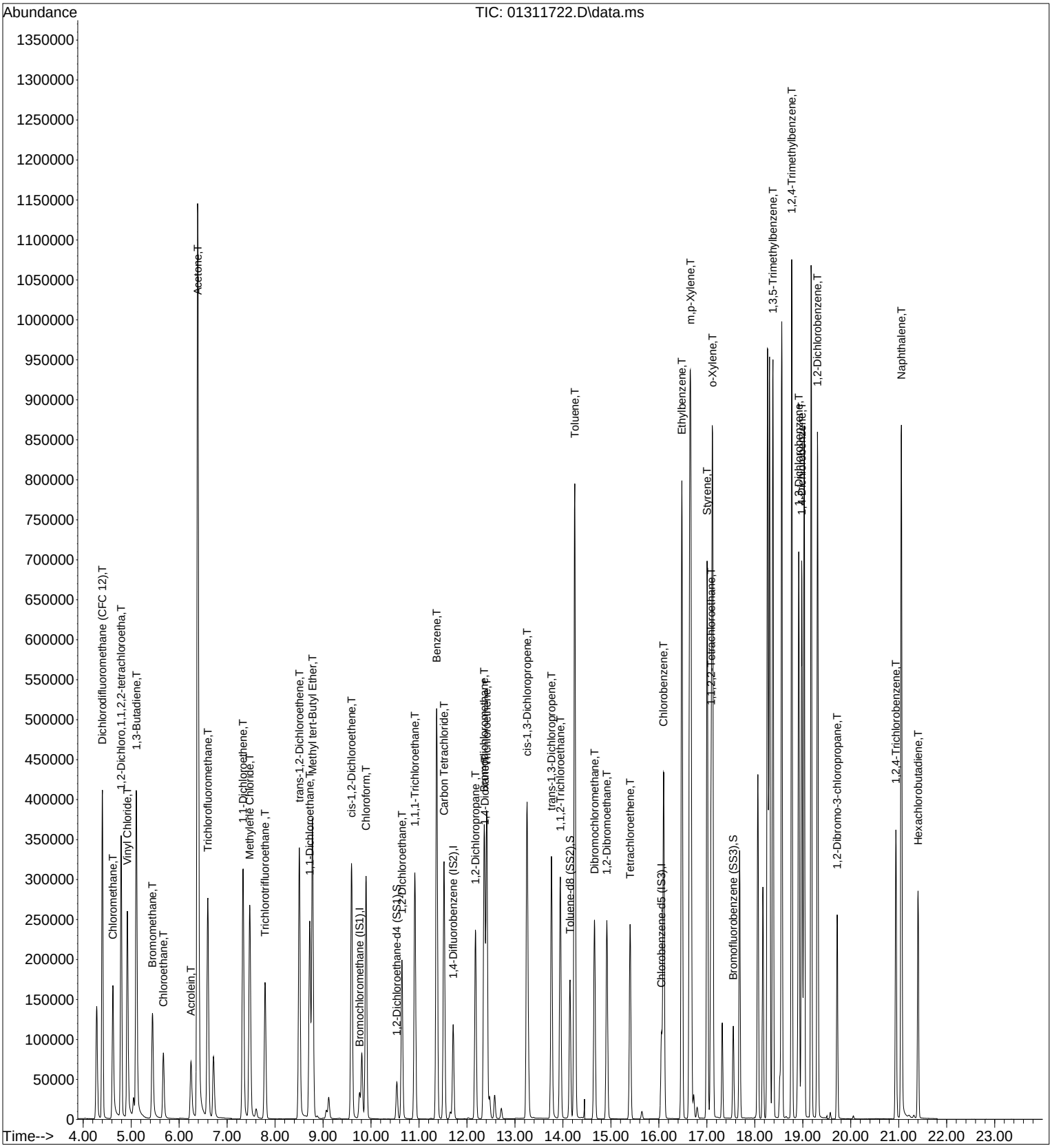
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	274391	5416.126	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	47579	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	237335	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	41485	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	76306	926.041	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.60%			
33) Toluene-d8 (SS2)	14.15	98	237217	1006.206	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%			
45) Bromofluorobenzene (SS3)	17.55	174	91990	1212.101	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 121.21%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	991839	8251.680	pg	99
3) Chloromethane	4.62	52	127941	3572.758	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	882023	7458.509	pg	99
5) Vinyl Chloride	4.92	62	860171	7485.676	pg	100
6) 1,3-Butadiene	5.11	54	682216	9985.816	pg	98
7) Bromomethane	5.44	94	347157	7510.193	pg	99
8) Chloroethane	5.67	64	288891	8171.516	pg	100
9) Acrolein	6.25	56	251909	10030.444	pg	93
10) Acetone	6.40	58	1427049	43947.944	pg	98
11) Trichlorofluoromethane	6.60	101	783993	9536.321	pg	100
12) 1,1-Dichloroethene	7.33	96	485554	9427.334	pg	100
13) Methylene Chloride	7.48	84	484801	8673.844	pg	94
14) Trichlorotrifluoroethane	7.79	151	470953	9165.195	pg	100
15) trans-1,2-Dichloroethene	8.51	96	513980	9256.661	pg	99
16) 1,1-Dichloroethane	8.73	63	814059	8263.700	pg	99
17) Methyl tert-Butyl Ether	8.78	73	1520229	10341.841	pg	99
18) cis-1,2-Dichloroethene	9.60	96	551238	9460.460	pg	99
19) Chloroform	9.90	83	875033	8446.926	pg	99
21) 1,2-Dichloroethane	10.65	62	695439	8720.961	pg	99
22) 1,1,1-Trichloroethane	10.92	97	857745	8919.779	pg	99
23) Benzene	11.37	78	1911739	8376.099	pg	100
24) Carbon Tetrachloride	11.53	117	780654	10110.098	pg	100
26) 1,2-Dichloropropane	12.18	63	508782	8416.208	pg	100
27) Bromodichloromethane	12.36	83	735652	8812.352	pg	100
28) Trichloroethene	12.42	130	560675	9086.442	pg	100
29) 1,4-Dioxane	12.37	88	437282	9651.075	pg	97
30) cis-1,3-Dichloropropene	13.25	75	918356	11294.367	pg	100
31) trans-1,3-Dichloropropene	13.76	75	813807	12298.574	pg	99
32) 1,1,2-Trichloroethane	13.95	83	426818	8347.000	pg	100
34) Toluene	14.25	91	2034557	9239.721	pg	98
35) Dibromochloromethane	14.66	129	658702	10802.700	pg	100
36) 1,2-Dibromoethane	14.92	107	594139	10302.431	pg	100
37) Tetrachloroethene	15.40	166	629830	9844.333	pg	98
39) Chlorobenzene	16.10	112	1451673	9077.347	pg	99
40) Ethylbenzene	16.48	91	2393354	10148.638	pg	98
41) m,p-Xylene	16.66	91	3762008	21268.000	pg	98
42) Styrene	17.01	104	1611198	13001.252	pg	99
43) o-Xylene	17.12	106	941259	10358.294	pg	97
44) 1,1,2,2-Tetrachloroethane	17.09	83	918804	8799.871	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2126238	11355.384	pg	97
47) 1,2,4-Trimethylbenzene	18.77	105	2241162	12194.331	pg	99
48) 1,3-Dichlorobenzene	18.92	146	1277210	11306.817	pg	99
49) 1,4-Dichlorobenzene	18.98	146	1276991	10858.239	pg	100
50) 1,2-Dichlorobenzene	19.31	146	1236325	10739.958	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	496260	14261.083	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	884931	12987.345	pg	99
53) Naphthalene	21.06	128	2873218	13279.584	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

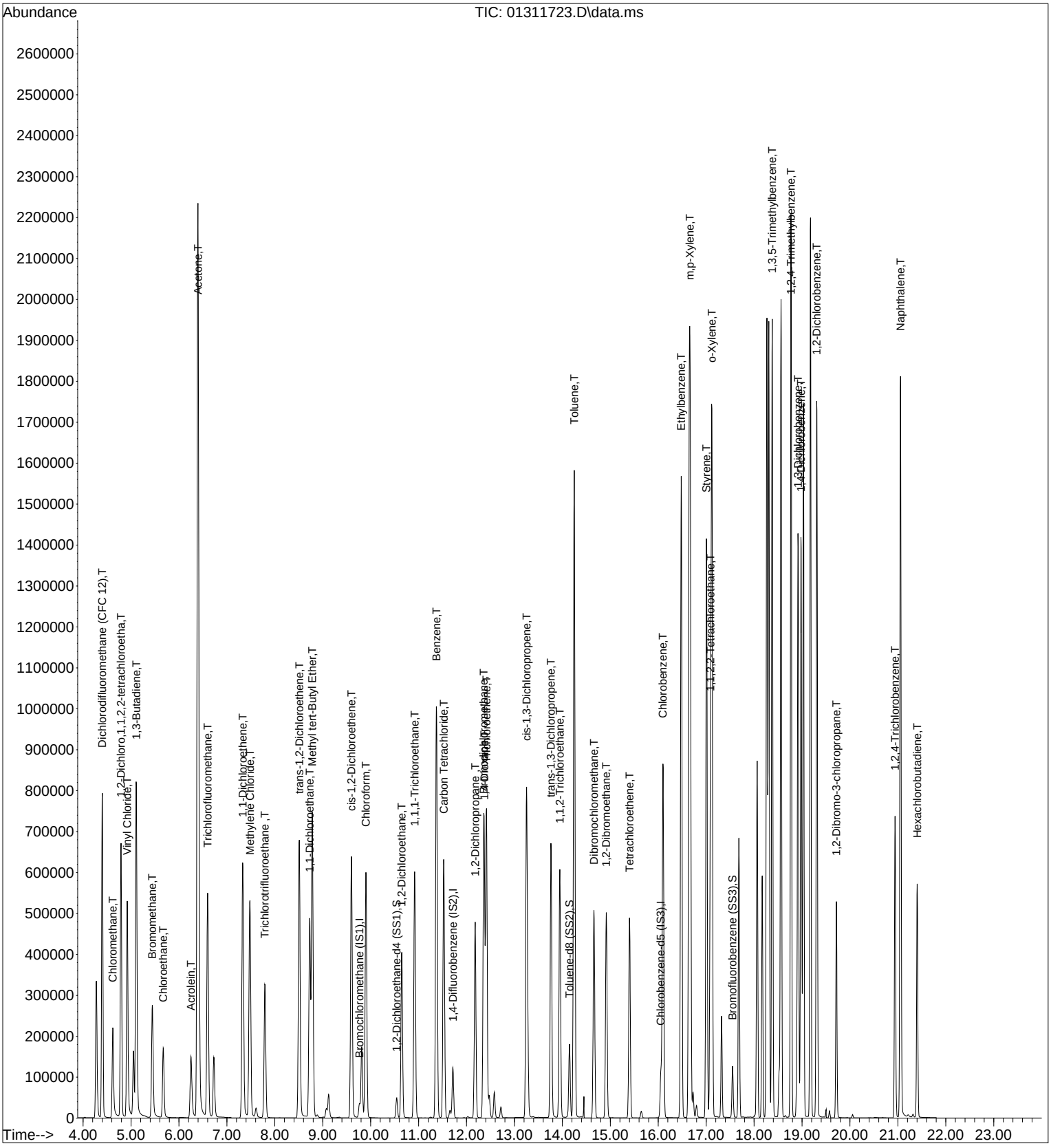
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	547888	10163.670	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	51008	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	248382	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	50853	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	79915	904.642	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.46%			
33) Toluene-d8 (SS2)	14.15	98	246142	997.627	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.76%			
45) Bromofluorobenzene (SS3)	17.55	174	94754	1018.521	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.85%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	4831857	37496.636	pg	97
3) Chloromethane	4.62	52	1109290	28894.555	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	4467055	35234.690	pg	97
5) Vinyl Chloride	4.93	62	4376577	35526.941	pg	98
6) 1,3-Butadiene	5.12	54	3755422	51274.027	pg	94
7) Bromomethane	5.45	94	1886990	38077.796	pg	98
8) Chloroethane	5.68	64	1532792	40441.649	pg	99
9) Acrolein	6.27	56	1401244	52043.591	pg	94
10) Acetone	6.42	58	8896584	255564.177	pg	# 80
11) Trichlorofluoromethane	6.61	101	4235811	48059.834	pg	98
12) 1,1-Dichloroethene	7.34	96	2610496	47277.161	pg	100
13) Methylene Chloride	7.50	84	2665787	44488.788	pg	90
14) Trichlorotrifluoroethane	7.80	151	2673416	48529.712	pg	99
15) trans-1,2-Dichloroethene	8.52	96	2744721	46108.752	pg	98
16) 1,1-Dichloroethane	8.74	63	4379006	41464.002	pg	98
17) Methyl tert-Butyl Ether	8.79	73	8396415	53279.453	pg	96
18) cis-1,2-Dichloroethene	9.61	96	2951308	47245.957	pg	98
19) Chloroform	9.92	83	4748565	42757.634	pg	98
21) 1,2-Dichloroethane	10.66	62	3773335	44137.496	pg	98
22) 1,1,1-Trichloroethane	10.93	97	4624723	44859.935	pg	98
23) Benzene	11.38	78	10474309	42807.079	pg	98
24) Carbon Tetrachloride	11.54	117	4279022	51691.403	pg	99
26) 1,2-Dichloropropane	12.19	63	2794563	44171.312	pg	99
27) Bromodichloromethane	12.37	83	4215899	48255.994	pg	98
28) Trichloroethene	12.42	130	3126783	48419.700	pg	99
29) 1,4-Dioxane	12.38	88	2532494	53407.740	pg	93
30) cis-1,3-Dichloropropene	13.26	75	5308516	62382.910	pg	98
31) trans-1,3-Dichloropropene	13.77	75	4519148	65257.673	pg	97
32) 1,1,2-Trichloroethane	13.95	83	2379757	44469.470	pg	98
34) Toluene	14.25	91	10853205	47096.505	pg	92
35) Dibromochloromethane	14.66	129	3622438	56765.697	pg	99
36) 1,2-Dibromoethane	14.92	107	3194806	52934.377	pg	98
37) Tetrachloroethene	15.40	166	3433974	51286.329	pg	99
39) Chlorobenzene	16.10	112	7764894	39609.574	pg	95
40) Ethylbenzene	16.48	91	12694196	43911.727	pg	92
41) m,p-Xylene	16.67	91	20303130	93636.342	pg	90
42) Styrene	17.01	104	8856150	58298.282	pg	100
43) o-Xylene	17.13	106	5598686	50261.993	pg	90
44) 1,1,2,2-Tetrachloroethane	17.10	83	5290996	41339.517	pg	97
46) 1,3,5-Trimethylbenzene	18.38	105	11232735	48938.422	pg	90
47) 1,2,4-Trimethylbenzene	18.77	105	12214167	54215.455	pg	91
48) 1,3-Dichlorobenzene	18.92	146	7114347	51379.234	pg	96
49) 1,4-Dichlorobenzene	18.98	146	6957694	48262.676	pg	97
50) 1,2-Dichlorobenzene	19.31	146	7228086	51223.324	pg	97
51) 1,2-Dibromo-3-chloropr...	19.72	157	2640311	61897.459	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	4803773	57513.257	pg	100
53) Naphthalene	21.06	128	15004633	56573.857	pg	91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

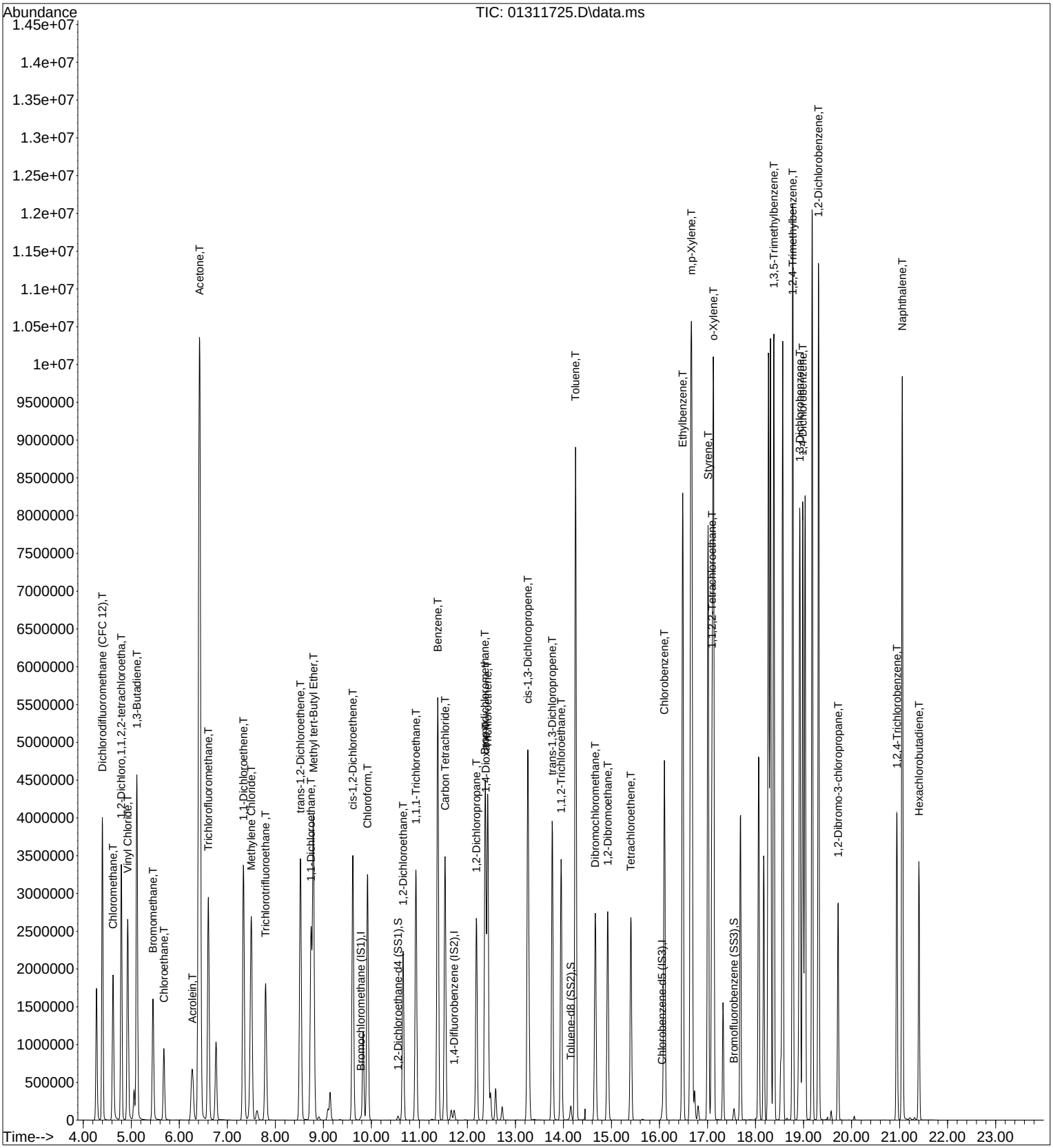
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3115382	47145.970	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46682	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228748	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	38008	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	72991	997.280	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.73%				
33) Toluene-d8 (SS2)	14.15	98	231302	1005.860	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%				
45) Bromofluorobenzene (SS3)	17.55	174	81360	1001.684	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	58726	532.823	pg		100
3) Chloromethane	4.65	52	14130	573.168	pg	#	85
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	50904	489.217	pg		100
5) Vinyl Chloride	4.96	62	51432	528.779	pg		100
6) 1,3-Butadiene	5.14	54	34533	582.774	pg		97
7) Bromomethane	5.47	94	21404	555.057	pg		100
8) Chloroethane	5.70	64	16647	542.604	pg		99
9) Acrolein	6.27	56	11906	472.051	pg		90
10) Acetone	6.40	58	104742	3345.808	pg		97
11) Trichlorofluoromethane	6.61	101	44194	521.024	pg		100
12) 1,1-Dichloroethene	7.35	96	26342	529.554	pg		99
13) Methylene Chloride	7.48	84	27288	532.221	pg		99
14) Trichlorotrifluoroethane	7.80	151	26905	526.733	pg		100
15) trans-1,2-Dichloroethene	8.51	96	28574	568.347	pg		99
16) 1,1-Dichloroethane	8.72	63	48276	553.398	pg		100
17) Methyl tert-Butyl Ether	8.79	73	87461	545.704	pg		100
18) cis-1,2-Dichloroethene	9.59	96	29745	549.185	pg		100
19) Chloroform	9.89	83	49973	529.974	pg		100
21) 1,2-Dichloroethane	10.64	62	37714	543.516	pg		99
22) 1,1,1-Trichloroethane	10.91	97	47679	536.707	pg		100
23) Benzene	11.37	78	114333	558.048	pg		100
24) Carbon Tetrachloride	11.52	117	43270	522.970	pg		100
26) 1,2-Dichloropropane	12.18	63	26842	527.196	pg		100
27) Bromodichloromethane	12.36	83	39146	527.486	pg		100
28) Trichloroethene	12.41	130	31218	533.999	pg		100
29) 1,4-Dioxane	12.38	88	23487	526.883	pg		99
30) cis-1,3-Dichloropropene	13.25	75	43826	529.584	pg		100
31) trans-1,3-Dichloropropene	13.77	75	39227	548.125	pg		99
32) 1,1,2-Trichloroethane	13.95	83	22792	528.739	pg		99
34) Toluene	14.25	91	113003	515.693	pg		100
35) Dibromochloromethane	14.66	129	32624	512.851	pg		100
36) 1,2-Dibromoethane	14.92	107	30738	536.966	pg		99
37) Tetrachloroethene	15.40	166	33006	528.366	pg		100
39) Chlorobenzene	16.10	112	76762	534.818	pg		100
40) Ethylbenzene	16.48	91	130496	543.431	pg		100
41) m,p-Xylene	16.65	91	200762	1072.234	pg		100
42) Styrene	17.01	104	77423	539.713	pg		100
43) o-Xylene	17.12	106	49008	526.512	pg		99
44) 1,1,2,2-Tetrachloroethane	17.09	83	46005	517.421	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	107056	530.091	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	107677	529.606	pg		100
48) 1,3-Dichlorobenzene	18.92	146	61807	553.529	pg		100
49) 1,4-Dichlorobenzene	18.98	146	62298	528.665	pg		100
50) 1,2-Dichlorobenzene	19.31	146	59538	528.653	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20699	510.794	pg		99
52) 1,2,4-Trichlorobenzene	20.94	182	38372	479.910	pg		100
53) Naphthalene	21.06	128	134865	527.170	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

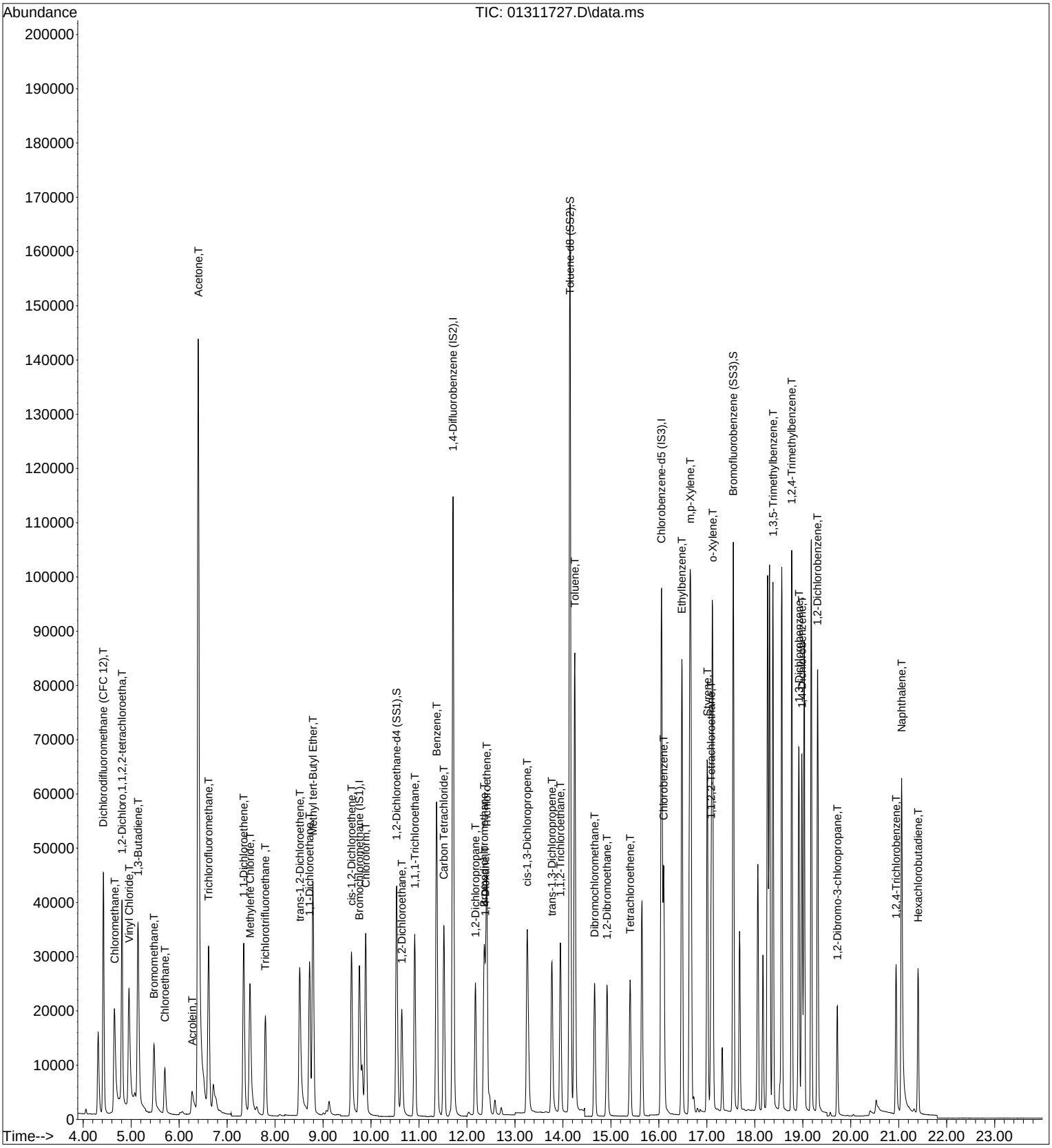
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26076	500.487	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 01311727.D
Data File Path: I:\MS19\DATA\2017_01\31\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-01241701/S29-01271703 (2/25)
Date Acquired: 1/31/17 21:39
Acq. Method File: TO15SIM.M

CL 2/1/17

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.42	525.0	532.8	101.5	68.0	108.0	*	*
3)	Chloromethane		4.65	524.5	573.2	109.3	53.0	121.0	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	*	4.81	527.5	489.2	92.7	53.0	102.0	*	*
5)	Vinyl Chloride		4.96	525.0	528.8	100.7	58.0	117.0	*	*
6)	*1,3-Butadiene*	*	5.14	525.0	582.8	111.0	47.0	129.0	*	*
7)	Bromomethane		5.47	525.0	555.1	105.7	63.0	110.0	*	*
8)	Chloroethane		5.70	524.5	542.6	103.5	67.0	112.0	*	*
9)	*Acrolein*	*	6.27	530.5	472.1	89.0	56.0	114.0	*	*
10)	Acetone		6.40	2661.0	3345.8	125.7	57.0	130.0	*	*
11)	Trichlorofluoromethane		6.61	525.5	521.0	99.1	63.0	97.0	Fail	*
12)	1,1-Dichloroethene		7.35	531.5	529.6	99.6	74.0	107.0	*	*
13)	Methylene Chloride		7.48	531.0	532.2	100.2	70.0	107.0	*	*
14)	Trichlorotrifluoroethane		7.80	529.0	526.7	99.6	71.0	105.0	*	*
15)	trans-1,2-Dichloroethene		8.51	533.5	568.3	106.5	72.0	107.0	*	*
16)	1,1-Dichloroethane		8.72	531.0	553.4	104.2	70.0	110.0	*	*
17)	Methyl tert-Butyl Ether		8.79	532.0	545.7	102.6	59.0	118.0	*	*
18)	cis-1,2-Dichloroethene		9.59	529.5	549.2	103.7	73.0	108.0	*	*
19)	Chloroform		9.89	529.5	530.0	100.1	68.0	105.0	*	*
21)	1,2-Dichloroethane		10.64	530.0	543.5	102.6	67.0	111.0	*	*
22)	1,1,1-Trichloroethane		10.91	529.5	536.7	101.4	70.0	108.0	*	*
25)	Benzene		11.37	530.5	558.0	105.2	70.0	112.0	*	*
24)	Carbon Tetrachloride		11.52	532.0	523.0	98.3	65.0	99.0	*	*
26)	1,2-Dichloropropane		12.18	530.5	527.2	99.4	66.0	108.0	*	*
27)	Bromodichloromethane		12.36	534.0	527.5	98.8	63.0	106.0	*	*
28)	Trichloroethene		12.41	531.0	534.0	100.6	66.0	101.0	*	*
29)	1,4-Dioxane		12.38	532.0	526.9	99.0	73.0	113.0	*	*
30)	cis-1,3-Dichloropropene		13.25	525.5	529.6	100.8	64.0	103.0	*	*
31)	trans-1,3-Dichloropropene		13.77	533.5	548.1	102.7	61.0	104.0	*	*
32)	1,1,2-Trichloroethane		13.95	530.5	528.7	99.7	64.0	108.0	*	*
34)	Toluene		14.15	529.0	515.7	97.5	62.0	105.0	*	*
35)	*Dibromochloromethane*	*	14.66	532.0	512.9	96.4	62.0	108.0	*	*
36)	1,2-Dibromoethane		14.92	529.0	537.0	101.5	66.0	103.0	*	*
37)	Tetrachloroethene		15.40	531.5	528.4	99.4	66.0	105.0	*	*
39)	Chlorobenzene		16.10	530.0	534.8	100.9	60.0	122.0	*	*
40)	Ethylbenzene		16.48	529.0	543.4	102.7	62.0	117.0	*	*
41)	m,p-Xylene		16.65	1060.5	1072.2	101.1	64.0	120.0	*	*
42)	*Styrene*	*	17.01	529.5	539.7	101.9	56.0	123.0	*	*
43)	o-Xylene		17.12	529.0	526.5	99.5	65.0	125.0	*	*
44)	1,1,2,2-Tetrachloroethane		17.09	530.0	517.4	97.6	56.0	124.0	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.38	530.5	530.1	99.9	61.0	129.0	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.77	530.5	529.6	99.8	57.0	127.0	*	*
48)	1,3-Dichlorobenzene		18.92	529.5	553.5	104.5	54.0	126.0	*	*
49)	1,4-Dichlorobenzene		18.98	533.0	528.7	99.2	57.0	131.0	*	*
50)	1,2-Dichlorobenzene		19.31	531.0	528.7	99.6	53.0	129.0	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.72	529.5	510.8	96.5	49.0	126.0	*	*
52)	1,2,4-Trichlorobenzene		20.94	530.0	479.9	90.5	36.0	126.0	*	*
53)	Naphthalene		19.31	534.0	527.2	98.7	25.0	141.0	*	*
54)	Hexachlorobutadiene		21.40	531.5	500.5	94.2	43.0	125.0	*	*

* ***Compounds with 70 - 130 as advisory limits***

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\28\01281728.D Vial: 16
Acq On : 28 Jan 2017 18:29 Operator: CL
Sample : CCV2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 29 09:54:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/29/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	125	-0.03
2	T	Dichlorodifluoromethane (CF	2.526	2.316	8.3	117	0.03
3	T	Chloromethane	0.753	0.564	25.1	90	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.485	2.390	3.8	120	0.02
5	T	Vinyl Chloride	2.415	1.861	22.9	93	0.03
6	T	1,3-Butadiene	1.436	0.868	39.6#	95	0.03
7	T	Bromomethane	0.972	0.841	13.5	114	0.03
8	T	Chloroethane	0.743	0.582	21.7	104	0.02
9	T	Acrolein	0.528	0.310	41.3#	87	0.00
10	T	Acetone	0.682	0.598	12.3	113	-0.02
11	T	Trichlorofluoromethane	1.728	1.657	4.1	120	0.00
12	T	1,1-Dichloroethene	1.083	0.950	12.3	119	0.00
13	T	Methylene Chloride	1.175	1.054	10.3	113	-0.02
14	T	Trichlorotrifluoroethane	1.080	0.969	10.3	120	0.00
15	T	trans-1,2-Dichloroethene	1.167	1.122	3.9	130	-0.01
16	T	1,1-Dichloroethane	2.070	1.924	7.1	122	-0.02
17	T	Methyl tert-Butyl Ether	3.090	2.944	4.7	132	0.00
18	T	cis-1,2-Dichloroethene	1.225	1.195	2.4	131	-0.02
19	T	Chloroform	2.177	2.019	7.3	120	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.732	1.585	8.5	116	-0.02
21	T	1,2-Dichloroethane	1.676	1.466	12.5	117	-0.02
22	T	1,1,1-Trichloroethane	2.021	1.888	6.6	133	-0.02
23	T	Benzene	4.797	4.056	15.4	109	-0.02
24	T	Carbon Tetrachloride	1.623	1.460	10.0	119	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	113	-0.02
26	T	1,2-Dichloropropane	0.255	0.203	20.4	105	-0.01
27	T	Bromodichloromethane	0.352	0.305	13.4	113	-0.01
28	T	Trichloroethene	0.260	0.247	5.0	120	-0.01
29	T	1,4-Dioxane	0.191	0.163	14.7	113	0.00
30	T	cis-1,3-Dichloropropene	0.343	0.302	12.0	113	0.00
31	T	trans-1,3-Dichloropropene	0.279	0.250	10.4	112	0.00
32	T	1,1,2-Trichloroethane	0.215	0.185	14.0	111	0.00
33	S	Toluene-d8 (SS2)	0.993	0.952	4.1	112	-0.01
34	T	Toluene	0.928	0.870	6.3	115	0.00
35	T	Dibromochloromethane	0.257	0.233	9.3	116	0.00
36	T	1,2-Dibromoethane	0.243	0.225	7.4	114	0.00
37	T	Tetrachloroethene	0.270	0.247	8.5	118	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	102	0.00
39	T	Chlorobenzene	3.855	3.995	-3.6	113	0.00
40	T	Ethylbenzene	5.685	5.986	-5.3	118	0.00
41	T	m,p-Xylene	4.264	4.705	-10.3	115	0.00
42	T	Styrene	2.987	2.943	1.5	104	0.00
43	T	o-Xylene	2.190	2.463	-12.5	117	0.00
44	T	1,1,2,2-Tetrachloroethane	2.517	2.501	0.6	106	0.00
45	S	Bromofluorobenzene (SS3)	1.829	2.127	-16.3	114	0.00
46	T	1,3,5-Trimethylbenzene	4.514	5.254	-16.4	114	0.00
47	T	1,2,4-Trimethylbenzene	4.430	5.043	-13.8	110	0.00
48	T	1,3-Dichlorobenzene	2.723	2.687	1.3	93	0.00
49	T	1,4-Dichlorobenzene	2.835	2.478	12.6	88	0.00
50	T	1,2-Dichlorobenzene	2.775	2.998	-8.0	108	0.00
51	T	1,2-Dibromo-3-chloropropane	0.839	0.883	-5.2	110	0.00
52	T	1,2,4-Trichlorobenzene	1.642	1.026	37.5#	66	0.00
53	T	Naphthalene	5.215	2.918	44.0#	53	0.02
54	T	Hexachlorobutadiene	1.299	1.832	-41.0#	157	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 01\28\01281728.D Vial: 16
Acq On : 28 Jan 2017 18:29 Operator: CL
Sample : CCV2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 29 09:54:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281728.D Vial: 16
Acq On : 28 Jan 2017 18:29 Operator: CL
Sample : CCV2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 29 09:54:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/29/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	55989	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.71	114	252091	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	16.05	54	36778	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	88746	915.235	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.52%				
33) Toluene-d8 (SS2)	14.14	98	239916	958.086	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.81%				
45) Bromofluorobenzene (SS3)	17.55	174	78230	1162.718	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.27%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	67875	479.870	pg		100
3) Chloromethane	4.65	52	15862	376.413	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	67228	483.098	pg		100
5) Vinyl Chloride	4.95	62	53291	394.106	pg		100
6) 1,3-Butadiene	5.14	54	25692	319.575	pg		95
7) Bromomethane	5.48	94	23376	429.742	pg		100
8) Chloroethane	5.70	64	16445	395.289	pg		99
9) Acrolein	6.27	56	9048	306.155	pg		98
10) Acetone	6.40	58	88916	2326.978	pg	#	88
11) Trichlorofluoromethane	6.61	101	48649	502.869	pg		100
12) 1,1-Dichloroethene	7.34	96	28161	464.635	pg		93
13) Methylene Chloride	7.48	84	31175	473.988	pg		89
14) Trichlorotrifluoroethane	7.80	151	28461	470.681	pg		99
15) trans-1,2-Dichloroethene	8.51	96	33509	512.840	pg		99
16) 1,1-Dichloroethane	8.72	63	54950	474.023	pg		100
17) Methyl tert-Butyl Ether	8.79	73	87853	507.876	pg		97
18) cis-1,2-Dichloroethene	9.59	96	35606	519.289	pg		100
19) Chloroform	9.89	83	59803	490.580	pg		100
21) 1,2-Dichloroethane	10.64	62	43164	459.981	pg		99
22) 1,1,1-Trichloroethane	10.91	97	56763	501.619	pg		100
23) Benzene	11.36	78	119458	444.776	pg		100
24) Carbon Tetrachloride	11.52	117	43127	474.634	pg		100
26) 1,2-Dichloropropane	12.17	63	27228	424.038	pg		98
27) Bromodichloromethane	12.35	83	40986	462.231	pg		100
28) Trichloroethene	12.41	130	33054	504.326	pg		100
29) 1,4-Dioxane	12.38	88	21792	452.810	pg		91
30) cis-1,3-Dichloropropene	13.25	75	42476	491.812	pg		99
31) trans-1,3-Dichloropropene	13.77	75	33500	476.631	pg		99
32) 1,1,2-Trichloroethane	13.95	83	24777	456.185	pg		97
34) Toluene	14.25	91	115413	493.456	pg		100
35) Dibromochloromethane	14.66	129	31233	482.238	pg		100
36) 1,2-Dibromoethane	14.92	107	29953	488.986	pg		100
37) Tetrachloroethene	15.40	166	33003	485.647	pg		98
39) Chlorobenzene	16.10	112	77955	549.841	pg		100
40) Ethylbenzene	16.48	91	116137	555.488	pg		99
41) m,p-Xylene	16.66	91	183694	1171.399	pg		99
42) Styrene	17.01	104	57416	522.603	pg		100
43) o-Xylene	17.12	106	47744	592.654	pg		98
44) 1,1,2,2-Tetrachloroethane	17.09	83	48570	524.716	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	101352	610.556	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	97552	598.720	pg		99
48) 1,3-Dichlorobenzene	18.92	146	52272	521.976	pg		100
49) 1,4-Dichlorobenzene	18.98	146	48208	462.374	pg		100
50) 1,2-Dichlorobenzene	19.31	146	58325	571.515	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	17099	554.264	pg		92
52) 1,2,4-Trichlorobenzene	20.95	182	19685	325.874	pg		99
53) Naphthalene	21.08	128	58106	302.928	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281728.D Vial: 16
Acq On : 28 Jan 2017 18:29 Operator: CL
Sample : CCV2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 29 09:54:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

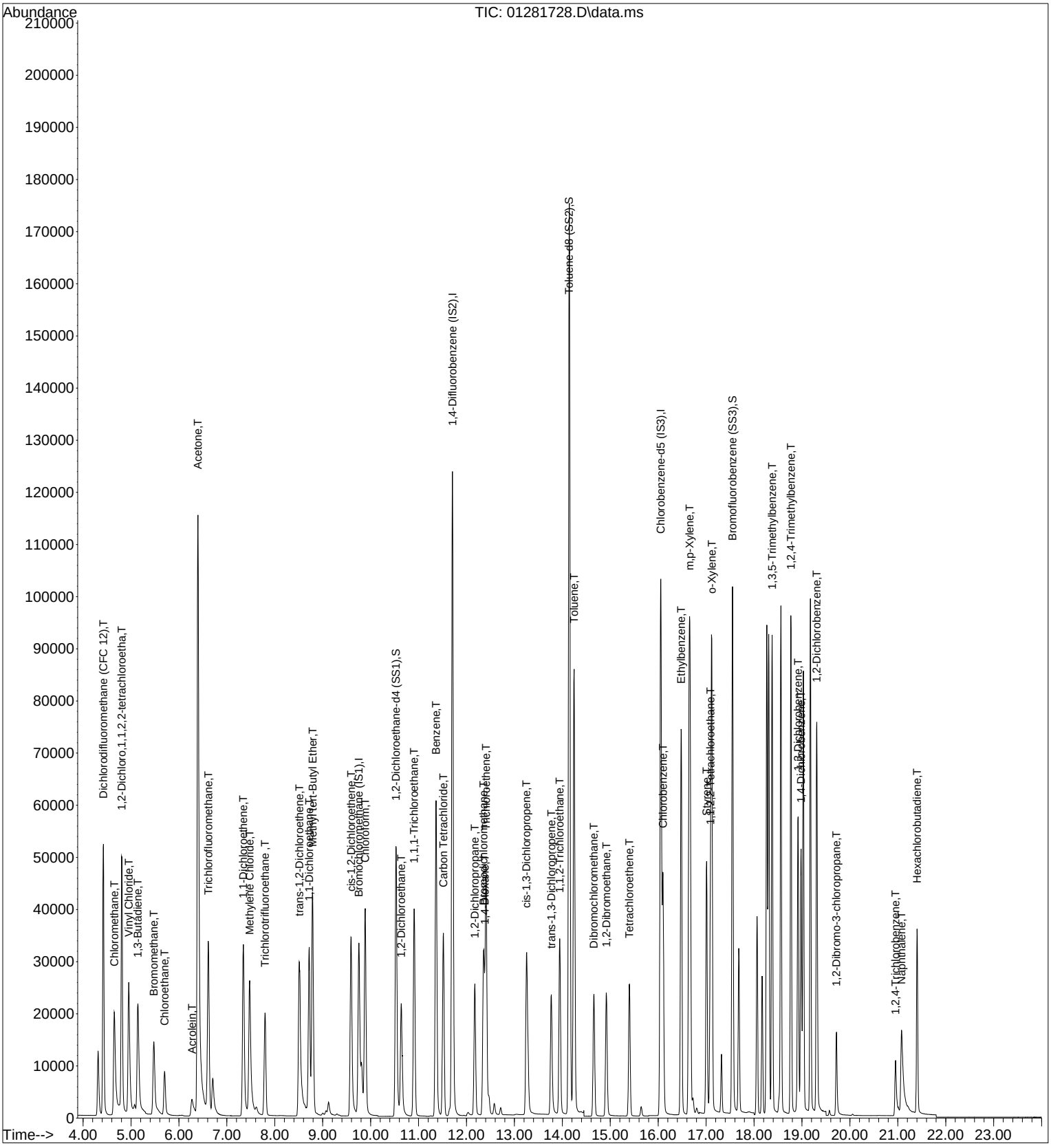
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	35667	746.326	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\28\01281728.D Vial: 16
Acq On : 28 Jan 2017 18:29 Operator: CL
Sample : CCV2 S19012817 500pg Inst : MS19
Misc : S29-01241701/S29-01051708 (2/3)

Quant Time: Jan 29 09:54:41 2017
Quant Method : I:\MS19\METHODS\S19011717.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jan 18 07:47:58 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	95	-0.02
2	T	Dichlorodifluoromethane (CF	2.361	2.318	1.8	94	0.03
3	T	Chloromethane	0.528	0.546	-3.4	104	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.229	2.172	2.6	93	0.02
5	T	Vinyl Chloride	2.084	1.982	4.9	93	0.04
6	T	1,3-Butadiene	1.269	1.269	0.0	105	0.03
7	T	Bromomethane	0.826	0.804	2.7	93	0.03
8	T	Chloroethane	0.657	0.631	4.0	92	0.03
9	T	Acrolein	0.540	0.445	17.6	87	0.00
10	T	Acetone	0.671	0.613	8.6	90	-0.02
11	T	Trichlorofluoromethane	1.817	1.747	3.9	93	0.01
12	T	1,1-Dichloroethene	1.066	0.994	6.8	90	0.00
13	T	Methylene Chloride	1.098	1.030	6.2	92	-0.02
14	T	Trichlorotrifluoroethane	1.094	1.002	8.4	89	0.00
15	T	trans-1,2-Dichloroethene	1.077	1.072	0.5	93	0.00
16	T	1,1-Dichloroethane	1.869	1.810	3.2	91	-0.02
17	T	Methyl tert-Butyl Ether	3.433	3.258	5.1	90	0.00
18	T	cis-1,2-Dichloroethene	1.160	1.122	3.3	90	-0.02
19	T	Chloroform	2.020	1.940	4.0	93	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.568	1.575	-0.4	93	-0.02
21	T	1,2-Dichloroethane	1.486	1.444	2.8	94	-0.02
22	T	1,1,1-Trichloroethane	1.903	1.832	3.7	92	-0.02
23	T	Benzene	4.389	4.079	7.1	90	-0.01
24	T	Carbon Tetrachloride	1.772	1.677	5.4	93	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	92	-0.01
26	T	1,2-Dichloropropane	0.223	0.208	6.7	90	-0.01
27	T	Bromodichloromethane	0.324	0.306	5.6	91	-0.01
28	T	Trichloroethene	0.256	0.245	4.3	91	-0.01
29	T	1,4-Dioxane	0.195	0.185	5.1	90	0.00
30	T	cis-1,3-Dichloropropene	0.362	0.336	7.2	89	0.00
31	T	trans-1,3-Dichloropropene	0.313	0.294	6.1	89	0.00
32	T	1,1,2-Trichloroethane	0.188	0.179	4.8	91	0.00
33	S	Toluene-d8 (SS2)	1.005	1.012	-0.7	92	-0.01
34	T	Toluene	0.958	0.879	8.2	90	0.00
35	T	Dibromochloromethane	0.278	0.255	8.3	89	0.00
36	T	1,2-Dibromoethane	0.250	0.238	4.8	90	0.00
37	T	Tetrachloroethene	0.273	0.256	6.2	90	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	94	0.00
39	T	Chlorobenzene	3.776	3.570	5.5	90	0.00
40	T	Ethylbenzene	6.318	6.075	3.8	89	0.00
41	T	m,p-Xylene	4.926	4.650	5.6	90	0.00
42	T	Styrene	3.774	3.481	7.8	87	0.00
43	T	o-Xylene	2.449	2.288	6.6	89	0.00
44	T	1,1,2,2-Tetrachloroethane	2.339	2.182	6.7	90	0.00
45	S	Bromofluorobenzene (SS3)	2.137	2.044	4.4	89	0.00
46	T	1,3,5-Trimethylbenzene	5.314	5.088	4.3	90	0.00
47	T	1,2,4-Trimethylbenzene	5.349	5.096	4.7	89	0.00
48	T	1,3-Dichlorobenzene	2.938	2.834	3.5	90	0.00
49	T	1,4-Dichlorobenzene	3.100	2.825	8.9	88	0.00
50	T	1,2-Dichlorobenzene	2.963	2.754	7.1	89	0.00
51	T	1,2-Dibromo-3-chloropropane	1.066	0.938	12.0	85	0.00
52	T	1,2,4-Trichlorobenzene	2.104	1.811	13.9	87	0.00
53	T	Naphthalene	6.731	5.928	11.9	87	0.00
54	T	Hexachlorobutadiene	1.371	1.230	10.3	87	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	42362	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	202980	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33966	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	66734	1004.773	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.48%			
33) Toluene-d8 (SS2)	14.14	98	205455	1006.883	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.69%			
45) Bromofluorobenzene (SS3)	17.55	174	69411	956.266	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.63%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.43	85	51398	513.892	pg	100
3) Chloromethane	4.66	52	11628	519.778	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	46229	489.595	pg	100
5) Vinyl Chloride	4.96	62	42952	486.628	pg	100
6) 1,3-Butadiene	5.15	54	28414	528.411	pg	98
7) Bromomethane	5.48	94	16920	483.521	pg	99
8) Chloroethane	5.71	64	13496	484.758	pg	99
9) Acrolein	6.28	56	9818	428.963	pg	89
10) Acetone	6.40	58	68965	2427.627	pg	97
11) Trichlorofluoromethane	6.62	101	38812	504.236	pg	100
12) 1,1-Dichloroethene	7.35	96	22286	493.704	pg	100
13) Methylene Chloride	7.48	84	23066	495.753	pg	99
14) Trichlorotrifluoroethane	7.80	151	22267	480.388	pg	100
15) trans-1,2-Dichloroethene	8.52	96	24226	531.004	pg	99
16) 1,1-Dichloroethane	8.72	63	39102	493.944	pg	100
17) Methyl tert-Butyl Ether	8.79	73	73571	505.851	pg	100
18) cis-1,2-Dichloroethene	9.59	96	25288	514.508	pg	100
19) Chloroform	9.89	83	43477	508.103	pg	100
21) 1,2-Dichloroethane	10.64	62	32186	511.152	pg	100
22) 1,1,1-Trichloroethane	10.91	97	41686	517.099	pg	100
23) Benzene	11.37	78	90879	488.806	pg	100
24) Carbon Tetrachloride	11.52	117	37464	498.973	pg	100
26) 1,2-Dichloropropane	12.18	63	22400	495.803	pg	99
27) Bromodichloromethane	12.36	83	33119	502.927	pg	100
28) Trichloroethene	12.41	130	26386	508.643	pg	100
29) 1,4-Dioxane	12.38	88	19990	505.363	pg	99
30) cis-1,3-Dichloropropene	13.25	75	38100	518.838	pg	99
31) trans-1,3-Dichloropropene	13.77	75	31767	500.235	pg	100
32) 1,1,2-Trichloroethane	13.95	83	19308	504.777	pg	99
34) Toluene	14.25	91	93900	482.915	pg	100
35) Dibromochloromethane	14.66	129	27439	486.101	pg	100
36) 1,2-Dibromoethane	14.92	107	25541	502.821	pg	99
37) Tetrachloroethene	15.40	166	27578	497.518	pg	99
39) Chlorobenzene	16.10	112	64320	501.460	pg	100
40) Ethylbenzene	16.48	91	108852	507.241	pg	99
41) m,p-Xylene	16.66	91	167666	1002.037	pg	99
42) Styrene	17.01	104	62719	489.241	pg	100
43) o-Xylene	17.12	106	40951	492.307	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39138	492.570	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	90648	502.260	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	91052	501.130	pg	99
48) 1,3-Dichlorobenzene	18.92	146	50927	510.366	pg	100
49) 1,4-Dichlorobenzene	18.98	146	50752	481.937	pg	100
50) 1,2-Dichlorobenzene	19.31	146	49486	491.688	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	16774	463.195	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	32073	448.865	pg	99
53) Naphthalene	21.06	128	109025	476.879	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

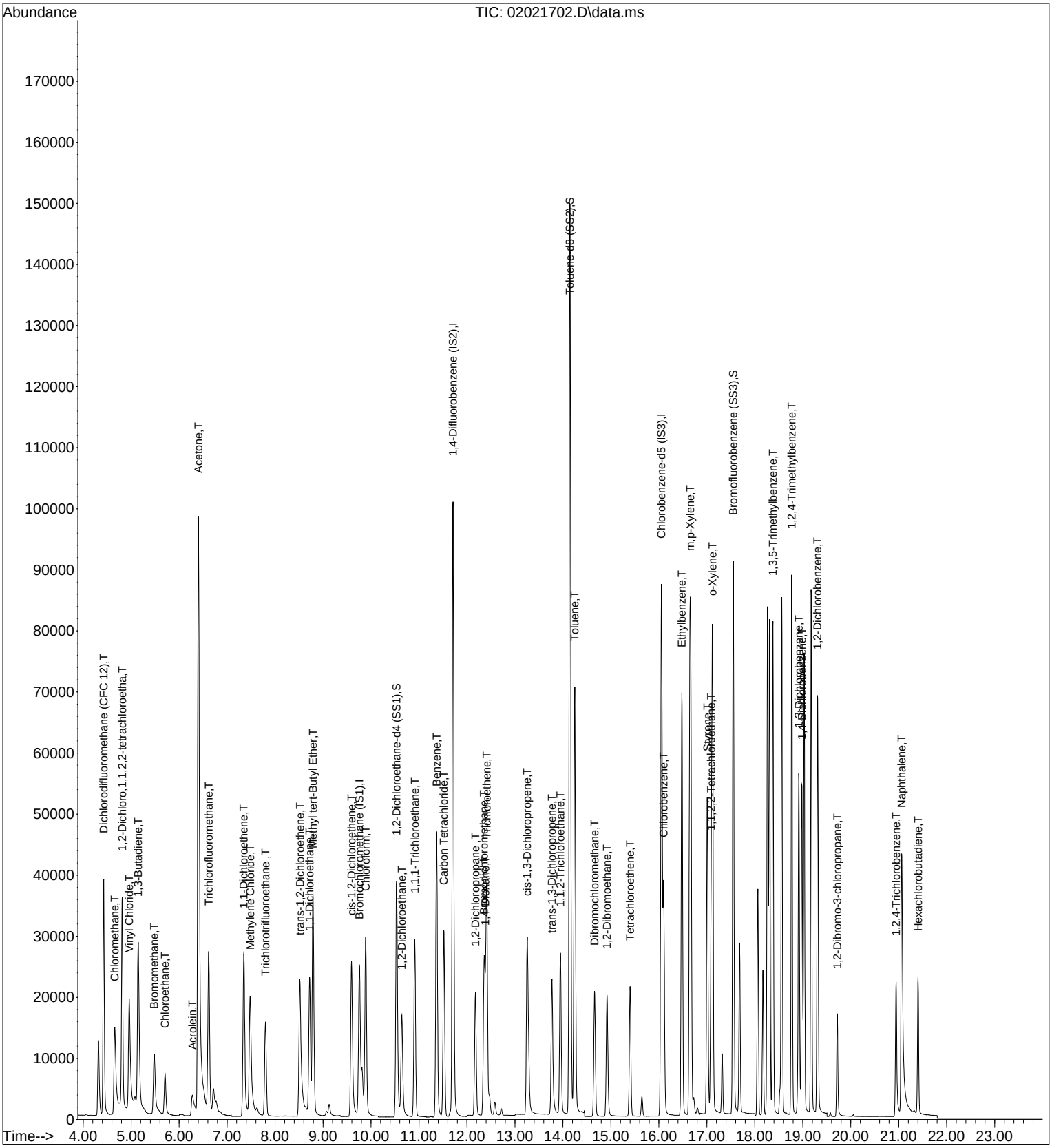
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22126	475.210	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

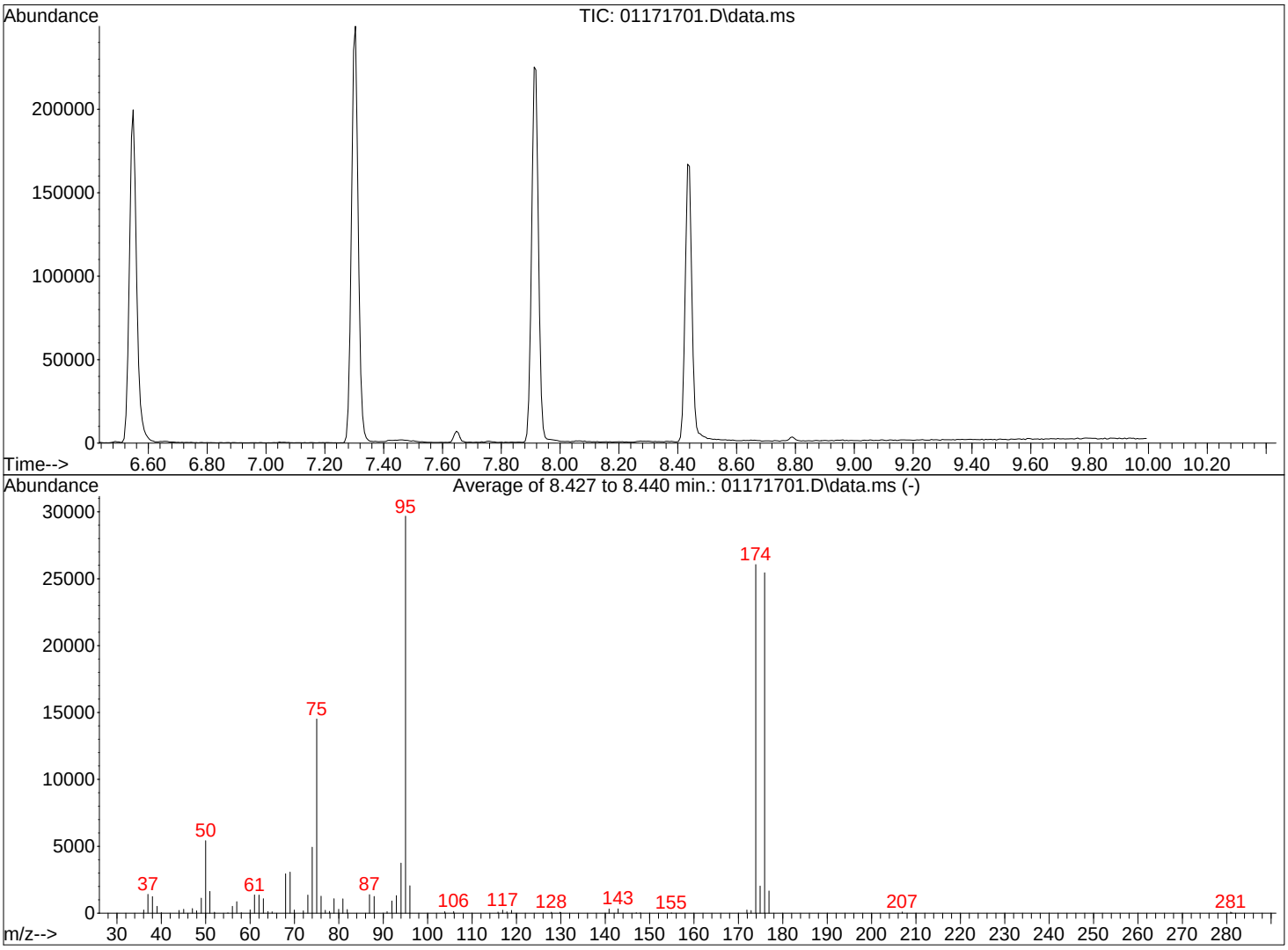


Data Path : I:\MS19\DATA\2017 01\16\
Data File : 01171701.D
Acq On : 17 Jan 2017 16:06
Operator : CL
Sample : BFB S19011617
Misc : S29-12201602
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19122716.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jan 09 14:50:02 2017

CL 1/18/17



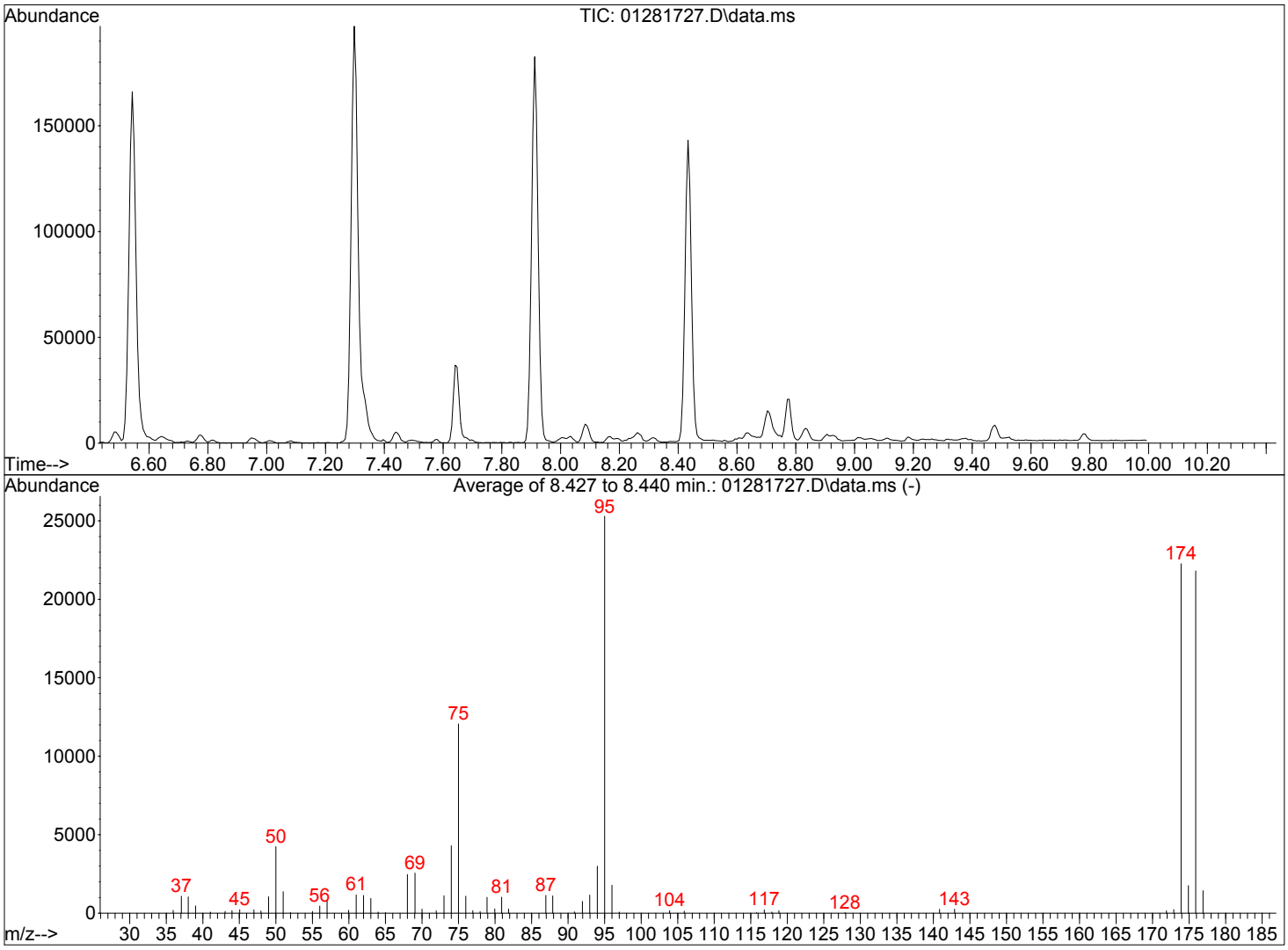
AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	5414	PASS
75	95	30	66	48.9	14516	PASS
95	95	100	100	100.0	29675	PASS
96	95	5	9	6.9	2047	PASS
173	174	0.00	2	0.8	202	PASS
174	95	50	120	87.8	26061	PASS
175	174	4	9	7.8	2026	PASS
176	174	93	101	97.6	25443	PASS
177	176	5	9	6.5	1664	PASS

Data Path : I:\MS19\DATA\2017 01\28\
Data File : 01281727.D
Acq On : 28 Jan 2017 18:11
Operator : CL
Sample : BFB2 S19012817
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19011717.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Jan 18 07:47:58 2017



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

2/3/17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.8	4241	PASS
75	95	30	66	47.7	12059	PASS
95	95	100	100	100.0	25296	PASS
96	95	5	9	7.0	1782	PASS
173	174	0.00	2	1.1	237	PASS
174	95	50	120	88.0	22264	PASS
175	174	4	9	7.9	1755	PASS
176	174	93	101	98.0	21813	PASS
177	176	5	9	6.6	1435	PASS

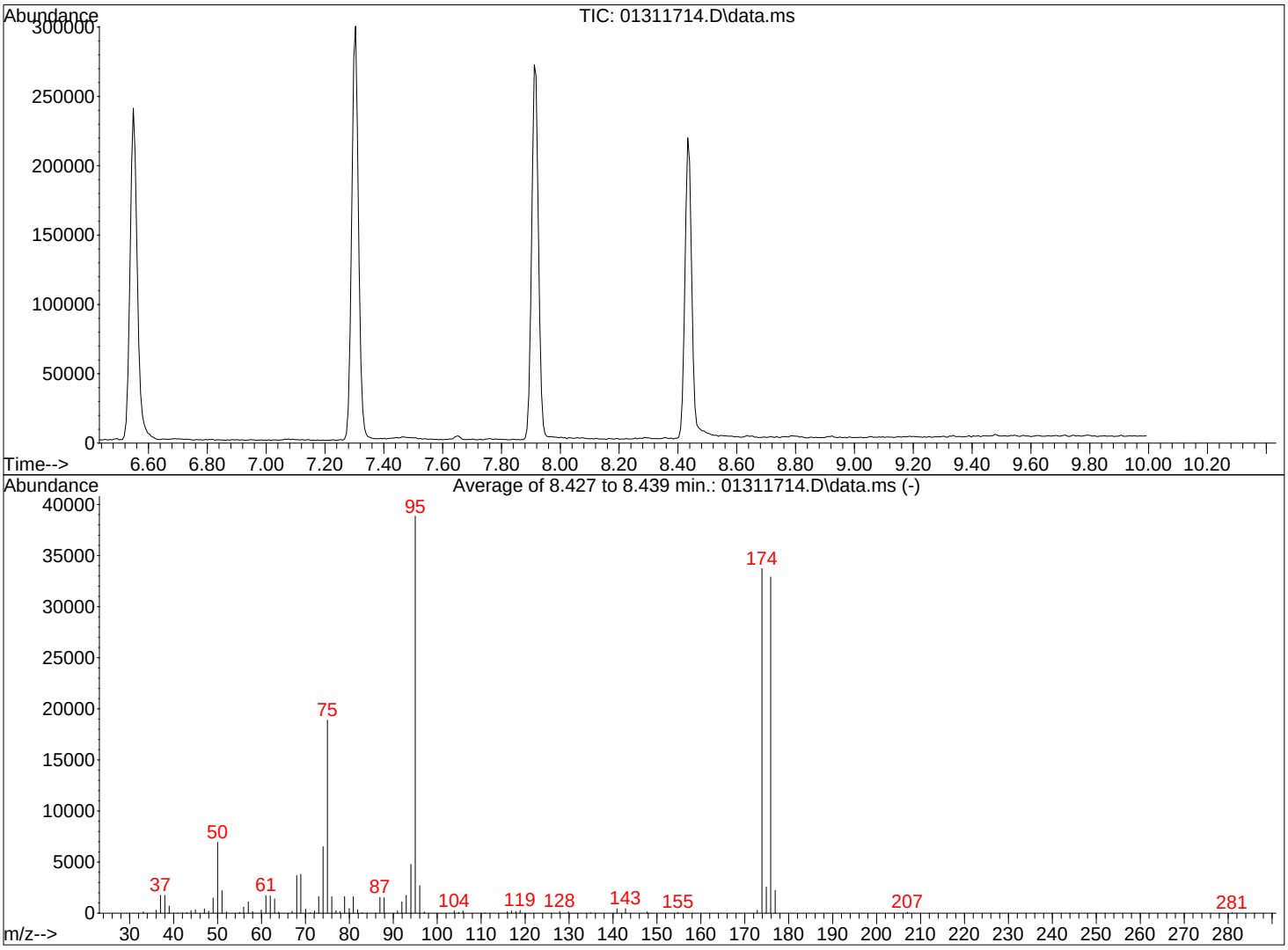
BFB

Data Path : I:\MS19\DATA\2017 01\31\
Data File : 01311714.D
Acq On : 31 Jan 2017 14:53
Operator : CL
Sample : BFB S19013117
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/1/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

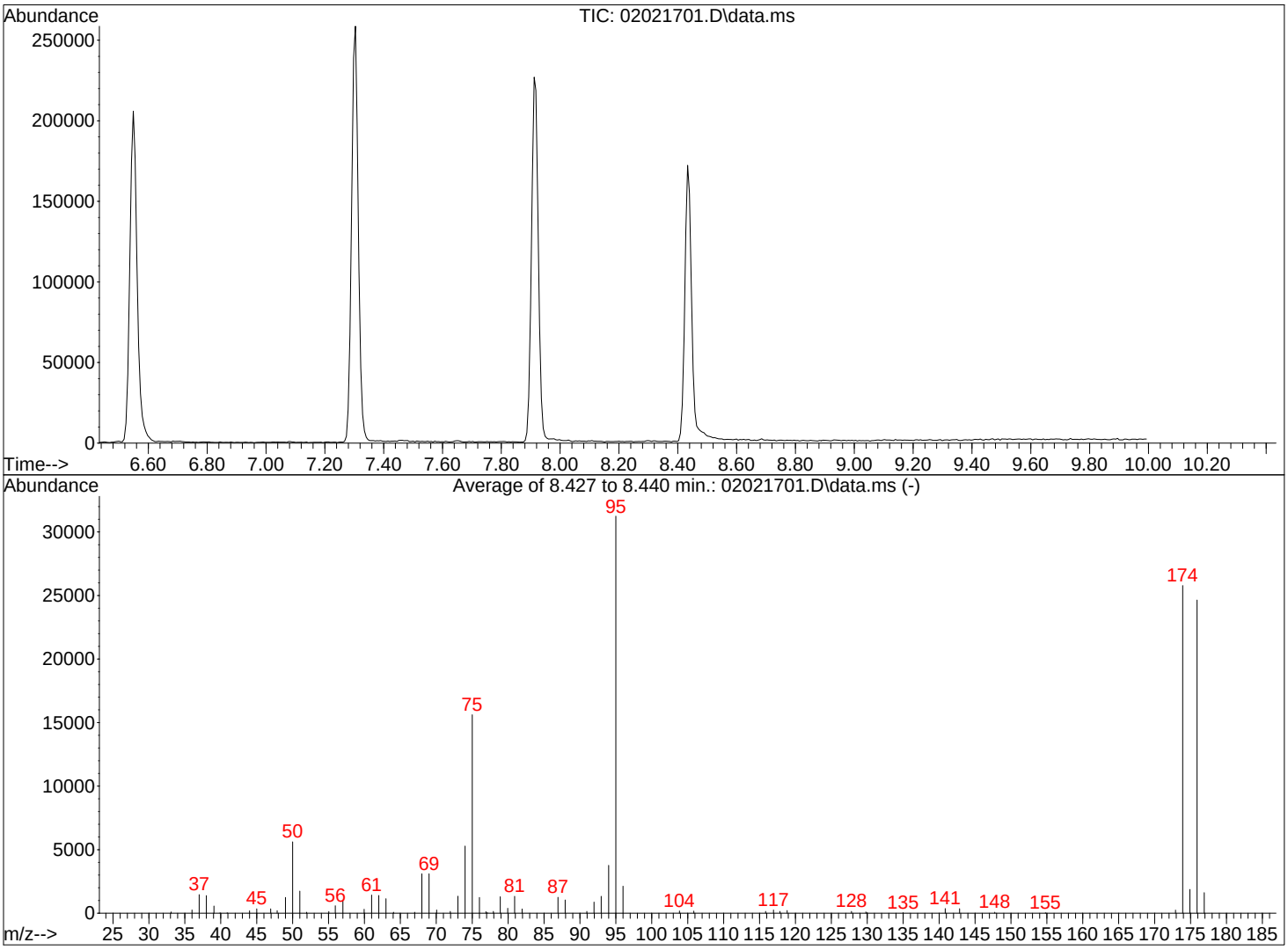
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.9	6941	PASS
75	95	30	66	48.6	18896	PASS
95	95	100	100	100.0	38853	PASS
96	95	5	9	6.9	2691	PASS
173	174	0.00	2	0.8	286	PASS
174	95	50	120	86.8	33728	PASS
175	174	4	9	7.6	2564	PASS
176	174	93	101	97.5	32901	PASS
177	176	5	9	6.8	2241	PASS

Data Path : I:\MS19\DATA\2017 02\01\
Data File : 02021701.D
Acq On : 2 Feb 2017 2:36
Operator : CL
Sample : BFB S19020217
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/2/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.0	5618	PASS
75	95	30	66	50.0	15620	PASS
95	95	100	100	100.0	31245	PASS
96	95	5	9	6.8	2123	PASS
173	174	0.00	2	0.9	243	PASS
174	95	50	120	82.5	25789	PASS
175	174	4	9	7.3	1875	PASS
176	174	93	101	95.6	24643	PASS
177	176	5	9	6.6	1621	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/17/17 16:06	01171701.D	BFB S19011717	S29-12201602	CL	2	Pass
2	1/17/17 16:28	01171702.D	10pg TO15SIM ICAL STD	S29-12201602/S29-01171711 (2/15)	CL	11	
3	1/17/17 17:00	01171703.D	20pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
4	1/17/17 17:31	01171704.D	50pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
5	1/17/17 18:03	01171705.D	100pg TO15SIM ICAL STD	S29-12201602/S29-01171716 (2/15)	CL	12	
6	1/17/17 18:34	01171706.D	500pg TO15SIM ICAL STD	S29-12201602/S29-01171706 (2/15)	CL	13	
7	1/17/17 19:05	01171707.D	1000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
8	1/17/17 19:37	01171708.D	2000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
9	1/17/17 20:08	01171709.D	5000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
10	1/17/17 20:40	01171710.D	10000pg TO15SIM ICAL STD	S29-12201602/S29-01171704 (2/15)	CL	14	
11	1/17/17 21:12	01171711.D	xx50000pg TO15SIM ICAL STDxx	S29-12201602/S29-01171703 (2/15)	CL	15	IS3 Fail
12	1/17/17 21:43	01171712.D	blank	S29-12201602	CL	2	
13	1/17/17 22:15	01171713.D	500pg TO15SIM ICV	S29-12201602/S29-12211612 (1/19)	CL	10	
14	1/17/17 22:47	01171714.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	
15	1/18/17 8:36	01171715.D	50000pg TO15SIM ICAL STD	S29-12201602/S29-01171703 (2/15)	CL	15	
16	1/18/17 9:52	01171716.D	blank	S29-12201602	CL	2	
17	1/18/17 10:23	01171717.D	500pg TO15SIM ICV	S29-12201602/S29-01171714 (2/15)	CL	9	Pass

CL 1/18/17

Injection Log

Directory: I:\MS19\DATA\2017_01\28\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/28/17 18:11	01281727.D	BFB2 S19012817	S29-01241701	CL	2	Pass
2	1/28/17 18:29	01281728.D	CCV2 S19012817_500pg	S29-01241701/S29-01051708 (2/3)	CL	16	Pass
3	1/28/17 19:01	01281729.D	MB2 S19012817_1000mL	S29-01241701/AC01205	CL	2	Pass
4	1/28/17 19:33	01281730.D	LCS2 S19012817_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
5	1/28/17 20:04	01281731.D	LCSD2 S19012817_500pg	S29-01241701/S29-01171715 (2/17)	CL	2	Pass
6	1/28/17 20:36	01281732.D	P1700259-022 (1000mL)	S29-01241701	CL	1	SS-2 out
7	1/28/17 21:08	01281733.D	P1700259-023 (1000mL)	S29-01241701	CL	3	
8	1/28/17 21:39	01281734.D	P1700259-024 (1000mL)	S29-01241701	CL	4	
9	1/28/17 22:11	01281735.D	P1700262-001 (1000mL)	S29-01241701	CL	5	SS-3 out
10	1/28/17 22:42	01281736.D	xP1700262-002 (1000mL)x	S29-01241701	CL	6	SS-2 out
11	1/28/17 23:14	01281737.D	P1700262-002 (1000mL)	S29-01241701	CL	6	
12	1/28/17 23:45	01281738.D	blank	S29-01241701	CL	2	
13	1/29/17 0:17	01281739.D	P1700262-003 (1000mL)	S29-01241701	CL	7	
14	1/29/17 0:49	01281740.D	P1700262-004 (1000mL)	S29-01241701	CL	8	
15	1/29/17 1:20	01281741.D	P1700262-005 (1000mL)	S29-01241701	CL	9	
16	1/29/17 1:52	01281742.D	P1700262-006 (1000mL)	S29-01241701	CL	10	
17	1/29/17 2:23	01281743.D	P1700262-007 (1000mL)	S29-01241701	CL	11	
18	1/29/17 2:55	01281744.D	P1700262-008 (1000mL)	S29-01241701	CL	12	
19	1/29/17 3:26	01281745.D	blank	S29-01241701	CL	2	
20	1/29/17 3:58	01281746.D	P1700262-009 (1000mL)	S29-01241701	CL	13	
21	1/29/17 4:30	01281747.D	P1700262-010 (1000mL)	S29-01241701	CL	14	
22	1/29/17 5:01	01281748.D	P1700262-011 (1000mL)	S29-01241701	CL	15	
23	1/29/17 5:33	01281749.D	CCV2 S19012817_500pg_End	S29-01241701/S29-01051708 (2/3)	CL	16	Pass
	LCS/LCSD: RPD for PCE @ 30%						

Injection Log

Directory: I:\MS19\DATA\2017_01\31\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/31/17 14:53	01311714.D	BFB S19013117	S29-01241701	CL	2	Pass
2	1/31/17 15:23	01311715.D	10pg TO15SIM ICAL STD	S29-01241701/S29-01171712 (2/15)	CL	11	
3	1/31/17 15:54	01311716.D	20pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
4	1/31/17 16:25	01311717.D	50pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
5	1/31/17 16:57	01311718.D	100pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
6	1/31/17 17:28	01311719.D	500pg TO15SIM ICAL STD	S29-01241701/S29-01301704 (2/28)	CL	13	
7	1/31/17 18:00	01311720.D	1000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
8	1/31/17 18:31	01311721.D	2000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
9	1/31/17 19:02	01311722.D	5000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
10	1/31/17 19:34	01311723.D	10000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
11	1/31/17 20:05	01311724.D	blank	S29-01241701	CL	2	
12	1/31/17 20:37	01311725.D	50000pg TO15SIM ICAL STD	S29-01241701/S29-01301701 (2/28)	CL	15	
13	1/31/17 21:08	01311726.D	blank	S29-01241701	CL	2	
14	1/31/17 21:39	01311727.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	Pass

CL 2/1/17

Injection Log

Directory: I:\MS19\DATA\2017_02\02\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/2/17 2:36	02021701.D	BFB S19020217	S29-01241701	CL	2	Pass
2	2/2/17 2:54	02021702.D	CCV S19020217_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
3	2/2/17 3:26	02021703.D	MB S19020217_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/2/17 3:57	02021704.D	LCS S19020217_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/2/17 4:29	02021705.D	LCSD S19020217_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/2/17 5:00	02021706.D	P1700262-012 (1000mL)	S29-01241701	CL	7	
7	2/2/17 5:32	02021707.D	P1700262-013 (1000mL)	S29-01241701	CL	8	
8	2/2/17 6:03	02021708.D	P1700262-014 (1000mL)	S29-01241701	CL	9	
9	2/2/17 6:35	02021709.D	P1700262-015 (1000mL)	S29-01241701	CL	10	
10	2/2/17 8:09	02021710.D	P1700262-016 (1000mL)	S29-01241701	CL	1	
11	2/2/17 8:40	02021711.D	P1700262-016dup (1000mL)	S29-01241701	CL	1	Fail
12	2/2/17 9:11	02021712.D	blank	S29-01241701	CL	2	
13	2/2/17 9:42	02021713.D	P1700262-017 (1000mL)	S29-01241701	CL	3	
14	2/2/17 10:14	02021714.D	P1700262-018 (1000mL)	S29-01241701	CL	4	
15	2/2/17 10:45	02021715.D	P1700262-019 (1000mL)	S29-01241701	CL	5	
16	2/2/17 11:16	02021716.D	P1700262-020 (1000mL)	S29-01241701	CL	6	
17	2/2/17 11:47	02021717.D	P1700262-021 (1000mL)	S29-01241701	CL	7	
18	2/2/17 12:19	02021718.D	P1700262-022 (1000mL)	S29-01241701	CL	8	
19	2/2/17 12:50	02021719.D	blank	S29-01241701	CL	2	
20	2/2/17 13:21	02021720.D	P1700262-023 (1000mL)	S29-01241701	CL	9	
21	2/2/17 13:52	02021721.D	P1700262-024 (1000mL)	S29-01241701	CL	10	
22	2/2/17 14:28	02021722.D	P1700288-001 (1000mL)	S29-01241701	CL	1	
23	2/2/17 14:59	02021723.D	P1700262-006dil PF2 (100mL)	S29-01241701	CL	7	
24	2/2/17 15:31	02021724.D	P1700288-002 (1000mL)	S29-01241701	CL	3	
25	2/2/17 16:02	02021725.D	P1700288-003 (1000mL)	S29-01241701	CL	4	
26	2/2/17 16:34	02021726.D	P1700288-004 (1000mL)	S29-01241701	CL	5	
27	2/2/17 17:05	02021727.D	CCV S19020217_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass

CL 2/3/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081713.D
Acq On : 8 Jan 2017 6:08 pm
Operator : JM
Sample : AS00987 FCR00259
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 09 10:26:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	46502	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142098	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109099	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77162	842.538	pg		0.00
Spiked Amount 1000.000			Recovery = 84.25%				
57) Toluene-d8 (SS2)	12.63	98	124113	930.977	pg		0.00
Spiked Amount 1000.000			Recovery = 93.10%				
74) Bromofluorobenzene (SS3)	16.14	174	36866	839.640	pg		0.00
Spiked Amount 1000.000			Recovery = 83.96%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5117	54.824	pg	#	70
3) * Dichlorodifluoromethane	3.59	85	1693	8.515	pg		97
4) * Chloromethane	3.71	50	940	6.325	pg		98
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	55	0.373	pg	#	42
6) * Vinyl Chloride	3.87	62	71	0.500	pg	#	29
7) * 1,3-Butadiene	4.00	54	24	0.227	pg	#	1
8) * Bromomethane	4.22	94	84	0.930	pg		100
9) * Chloroethane	4.35	64	72	1.116	pg	#	41
10) * Ethanol	4.44	45	2339	36.743	pg		100
11) * Acetonitrile	4.61	41	1021	6.397	pg	#	65
12) * Acrolein	4.72	56	849	15.919	pg		100
13) * Acetone	4.84	58	10428	173.434	pg	#	57
14) * Trichlorofluoromethane	4.97	101	657	4.946	pg		90
15) * 2-Propanol (Isopropa...	5.03	45	6778	41.605	pg		98
16) * Acrylonitrile	5.19	53	211	2.228	pg		82
18) tert-Butanol	5.55	59	577	5.876	pg		98
19) * Methylene Chloride	5.58	84	2121	31.668	pg		92
20) * 3-Chloro-1-propene (...	5.70	41	51	0.570	pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	94	1.806	pg	#	19
22) * Carbon Disulfide	5.85	76	3323	13.534	pg		99
26) * Vinyl Acetate	6.71	86	229	18.160	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	561	15.545	pg		85
29) DIPE	7.65	45	292	1.388	pg	#	53
30) * Ethyl Acetate	7.64	61	313	16.965	pg		92
31) * n-Hexane	7.65	57	328	3.457	pg	#	60
39) * Benzene	9.36	78	991	6.047	pg	#	68
41) 1-Butanol	9.31	56	994	32.358	pg	#	40
42) * Carbon Tetrachloride	9.54	117	221	3.466	pg		94
48) * 1,4-Dioxane	10.66	88	65	1.902	pg	#	9
49) Isooctane	10.71	56	117	1.494	pg	#	63
51) * n-Heptane	11.03	71	239	2.840	pg	#	43
58) * Toluene	12.74	91	1649	10.694	pg		99
66) * Ethylbenzene	15.12	91	180	1.384	pg		96
67) * m- & p-Xylenes	15.29	91	412	4.078	pg	#	72
70) * Styrene	15.64	104	76	1.413	pg	#	28
71) * o-Xylene	15.73	91	161	1.629	pg		97
72) * n-Nonane	15.98	57	99	2.223	pg	#	42
78) 3-Ethyltoluene	16.81	105	70	0.774	pg	#	45
79) * 4-Ethyltoluene	16.85	105	55	0.694	pg	#	46
81) alpha-Methylstyrene	17.04	118	296	8.220	pg		91
83) tert-Butylbenzene	17.28	134	75	3.754	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	89	1.107	pg	#	24
98) * Naphthalene	19.29	128	89	2.595	pg	#	66

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081713.D
Acq On : 8 Jan 2017 6:08 pm
Operator : JM
Sample : AS00987 FCR00259
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

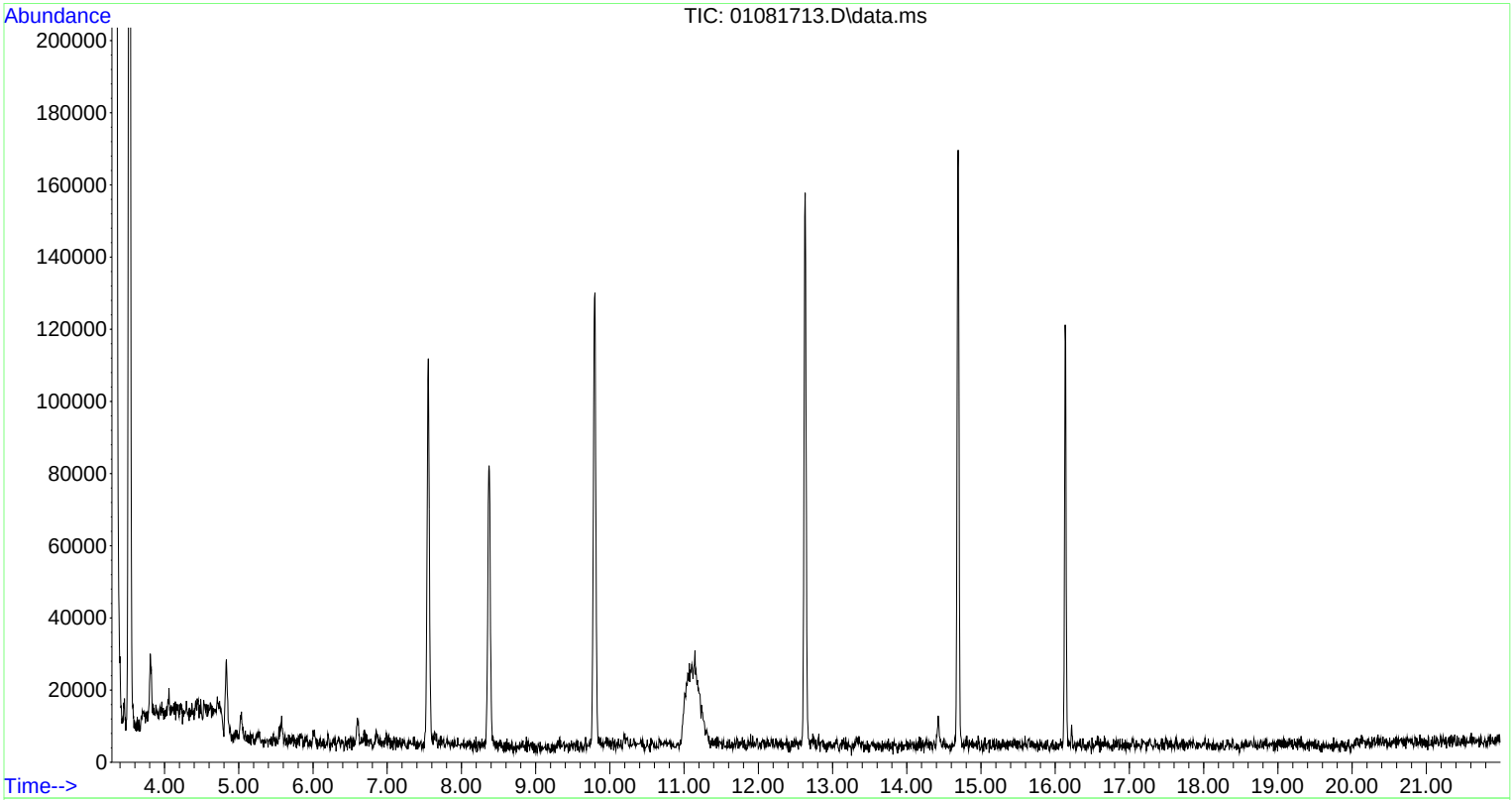
Quant Time: Jan 09 10:26:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

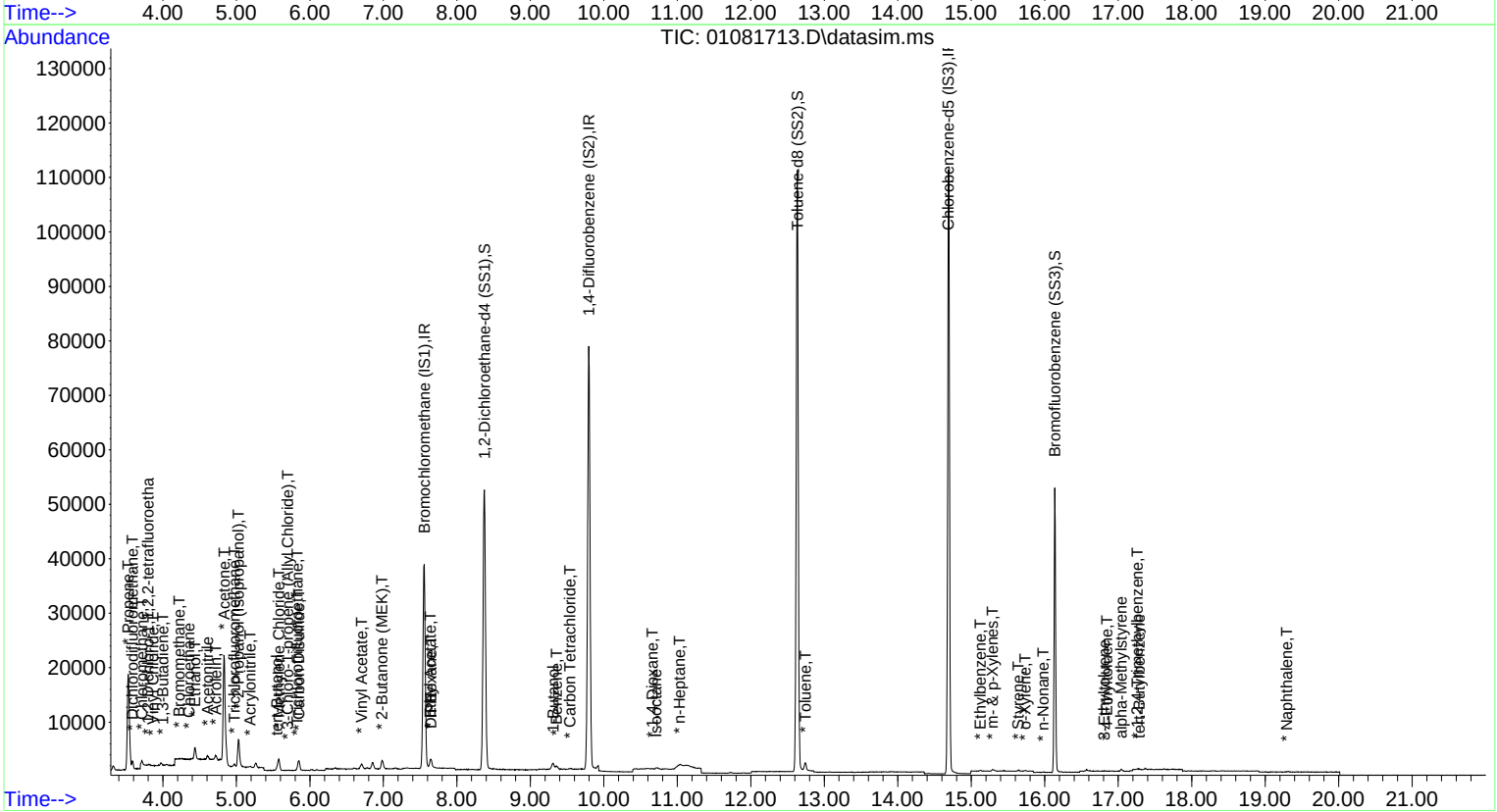
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081713.D
Acq On : 8 Jan 2017 6:08 pm
Operator : JM
Sample : AS00987 FCR00259
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 09 10:26:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081728.D
Acq On : 9 Jan 2017 4:38 am
Operator : JM
Sample : SSC00186 FCR00190
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

Quant Time: Jan 09 10:27:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47171	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	147544	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	125779	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	77423	833.399 pg		0.00
Spiked Amount 1000.000			Recovery = 83.34%			
57) Toluene-d8 (SS2)	12.63	98	127038	826.548 pg		0.00
Spiked Amount 1000.000			Recovery = 82.66%			
74) Bromofluorobenzene (SS3)	16.14	174	39333	777.028 pg		0.00
Spiked Amount 1000.000			Recovery = 77.70%			
Target Compounds						Qvalue
2) * Propene	3.53	42	12788	135.069 pg	#	67
3) * Dichlorodifluoromethane	3.59	85	19502	96.697 pg		100
4) * Chloromethane	3.71	50	6605	43.810 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	736	4.916 pg		94
7) * 1,3-Butadiene	4.00	54	139	1.298 pg	#	1
8) * Bromomethane	4.22	94	365	3.985 pg		95
9) * Chloroethane	4.36	64	195	2.980 pg	#	41
10) * Ethanol	4.43	45	19146	296.499 pg		98
11) * Acetonitrile	4.60	41	8203	50.665 pg		99
12) * Acrolein	4.71	56	2367	43.754 pg		97
13) * Acetone	4.83	58	56322	923.437 pg	#	64
14) * Trichlorofluoromethane	4.97	101	7280	54.033 pg		98
15) * 2-Propanol (Isopropa...	5.03	45	12554	75.967 pg		98
16) * Acrylonitrile	5.19	53	325	3.384 pg	#	80
18) tert-Butanol	5.55	59	2535	25.451 pg	#	65
19) * Methylene Chloride	5.58	84	22953	337.847 pg		99
21) * Trichlorotrifluoroet...	5.82	151	1349	25.546 pg		95
22) * Carbon Disulfide	5.85	76	366974	1473.407 pg		97
26) * Vinyl Acetate	6.71	86	1118	87.404 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	3829	104.594 pg		89
29) DIPE	7.64	45	1660	7.780 pg	#	63
30) * Ethyl Acetate	7.64	61	1738	92.864 pg		96
31) * n-Hexane	7.65	57	2197	22.828 pg		95
32) * Chloroform	7.69	83	697	5.859 pg		94
34) * Tetrahydrofuran	8.14	71	736	25.083 pg		100
36) * 1,2-Dichloroethane	8.50	62	371	3.685 pg	#	86
39) * Benzene	9.36	78	5324	31.289 pg		99
41) 1-Butanol	9.30	56	3256	102.081 pg	#	48
42) * Carbon Tetrachloride	9.55	117	1826	27.584 pg		94
43) * Cyclohexane	9.70	84	207	3.824 pg	#	50
45) * 1,2-Dichloropropane	10.33	63	99	1.568 pg	#	32
48) * 1,4-Dioxane	10.64	88	726	20.458 pg		84
49) Isooctane	10.73	56	1565	19.242 pg	#	67
50) * Methyl Methacrylate	10.85	69	50	1.172 pg	#	42
51) * n-Heptane	11.04	71	1197	13.700 pg		95
53) * 4-Methyl-2-pentanone	11.73	58	528	17.176 pg		96
58) * Toluene	12.74	91	16749	94.216 pg		99
59) * 2-Hexanone	13.07	58	569	18.711 pg	#	68
60) * Dibromochloromethane	13.18	129	84	1.627 pg	#	11
63) * n-Octane	13.92	85	147	5.301 pg		86
64) * Tetrachloroethene	14.01	166	383	6.479 pg		94
65) * Chlorobenzene	14.73	112	59	0.504 pg	#	42
66) * Ethylbenzene	15.12	91	1599	10.665 pg		97
67) * m- & p-Xylenes	15.29	91	3646	31.301 pg		92
68) * Bromoform	15.33	173	83	2.230 pg	#	26

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081728.D
Acq On : 9 Jan 2017 4:38 am
Operator : JM
Sample : SSC00186 FCR00190
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

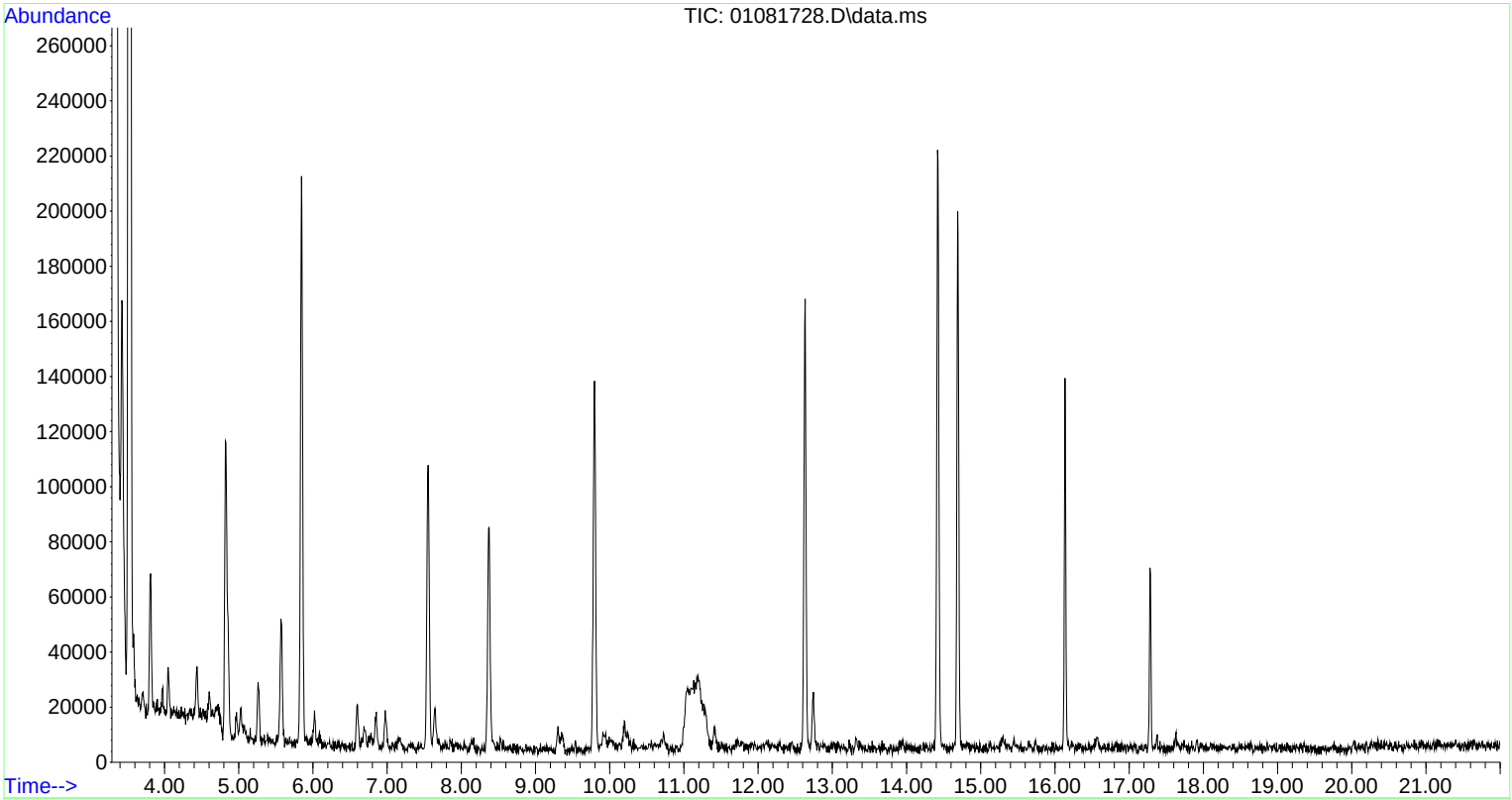
Quant Time: Jan 09 10:27:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

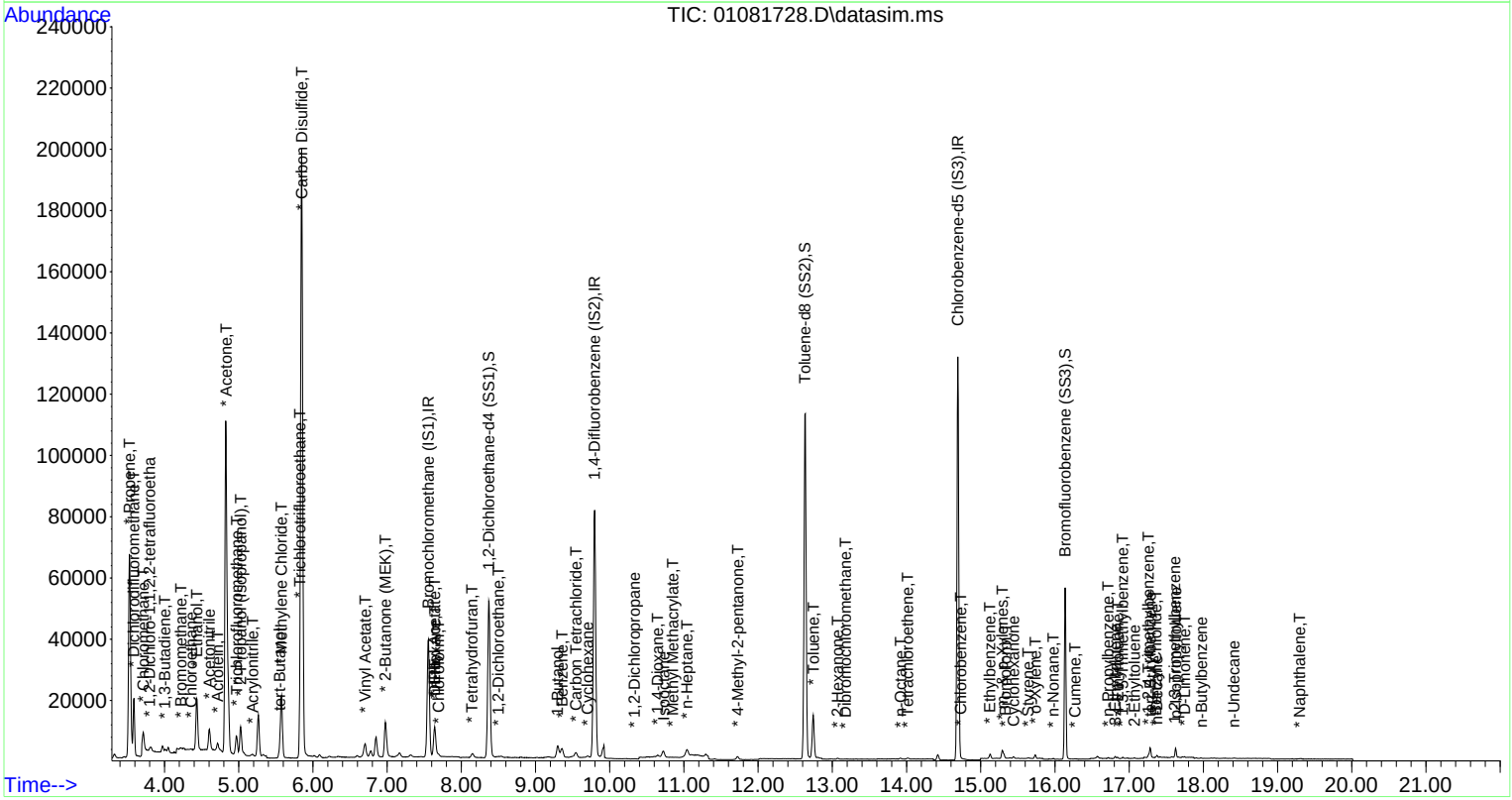
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
69) Cyclohexanone	15.44	98	280	21.523	pg	#	67
70) * Styrene	15.64	104	83	1.338	pg	#	28
71) * o-Xylene	15.73	91	1136	9.970	pg		93
72) * n-Nonane	15.98	57	263	5.122	pg	#	84
75) * Cumene	16.27	105	128	0.788	pg	#	49
77) * n-Propylbenzene	16.71	91	313	2.091	pg	#	56
78) 3-Ethyltoluene	16.81	105	524	5.026	pg		91
79) * 4-Ethyltoluene	16.85	105	225	2.461	pg	#	69
80) * 1,3,5-Trimethylbenzene	16.91	105	261	2.545	pg		94
82) 2-Ethyltoluene	17.07	105	272	2.186	pg	#	80
83) tert-Butylbenzene	17.28	134	1264	54.884	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	1050	11.332	pg		87
85) * Benzyl Chloride	17.36	126	50	5.353	pg		93
88) n-Decane	17.38	85	154	8.693	pg	#	64
90) 1,2,3-Trimethylbenzene	17.61	105	364	3.747	pg	#	31
91) p-Isopropyltoluene	17.63	134	582	19.794	pg		78
93) * D-Limonene	17.75	68	140	3.431	pg		84
94) n-Butylbenzene	17.98	134	62	3.604	pg	#	10
96) n-Undecane	18.41	85	97	9.576	pg	#	1
98) * Naphthalene	19.30	128	74	1.871	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081728.D
Acq On : 9 Jan 2017 4:38 am
Operator : JM
Sample : SSC00186 FCR00190
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 214 Sample Multiplier: 1

Quant Time: Jan 09 10:27:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051707.D Vial: 5
Acq On : 5 Jan 2017 16:32 Operator: CL
Sample : AC01804-FCA00705 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:04 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

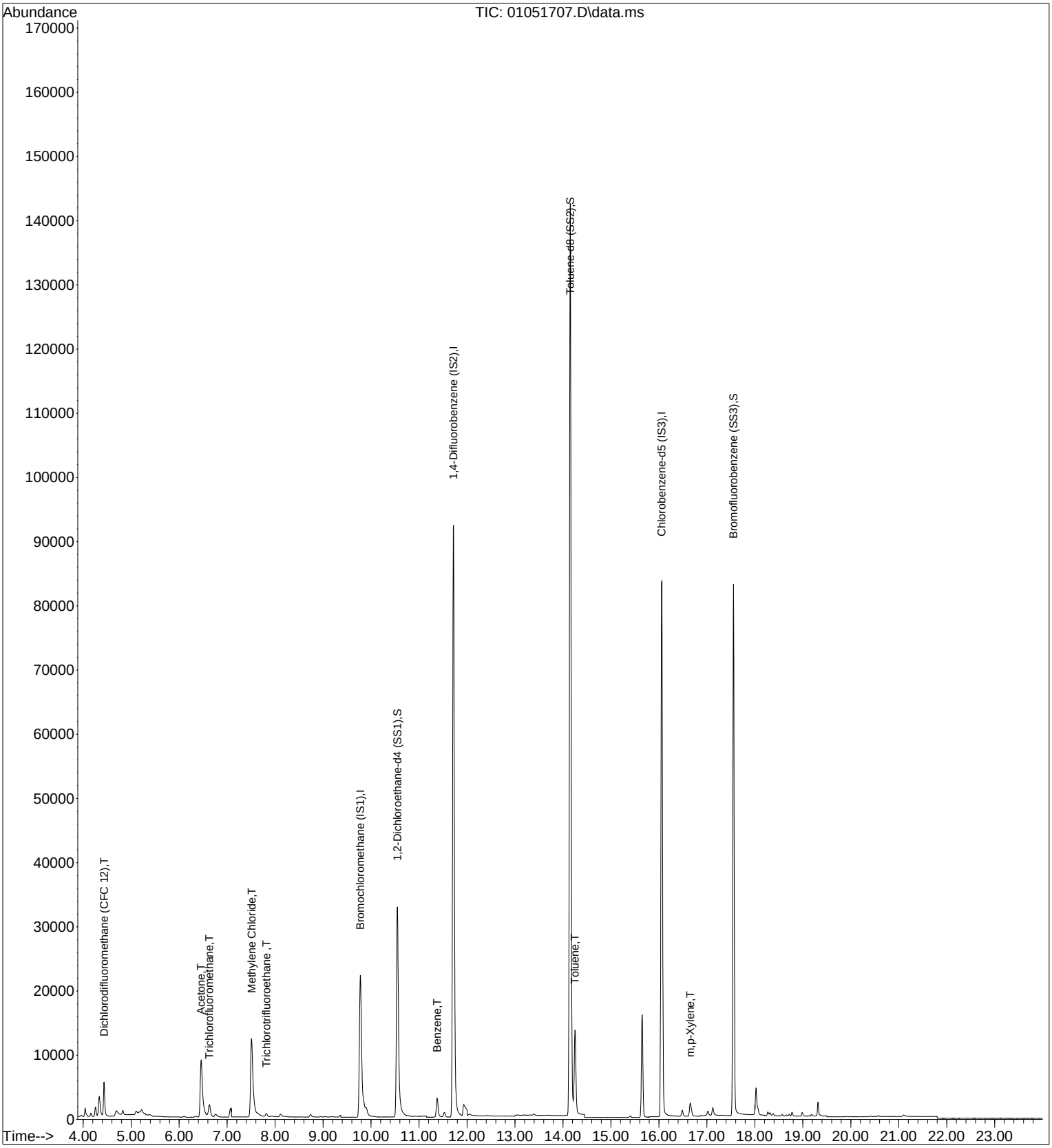
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	42906	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	200026	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	29779	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	65253	949.491	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.95%			
33) Toluene-d8 (SS2)	14.15	98	197840	1012.602	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.26%			
45) Bromofluorobenzene (SS3)	17.56	174	64839	1098.695	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.87%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.44	85	7271	69.839	pg	100
10) Acetone	6.46	58	7943	309.684	pg	94
11) Trichlorofluoromethane	6.63	101	2948	38.681	pg	99
13) Methylene Chloride	7.51	84	17005	339.299	pg	95
14) Trichlorotrifluoroethane	7.82	151	709	15.208	pg	97
23) Benzene	11.38	78	6433	30.393	pg	99
34) Toluene	14.25	91	17936	94.477	pg	100
41) m,p-Xylene	16.66	91	3777	21.988	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051707.D Vial: 5
Acq On : 5 Jan 2017 16:32 Operator: CL
Sample : AC01804-FCA00705 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:04 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061723.D
Acq On : 7 Jan 2017 12:19 am
Operator : JM
Sample : AS00064 FCR00220
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 09 08:38:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48158	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	151043	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	115302	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77936	821.727	pg		0.00
Spiked Amount 1000.000			Recovery = 82.17%				
57) Toluene-d8 (SS2)	12.63	98	137994	979.413	pg		0.00
Spiked Amount 1000.000			Recovery = 97.94%				
74) Bromofluorobenzene (SS3)	16.14	174	38363	826.729	pg		0.00
Spiked Amount 1000.000			Recovery = 82.67%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8108	83.883	pg	#	69
3) * Dichlorodifluoromethane	3.59	85	9738	47.295	pg		99
4) * Chloromethane	3.71	50	3285	21.342	pg		97
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	301	1.969	pg	#	84
7) * 1,3-Butadiene	4.01	54	69	0.631	pg	#	1
8) * Bromomethane	4.21	94	59	0.631	pg	#	3
10) * Ethanol	4.43	45	7015	106.409	pg		99
11) * Acetonitrile	4.60	41	4212	25.482	pg		99
12) * Acrolein	4.72	56	1056	19.120	pg		100
13) * Acetone	4.83	58	15728	252.586	pg		73
14) * Trichlorofluoromethane	4.97	101	3577	26.005	pg		96
15) * 2-Propanol (Isopropa...	5.03	45	5705	33.815	pg		92
16) * Acrylonitrile	5.19	53	249	2.539	pg	#	69
18) tert-Butanol	5.56	59	419	4.120	pg		95
19) * Methylene Chloride	5.58	84	9450	136.245	pg		99
20) * 3-Chloro-1-propene (...	5.67	41	62	0.669	pg	#	43
21) * Trichlorotrifluoroet...	5.82	151	692	12.836	pg		99
22) * Carbon Disulfide	5.85	76	3269	12.856	pg		98
25) * Methyl tert-Butyl Ether	6.68	73	64	0.523	pg	#	50
26) * Vinyl Acetate	6.71	86	327	25.040	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	678	18.141	pg		71
29) DIPE	7.65	45	1417	6.505	pg	#	53
30) * Ethyl Acetate	7.64	61	1322	69.189	pg		95
31) * n-Hexane	7.64	57	1838	18.706	pg		99
32) * Chloroform	7.69	83	332	2.734	pg	#	69
36) * 1,2-Dichloroethane	8.50	62	115	1.119	pg	#	1
38) * 1,1,1-Trichloroethane	8.79	97	52	0.661	pg	#	18
39) * Benzene	9.35	78	2797	16.057	pg	#	81
41) 1-Butanol	9.31	56	1150	35.219	pg	#	50
42) * Carbon Tetrachloride	9.54	117	842	12.425	pg		100
43) * Cyclohexane	9.70	84	148	2.671	pg	#	64
46) * Bromodichloromethane	10.60	83	53	0.676	pg	#	19
48) * 1,4-Dioxane	10.65	88	128	3.523	pg	#	57
49) Isooctane	10.72	56	730	8.767	pg		83
50) * Methyl Methacrylate	10.89	69	67	1.534	pg	#	42
51) * n-Heptane	11.04	71	713	7.971	pg	#	84
52) * cis-1,3-Dichloropropene	11.63	75	82	1.390	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	173	5.497	pg	#	47
58) * Toluene	12.74	91	8362	51.312	pg		100
59) * 2-Hexanone	13.07	58	103	3.695	pg	#	68
62) * n-Butyl Acetate	13.80	56	64	3.210	pg	#	37
63) * n-Octane	13.91	85	110	4.327	pg		83
64) * Tetrachloroethene	14.01	166	133	2.454	pg		92
66) * Ethylbenzene	15.12	91	861	6.265	pg	#	89
67) * m- & p-Xylenes	15.29	91	2112	19.779	pg		95

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061723.D
Acq On : 7 Jan 2017 12:19 am
Operator : JM
Sample : AS00064 FCR00220
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

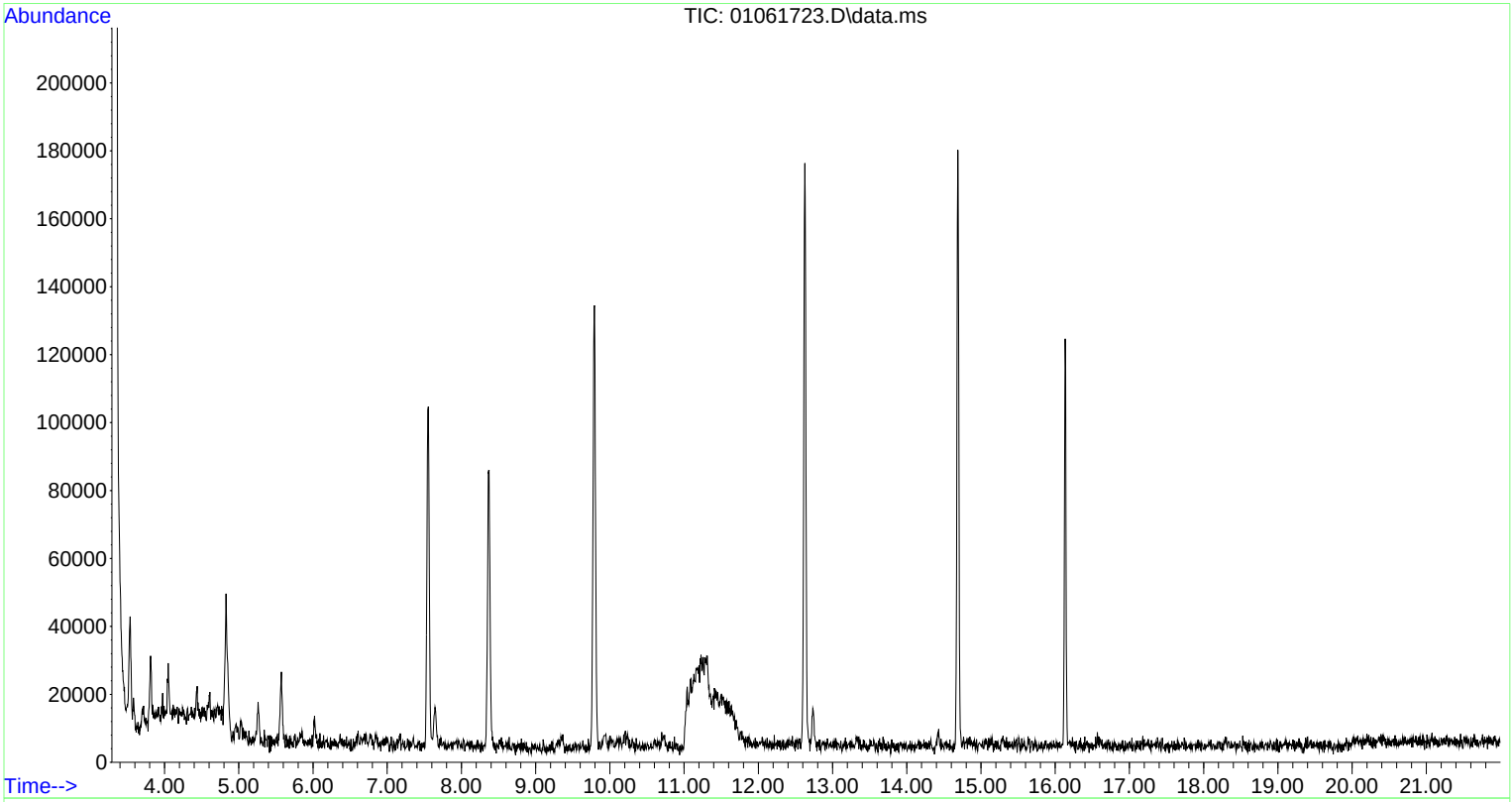
Quant Time: Jan 09 08:38:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

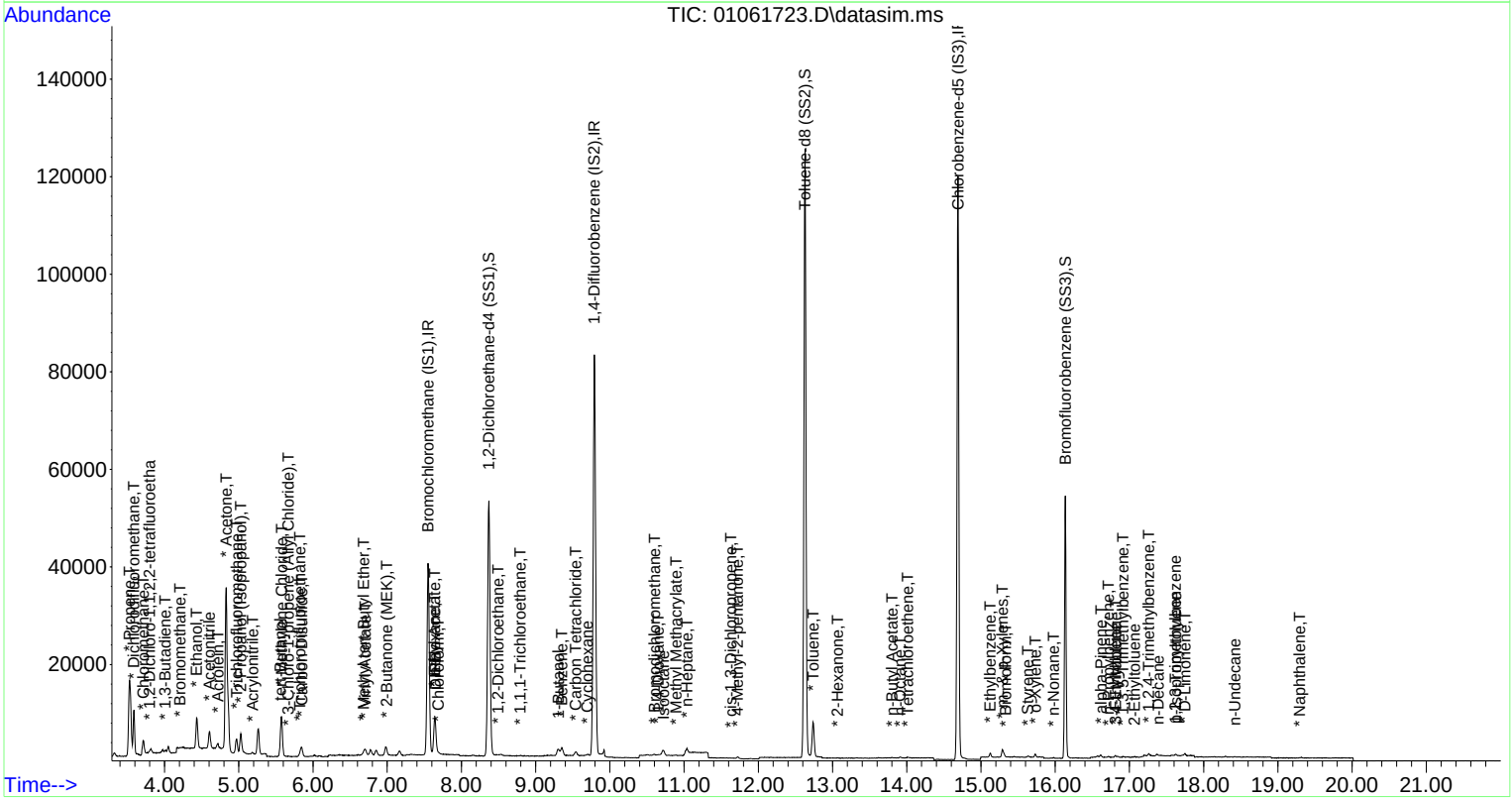
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
68) * Bromoform	15.33	173	62	1.817	pg	#	26
70) * Styrene	15.63	104	183	3.219	pg		96
71) * o-Xylene	15.73	91	607	5.812	pg		87
72) * n-Nonane	15.98	57	141	2.995	pg	#	42
76) * alpha-Pinene	16.61	93	343	5.066	pg		93
77) * n-Propylbenzene	16.72	91	180	1.312	pg	#	56
78) 3-Ethyltoluene	16.81	105	296	3.097	pg		89
79) * 4-Ethyltoluene	16.81	105	296	3.532	pg		92
80) * 1,3,5-Trimethylbenzene	16.91	105	102	1.085	pg	#	29
82) 2-Ethyltoluene	17.07	105	114	1.000	pg	#	45
84) * 1,2,4-Trimethylbenzene	17.26	105	300	3.532	pg		96
88) n-Decane	17.39	85	51	3.140	pg	#	47
90) 1,2,3-Trimethylbenzene	17.62	105	95	1.067	pg	#	72
91) p-Isopropyltoluene	17.62	134	77	2.857	pg	#	34
93) * D-Limonene	17.75	68	222	5.936	pg	#	51
96) n-Undecane	18.42	85	50	5.384	pg	#	18
98) * Naphthalene	19.29	128	97	2.676	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061723.D
Acq On : 7 Jan 2017 12:19 am
Operator : JM
Sample : AS00064 FCR00220
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 09 08:38:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091718.D
Acq On : 9 Jan 2017 21:56
Operator : JM
Sample : AS01003 LFC00033
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

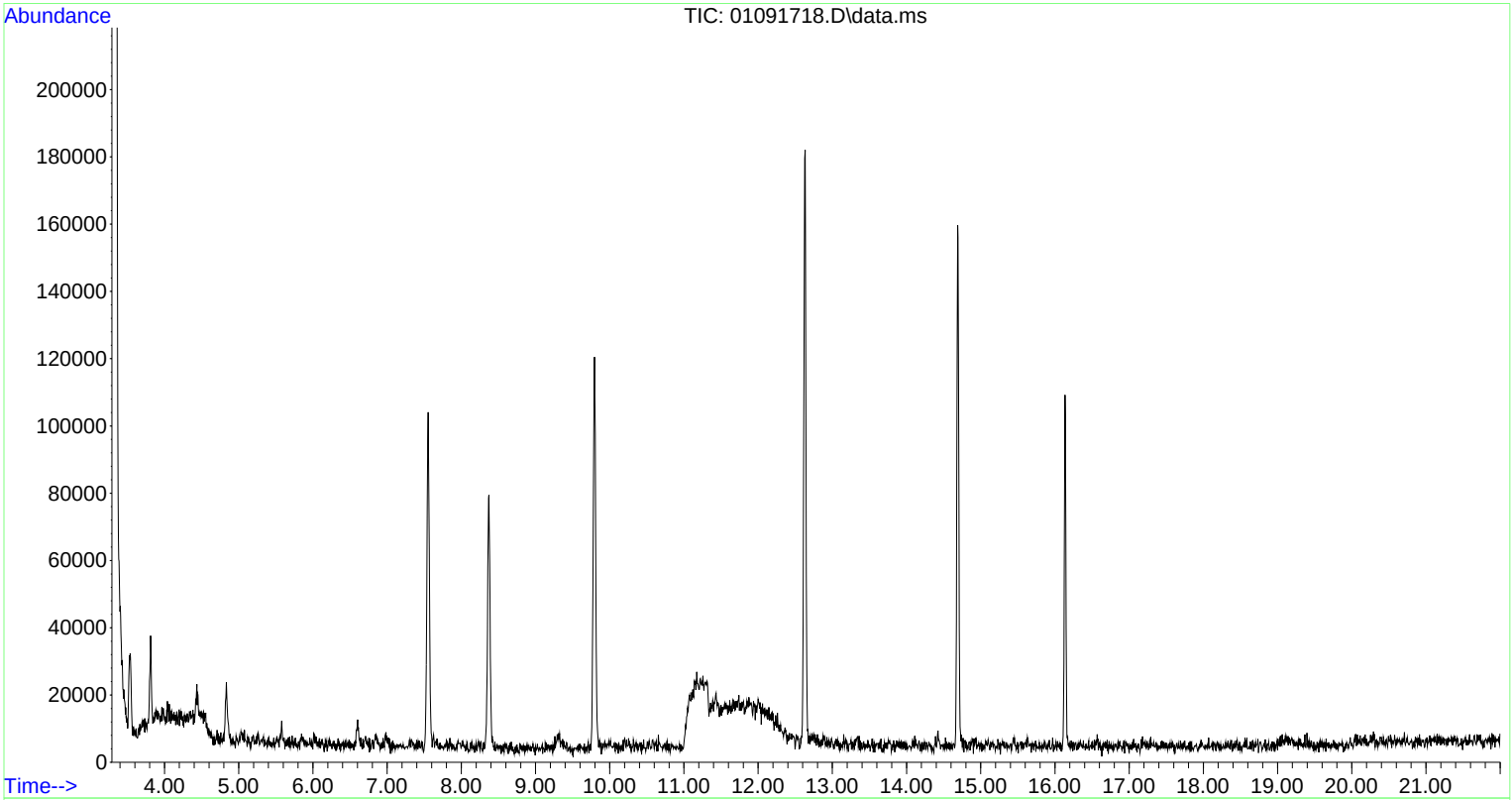
Quant Time: Jan 10 07:50:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

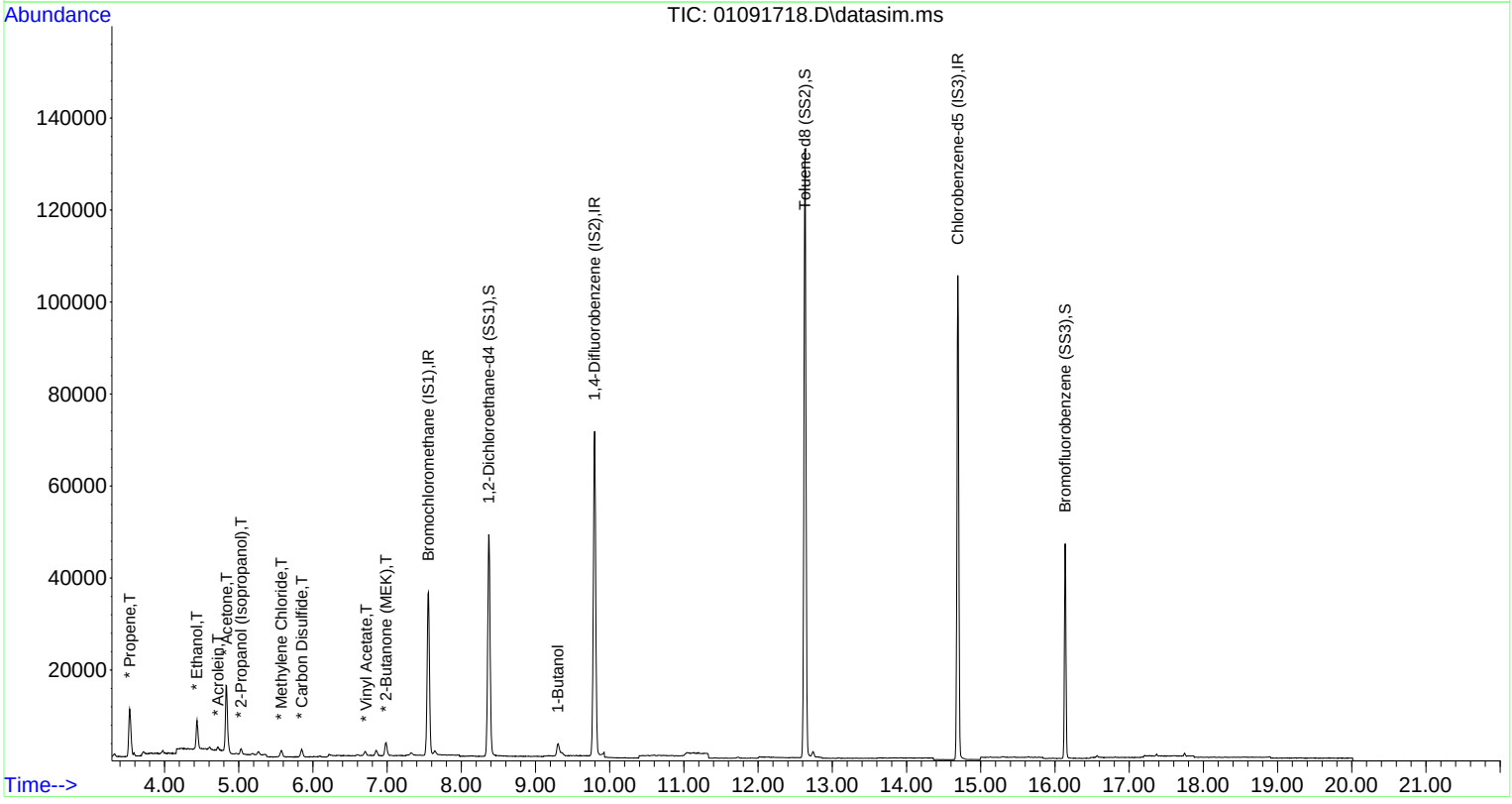
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44140	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	129222	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	101912	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72269	831.338	pg		0.00
Spiked Amount 1000.000			Recovery = 83.13%				
57) Toluene-d8 (SS2)	12.63	98	144838	1163.054	pg		0.00
Spiked Amount 1000.000			Recovery = 116.30%				
74) Bromofluorobenzene (SS3)	16.14	174	32947	803.301	pg		0.00
Spiked Amount 1000.000			Recovery = 80.33%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5005	56.494	pg	#	70
10) * Ethanol	4.44	45	6984	115.582	pg		99
12) * Acrolein	4.72	56	781	15.428	pg		99
13) * Acetone	4.84	58	7977	139.769	pg	#	56
15) * 2-Propanol (Isopropa...	5.03	45	1583	10.237	pg		92
19) * Methylene Chloride	5.58	84	1545	24.303	pg		98
22) * Carbon Disulfide	5.85	76	3126	13.413	pg		95
26) * Vinyl Acetate	6.72	86	181	15.122	pg	#	27
27) * 2-Butanone (MEK)	6.99	72	1055	30.798	pg		82
41) 1-Butanol	9.30	56	2492	89.206	pg	#	45

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091718.D
Acq On : 9 Jan 2017 21:56
Operator : JM
Sample : AS01003 LFC00033
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 10 07:50:36 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061718.D
Acq On : 6 Jan 2017 20:35 Operator: CL
Sample : AS00961-FCA00514 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 07 15:18:41 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

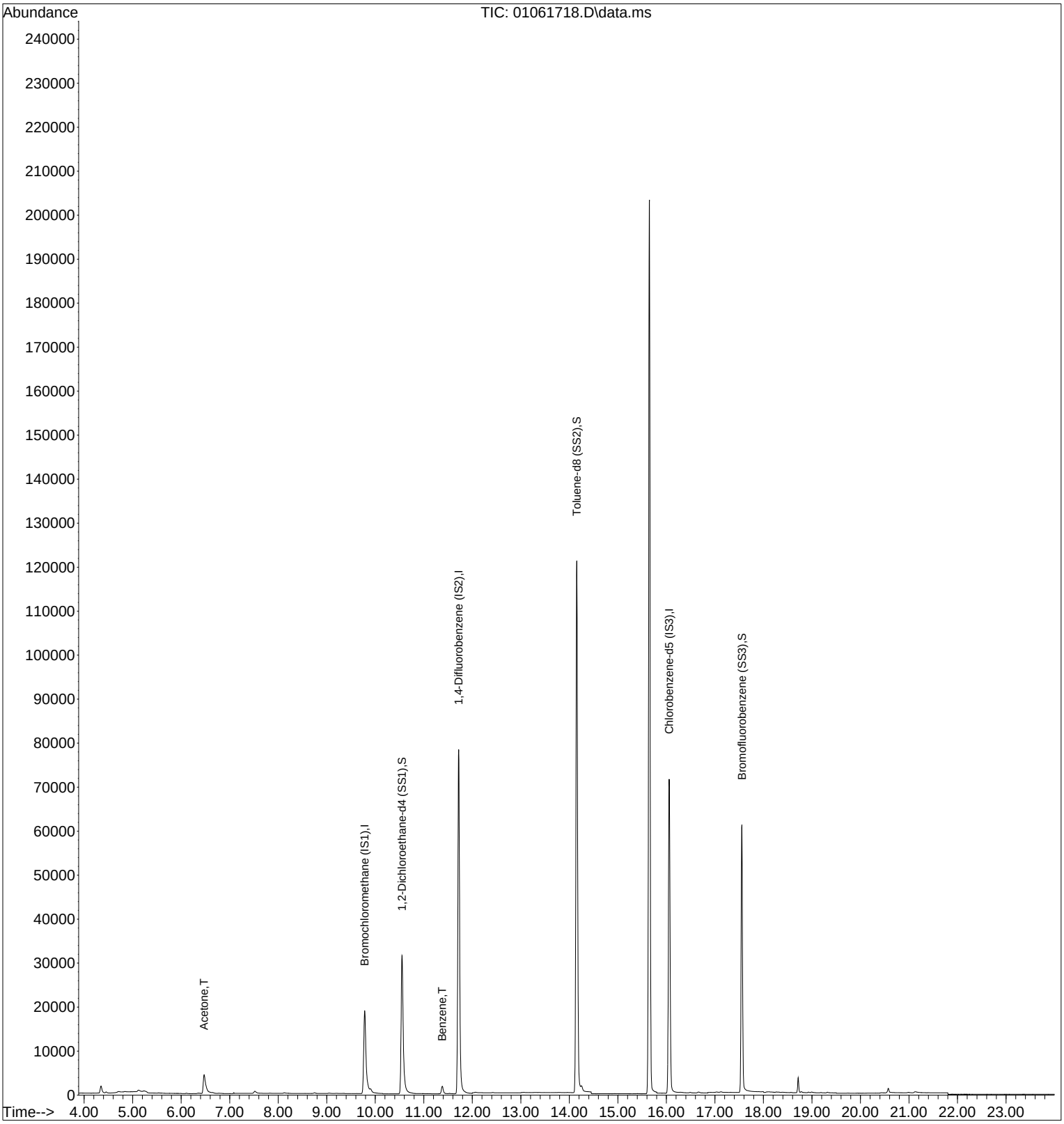
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	36800	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	167836	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	28465	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.6	65	63254	1073.120	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.31%				
33) Toluene-d8 (SS2)	14.2	98	170688	1041.187	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.12%				
45) Bromofluorobenzene (SS3)	17.6	174	49052	869.554	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 86.95%				
Target Compounds							Qvalue
10) Acetone	6.5	58	4655	211.604	pg	#	89
23) Benzene	11.4	78	3733	20.563	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061718.D
Acq On : 6 Jan 2017 20:35 Operator: CL
Sample : AS00961-FCA00514 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 07 15:18:41 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091714.D
Acq On : 9 Jan 2017 19:13
Operator : JM
Sample : AS00683 FCR00133
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

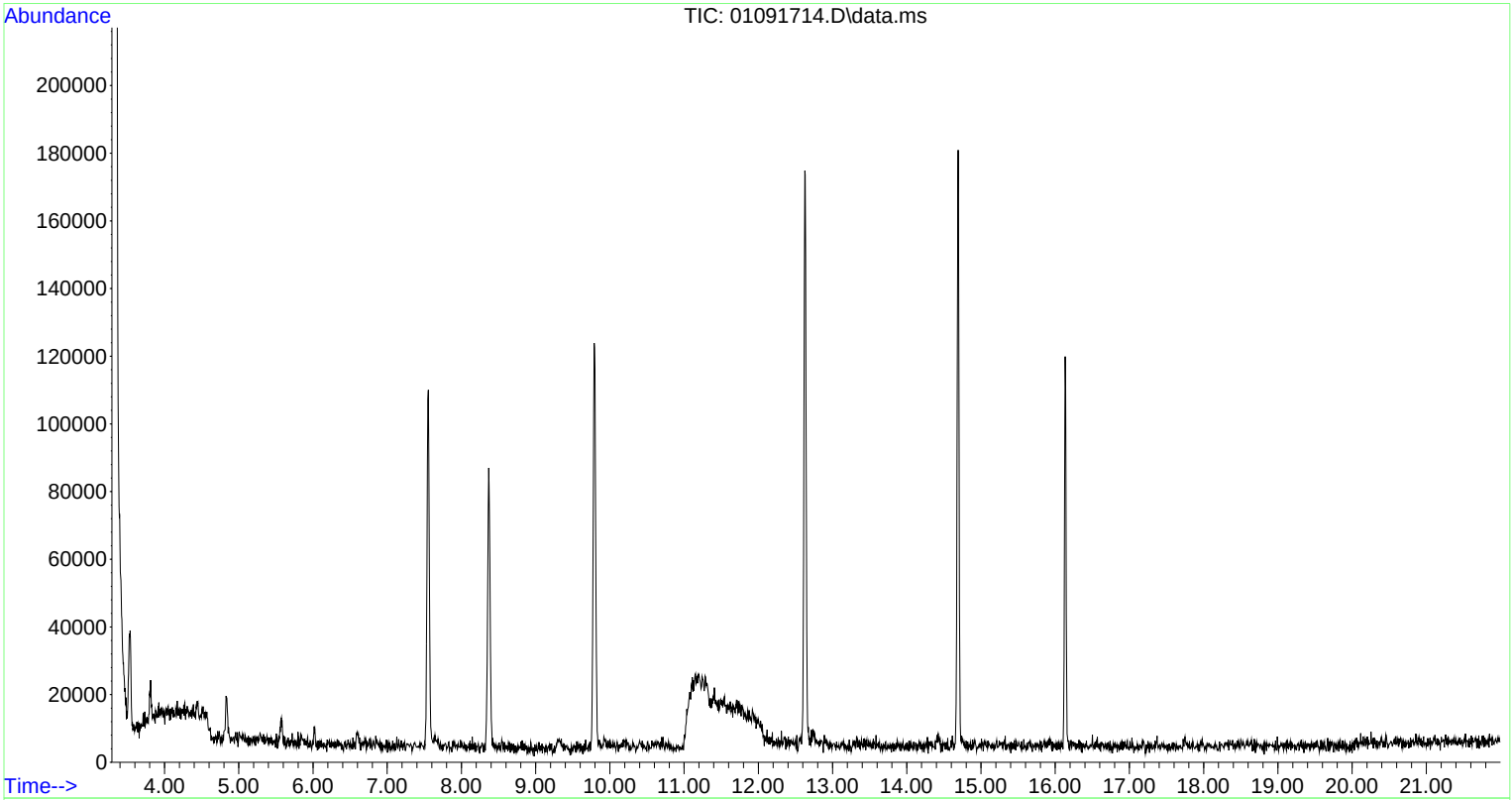
Quant Time: Jan 10 07:50:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

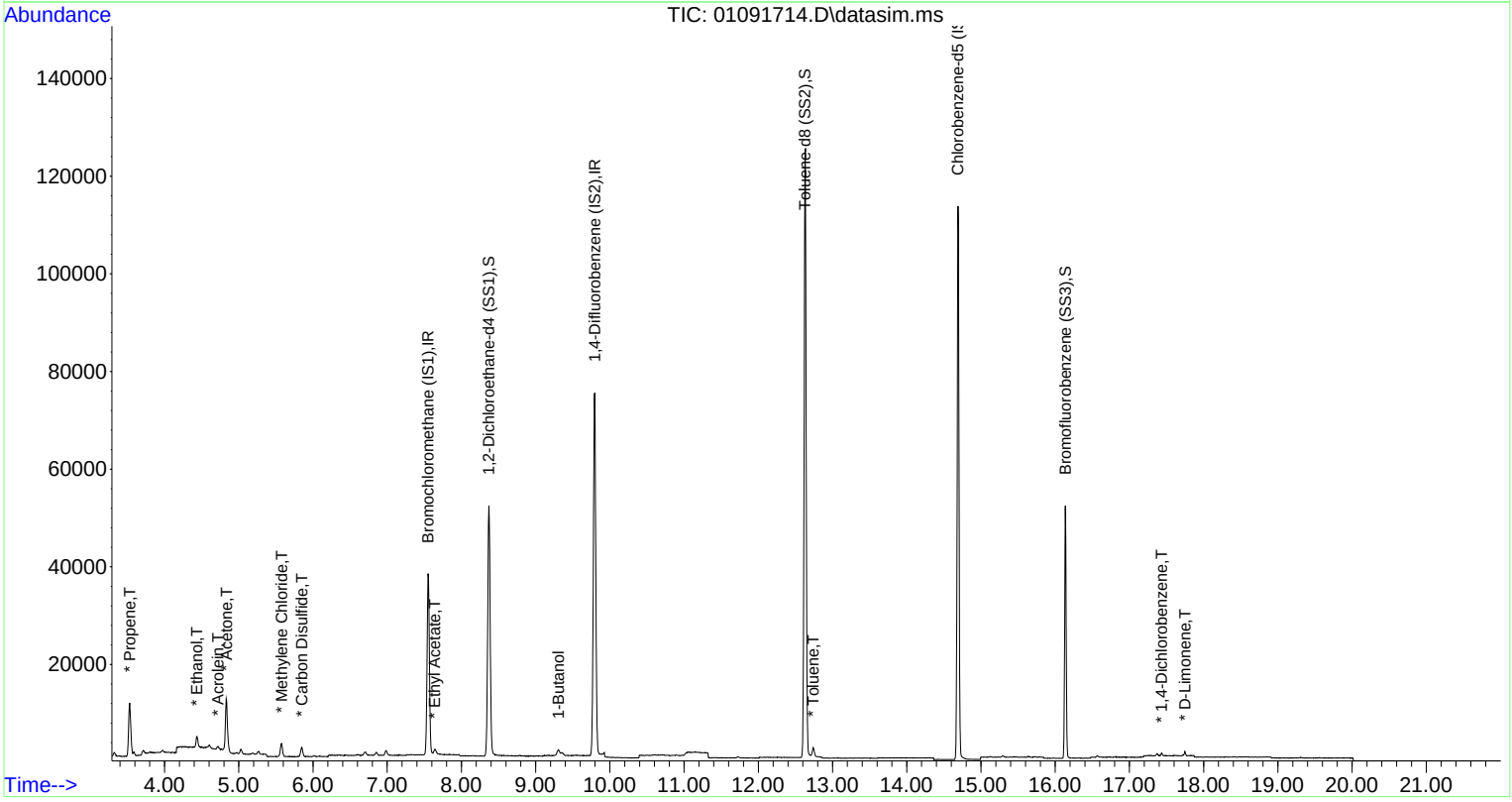
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45617	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	137596	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109050	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76219	848.388	pg		0.00
Spiked Amount 1000.000			Recovery = 84.84%				
57) Toluene-d8 (SS2)	12.63	98	137956	1035.279	pg		0.00
Spiked Amount 1000.000			Recovery = 103.53%				
74) Bromofluorobenzene (SS3)	16.14	174	36495	831.563	pg		0.00
Spiked Amount 1000.000			Recovery = 83.16%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5213	56.936	pg	#	71
10) * Ethanol	4.43	45	2624	42.020	pg		99
12) * Acrolein	4.72	56	611	11.679	pg		92
13) * Acetone	4.84	58	5626	95.384	pg	#	62
19) * Methylene Chloride	5.58	84	2985	45.433	pg		100
22) * Carbon Disulfide	5.85	76	3628	15.063	pg		98
30) * Ethyl Acetate	7.64	61	216	11.934	pg	#	78
41) 1-Butanol	9.31	56	1065	35.803	pg	#	38
58) * Toluene	12.74	91	2163	14.034	pg		98
87) * 1,4-Dichlorobenzene	17.43	146	502	13.701	pg		98
93) * D-Limonene	17.75	68	362	10.234	pg		85

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091714.D
Acq On : 9 Jan 2017 19:13
Operator : JM
Sample : AS00683 FCR00133
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 10 07:50:13 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061715.D
Acq On : 6 Jan 2017 6:00 pm
Operator : JM
Sample : AC01139 FCA00501
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 09 08:37:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	48488	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	154362	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	118679	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78731	824.460	pg		0.00
Spiked Amount 1000.000			Recovery = 82.45%				
57) Toluene-d8 (SS2)	12.63	98	134903	930.230	pg		0.00
Spiked Amount 1000.000			Recovery = 93.02%				
74) Bromofluorobenzene (SS3)	16.14	174	41174	862.059	pg		0.00
Spiked Amount 1000.000			Recovery = 86.21%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7246	74.455	pg	#	76
3) * Dichlorodifluoromethane	3.59	85	2277	10.983	pg		100
4) * Chloromethane	3.71	50	1282	8.272	pg		91
7) * 1,3-Butadiene	4.01	54	28	0.254	pg	#	1
9) * Chloroethane	4.36	64	78	1.160	pg	#	1
10) * Ethanol	4.44	45	13070	196.907	pg		97
11) * Acetonitrile	4.60	41	1610	9.674	pg		90
12) * Acrolein	4.72	56	1517	27.280	pg		100
13) * Acetone	4.83	58	16489	263.005	pg	#	54
14) * Trichlorofluoromethane	4.97	101	879	6.347	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	3194	18.803	pg	#	81
16) * Acrylonitrile	5.19	53	211	2.137	pg	#	60
17) * 1,1-Dichloroethene	5.51	96	81	1.445	pg	#	17
18) tert-Butanol	5.56	59	541	5.284	pg	#	81
19) * Methylene Chloride	5.58	84	1500	21.479	pg		93
21) * Trichlorotrifluoroet...	5.83	151	120	2.211	pg	#	75
22) * Carbon Disulfide	5.85	76	7043	27.510	pg		95
26) * Vinyl Acetate	6.71	86	1214	92.331	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1383	36.752	pg		65
29) DIPE	7.64	45	775	3.534	pg	#	66
30) * Ethyl Acetate	7.65	61	854	44.391	pg		100
31) * n-Hexane	7.65	57	913	9.229	pg	#	75
32) * Chloroform	7.69	83	259	2.118	pg		86
39) * Benzene	9.35	78	1297	7.286	pg	#	74
41) 1-Butanol	9.29	56	4921	147.466	pg	#	45
42) * Carbon Tetrachloride	9.55	117	61	0.881	pg	#	38
48) * 1,4-Dioxane	10.64	88	51	1.374	pg	#	55
49) Isooctane	10.71	56	251	2.950	pg		73
51) * n-Heptane	11.04	71	167	1.827	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	96	2.985	pg	#	47
58) * Toluene	12.74	91	7397	44.099	pg		99
59) * 2-Hexanone	13.08	58	146	5.088	pg	#	68
62) * n-Butyl Acetate	13.80	56	181	8.821	pg	#	79
63) * n-Octane	13.91	85	50	1.911	pg	#	1
64) * Tetrachloroethene	14.02	166	361	6.472	pg		92
66) * Ethylbenzene	15.12	91	1634	11.551	pg		92
67) * m- & p-Xylenes	15.29	91	5029	45.757	pg		92
69) Cyclohexanone	15.44	98	206	16.782	pg	#	36
70) * Styrene	15.63	104	1286	21.977	pg		97
71) * o-Xylene	15.73	91	1323	12.306	pg		99
72) * n-Nonane	15.98	57	356	7.348	pg	#	67
75) * Cumene	16.27	105	160	1.044	pg	#	76
76) * alpha-Pinene	16.62	93	149	2.138	pg	#	74
77) * n-Propylbenzene	16.72	91	1591	11.265	pg		93
78) 3-Ethyltoluene	16.81	105	3002	30.517	pg		96

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061715.D
Acq On : 6 Jan 2017 6:00 pm
Operator : JM
Sample : AC01139 FCA00501
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

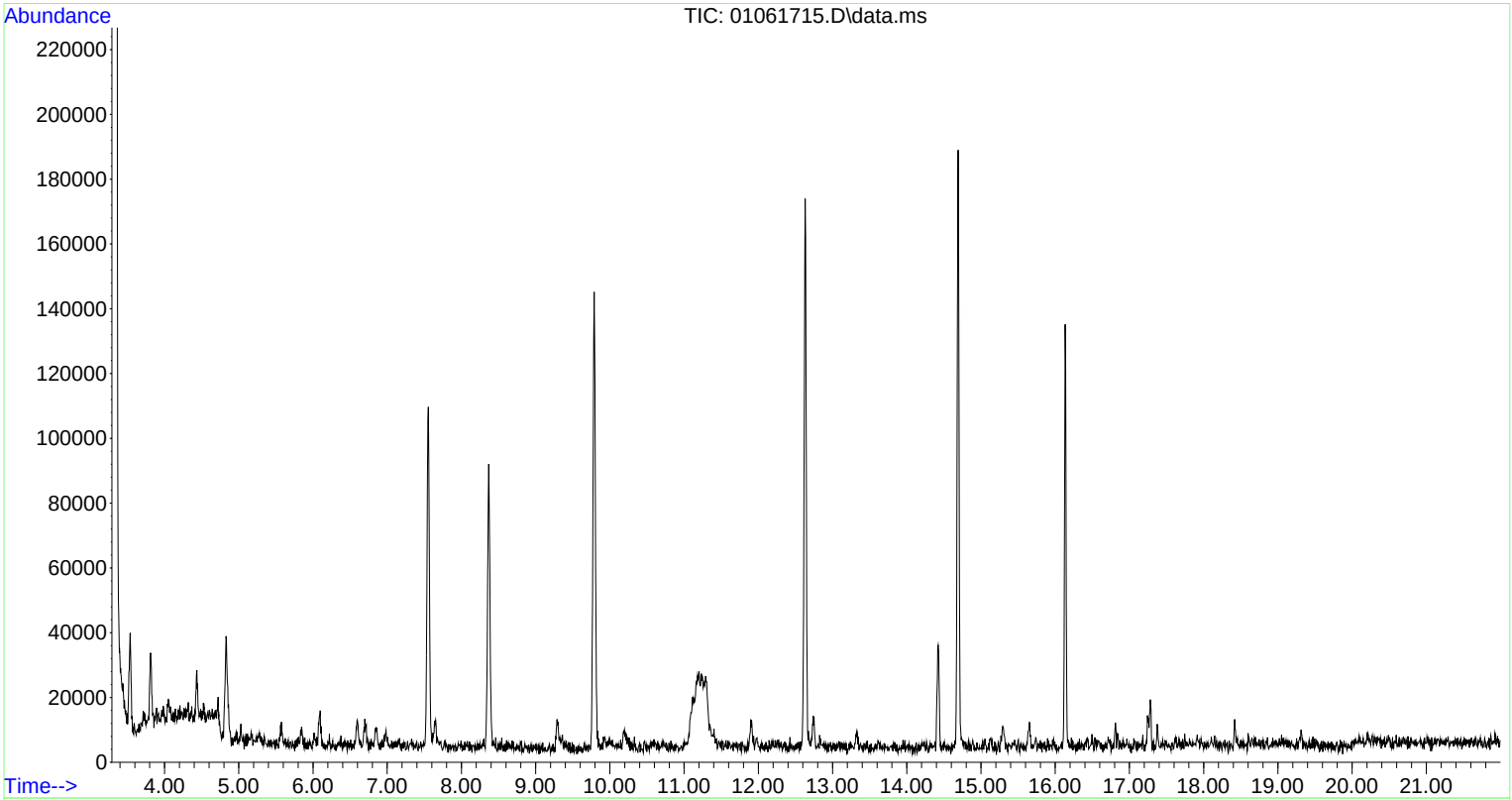
Quant Time: Jan 09 08:37:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

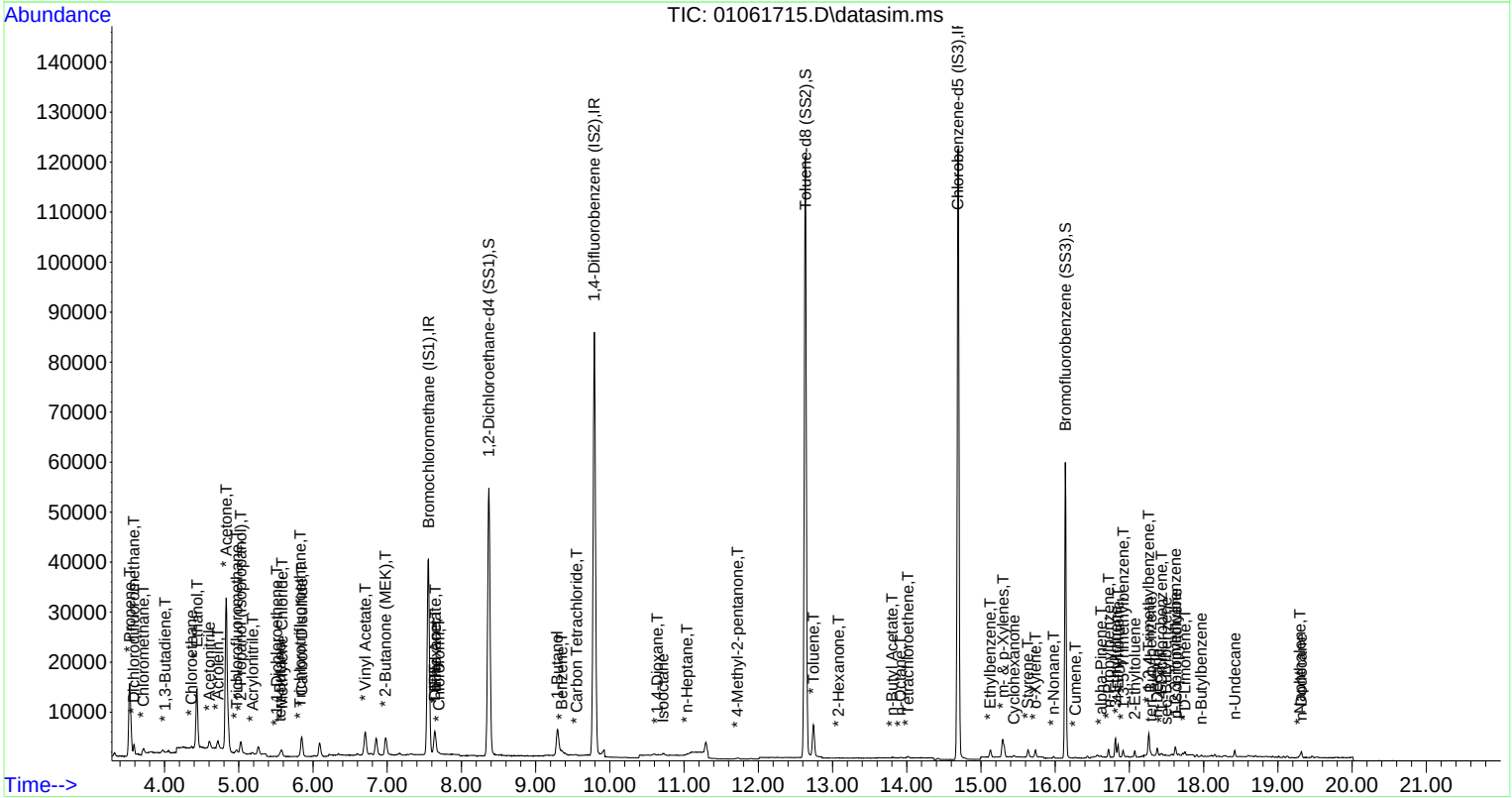
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
79) * 4-Ethyltoluene	16.85	105	1909	22.132	pg		96
80) * 1,3,5-Trimethylbenzene	16.92	105	905	9.354	pg		97
82) 2-Ethyltoluene	17.07	105	994	8.467	pg		92
83) tert-Butylbenzene	17.29	134	256	11.781	pg	#	33
84) * 1,2,4-Trimethylbenzene	17.26	105	3326	38.043	pg		88
87) * 1,4-Dichlorobenzene	17.43	146	325	8.150	pg		97
88) n-Decane	17.37	85	280	16.751	pg		96
89) sec-Butylbenzene	17.49	105	73	0.526	pg	#	59
90) 1,2,3-Trimethylbenzene	17.62	105	1164	12.698	pg		89
91) p-Isopropyltoluene	17.63	134	114	4.109	pg		96
93) * D-Limonene	17.75	68	387	10.053	pg		87
94) n-Butylbenzene	17.97	134	199	12.260	pg	#	1
96) n-Undecane	18.42	85	352	36.827	pg	#	66
98) * Naphthalene	19.30	128	602	16.133	pg		100
99) n-Dodecane	19.31	85	209	34.814	pg		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061715.D
Acq On : 6 Jan 2017 6:00 pm
Operator : JM
Sample : AC01139 FCA00501
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 09 08:37:25 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071705.D
Acq On : 7 Jan 2017 5:19 pm
Operator : JM
Sample : AS00756 FCR00117
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

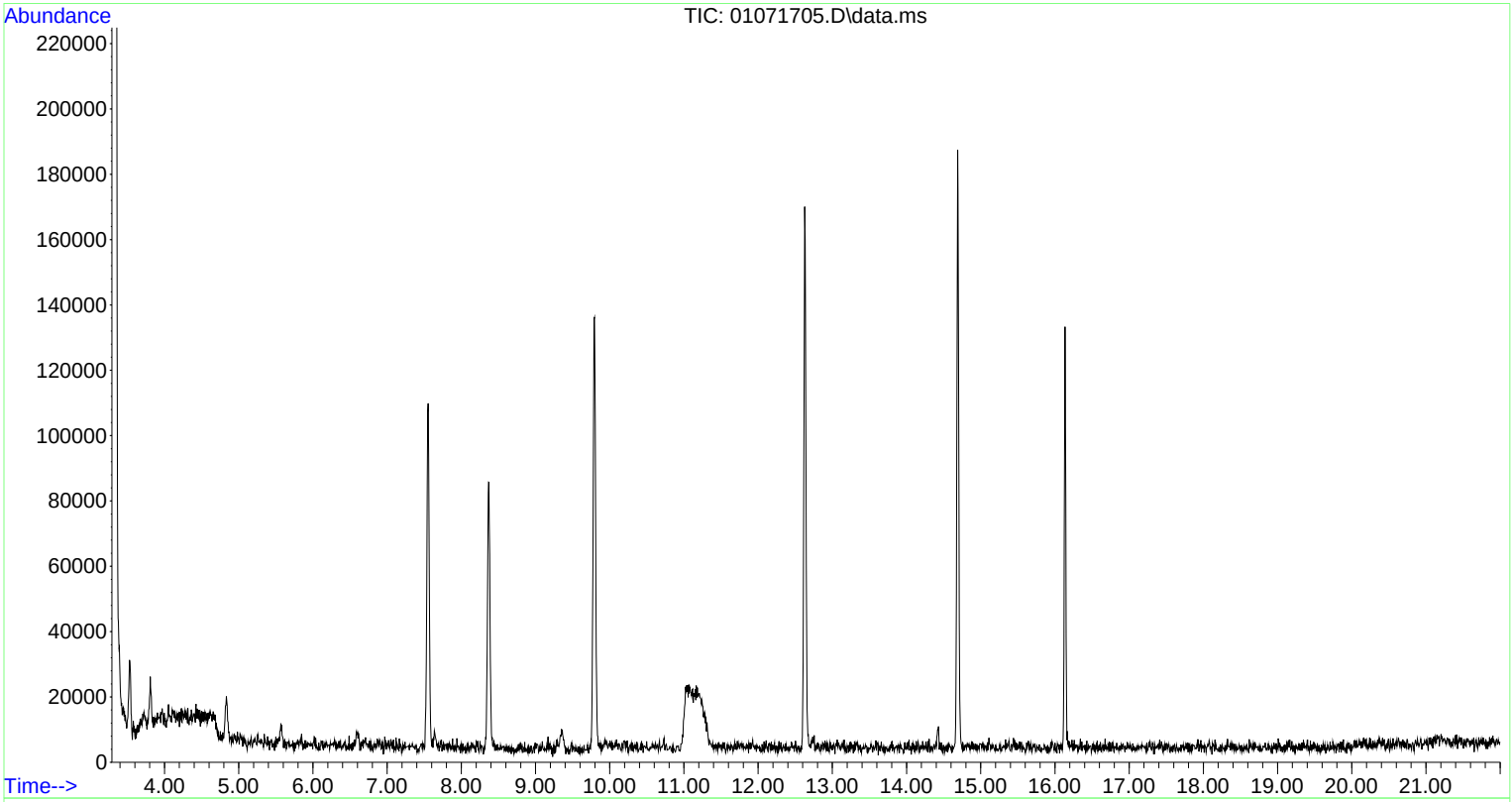
Quant Time: Jan 09 09:39:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

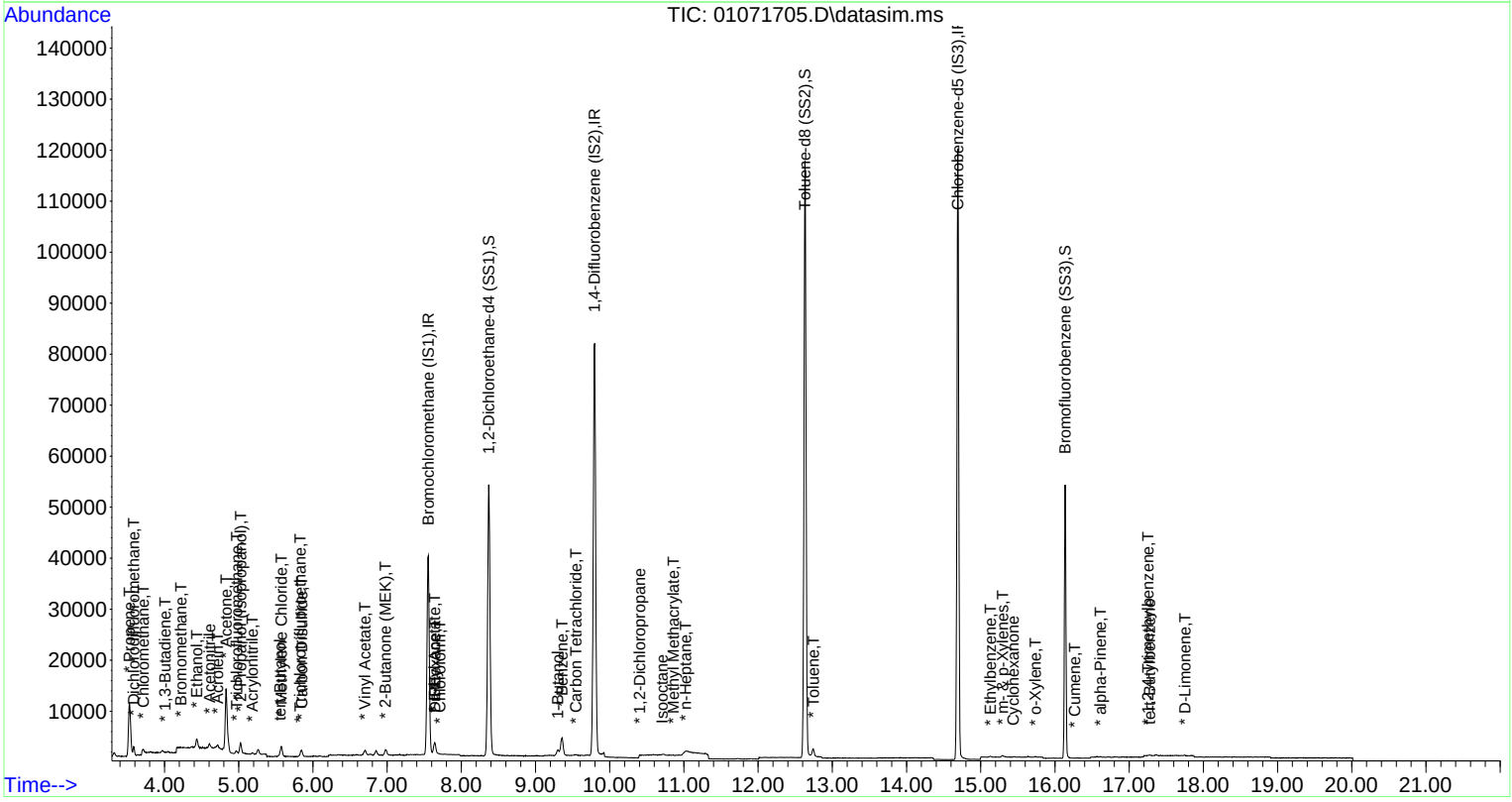
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48250	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150210	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	113967	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79201	833.472	pg		0.00
Spiked Amount 1000.000			Recovery = 83.35%				
57) Toluene-d8 (SS2)	12.63	98	131757	946.100	pg		0.00
Spiked Amount 1000.000			Recovery = 94.61%				
74) Bromofluorobenzene (SS3)	16.14	174	38253	834.015	pg		0.00
Spiked Amount 1000.000			Recovery = 83.40%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5188	53.571	pg	#	72
3) * Dichlorodifluoromethane	3.58	85	1857	9.002	pg		98
4) * Chloromethane	3.71	50	790	5.123	pg		93
7) * 1,3-Butadiene	4.01	54	16	0.146	pg	#	1
8) * Bromomethane	4.22	94	82	0.875	pg	#	3
10) * Ethanol	4.43	45	1963	29.720	pg	#	79
11) * Acetonitrile	4.61	41	1092	6.594	pg		98
12) * Acrolein	4.71	56	743	13.427	pg		96
13) * Acetone	4.83	58	6427	103.019	pg	#	59
14) * Trichlorofluoromethane	4.97	101	727	5.275	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	2847	16.843	pg		94
16) * Acrylonitrile	5.18	53	198	2.015	pg	#	61
18) tert-Butanol	5.56	59	281	2.758	pg	#	65
19) * Methylene Chloride	5.58	84	2176	31.312	pg		97
21) * Trichlorotrifluoroet...	5.83	151	166	3.073	pg	#	59
22) * Carbon Disulfide	5.85	76	2366	9.287	pg	#	89
26) * Vinyl Acetate	6.70	86	232	17.732	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	402	10.736	pg		74
29) DIPE	7.65	45	451	2.067	pg	#	53
30) * Ethyl Acetate	7.64	61	436	22.775	pg		93
31) * n-Hexane	7.65	57	361	3.667	pg	#	60
32) * Chloroform	7.71	83	50	0.411	pg	#	16
39) * Benzene	9.36	78	6622	38.227	pg		97
41) 1-Butanol	9.30	56	958	29.502	pg	#	47
42) * Carbon Tetrachloride	9.55	117	160	2.374	pg		94
45) * 1,2-Dichloropropane	10.40	63	60	0.933	pg	#	33
49) Isooctane	10.71	56	89	1.075	pg	#	40
50) * Methyl Methacrylate	10.86	69	56	1.289	pg	#	42
51) * n-Heptane	11.02	71	341	3.834	pg	#	43
58) * Toluene	12.74	91	1784	11.075	pg		99
66) * Ethylbenzene	15.13	91	234	1.723	pg	#	72
67) * m- & p-Xylenes	15.30	91	418	3.961	pg		95
69) Cyclohexanone	15.44	98	50	4.242	pg		79
71) * o-Xylene	15.73	91	167	1.618	pg	#	84
75) * Cumene	16.27	105	53	0.360	pg	#	49
76) * alpha-Pinene	16.61	93	71	1.061	pg	#	18
83) tert-Butylbenzene	17.28	134	88	4.217	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	92	1.096	pg	#	24
93) * D-Limonene	17.75	68	54	1.461	pg	#	15

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071705.D
Acq On : 7 Jan 2017 5:19 pm
Operator : JM
Sample : AS00756 FCR00117
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 09 09:39:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091719.D
Acq On : 9 Jan 2017 22:37
Operator : JM
Sample : AC02157 LFC00060
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

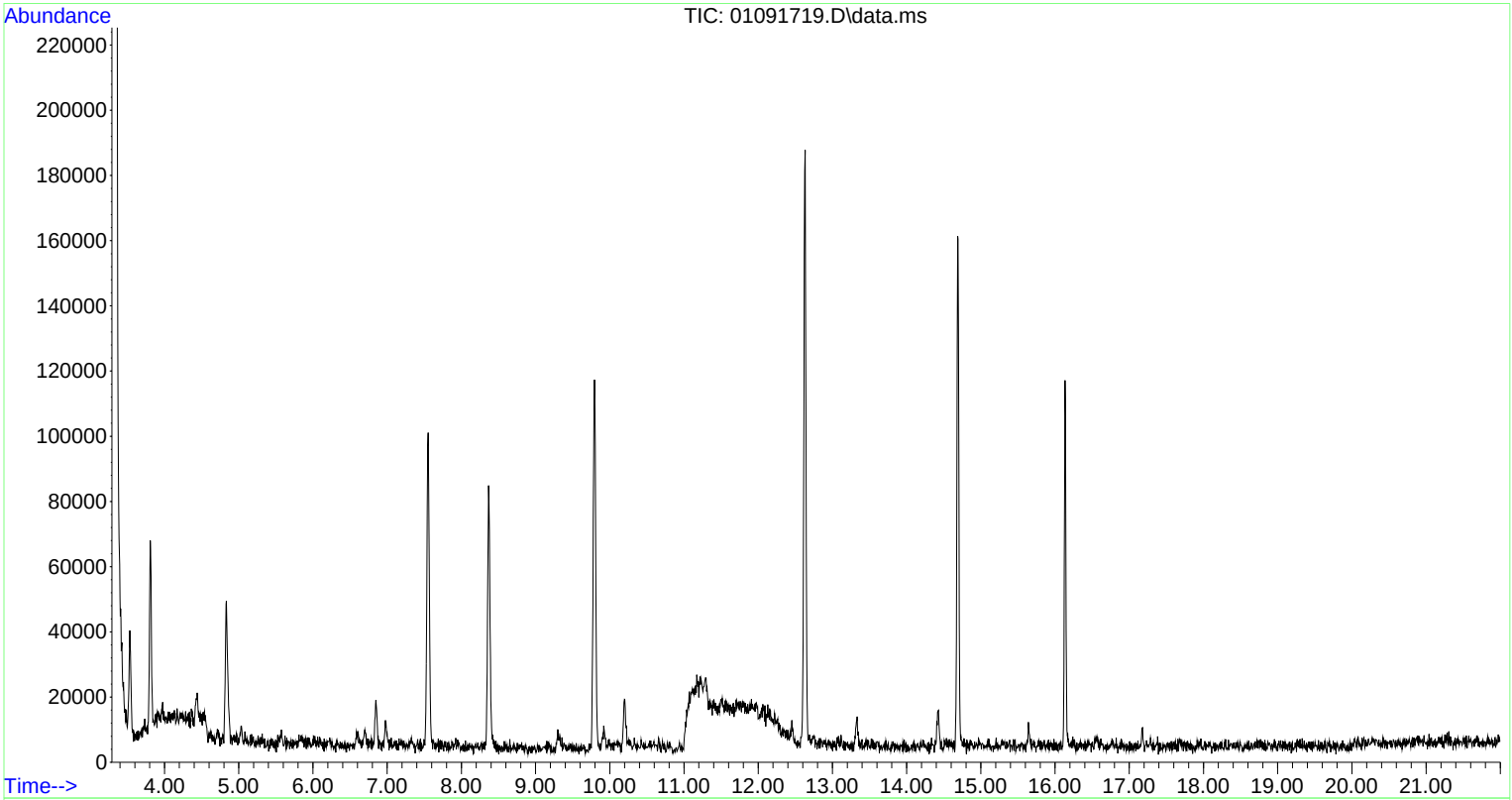
Quant Time: Jan 10 07:50:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

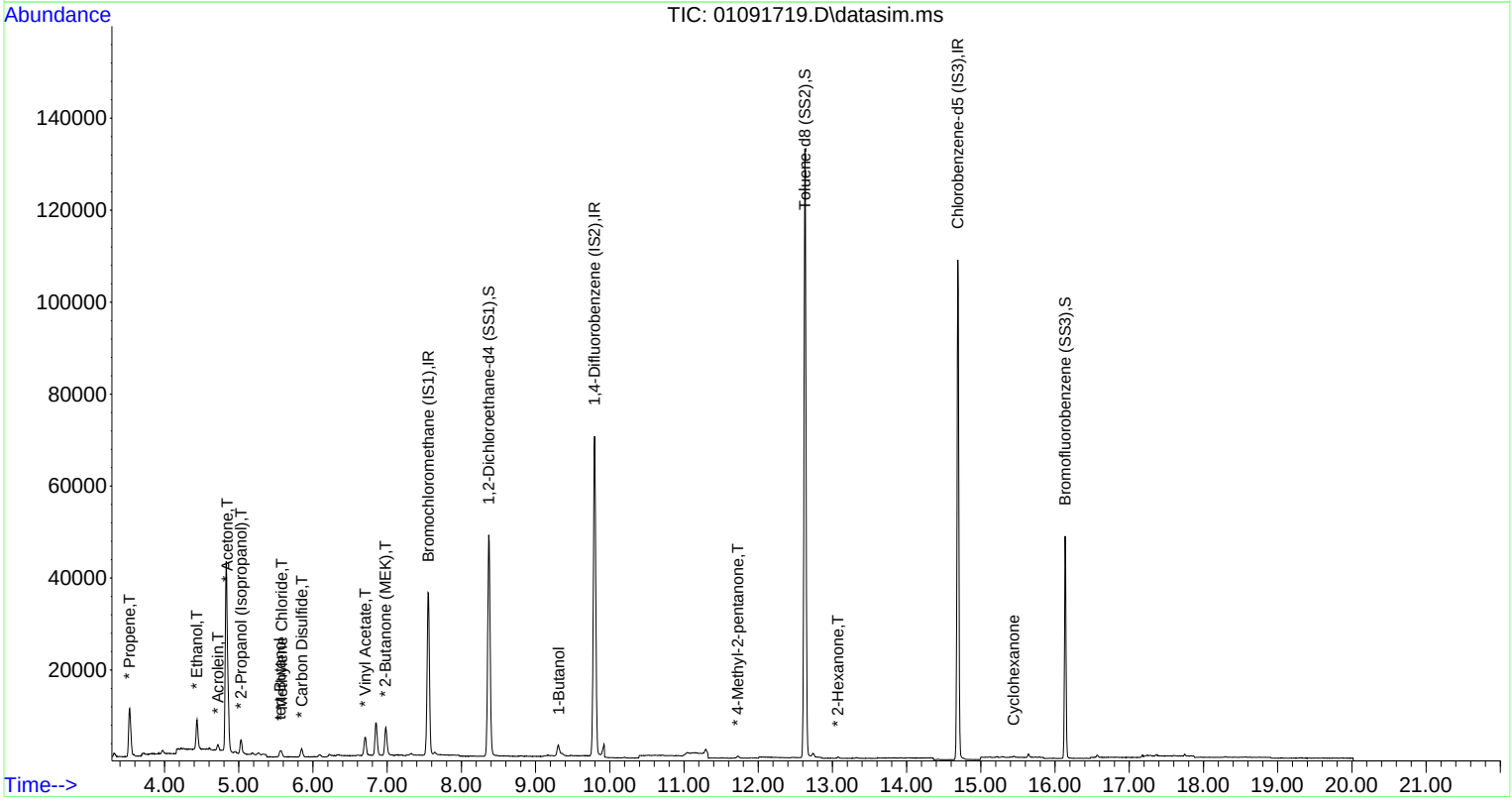
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44335	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	128465	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	103294	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71847	822.848	pg		0.00
Spiked Amount 1000.000			Recovery = 82.28%				
57) Toluene-d8 (SS2)	12.63	98	145445	1152.302	pg		0.00
Spiked Amount 1000.000			Recovery = 115.23%				
74) Bromofluorobenzene (SS3)	16.14	174	33890	815.238	pg		0.00
Spiked Amount 1000.000			Recovery = 81.52%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5171	58.111	pg	#	70
10) * Ethanol	4.44	45	7567	124.680	pg		100
12) * Acrolein	4.72	56	1422	27.967	pg		93
13) * Acetone	4.84	58	30450	531.184	pg	#	20
15) * 2-Propanol (Isopropa...	5.03	45	4046	26.049	pg		89
18) tert-Butanol	5.56	59	1409	15.051	pg	#	80
19) * Methylene Chloride	5.58	84	950	14.878	pg		94
22) * Carbon Disulfide	5.85	76	3393	14.494	pg		97
26) * Vinyl Acetate	6.71	86	1060	88.170	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	2193	63.736	pg		81
41) 1-Butanol	9.31	56	1892	68.127	pg	#	50
53) * 4-Methyl-2-pentanone	11.73	58	284	10.610	pg	#	47
59) * 2-Hexanone	13.07	58	479	19.180	pg		94
69) Cyclohexanone	15.44	98	143	13.385	pg	#	54

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091719.D
Acq On : 9 Jan 2017 22:37
Operator : JM
Sample : AC02157 LFC00060
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 10 07:50:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091719.D Vial: 7
Acq On : 9 Jan 2017 19:46 Operator: CL
Sample : SSC00081_FCR00279 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:32 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/10/17

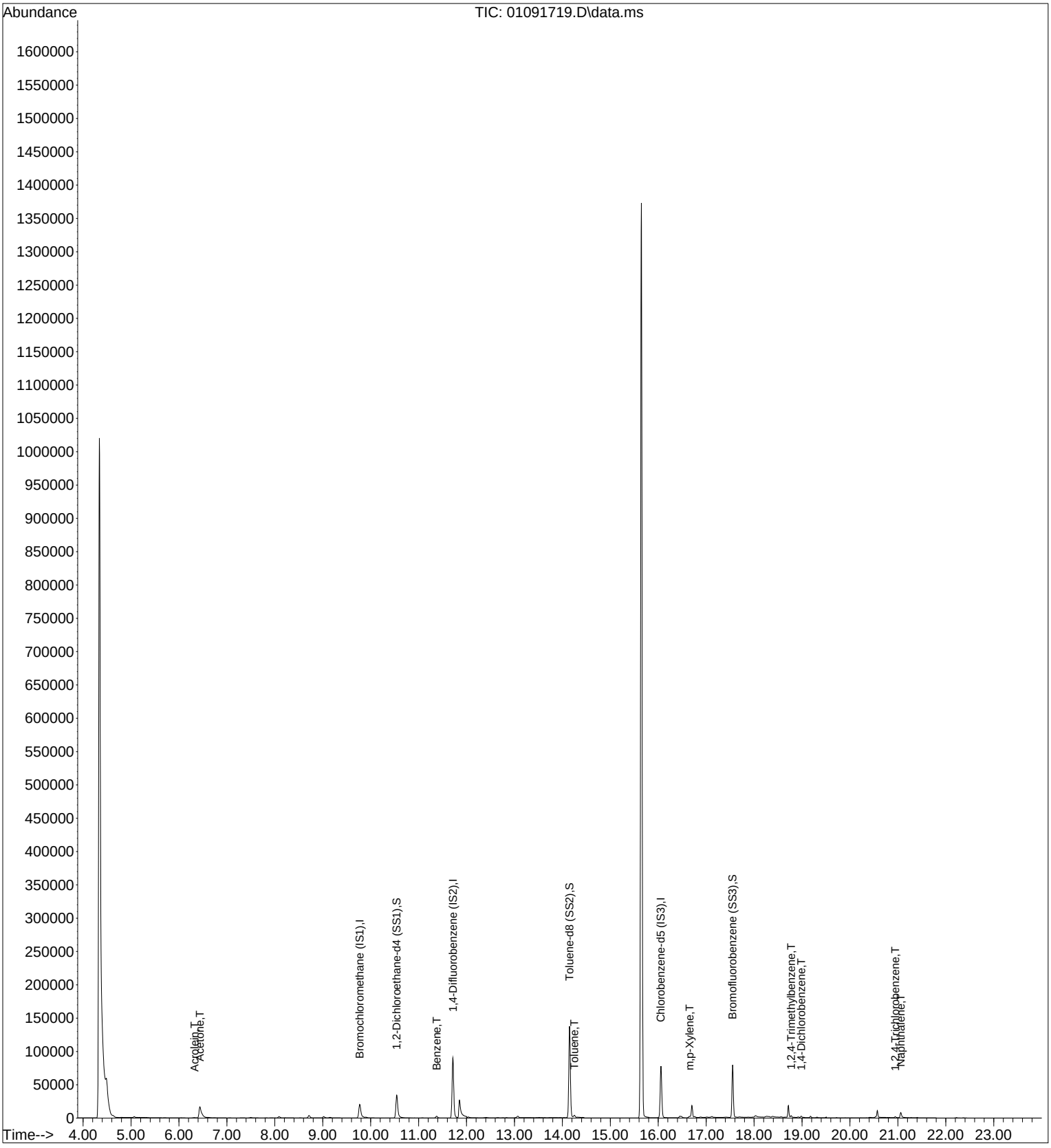
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	37647	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	186169	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	30395	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	64690	1077.386	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.74%				
33) Toluene-d8 (SS2)	14.15	98	188945	1075.653	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.57%				
45) Bromofluorobenzene (SS3)	17.55	174	60077	1032.153	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.22%				
Target Compounds							Qvalue
9) Acrolein	6.33	56	1171	68.130	pg		96
10) Acetone	6.44	58	21695	912.813	pg	#	56
23) Benzene	11.38	78	5182	27.522	pg		98
34) Toluene	14.25	91	4226	24.209	pg		99
41) m,p-Xylene	16.65	91	4576	28.169	pg		91
47) 1,2,4-Trimethylbenzene	18.77	105	3074	17.010	pg	#	73
49) 1,4-Dichlorobenzene	18.98	146	2001	18.733	pg		92
52) 1,2,4-Trichlorobenzene	20.94	182	1490	25.213	pg		96
53) Naphthalene	21.06	128	16095	84.221	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\09\01091719.D Vial: 7
Acq On : 9 Jan 2017 19:46 Operator: CL
Sample : SSC00081_FCR00279 Inst : MS19
Misc : 75130

Quant Time: Jan 10 07:46:32 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071725.D
Acq On : 8 Jan 2017 8:39 am
Operator : JM
Sample : AS00225 FCR00232
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 09 09:41:07 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45515	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	140459	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107338	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75994	847.779	pg		0.00
Spiked Amount 1000.000			Recovery = 84.78%				
57) Toluene-d8 (SS2)	12.63	98	121333	925.056	pg		0.00
Spiked Amount 1000.000			Recovery = 92.51%				
74) Bromofluorobenzene (SS3)	16.14	174	35181	814.409	pg		0.00
Spiked Amount 1000.000			Recovery = 81.44%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5254	57.513	pg	#	76
3) * Dichlorodifluoromethane	3.59	85	1142	5.868	pg		96
4) * Chloromethane	3.71	50	853	5.864	pg	#	66
7) * 1,3-Butadiene	4.00	54	30	0.290	pg	#	1
8) * Bromomethane	4.19	94	69	0.781	pg		96
10) * Ethanol	4.43	45	3953	63.444	pg		93
11) * Acetonitrile	4.61	41	671	4.295	pg	#	77
12) * Acrolein	4.71	56	1130	21.648	pg		97
13) * Acetone	4.83	58	8337	141.664	pg	#	51
14) * Trichlorofluoromethane	4.97	101	454	3.492	pg		90
15) * 2-Propanol (Isopropa...	5.03	45	3967	24.879	pg		94
16) * Acrylonitrile	5.19	53	184	1.985	pg		97
18) tert-Butanol	5.55	59	347	3.611	pg	#	73
19) * Methylene Chloride	5.57	84	897	13.683	pg		90
21) * Trichlorotrifluoroet...	5.83	151	64	1.256	pg	#	19
22) * Carbon Disulfide	5.84	76	2567	10.682	pg	#	88
26) * Vinyl Acetate	6.71	86	299	24.226	pg	#	18
27) * 2-Butanone (MEK)	6.98	72	488	13.815	pg		65
29) DIPE	7.64	45	489	2.375	pg	#	53
30) * Ethyl Acetate	7.64	61	507	28.075	pg		92
31) * n-Hexane	7.65	57	204	2.197	pg	#	60
39) * Benzene	9.36	78	1021	6.303	pg	#	76
41) 1-Butanol	9.30	56	1544	50.848	pg	#	40
42) * Carbon Tetrachloride	9.55	117	88	1.396	pg		85
48) * 1,4-Dioxane	10.67	88	51	1.510	pg	#	9
49) Isooctane	10.72	56	110	1.421	pg	#	70
51) * n-Heptane	11.03	71	216	2.597	pg	#	63
53) * 4-Methyl-2-pentanone	11.72	58	82	2.802	pg	#	47
58) * Toluene	12.74	91	1277	8.417	pg		97
62) * n-Butyl Acetate	13.81	56	55	2.964	pg	#	37
63) * n-Octane	13.92	85	59	2.493	pg	#	1
65) * Chlorobenzene	14.74	112	60	0.600	pg	#	8
66) * Ethylbenzene	15.12	91	192	1.501	pg	#	45
67) * m- & p-Xylenes	15.29	91	509	5.121	pg		94
71) * o-Xylene	15.73	91	192	1.975	pg	#	76
72) * n-Nonane	15.98	57	93	2.122	pg	#	42
77) * n-Propylbenzene	16.72	91	69	0.540	pg	#	56
78) 3-Ethyltoluene	16.80	105	77	0.865	pg	#	45
79) * 4-Ethyltoluene	16.80	105	77	0.987	pg	#	46
81) alpha-Methylstyrene	17.04	118	188	5.307	pg	#	65
83) tert-Butylbenzene	17.28	134	88	4.478	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	99	1.252	pg	#	77
85) * Benzyl Chloride	17.36	126	53	6.649	pg	#	59
90) 1,2,3-Trimethylbenzene	17.62	105	53	0.639	pg	#	27
91) p-Isopropyltoluene	17.59	134	57	2.272	pg	#	1

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071725.D
Acq On : 8 Jan 2017 8:39 am
Operator : JM
Sample : AS00225 FCR00232
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

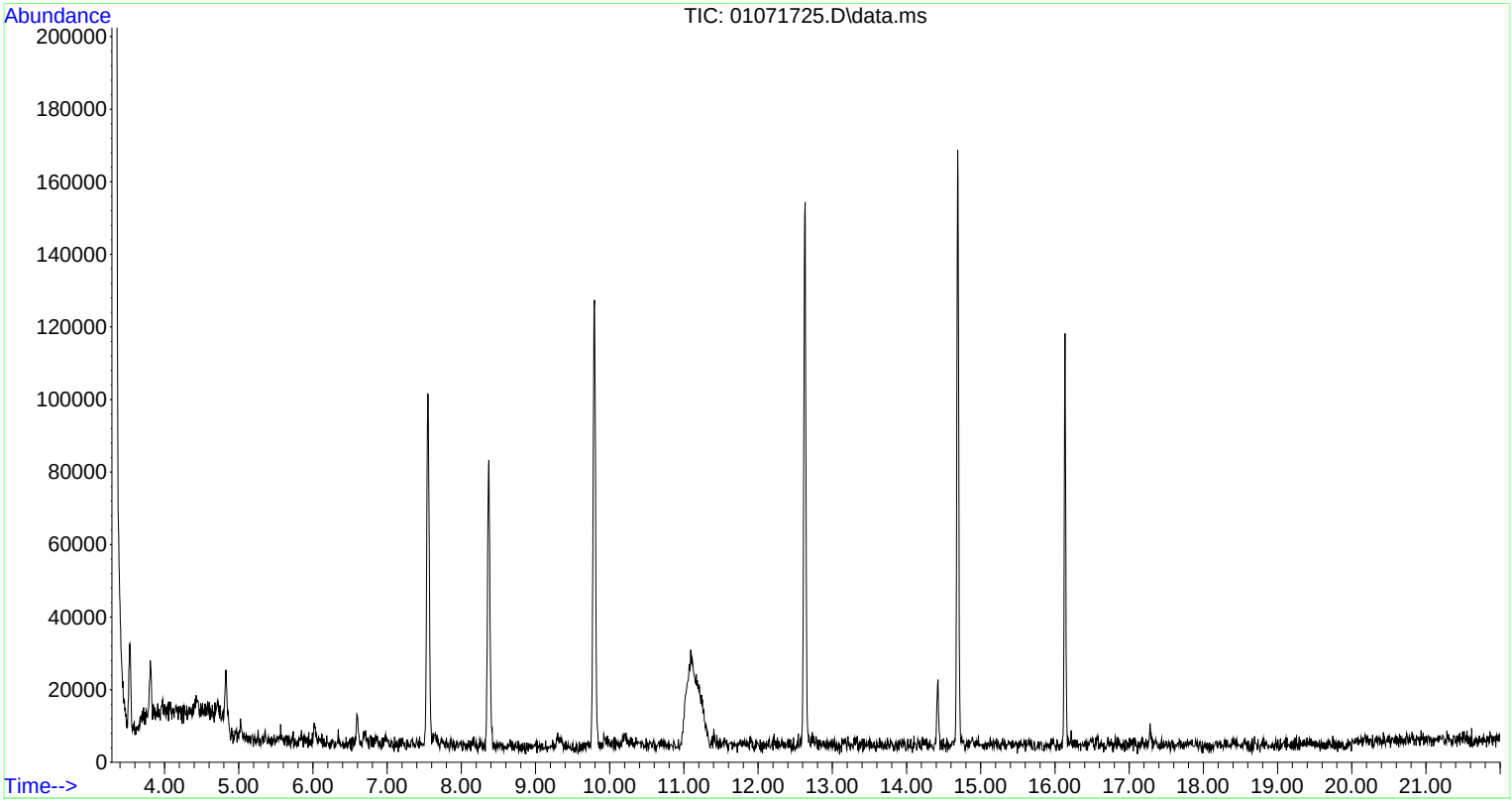
Quant Time: Jan 09 09:41:07 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

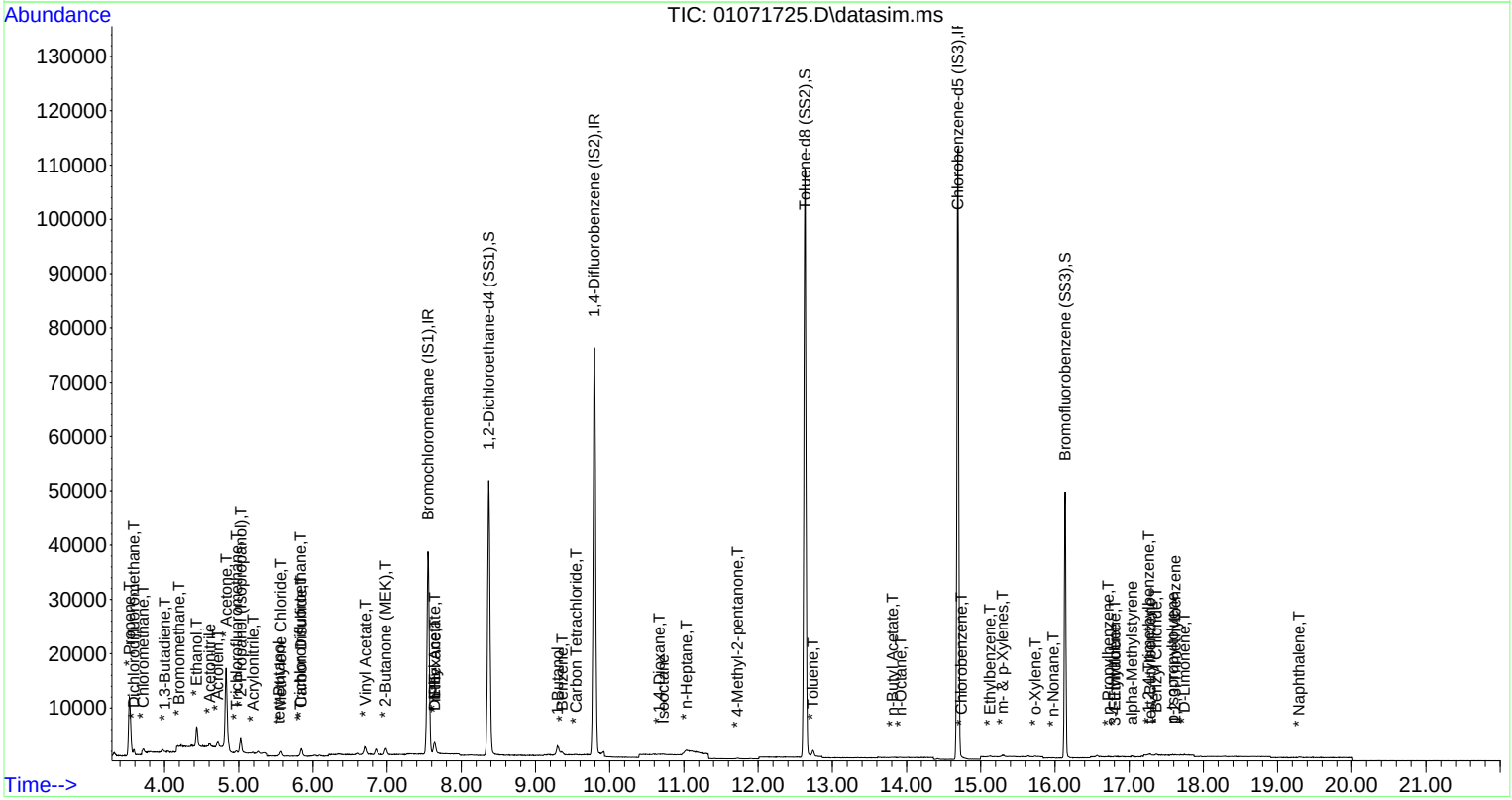
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) * D-Limonene	17.74	68	72	2.068	pg		94
98) * Naphthalene	19.29	128	122	3.615	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071725.D
Acq On : 8 Jan 2017 8:39 am
Operator : JM
Sample : AS00225 FCR00232
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 09 09:41:07 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051705.D
Acq On : 5 Jan 2017 11:24 am
Operator : JM
Sample : AS00534 FCA01008
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

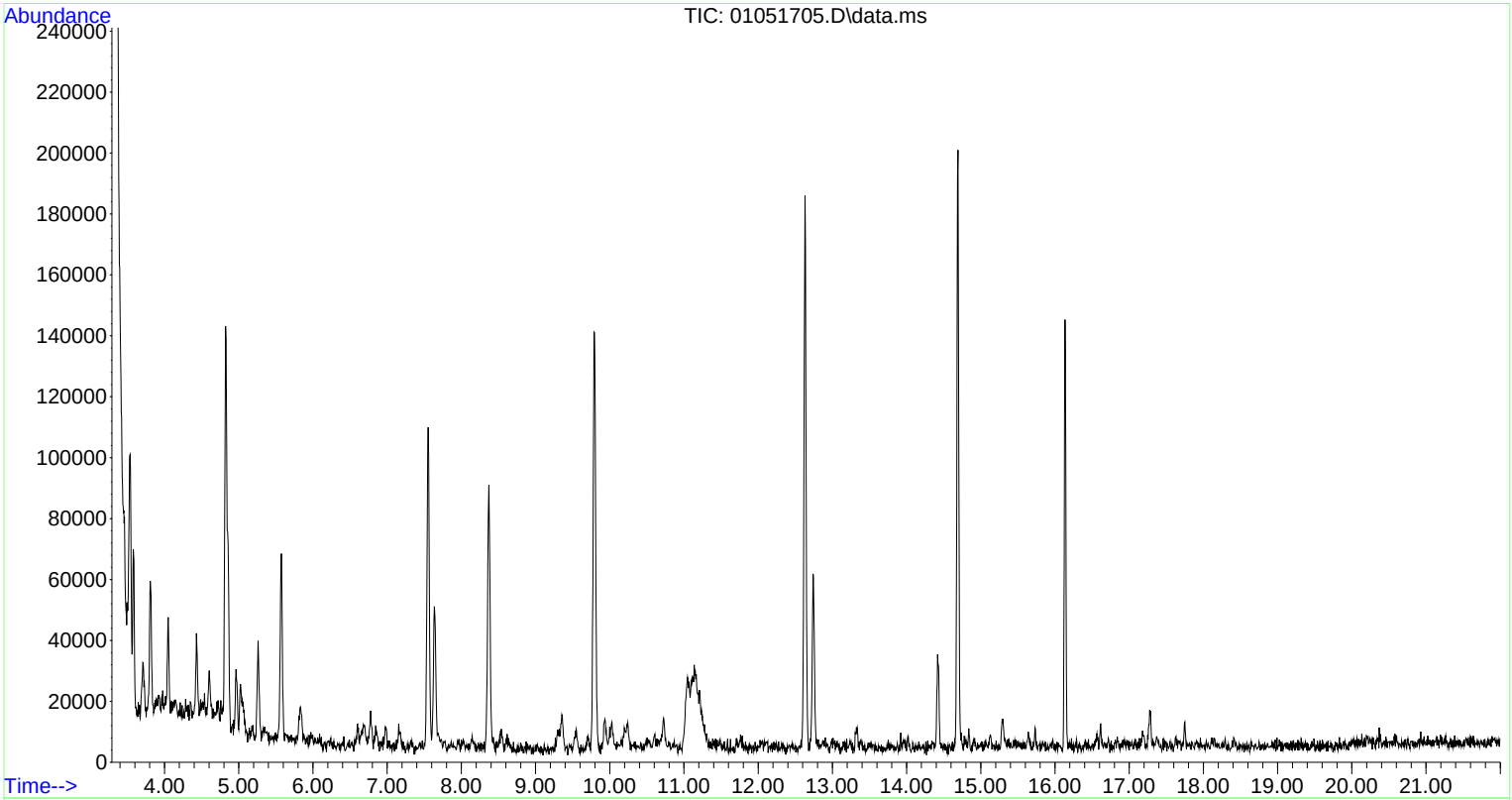
Quant Time: Jan 06 08:14:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

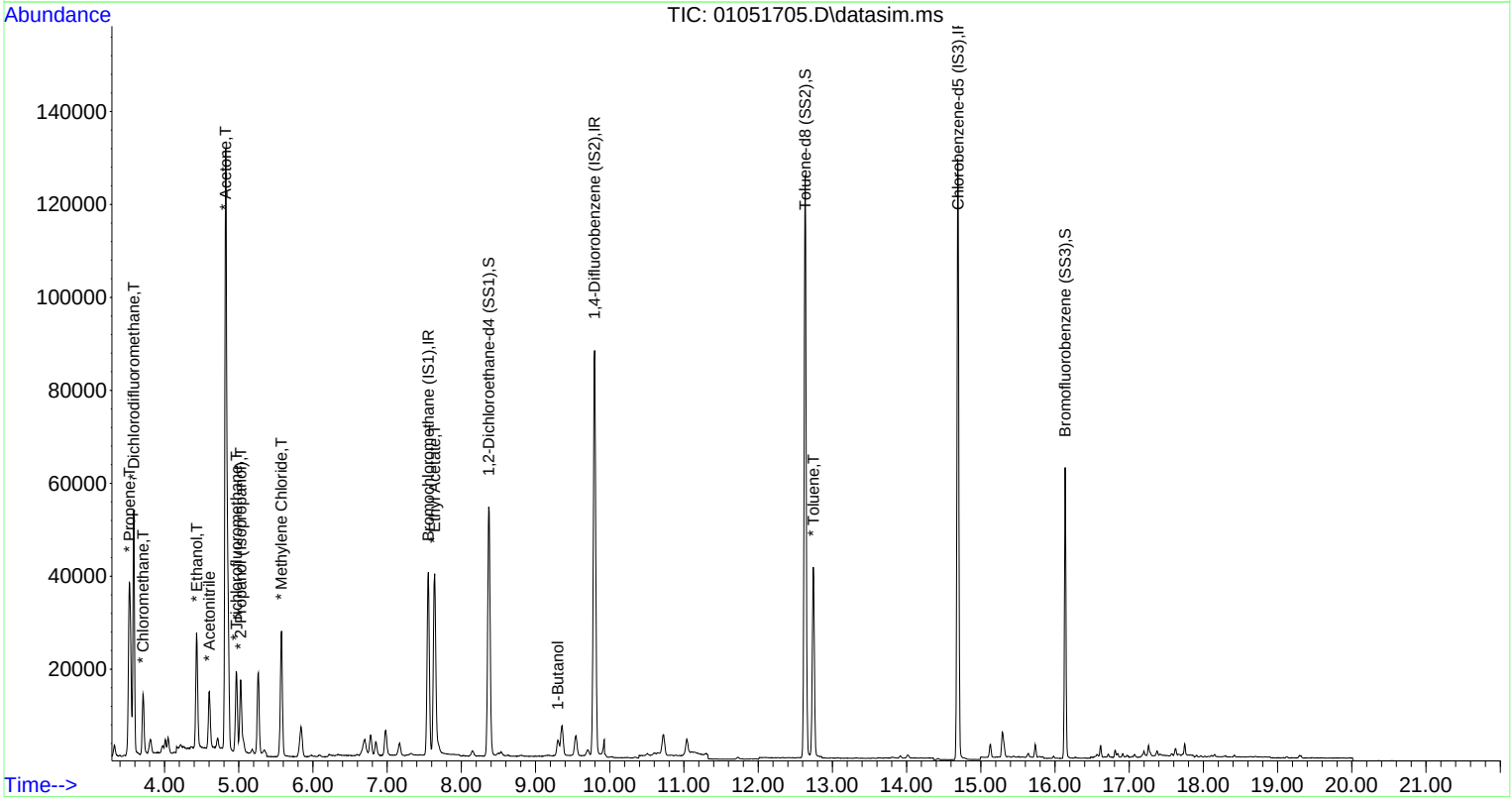
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	48048	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	161264	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	125111	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	80765	853.504	pg		0.00
Spiked Amount 1000.000			Recovery = 85.35%				
57) Toluene-d8 (SS2)	12.63	98	139876	914.935	pg		0.00
Spiked Amount 1000.000			Recovery = 91.49%				
74) Bromofluorobenzene (SS3)	16.14	174	43694	867.789	pg		0.00
Spiked Amount 1000.000			Recovery = 86.78%				
Target Compounds							Qvalue
2) * Propene	3.53	42	19067	197.713	pg	#	59
3) * Dichlorodifluoromethane	3.58	85	54216	263.914	pg		100
4) * Chloromethane	3.71	50	15450	100.608	pg		100
10) * Ethanol	4.43	45	27635	420.150	pg		98
11) * Acetonitrile	4.60	41	15444	93.647	pg		97
13) * Acetone	4.82	58	60525	974.235	pg		77
14) * Trichlorofluoromethane	4.97	101	19988	145.644	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	22679	134.731	pg		92
19) * Methylene Chloride	5.58	84	30740	444.206	pg		99
30) * Ethyl Acetate	7.64	61	8172	428.673	pg		100
41) 1-Butanol	9.30	56	2881	82.639	pg	#	48
58) * Toluene	12.74	91	49348	279.073	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051705.D
Acq On : 5 Jan 2017 11:24 am
Operator : JM
Sample : AS00534 FCA01008
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Jan 06 08:14:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091728.D
Acq On : 10 Jan 2017 4:47
Operator : JM
Sample : AS01095 FCR00106
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 10 07:51:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44589	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	128197	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	101235	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71907	818.844	pg		0.00
Spiked Amount 1000.000			Recovery = 81.88%				
57) Toluene-d8 (SS2)	12.63	98	141302	1142.248	pg		0.00
Spiked Amount 1000.000			Recovery = 114.22%				
74) Bromofluorobenzene (SS3)	16.14	174	32606	800.303	pg		0.00
Spiked Amount 1000.000			Recovery = 80.03%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5037	56.282	pg	#	74
3) * Dichlorodifluoromethane	3.59	85	630	3.305	pg		95
4) * Chloromethane	3.71	50	593	4.161	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.79	85	63	0.445	pg	#	42
7) * 1,3-Butadiene	4.00	54	25	0.247	pg	#	1
8) * Bromomethane	4.21	94	121	1.397	pg	#	34
9) * Chloroethane	4.34	64	75	1.213	pg	#	41
10) * Ethanol	4.44	45	4261	69.808	pg		96
11) * Acetonitrile	4.60	41	849	5.547	pg	#	1
12) * Acrolein	4.72	56	809	15.820	pg		99
13) * Acetone	4.84	58	8798	152.602	pg	#	57
14) * Trichlorofluoromethane	4.97	101	265	2.081	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	2927	18.738	pg	#	86
16) * Acrylonitrile	5.19	53	272	2.996	pg		82
17) * 1,1-Dichloroethene	5.50	96	51	0.989	pg	#	17
18) tert-Butanol	5.55	59	389	4.132	pg	#	54
19) * Methylene Chloride	5.58	84	2825	43.989	pg		100
22) * Carbon Disulfide	5.84	76	3308	14.051	pg		100
26) * Vinyl Acetate	6.71	86	306	25.308	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	464	13.409	pg		78
29) DIPE	7.64	45	1016	5.038	pg	#	53
30) * Ethyl Acetate	7.64	61	1003	56.695	pg		97
31) * n-Hexane	7.65	57	213	2.341	pg	#	60
32) * Chloroform	7.72	83	50	0.445	pg	#	16
39) * Benzene	9.35	78	1042	7.048	pg	#	88
41) 1-Butanol	9.30	56	1965	70.903	pg	#	43
46) * Bromodichloromethane	10.56	83	64	0.962	pg	#	19
48) * 1,4-Dioxane	10.66	88	65	2.108	pg	#	9
49) Isooctane	10.72	56	65	0.920	pg	#	12
50) * Methyl Methacrylate	10.89	69	62	1.672	pg	#	42
51) * n-Heptane	11.04	71	358	4.716	pg	#	68
53) * 4-Methyl-2-pentanone	11.73	58	139	5.204	pg	#	61
58) * Toluene	12.74	91	3915	27.362	pg		97
59) * 2-Hexanone	13.07	58	53	2.165	pg	#	68
62) * n-Butyl Acetate	13.80	56	113	6.456	pg	#	87
63) * n-Octane	13.91	85	101	4.525	pg	#	49
66) * Ethylbenzene	15.12	91	188	1.558	pg		95
67) * m- & p-Xylenes	15.29	91	482	5.141	pg	#	81
68) * Bromoform	15.33	173	62	2.069	pg	#	37
69) Cyclohexanone	15.45	98	66	6.303	pg	#	67
71) * o-Xylene	15.74	91	141	1.538	pg		99
72) * n-Nonane	15.98	57	121	2.928	pg	#	37
77) * n-Propylbenzene	16.71	91	73	0.606	pg	#	56
78) 3-Ethyltoluene	16.80	105	66	0.787	pg	#	45
79) * 4-Ethyltoluene	16.80	105	66	0.897	pg	#	46

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091728.D
Acq On : 10 Jan 2017 4:47
Operator : JM
Sample : AS01095 FCR00106
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

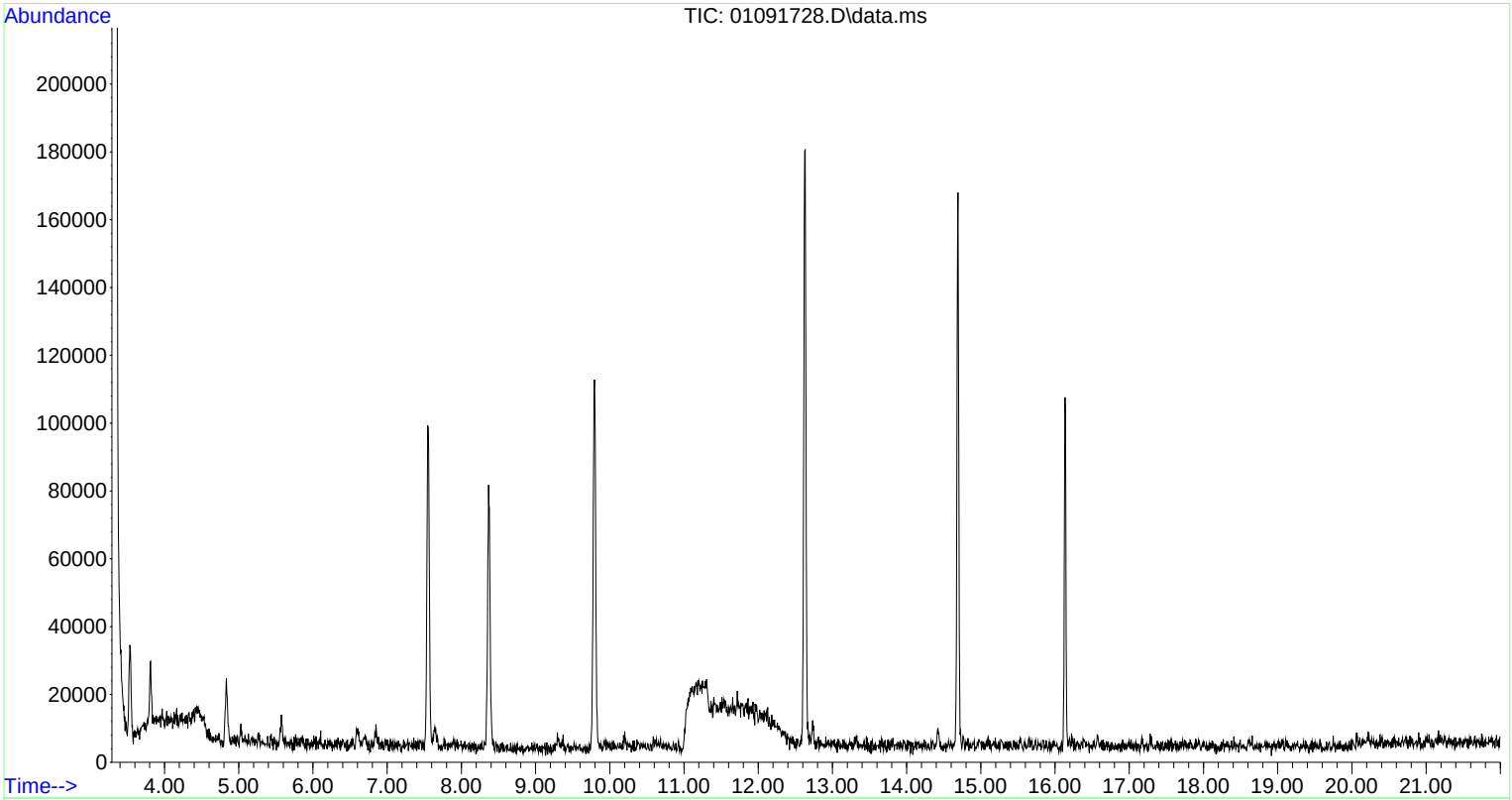
Quant Time: Jan 10 07:51:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

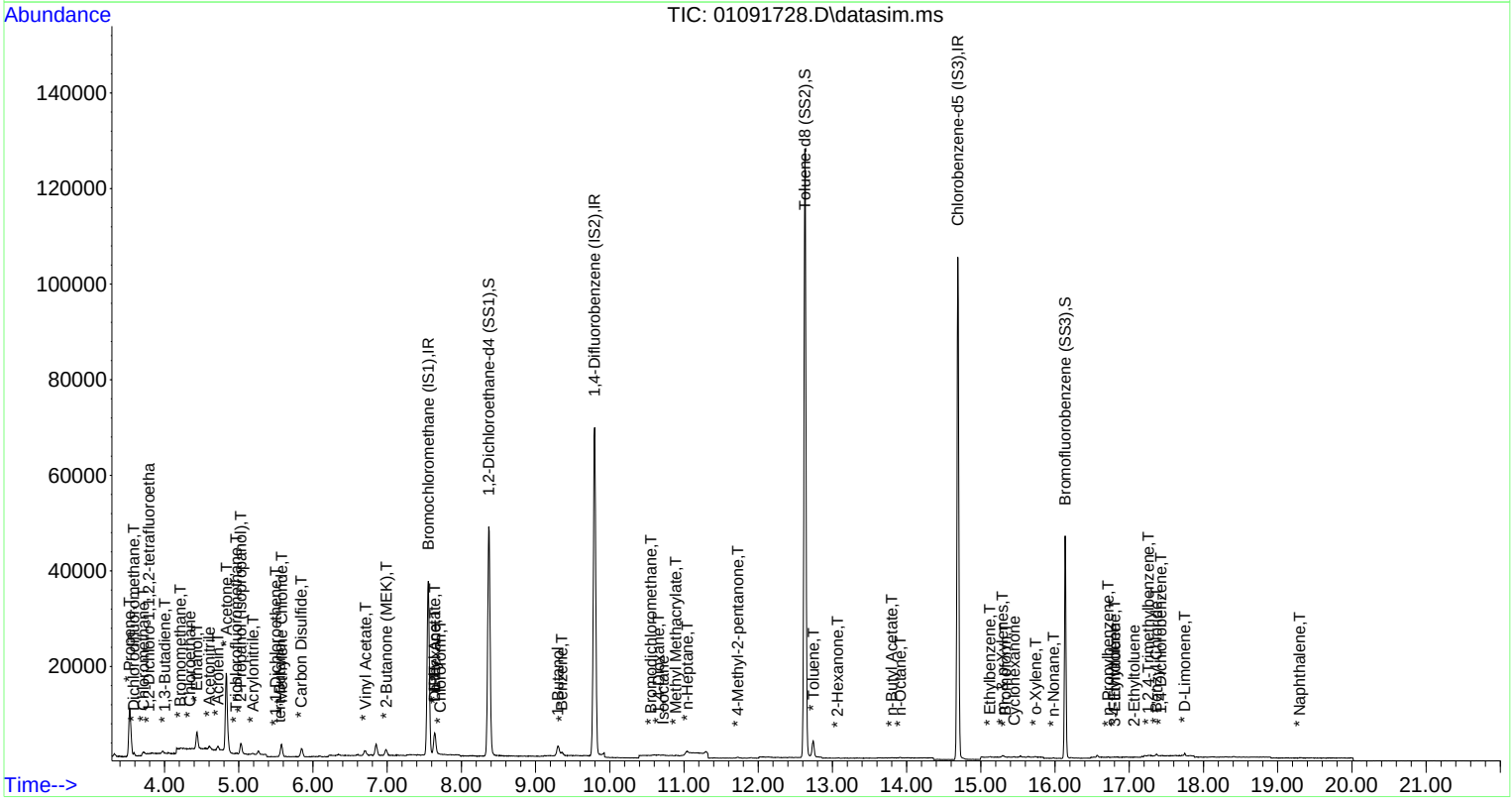
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
82) 2-Ethyltoluene	17.07	105	53	0.529	pg	#	45
84) * 1,2,4-Trimethylbenzene	17.26	105	125	1.676	pg	#	24
85) * Benzyl Chloride	17.36	126	77	10.242	pg		86
87) * 1,4-Dichlorobenzene	17.43	146	76	2.234	pg		98
93) * D-Limonene	17.75	68	240	7.309	pg	#	69
98) * Naphthalene	19.29	128	120	3.770	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091728.D
Acq On : 10 Jan 2017 4:47
Operator : JM
Sample : AS01095 FCR00106
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 10 07:51:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\12\
Data File : 01121711.D
Acq On : 12 Jan 2017 15:17
Operator : JM
Sample : AS00640 FCR00067
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Jan 12 15:43:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39074	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	104772	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	86992	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	60792	789.981	pg		0.00
Spiked Amount 1000.000			Recovery = 79.00%				
57) Toluene-d8 (SS2)	12.64	98	110566	1040.123	pg		0.00
Spiked Amount 1000.000			Recovery = 104.01%				
74) Bromofluorobenzene (SS3)	16.14	174	28167	804.542	pg		0.00
Spiked Amount 1000.000			Recovery = 80.45%				
Target Compounds							Qvalue
2) * Propene	3.53	42	19328	246.449	pg		95
3) * Dichlorodifluoromethane	3.59	85	8138	48.712	pg		99
4) * Chloromethane	3.72	50	3081	24.671	pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	295	2.379	pg		97
7) * 1,3-Butadiene	4.00	54	70	0.789	pg	#	1
8) * Bromomethane	4.21	94	100	1.318	pg	#	1
9) * Chloroethane	4.35	64	70	1.292	pg	#	41
10) * Ethanol	4.44	45	12532	234.289	pg		99
11) * Acetonitrile	4.60	41	3022	22.533	pg	#	71
12) * Acrolein	4.72	56	1436	32.045	pg		98
13) * Acetone	4.83	58	19665	389.234	pg	#	64
14) * Trichlorofluoromethane	4.98	101	3103	27.803	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	3575	26.116	pg		89
16) * Acrylonitrile	5.19	53	362	4.550	pg		85
18) tert-Butanol	5.55	59	602	7.296	pg	#	1
19) * Methylene Chloride	5.58	84	18434	327.558	pg		99
21) * Trichlorotrifluoroet...	5.83	151	611	13.968	pg		95
22) * Carbon Disulfide	5.85	76	5881	28.505	pg		97
26) * Vinyl Acetate	6.70	86	509	48.039	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	880	29.020	pg	#	41
29) DIPE	7.63	45	11344	64.187	pg	#	57
30) * Ethyl Acetate	7.63	61	11476	740.245	pg		99
31) * n-Hexane	7.65	57	1418	17.787	pg	#	70
32) * Chloroform	7.69	83	493	5.003	pg		89
34) * Tetrahydrofuran	8.14	71	85	3.497	pg		99
36) * 1,2-Dichloroethane	8.51	62	50	0.600	pg	#	1
39) * Benzene	9.35	78	2846	23.554	pg		96
41) 1-Butanol	9.30	56	3082	136.072	pg	#	49
42) * Carbon Tetrachloride	9.54	117	753	16.019	pg		93
43) * Cyclohexane	9.71	84	54	1.405	pg	#	1
48) * 1,4-Dioxane	10.66	88	479	19.009	pg	#	77
49) Isooctane	10.72	56	367	6.354	pg	#	62
51) * n-Heptane	11.04	71	358	5.770	pg		95
53) * 4-Methyl-2-pentanone	11.73	58	179	8.200	pg		95
58) * Toluene	12.74	91	10790	87.758	pg		99
59) * 2-Hexanone	13.07	58	91	4.327	pg	#	68
63) * n-Octane	13.92	85	76	3.962	pg		94
64) * Tetrachloroethene	14.02	166	284	6.946	pg		95
65) * Chlorobenzene	14.74	112	52	0.642	pg	#	42
66) * Ethylbenzene	15.13	91	492	4.745	pg		96
67) * m- & p-Xylenes	15.29	91	1166	14.473	pg		97
69) Cyclohexanone	15.38	98	53	5.890	pg	#	42
70) * Styrene	15.64	104	108	2.518	pg		90
71) * o-Xylene	15.73	91	385	4.886	pg		96
72) * n-Nonane	15.98	57	84	2.365	pg	#	42

Data Path : I:\MS21\DATA\2017 01\12\
Data File : 01121711.D
Acq On : 12 Jan 2017 15:17
Operator : JM
Sample : AS00640 FCR00067
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

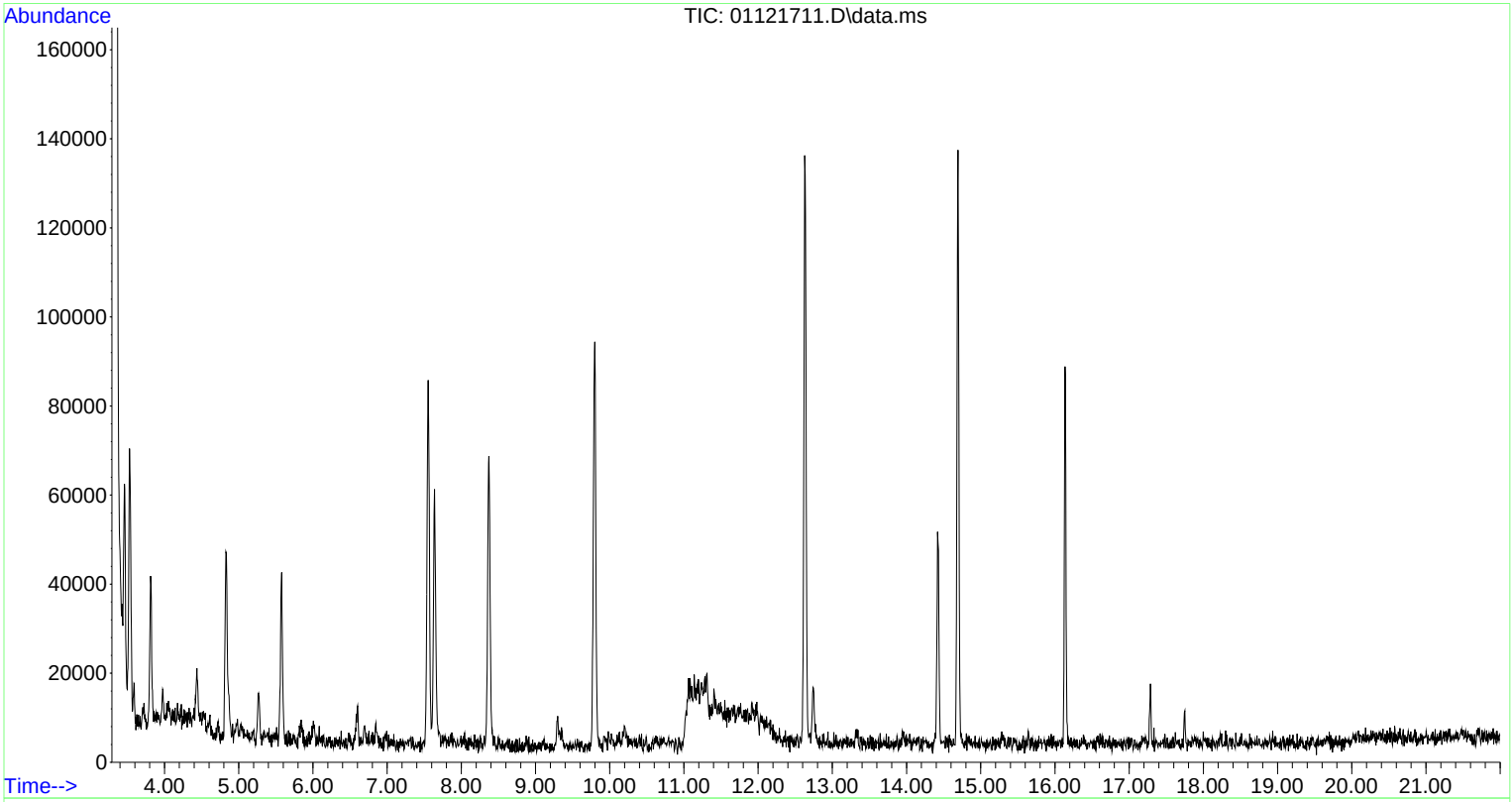
Quant Time: Jan 12 15:43:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

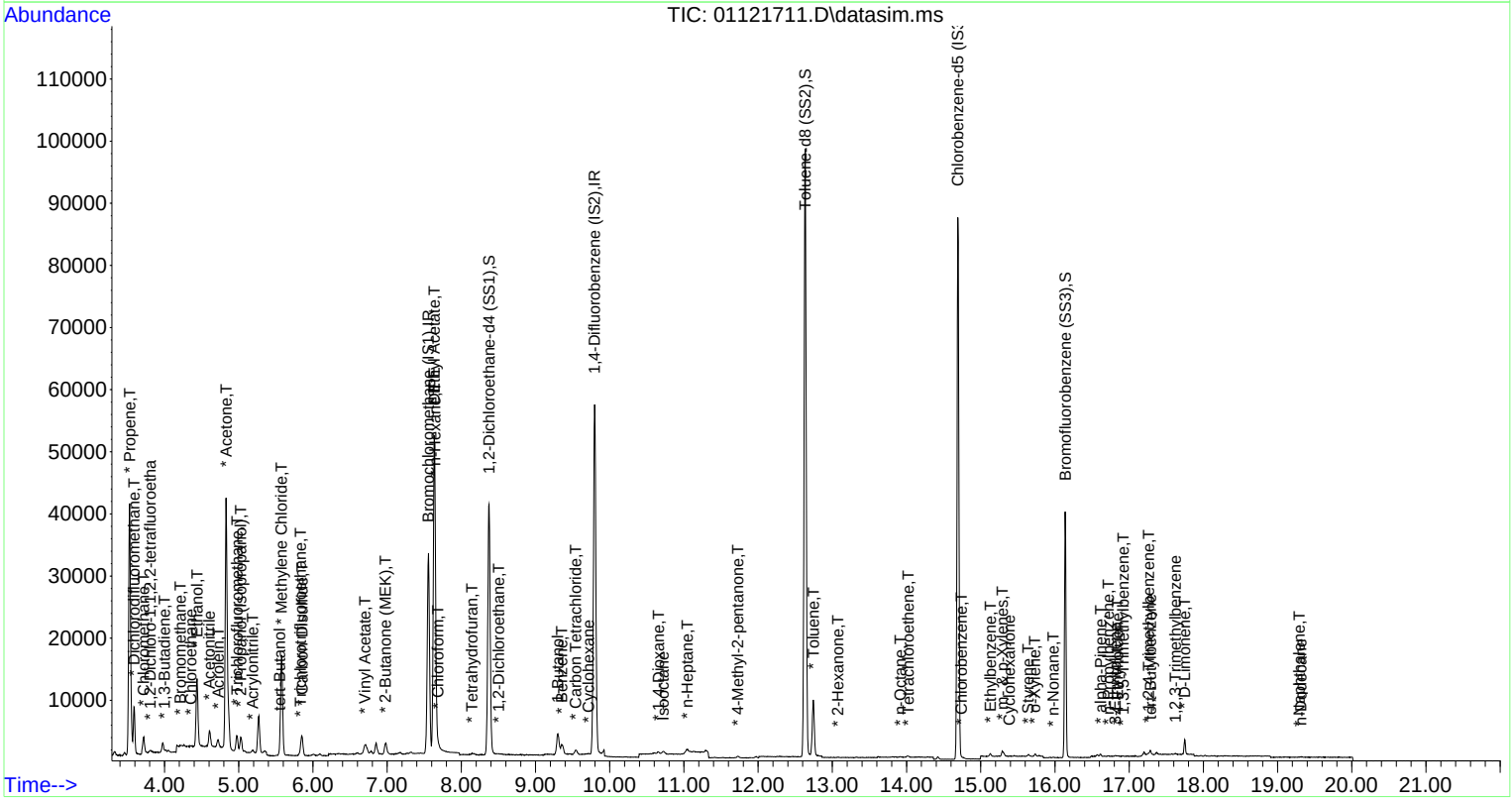
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
76) * alpha-Pinene	16.62	93	293	5.736	pg		97
77) * n-Propylbenzene	16.72	91	97	0.937	pg	#	56
78) 3-Ethyltoluene	16.81	105	126	1.747	pg	#	45
79) * 4-Ethyltoluene	16.84	105	85	1.344	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	80	1.128	pg	#	29
83) tert-Butylbenzene	17.29	134	265	16.637	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	159	2.481	pg		92
90) 1,2,3-Trimethylbenzene	17.62	105	55	0.819	pg	#	27
93) * D-Limonene	17.75	68	1121	39.727	pg	#	78
98) * Naphthalene	19.29	128	55	2.011	pg	#	66
99) n-Dodecane	19.31	85	58	13.180	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\12\
Data File : 01121711.D
Acq On : 12 Jan 2017 15:17
Operator : JM
Sample : AS00640 FCR00067
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Jan 12 15:43:18 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051720.D
Acq On : 5 Jan 2017 9:46 pm
Operator : JM
Sample : AC01571 FSC00130
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

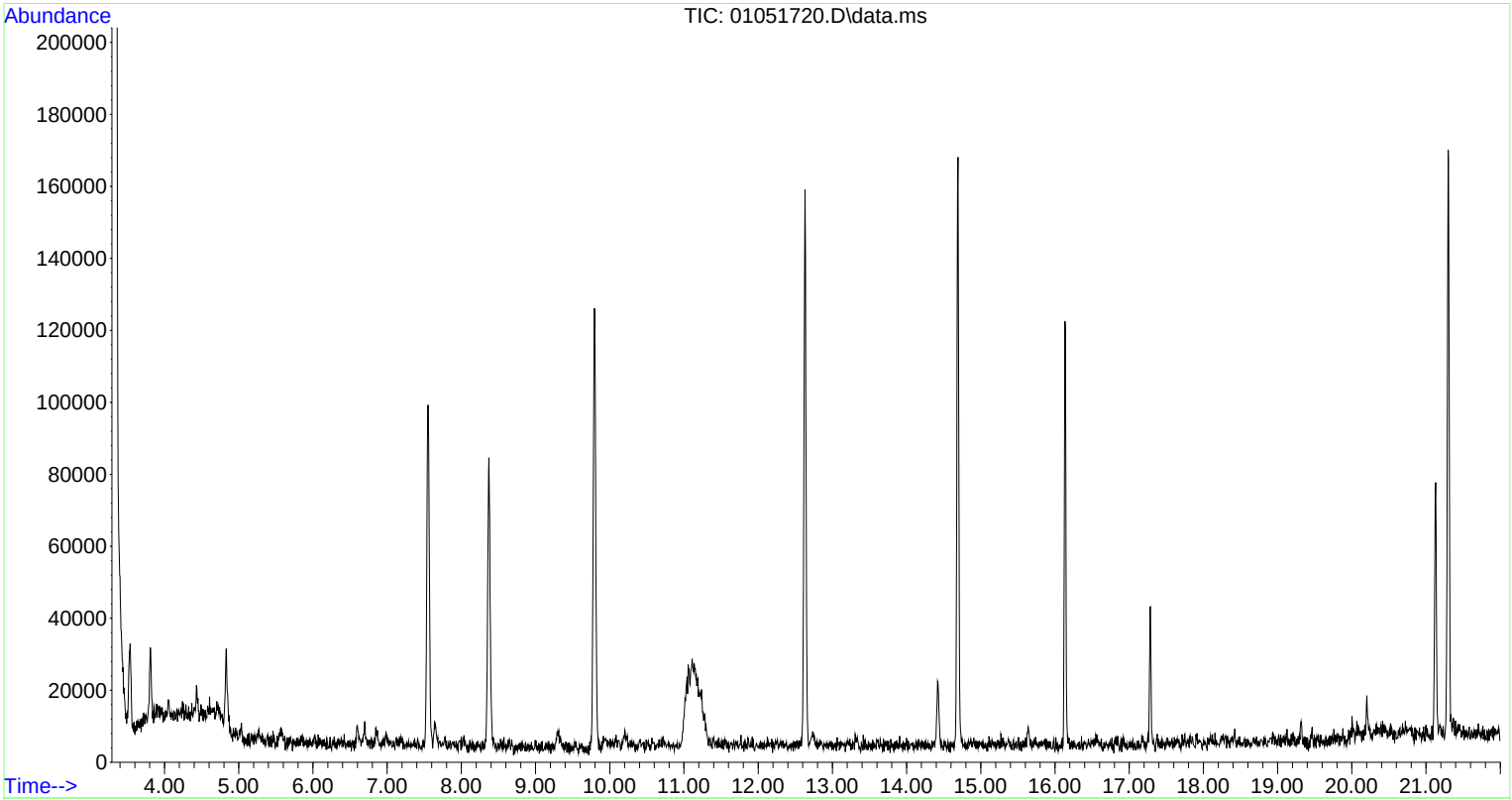
Quant Time: Jan 06 08:15:48 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

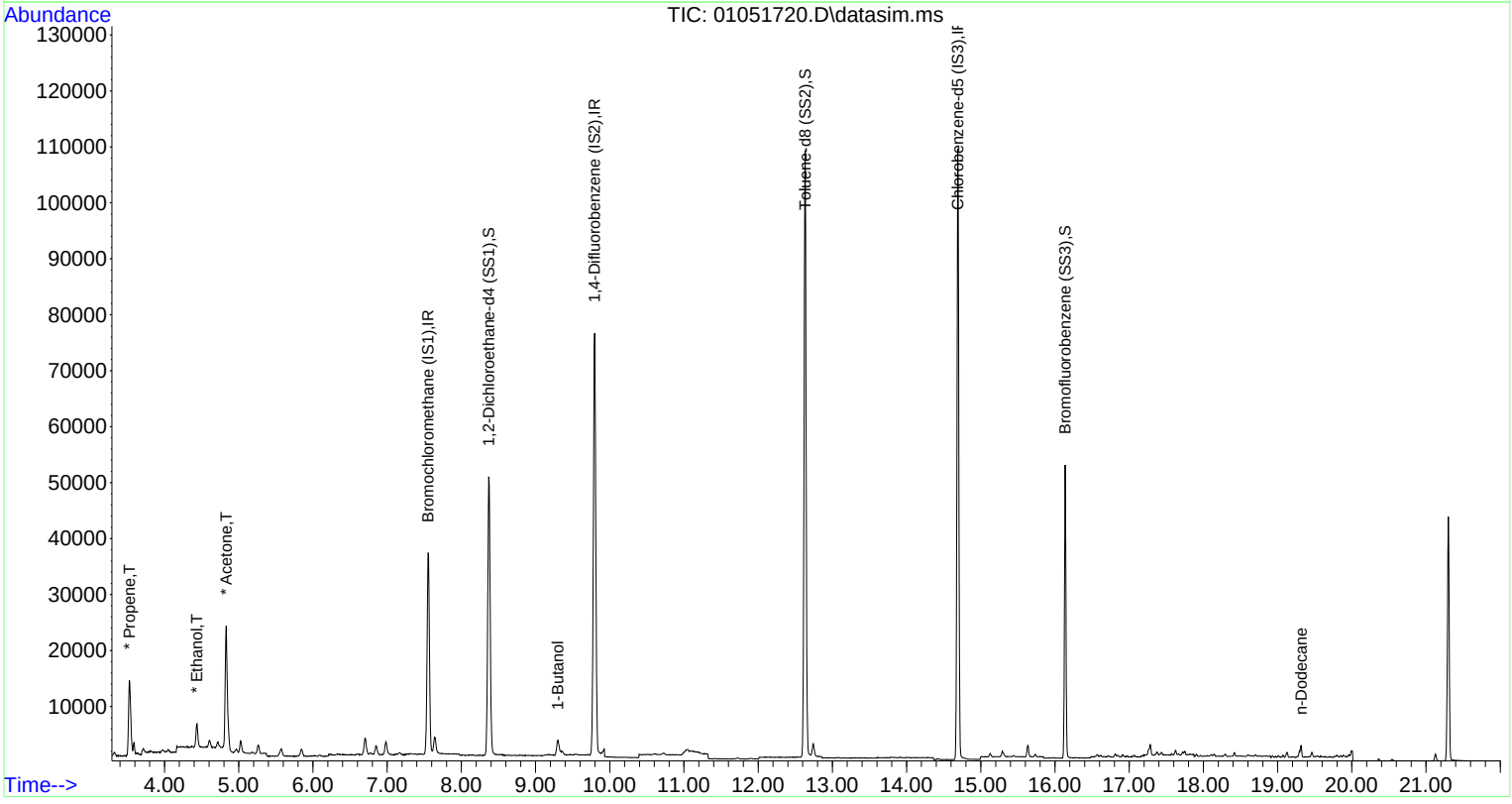
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45281	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	139702	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	105969	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	74180	831.819	pg		0.00
Spiked Amount 1000.000			Recovery = 83.18%				
57) Toluene-d8 (SS2)	12.63	98	120628	931.562	pg		0.00
Spiked Amount 1000.000			Recovery = 93.16%				
74) Bromofluorobenzene (SS3)	16.14	174	36504	855.952	pg		0.00
Spiked Amount 1000.000			Recovery = 85.60%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6711	73.841	pg	#	77
10) * Ethanol	4.44	45	4840	78.082	pg		98
13) * Acetone	4.83	58	12301	210.101	pg	#	51
41) 1-Butanol	9.30	56	2352	77.878	pg	#	44
99) n-Dodecane	19.32	85	468	87.307	pg	#	60

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051720.D
Acq On : 5 Jan 2017 9:46 pm
Operator : JM
Sample : AC01571 FSC00130
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 06 08:15:48 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051723.D
Acq On : 6 Jan 2017 00:13
Operator : JM
Sample : AS01042 FCA00532 (Sig #1); AC01042 FCA00532 (Sig #2)
Misc : 75124 - pass (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 06 08:16:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

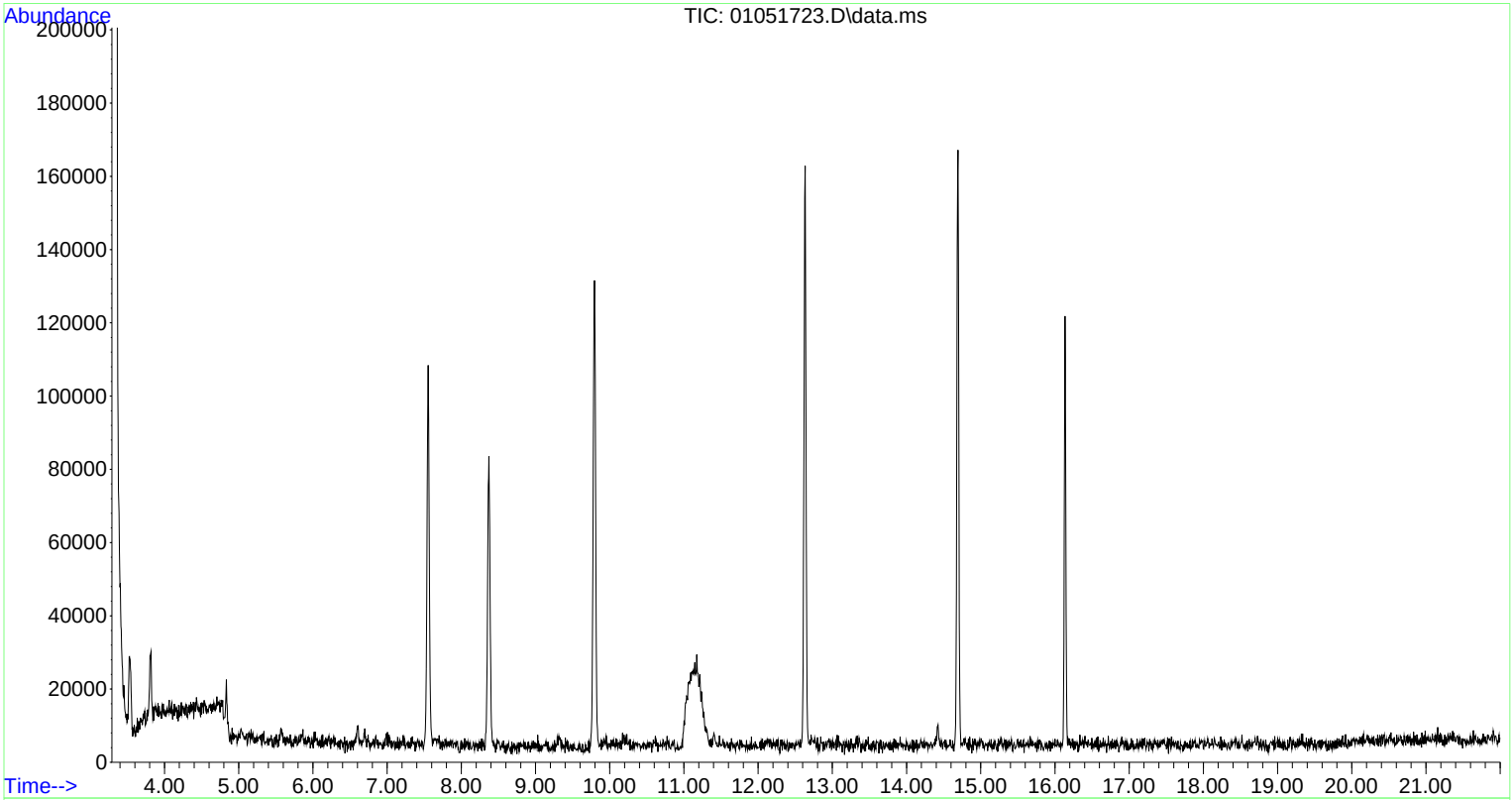
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45919	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	144261	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	108756	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76036	840.785	pg		0.00
Spiked Amount 1000.000			Recovery = 84.08%				
57) Toluene-d8 (SS2)	12.63	98	126494	951.830	pg		0.00
Spiked Amount 1000.000			Recovery = 95.18%				
74) Bromofluorobenzene (SS3)	16.14	174	36391	831.435	pg		0.00
Spiked Amount 1000.000			Recovery = 83.14%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5026	54.533	pg	#	72
3) * Dichlorodifluoromethane	3.59	85	539	2.745	pg		89
4) * Chloromethane	3.71	50	548	3.734	pg		99
7) * 1,3-Butadiene	4.02	54	36	0.345	pg	#	1
8) * Bromomethane	4.18	94	55	0.617	pg	#	3
9) * Chloroethane	4.36	64	70	1.099	pg	#	41
10) * Ethanol	4.43	45	2940	46.771	pg		97
11) * Acetonitrile	4.60	41	504	3.198	pg	#	1
12) * Acrolein	4.72	56	1077	20.451	pg		98
13) * Acetone	4.84	58	5121	86.251	pg	#	54
14) * Trichlorofluoromethane	4.97	101	205	1.563	pg		97
15) * 2-Propanol (Isopropa...	5.03	45	1624	10.095	pg		94
16) * Acrylonitrile	5.18	53	302	3.230	pg		91
18) tert-Butanol	5.55	59	171	1.764	pg	#	18
19) * Methylene Chloride	5.58	84	1276	19.294	pg		99
22) * Carbon Disulfide	5.85	76	2167	8.938	pg	#	82
26) * Vinyl Acetate	6.71	86	193	15.500	pg	#	29
27) * 2-Butanone (MEK)	6.99	72	462	12.964	pg		64
29) DIPE	7.65	45	116	0.559	pg	#	53
30) * Ethyl Acetate	7.65	61	164	9.002	pg	#	67
31) * n-Hexane	7.64	57	177	1.889	pg	#	75
39) * Benzene	9.36	78	685	4.117	pg	#	83
41) 1-Butanol	9.31	56	1091	34.983	pg	#	56
48) * 1,4-Dioxane	10.67	88	91	2.623	pg	#	9
49) Isooctane	10.72	56	124	1.559	pg		76
51) * n-Heptane	11.04	71	178	2.084	pg		98
53) * 4-Methyl-2-pentanone	11.73	58	57	1.896	pg	#	47
58) * Toluene	12.74	91	852	5.543	pg		99
59) * 2-Hexanone	13.09	58	50	1.902	pg	#	68
63) * n-Octane	13.92	85	71	2.961	pg	#	1
65) * Chlorobenzene	14.73	112	59	0.583	pg	#	1
66) * Ethylbenzene	15.12	91	109	0.841	pg	#	45
67) * m- & p-Xylenes	15.30	91	259	2.572	pg	#	74
71) * o-Xylene	15.73	91	123	1.249	pg	#	69
72) * n-Nonane	15.98	57	61	1.374	pg	#	42
80) * 1,3,5-Trimethylbenzene	16.91	105	88	0.993	pg	#	29
84) * 1,2,4-Trimethylbenzene	17.26	105	138	1.722	pg	#	24
85) * Benzyl Chloride	17.36	126	58	7.181	pg	#	22
90) 1,2,3-Trimethylbenzene	17.62	105	57	0.679	pg	#	27
93) * D-Limonene	17.74	68	64	1.814	pg	#	15
98) * Naphthalene	19.30	128	51	1.491	pg	#	66

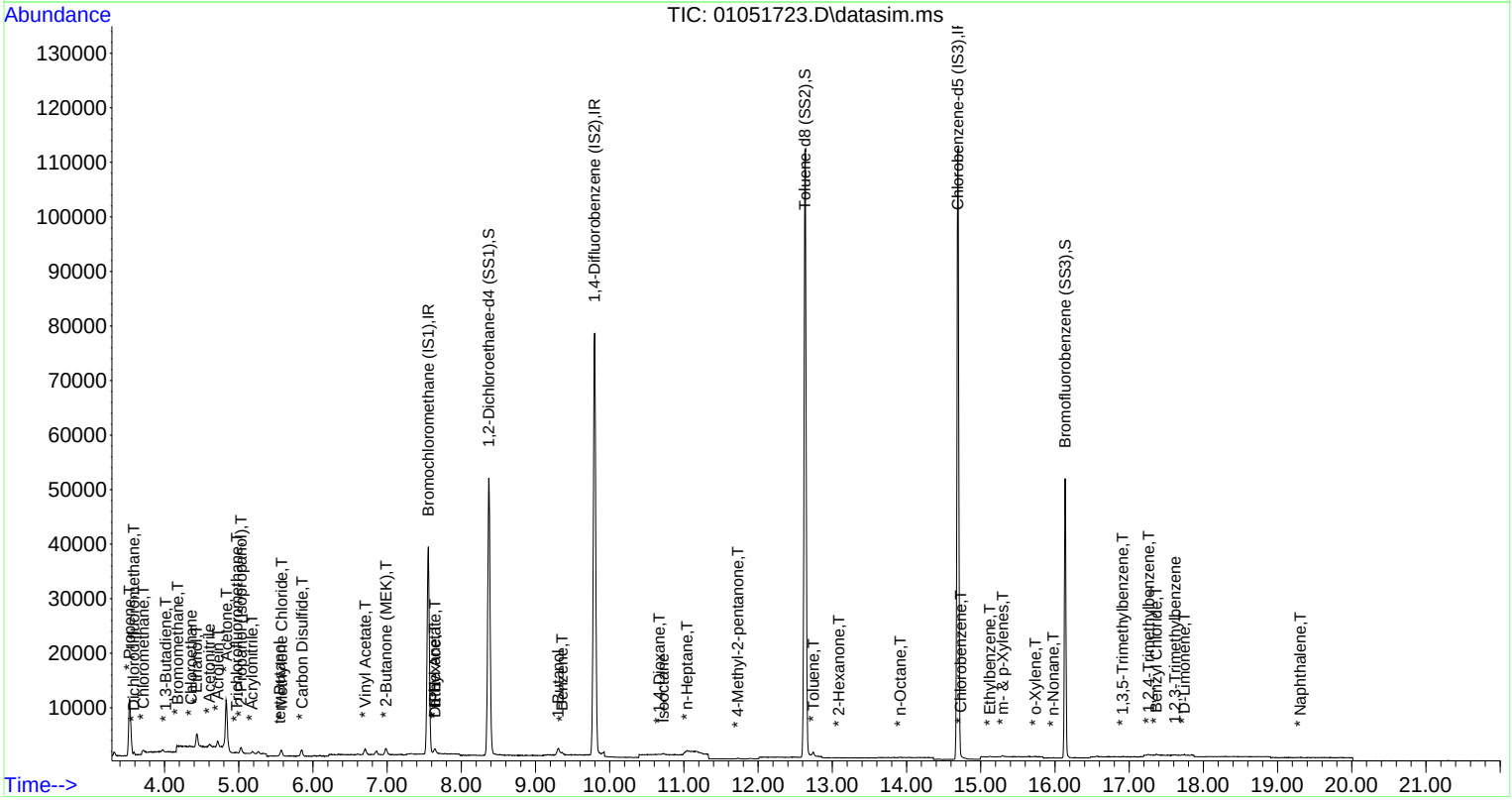
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051723.D
Acq On : 6 Jan 2017 00:13
Operator : JM
Sample : AS01042 FCA00532 (Sig #1); AC01042 FCA00532 (Sig #2)
Misc : 75124 - pass (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 06 08:16:06 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051726.D
Acq On : 6 Jan 2017 2:16 am
Operator : JM
Sample : AS00893 FCR00089
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

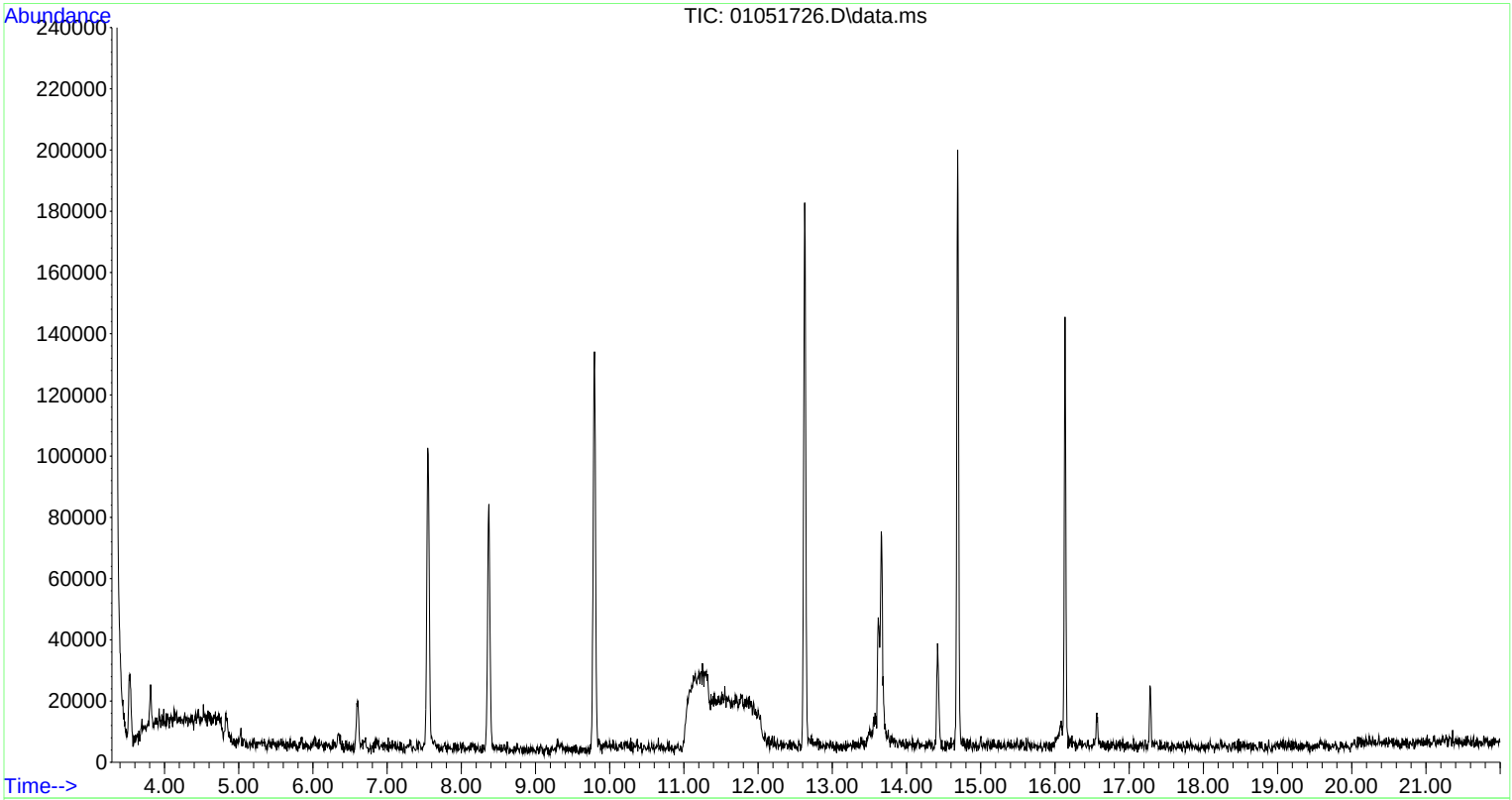
Quant Time: Jan 06 08:16:24 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

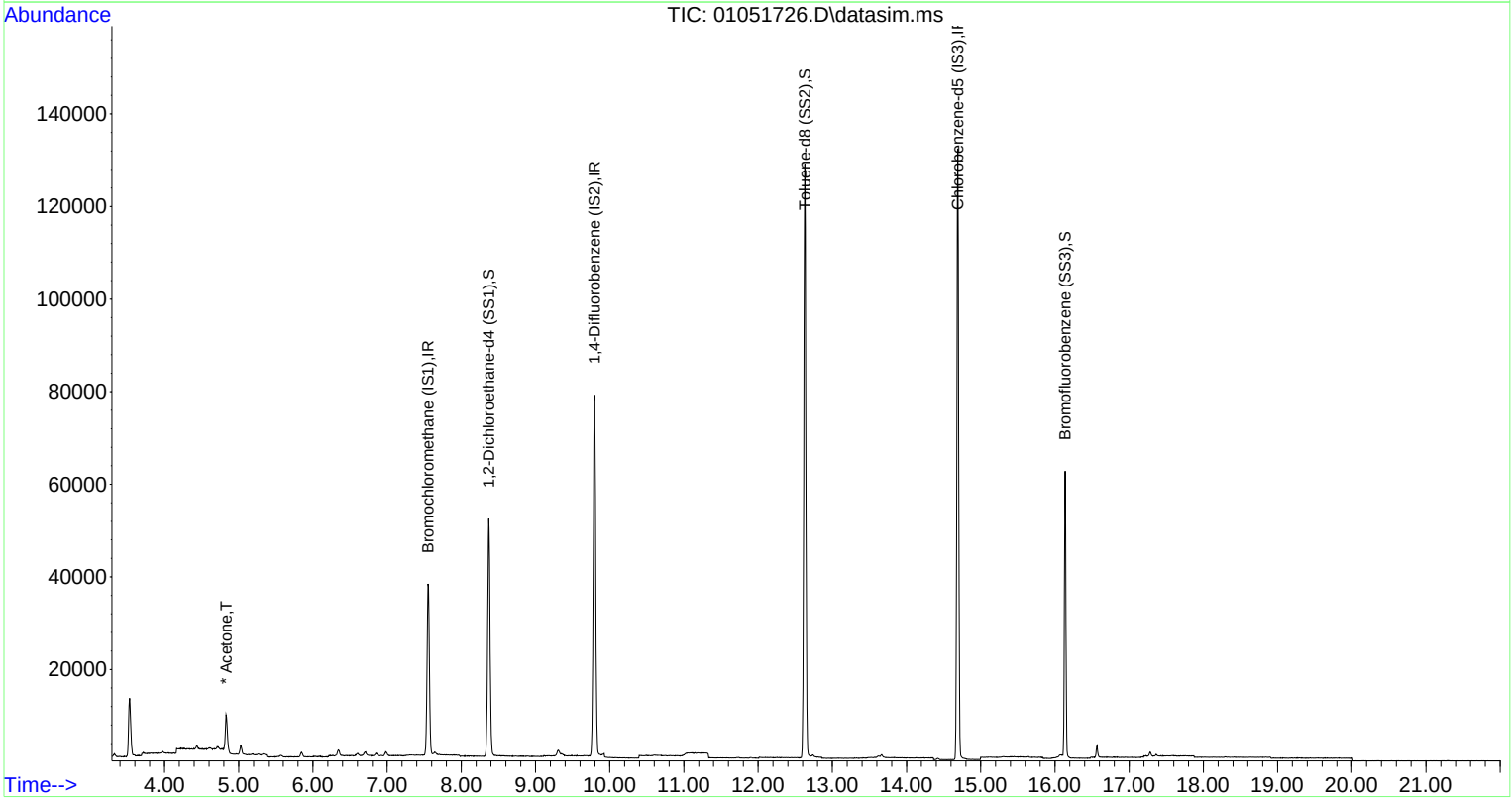
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46170	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	143821	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	126182	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	75810	833.728	pg		0.00
Spiked Amount 1000.000			Recovery = 83.37%				
57) Toluene-d8 (SS2)	12.63	98	139944	907.610	pg		0.00
Spiked Amount 1000.000			Recovery = 90.76%				
74) Bromofluorobenzene (SS3)	16.14	174	43555	857.686	pg		0.00
Spiked Amount 1000.000			Recovery = 85.77%				
Target Compounds							Qvalue
13) * Acetone	4.83	58	5280	88.446	pg	#	32

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051726.D
Acq On : 6 Jan 2017 2:16 am
Operator : JM
Sample : AS00893 FCR00089
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 06 08:16:24 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031717.D
Acq On : 3 Jan 2017 11:25 pm
Operator : SM
Sample : AS00549 FCA00975
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

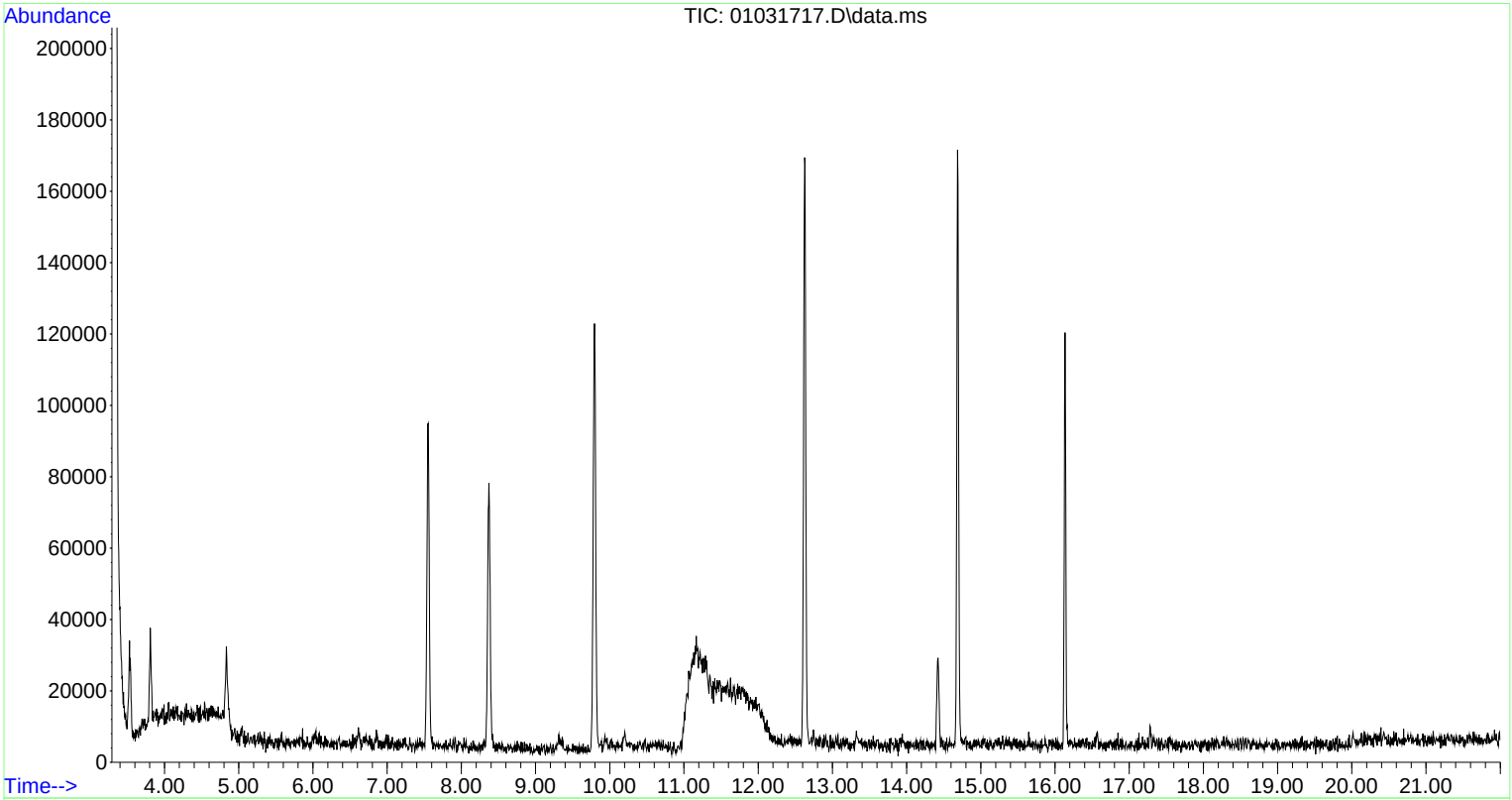
Quant Time: Jan 04 09:31:28 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

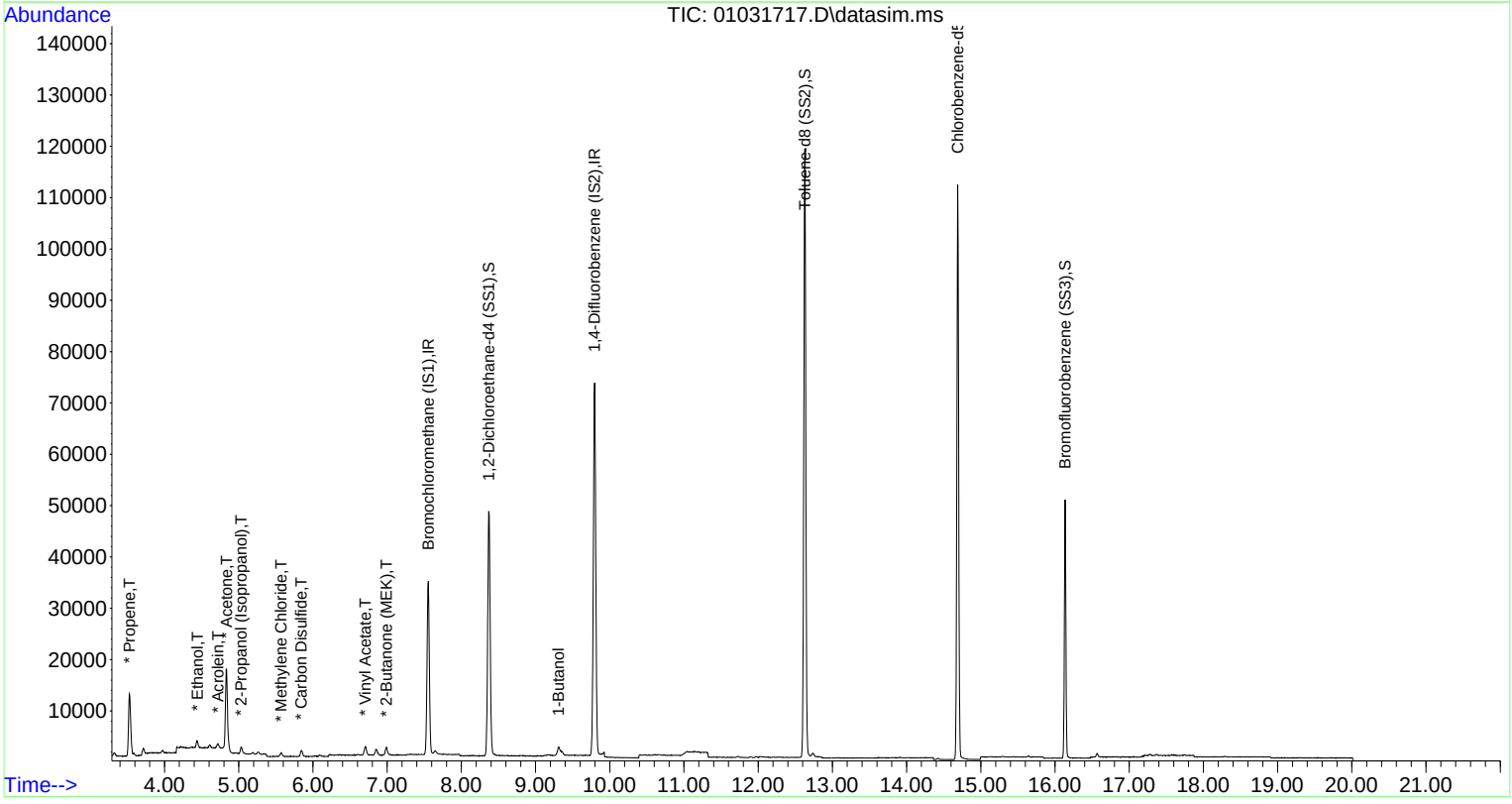
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	41323	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133257	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104938	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72299	888.379	pg		0.00
Spiked Amount 1000.000			Recovery = 88.84%				
57) Toluene-d8 (SS2)	12.63	98	129663	1011.174	pg		0.00
Spiked Amount 1000.000			Recovery = 101.12%				
74) Bromofluorobenzene (SS3)	16.14	174	35237	834.361	pg		0.00
Spiked Amount 1000.000			Recovery = 83.44%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5892	71.039	pg	#	71
10) * Ethanol	4.44	45	1671	29.540	pg	#	65
12) * Acrolein	4.72	56	853	17.999	pg		88
13) * Acetone	4.84	58	8804	164.775	pg	#	50
15) * 2-Propanol (Isopropa...	5.03	45	1834	12.669	pg		94
19) * Methylene Chloride	5.57	84	601	10.098	pg		92
22) * Carbon Disulfide	5.84	76	2217	10.161	pg		98
26) * Vinyl Acetate	6.71	86	379	33.823	pg	#	6
27) * 2-Butanone (MEK)	6.99	72	624	19.458	pg		64
41) 1-Butanol	9.31	56	1353	46.966	pg	#	56

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\03\
Data File : 01031717.D
Acq On : 3 Jan 2017 11:25 pm
Operator : SM
Sample : AS00549 FCA00975
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 04 09:31:28 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291632.D
Acq On : 30 Dec 2016 6:34 am
Operator : JM
Sample : AC02123 FCA00471
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 30 10:40:09 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

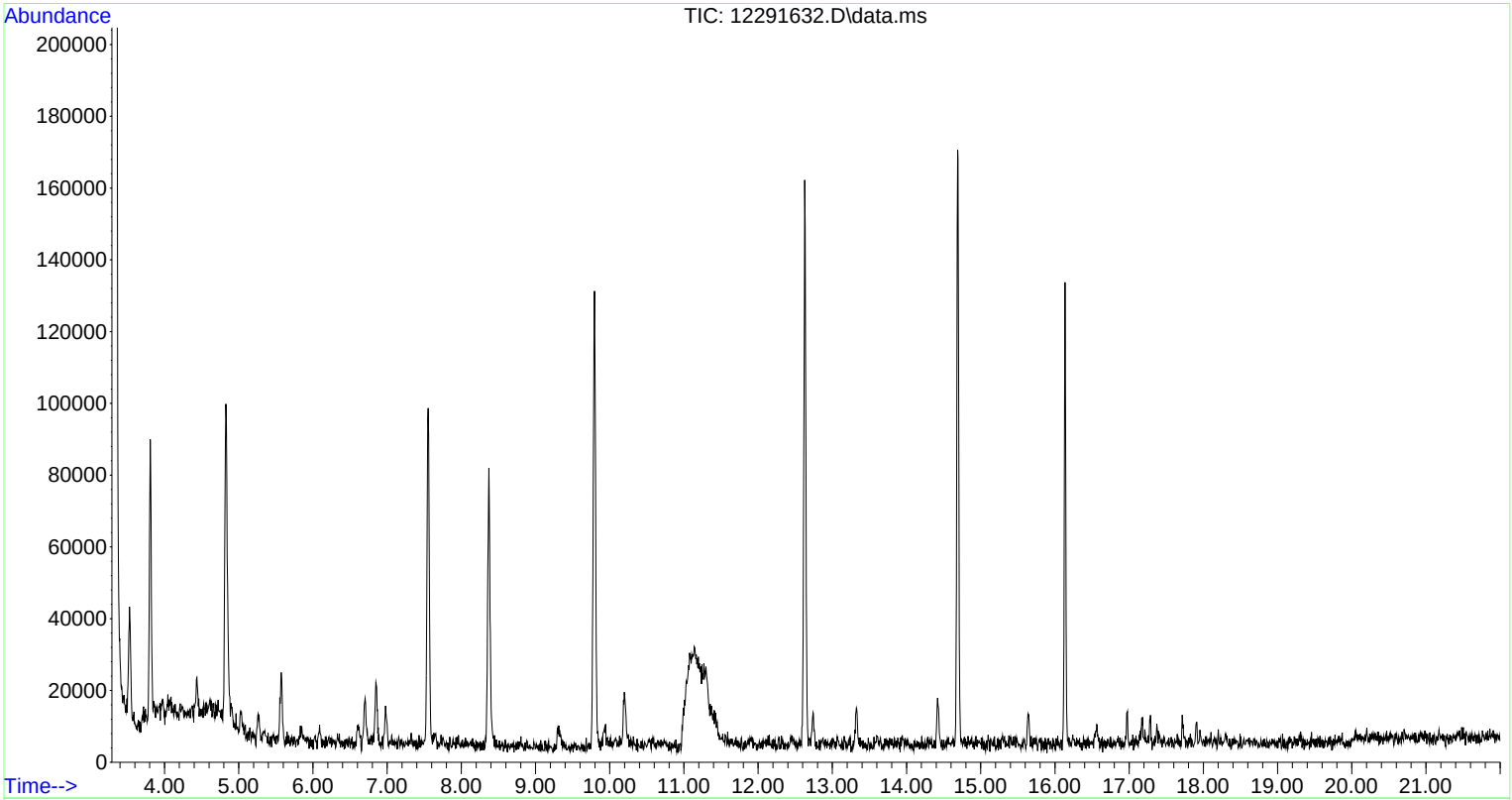
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39573	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134512	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104341	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71079	912.011	pg		0.00
Spiked Amount 1000.000			Recovery = 91.20%				
57) Toluene-d8 (SS2)	12.63	98	121451	952.552	pg		0.00
Spiked Amount 1000.000			Recovery = 95.25%				
74) Bromofluorobenzene (SS3)	16.14	174	37563	894.526	pg		0.00
Spiked Amount 1000.000			Recovery = 89.45%				
Target Compounds							Qvalue
2) * Propene	3.53	42	8406	105.832	pg		82
3) * Dichlorodifluoromethane	3.58	85	3614	21.360	pg		98
4) * Chloromethane	3.71	50	1668	13.188	pg		100
10) * Ethanol	4.43	45	10539	194.545	pg		99
11) * Acetonitrile	4.60	41	2407	17.721	pg		93
12) * Acrolein	4.71	56	2922	64.383	pg		99
13) * Acetone	4.83	58	52366	1023.422	pg	#	36
14) * Trichlorofluoromethane	4.97	101	1384	12.244	pg		96
15) * 2-Propanol (Isopropa...	5.03	45	8371	60.381	pg		94
18) tert-Butanol	5.56	59	1760	21.063	pg	#	74
19) * Methylene Chloride	5.58	84	8148	142.958	pg		99
22) * Carbon Disulfide	5.84	76	4170	19.957	pg		98
26) * Vinyl Acetate	6.71	86	2369	220.764	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	2476	80.621	pg		95
30) * Ethyl Acetate	7.65	61	441	28.087	pg		90
39) * Benzene	9.35	78	1552	10.005	pg		95
41) 1-Butanol	9.30	56	2512	86.385	pg	#	55
58) * Toluene	12.74	91	6425	43.567	pg		100
59) * 2-Hexanone	13.07	58	487	19.305	pg	#	69
67) * m- & p-Xylenes	15.29	91	1565	16.196	pg		92
69) Cyclohexanone	15.44	98	213	19.737	pg	#	61
70) * Styrene	15.63	104	955	18.563	pg		95
84) * 1,2,4-Trimethylbenzene	17.26	105	893	11.618	pg		86
88) n-Decane	17.38	85	286	19.461	pg	#	40
96) n-Undecane	18.43	85	87	10.353	pg	#	16
98) * Naphthalene	19.29	128	516	15.728	pg		98
99) n-Dodecane	19.32	85	59	11.178	pg	#	17

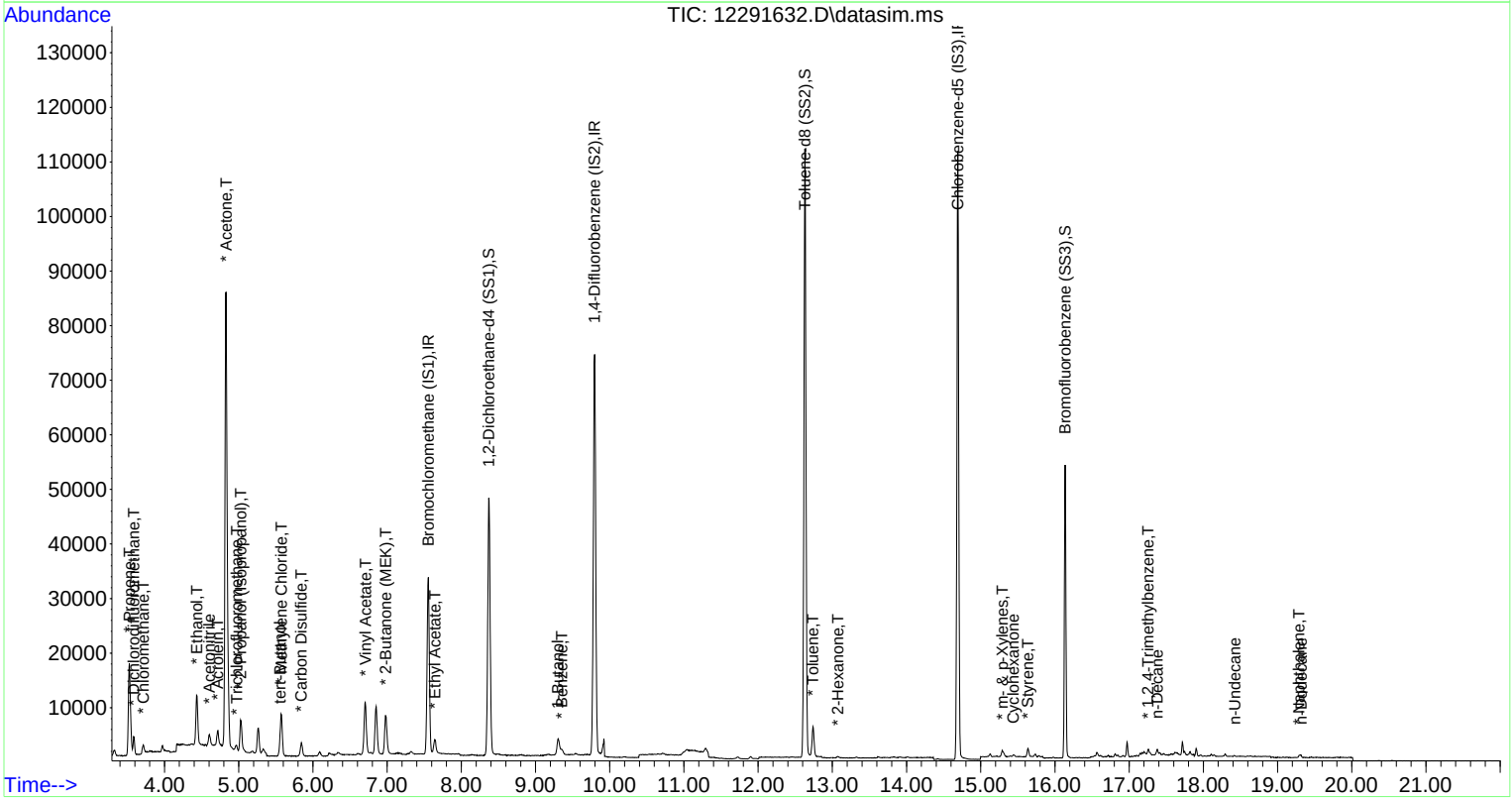
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2016 12\29\
Data File : 12291632.D
Acq On : 30 Dec 2016 6:34 am
Operator : JM
Sample : AC02123 FCA00471
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 30 10:40:09 2016
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041707.D
Acq On : 4 Jan 2017 12:34 pm
Operator : SM
Sample : AC01127 FCA00993
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

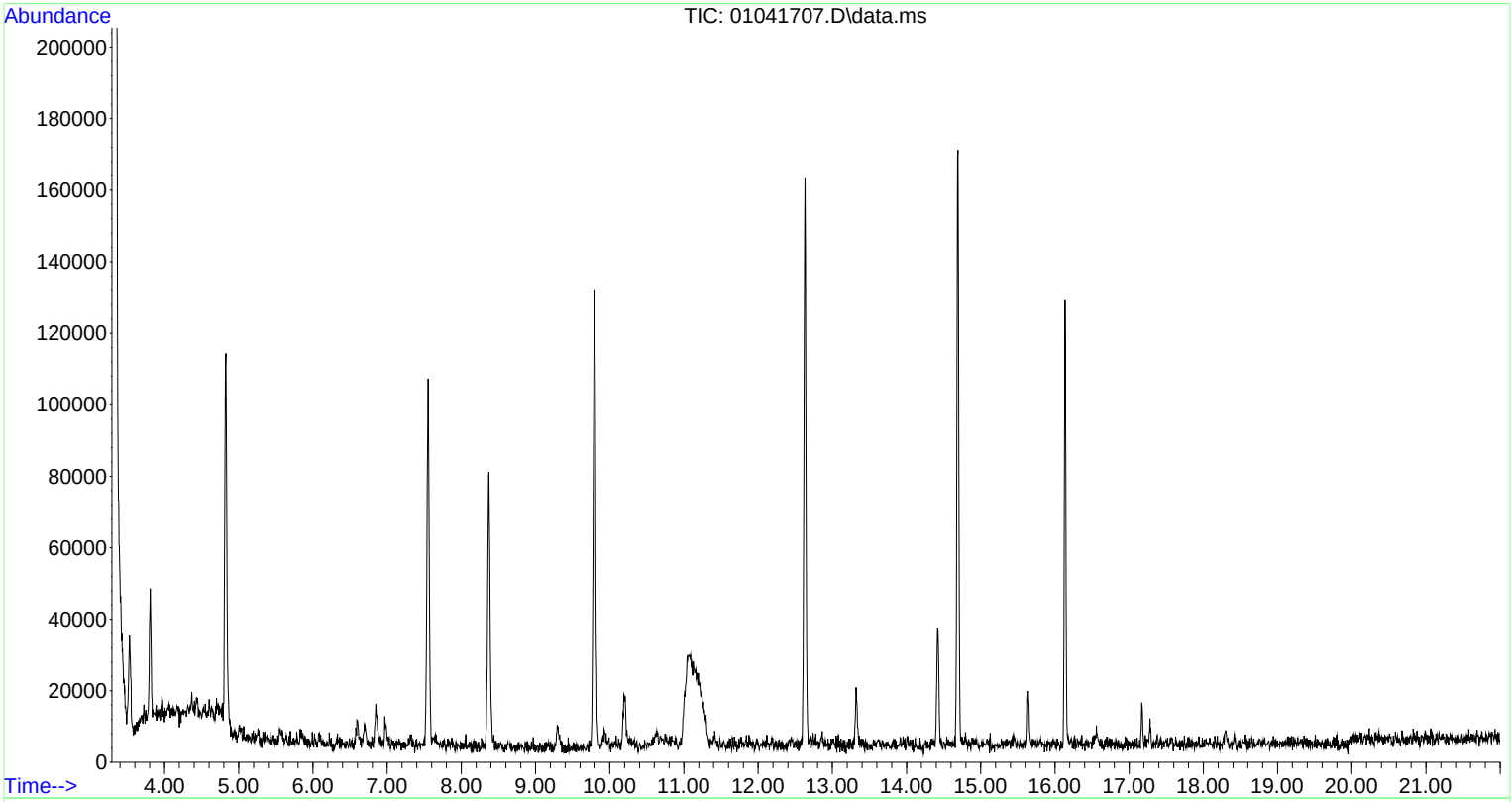
Quant Time: Jan 05 08:02:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

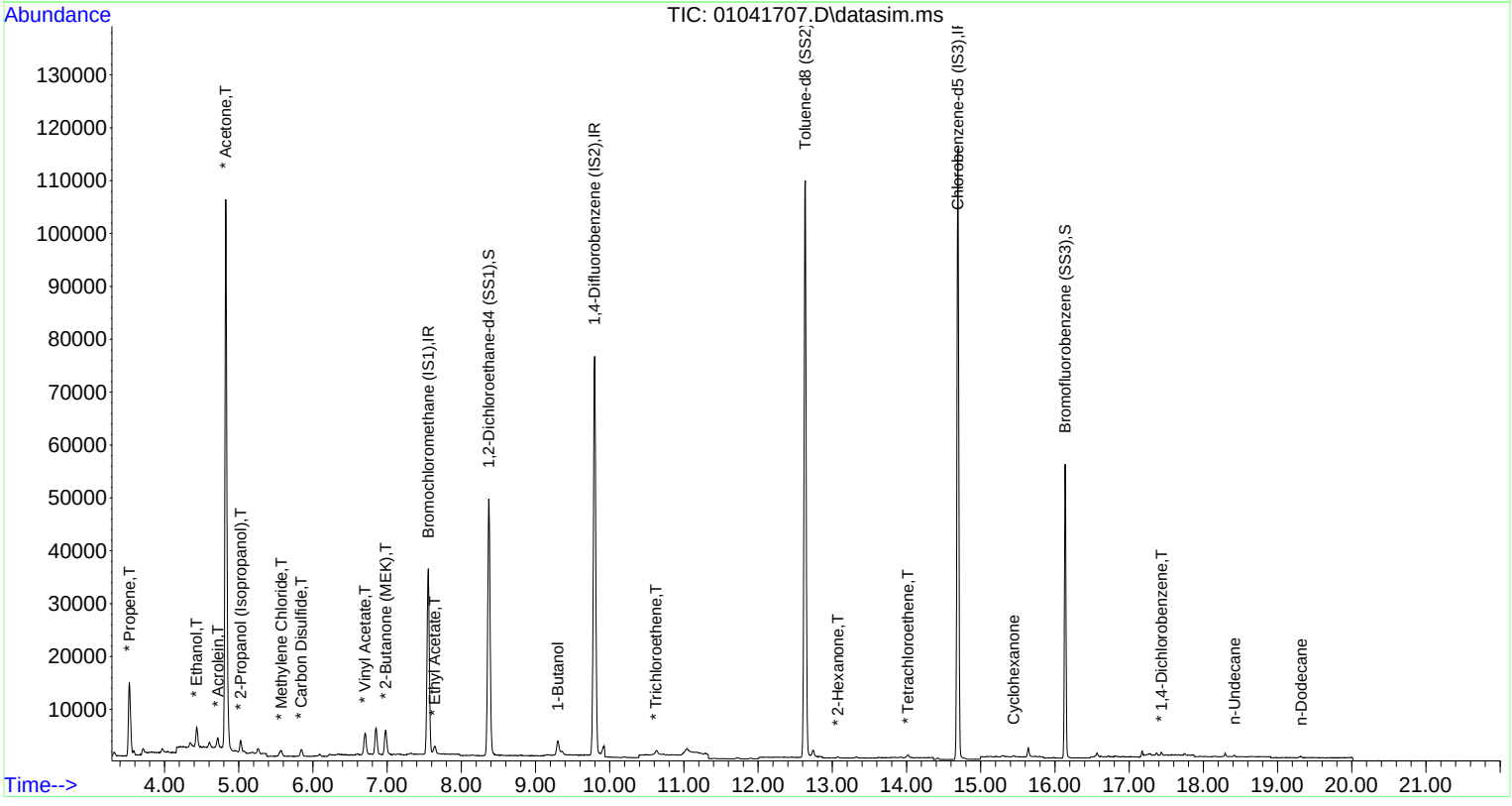
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	43169	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	138562	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	109918	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73135	860.223	pg		0.00
Spiked Amount 1000.000			Recovery = 86.02%				
57) Toluene-d8 (SS2)	12.63	98	122018	908.443	pg		0.00
Spiked Amount 1000.000			Recovery = 90.84%				
74) Bromofluorobenzene (SS3)	16.14	174	38784	876.741	pg		0.00
Spiked Amount 1000.000			Recovery = 87.67%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6757	77.985	pg	#	77
10) * Ethanol	4.43	45	4262	72.121	pg	#	83
12) * Acrolein	4.72	56	1917	38.720	pg		99
13) * Acetone	4.82	58	49030	878.404	pg	#	61
15) * 2-Propanol (Isopropa...	5.03	45	3121	20.637	pg		91
19) * Methylene Chloride	5.58	84	1055	16.968	pg		91
22) * Carbon Disulfide	5.84	76	2479	10.876	pg		98
26) * Vinyl Acetate	6.70	86	1050	89.697	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1719	51.310	pg		80
30) * Ethyl Acetate	7.64	61	356	20.785	pg	#	82
41) 1-Butanol	9.30	56	2373	79.220	pg	#	46
47) * Trichloroethene	10.62	130	872	17.116	pg		100
59) * 2-Hexanone	13.07	58	287	10.800	pg	#	47
64) * Tetrachloroethene	14.02	166	565	10.936	pg		95
69) Cyclohexanone	15.44	98	115	10.115	pg		79
87) * 1,4-Dichlorobenzene	17.43	146	501	13.566	pg		92
96) n-Undecane	18.42	85	112	12.652	pg	#	53
99) n-Dodecane	19.32	85	62	11.151	pg		88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\04\
Data File : 01041707.D
Acq On : 4 Jan 2017 12:34 pm
Operator : SM
Sample : AC01127 FCA00993
Misc : 75124 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 05 08:02:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051734.D
Acq On : 6 Jan 2017 7:44 am
Operator : JM
Sample : AC02124 FCA00888
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Jan 06 08:17:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

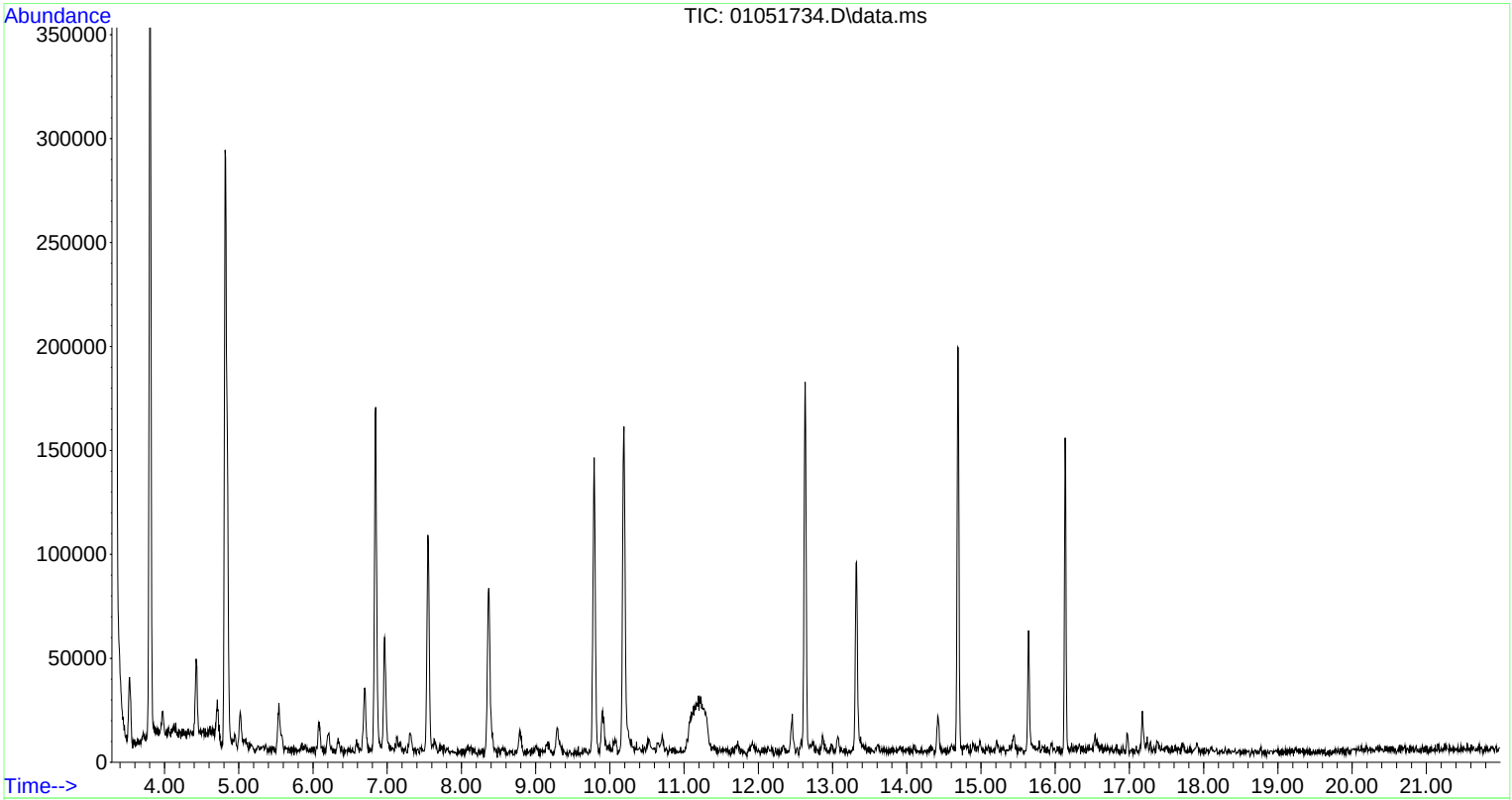
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47443	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	155587	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	124660	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	78045	835.278	pg		0.00
Spiked Amount 1000.000			Recovery = 83.53%				
57) Toluene-d8 (SS2)	12.63	98	144017	945.430	pg		0.00
Spiked Amount 1000.000			Recovery = 94.54%				
74) Bromofluorobenzene (SS3)	16.14	174	46840	933.636	pg		0.00
Spiked Amount 1000.000			Recovery = 93.36%				
Target Compounds							Qvalue
2) * Propene	3.53	42	9643	101.267	pg		91
10) * Ethanol	4.43	45	41235	634.913	pg		99
12) * Acrolein	4.71	56	13723	252.213	pg		99
13) * Acetone	4.82	58	106736	1739.975	pg		99
15) * 2-Propanol (Isopropa...	5.02	45	21861	131.528	pg		98
18) tert-Butanol	5.54	59	16004	159.755	pg	#	82
26) * Vinyl Acetate	6.70	86	7885	612.903	pg	#	1
27) * 2-Butanone (MEK)	6.97	72	19235	522.416	pg		79
41) 1-Butanol	9.29	56	6546	194.618	pg	#	49
59) * 2-Hexanone	13.07	58	2739	90.879	pg	#	88

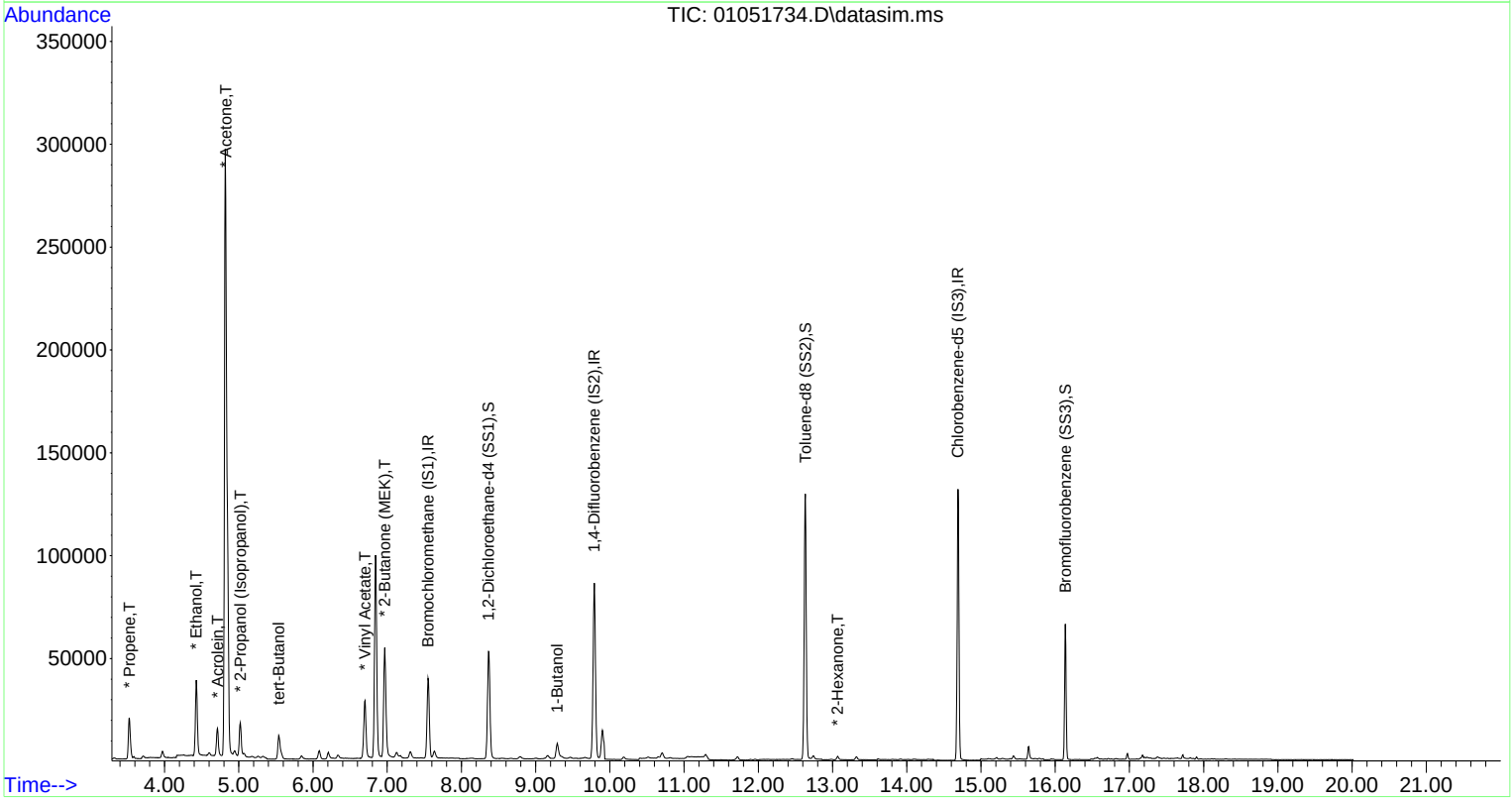
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051734.D
Acq On : 6 Jan 2017 7:44 am
Operator : JM
Sample : AC02124 FCA00888
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Jan 06 08:17:12 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061719.D
Acq On : 6 Jan 2017 21:07 Operator: CL
Sample : AS00424-FCA00910 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 07 15:18:42 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES

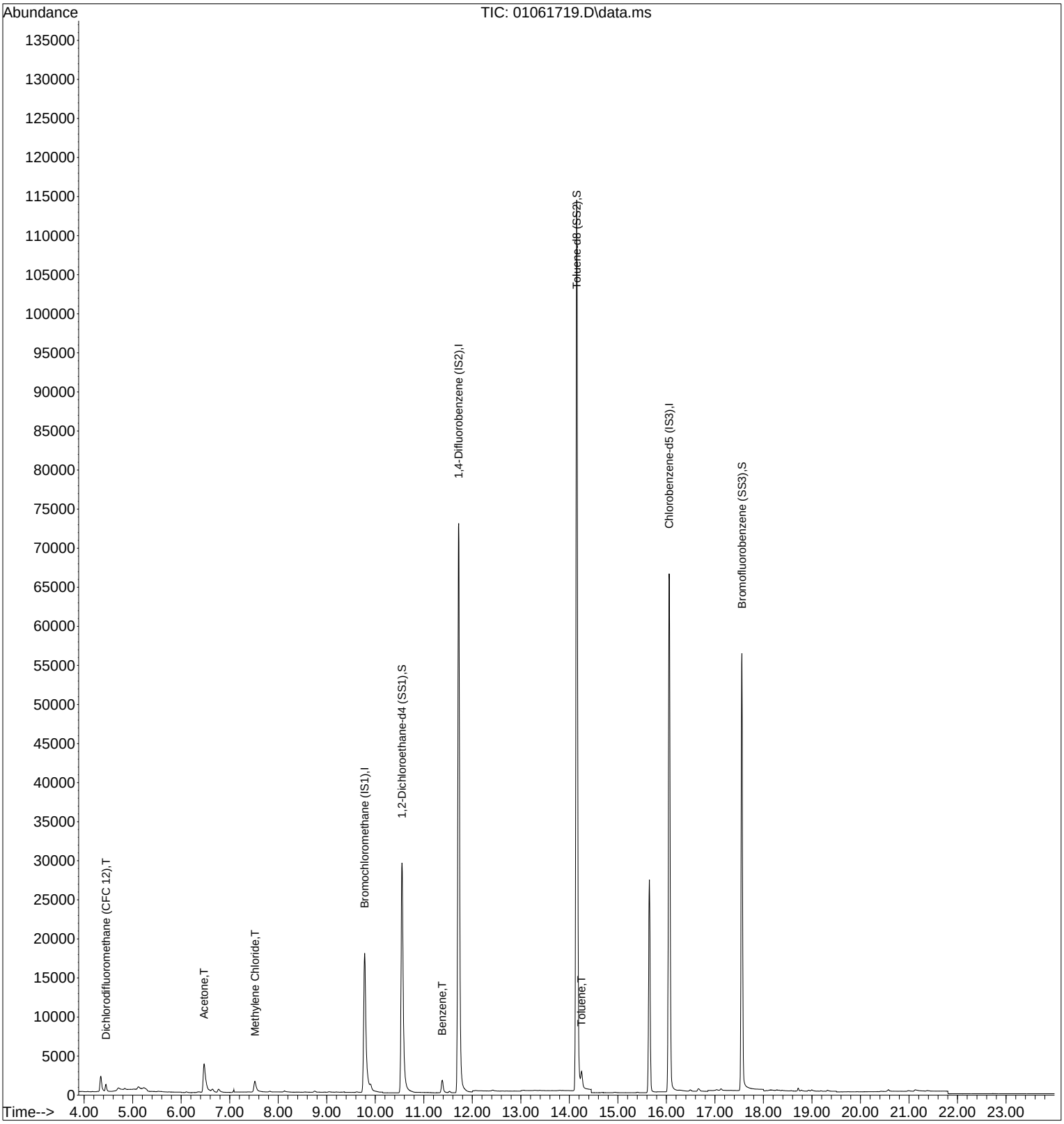
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.8	130	34874	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.7	114	157875	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.1	54	26818	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.6	65	60234	1078.321	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.83%			
33) Toluene-d8 (SS2)	14.2	98	161417	1046.759	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.68%			
45) Bromofluorobenzene (SS3)	17.6	174	45176	850.026	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.5	85	1318	15.575	pg	99
10) Acetone	6.5	58	3750	179.880	pg	99
13) Methylene Chloride	7.5	84	1780	43.696	pg	81
23) Benzene	11.4	78	3531	20.525	pg	100
34) Toluene	14.3	91	2682	17.899	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2017 01\06\01061719.D
Acq On : 6 Jan 2017 21:07 Operator: CL
Sample : AS00424-FCA00910 (1000mL) Inst : MS19
Misc : 75130
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 07 15:18:42 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M
Quant Results File: S19122716.RES



Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071709.D
Acq On : 7 Jan 2017 8:02 pm
Operator : JM
Sample : AC02216 FCR00009
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 09 09:39:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47875	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	149729	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	119729	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77832	825.481	pg		0.00
Spiked Amount 1000.000			Recovery = 82.55%				
57) Toluene-d8 (SS2)	12.63	98	129742	886.796	pg		0.00
Spiked Amount 1000.000			Recovery = 88.68%				
74) Bromofluorobenzene (SS3)	16.14	174	39102	811.498	pg		0.00
Spiked Amount 1000.000			Recovery = 81.15%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5328	55.448	pg		80
3) * Dichlorodifluoromethane	3.58	85	1055	5.154	pg		95
4) * Chloromethane	3.71	50	1154	7.542	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	67	0.441	pg	#	42
6) * Vinyl Chloride	3.86	62	58	0.397	pg	#	42
7) * 1,3-Butadiene	4.02	54	24	0.221	pg	#	1
8) * Bromomethane	4.22	94	112	1.205	pg	#	69
9) * Chloroethane	4.34	64	58	0.873	pg	#	41
10) * Ethanol	4.43	45	2550	38.909	pg	#	85
11) * Acetonitrile	4.60	41	1613	9.816	pg		95
12) * Acrolein	4.71	56	1598	29.104	pg		95
13) * Acetone	4.84	58	18869	304.821	pg	#	19
14) * Trichlorofluoromethane	4.97	101	400	2.925	pg		98
15) * 2-Propanol (Isopropa...	5.02	45	3668	21.870	pg		92
16) * Acrylonitrile	5.19	53	280	2.872	pg	#	54
18) tert-Butanol	5.54	59	627	6.202	pg		99
19) * Methylene Chloride	5.57	84	1440	20.884	pg		100
20) * 3-Chloro-1-propene (...	5.69	41	51	0.554	pg	#	43
22) * Carbon Disulfide	5.84	76	3792	15.001	pg		99
24) * 1,1-Dichloroethane	6.61	63	57	0.488	pg	#	42
25) * Methyl tert-Butyl Ether	6.74	73	55	0.452	pg	#	50
26) * Vinyl Acetate	6.70	86	497	38.283	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1091	29.364	pg		93
29) DIPE	7.65	45	365	1.686	pg	#	53
30) * Ethyl Acetate	7.64	61	340	17.900	pg	#	79
31) * n-Hexane	7.64	57	270	2.764	pg	#	60
36) * 1,2-Dichloroethane	8.49	62	101	0.988	pg	#	42
39) * Benzene	9.35	78	1792	10.378	pg		98
40) Isopropyl Acetate	9.31	61	52	2.911	pg	#	28
41) 1-Butanol	9.30	56	1513	46.743	pg	#	50
42) * Carbon Tetrachloride	9.53	117	80	1.191	pg	#	1
45) * 1,2-Dichloropropane	10.34	63	307	4.791	pg	#	63
48) * 1,4-Dioxane	10.64	88	517	14.356	pg		93
49) Isooctane	10.71	56	304	3.683	pg		89
51) * n-Heptane	11.04	71	308	3.474	pg	#	50
52) * cis-1,3-Dichloropropene	11.64	75	79	1.351	pg	#	43
53) * 4-Methyl-2-pentanone	11.73	58	101	3.238	pg	#	47
58) * Toluene	12.74	91	1673	9.886	pg		96
59) * 2-Hexanone	13.07	58	128	4.422	pg	#	68
66) * Ethylbenzene	15.13	91	291	2.039	pg		92
67) * m- & p-Xylenes	15.29	91	489	4.410	pg	#	63
70) * Styrene	15.64	104	135	2.287	pg	#	74
71) * o-Xylene	15.73	91	220	2.028	pg	#	82
72) * n-Nonane	15.98	57	160	3.273	pg	#	73
77) * n-Propylbenzene	16.72	91	141	0.990	pg	#	56

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071709.D
Acq On : 7 Jan 2017 8:02 pm
Operator : JM
Sample : AC02216 FCR00009
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 09 09:39:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
78) 3-Ethyltoluene	16.81	105	203	2.045	pg	#	45
79) * 4-Ethyltoluene	16.84	105	96	1.103	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	68	0.697	pg	#	29
82) 2-Ethyltoluene	17.07	105	52	0.439	pg	#	45
83) tert-Butylbenzene	17.28	134	1430	65.230	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.28	105	622	7.052	pg	#	64
87) * 1,4-Dichlorobenzene	17.43	146	122	3.033	pg		92
88) n-Decane	17.36	85	54	3.202	pg		81
90) 1,2,3-Trimethylbenzene	17.62	105	80	0.865	pg	#	27
93) * D-Limonene	17.75	68	95	2.446	pg	#	15
94) n-Butylbenzene	17.97	134	56	3.420	pg	#	17
98) * Naphthalene	19.29	128	141	3.745	pg	#	66
99) n-Dodecane	19.31	85	54	8.916	pg	#	27

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071709.D
Acq On : 7 Jan 2017 8:02 pm
Operator : JM
Sample : AC02216 FCR00009
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
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Quant Time: Jan 09 09:39:31 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
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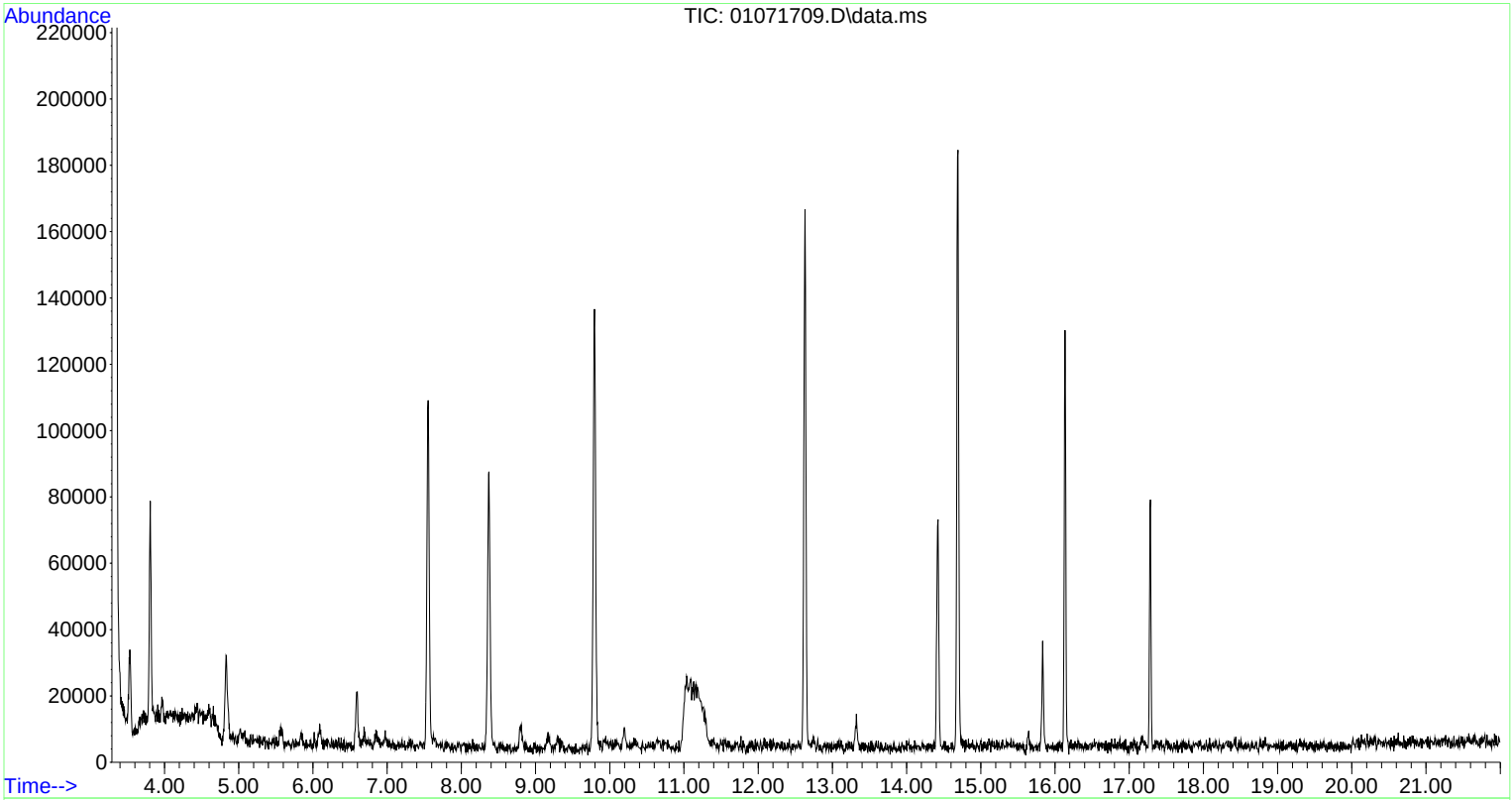

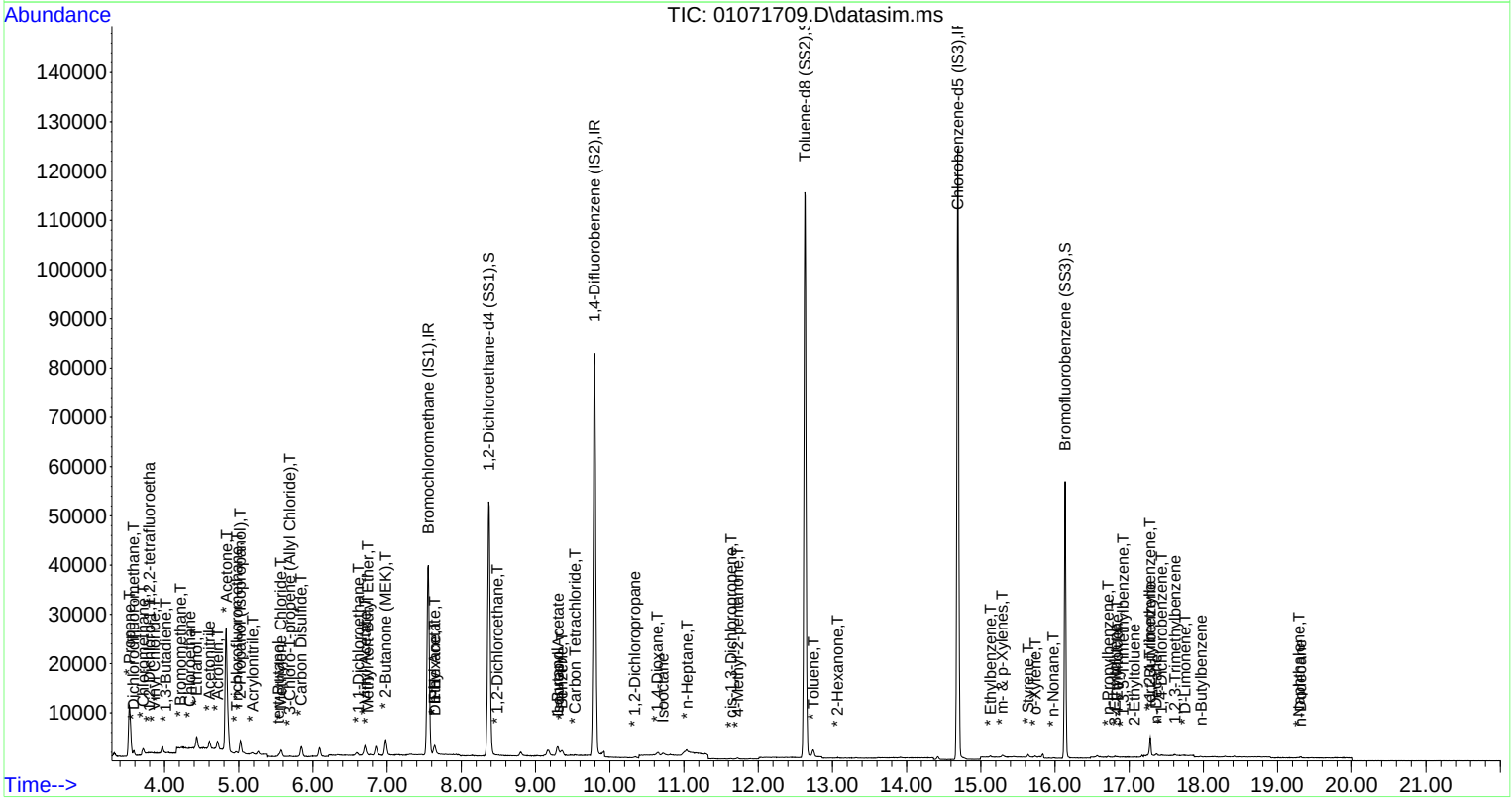

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LABORATORY REPORT

February 13, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 23, 2017. For your reference, these analyses have been assigned our service request number P1700288.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:25 pm, Feb 13, 2017

Sue Anderson
Project Manager

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700288

CASE NARRATIVE

The samples were received intact under chain of custody on January 23, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The canister dilution factor for sample 17M355-1-01N (P1700288-011) was elevated because re-pressurization had to be performed. Due to an autocan malfunction the canister was evacuated before it was injected; therefore, the additional pressurization was done so the sample could be analyzed.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1700288-002	cis-1,2-Dichloroethene

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700288
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/23/2017
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC SIM
17M013-1-01	P1700288-001	Air	1/18/2017	08:19	AC02094	0.62	3.60			X
17M013-1-02	P1700288-002	Air	1/18/2017	08:20	AS00668	-1.46	3.74			X
17M313-1-02	P1700288-003	Air	1/18/2017	08:21	AC01837	-1.58	3.85			X
17M013-A-01	P1700288-004	Air	1/18/2017	08:18	AC02161	-1.71	3.72			X
17M126-1-05-N	P1700288-005	Air	1/18/2017	09:35	AC01606	-4.12	3.77			X
17M510-1-02-N	P1700288-006	Air	1/18/2017	08:09	AS00778	-1.85	3.83			X
17M510-1-03-N	P1700288-007	Air	1/18/2017	08:08	AS01026	-1.96	3.77			X
17M510-A-01-N	P1700288-008	Air	1/18/2017	08:07	AS01168	-1.86	3.58			X
17M555-1-01-N	P1700288-009	Air	1/18/2017	07:22	AC02087	-2.61	3.64			X
17M555-1-03-N	P1700288-010	Air	1/18/2017	07:24	AS01002	-3.34	3.53			X
17M355-1-01-N	P1700288-011	Air	1/18/2017	07:23	SC01732	-0.22	3.73	-12.91	3.62	X
17M555-A-01-N	P1700288-012	Air	1/18/2017	08:14	AC02130	-2.17	3.73			X
17M016-1-01-N	P1700288-013	Air	1/18/2017	07:00	AS00036	-3.15	3.84			X
17M016-1-02-N	P1700288-014	Air	1/18/2017	07:01	AS00812	-3.45	3.64			X
17M016-1-03-N	P1700288-015	Air	1/18/2017	07:04	AC01936	-2.01	3.73			X
17M016-1-04-N	P1700288-016	Air	1/18/2017	07:05	AC01910	-2.78	3.74	-1.09	1.97	X
17M016-1-05-N	P1700288-017	Air	1/18/2017	06:57	AC01881	-1.57	3.77			X
17M016-1-06-N	P1700288-018	Air	1/18/2017	07:03	AS01028	-0.14	3.63			X
17M316-1-02-N	P1700288-019	Air	1/18/2017	07:02	AS00990	-3.65	3.82			X
17M016-A-01-N	P1700288-020	Air	1/18/2017	08:11	AC02054	-1.94	3.72			X

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 007 P1700288
PAGE 1 of 2

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M013-1-01	AC02094	FCR00164	1/18/17	0819	-29.88	-0.16	6L	24hr	X				
2	17M013-1-02	AS00668	FCR00055	1/18/17	0820	-29.84	-4.34	6L	24hr	X				
3	17M313-1-02	AC01837	FCR00106	1/18/17	0821	-29.86	-4.66	6L	24hr	X				
4	17M013-A-01	AC02161	FCR0997	1/18/17	0818	-30.01	-4.97	6L	24hr	X				
5	17M126-1-05-N	AC01606	FCA00950	1/18/17	0935	-30.42	-9.59	6L	8hr	X				
6	17M510-1-02-N	AS00778	FCR00230	1/18/17	0809	-28.44	-5.05	6L	24hr	X				
7	17M510-1-03-N	AS01026	FCR00280	1/18/17	0808	-29.93	-5.24	6L	24hr	X				
8	17M510-A-01-N	AS01168	FCR00228	1/18/17	0807	-29.93	-5.59	6L	24hr	X				
9	17M555-1-01-N	AC02087	FCA00895	1/18/17	0722	0722	1515	6L	8hr	X				X
10	17M555-1-03-N	AS01002	FCA01010	1/18/17	0724	0724	1517	6L	8hr	X				
11	17M355-1-01-N	SC01732	FCA00466	1/18/17	0723	0723	1516	6L	8hr	X				
12	17M555-A-01-N	AC02130	FCR00085	1/18/17	0814	0814	0803	6L	24hr	X				

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/19/17	Received By (signature) 1/23/17 0930	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 007 P1700288
PAGE 2 of 2

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17M016-1-01-N	AS00039	FCA00961	1/18/17	0700	-29.97	-7.95	6L	10hr	X				
14	17M016-1-02-N	AS00812	FCA00462	1/18/17	0701	-29.55	819	6L	10hr	X				X
15	17M016-1-03-N	AC01936	FCA00486	1/18/17	0704	-29.71	-5.69	6L	10hr	X				
16	17M016-1-04-N	AC01910	FCA00500	1/18/17	0705	-29.7	-7.18	6L	10hr	X				
17	17M016-1-05-N	AC01881	FCA00907	1/18/17	0657	-28.47	-4.7	6L	10hr	X				X
18	17M016-1-06-N	AS01028	FCA00175	1/18/17	0703	-28.94	-6.55	6L	10hr	X				
19	17M316-1-02-N	AS00990	FCA00925	1/18/17	0702	-29.54	-9.86	6L	10hr	X				
20	17M016-A-01-N	AC02054	FCR00038	1/18/17	0811	-29.96	-5.43	6L	24hr	X				
										X				
										X				
										X				
										X				

6 5273

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: □ 24 HR □ 48 HR □ 72 HR X STANDARD OR □ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/19/17	Received By (signature) 1/23/17 0930	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: □ Intact □ Broken

Custody Seal: □ Intact □ Broken □ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700288

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/23/17 Date opened: 1/23/17 by: KKELPE

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700288-001.01	6.0 L Ambient Can					
P1700288-002.01	6.0 L Silonite Can					
P1700288-003.01	6.0 L Ambient Can					
P1700288-004.01	6.0 L Ambient Can					
P1700288-005.01	6.0 L Ambient Can					
P1700288-006.01	6.0 L Silonite Can					
P1700288-007.01	6.0 L Silonite Can					
P1700288-008.01	6.0 L Silonite Can					
P1700288-009.01	6.0 L Ambient Can					
P1700288-010.01	6.0 L Silonite Can					
P1700288-011.01	6.0 L Source Can					
P1700288-012.01	6.0 L Ambient Can					
P1700288-013.01	6.0 L Silonite Can					AS00036 NOT AS00039
P1700288-014.01	6.0 L Silonite Can					
P1700288-015.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700288

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/23/17 Date opened: 1/23/17 by: KKELPE

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700288-016.01	6.0 L Ambient Can					
P1700288-017.01	6.0 L Ambient Can					
P1700288-018.01	6.0 L Silonite Can					
P1700288-019.01	6.0 L Silonite Can					
P1700288-020.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M013-1-01** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-001

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02094
Initial Pressure (psig): 0.62 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.19

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024	0.030	0.024	0.0090	**U**
75-35-4	1,1-Dichloroethene	0.025	0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.015**	0.030	0.025	0.0087	**J**
75-34-3	1,1-Dichloroethane	**0.012**	0.030	0.024	0.0073	**J**
156-59-2	cis-1,2-Dichloroethene	**0.019**	0.030	0.025	0.011	**J**
79-01-6	Trichloroethene	**0.038**	0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.037**	0.030	0.025	0.0098	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M013-1-02** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-002

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00668

Initial Pressure (psig): -1.46 Final Pressure (psig): 3.74

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.029	0.035	0.029	0.010	**U**
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0085	**U**
156-59-2	cis-1,2-Dichloroethene	**0.013**	0.035	0.029	0.013	**J**
79-01-6	Trichloroethene	**0.049**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.034**	0.035	0.029	0.011	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M313-1-02** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-003

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01837
Initial Pressure (psig): -1.58 Final Pressure (psig): 3.85

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.035	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.035	0.030	0.010	**U**
75-34-3	1,1-Dichloroethane	0.028	0.035	0.028	0.0086	**U**
156-59-2	cis-1,2-Dichloroethene	0.030	0.035	0.030	0.013	**U**
79-01-6	Trichloroethene	**0.039**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.032**	0.035	0.030	0.012	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M013-A-01** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-004

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02161
Initial Pressure (psig): -1.71 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.010	**U**
75-34-3	1,1-Dichloroethane	0.028	0.036	0.028	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	0.030	0.036	0.030	0.013	**U**
79-01-6	Trichloroethene	**0.042**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.030**	0.036	0.030	0.012	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-05-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-005

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01606
Initial Pressure (psig): -4.12 Final Pressure (psig): 3.77

Canister Dilution Factor: 1.75

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.20**	0.044	0.035	0.013	
75-35-4	1,1-Dichloroethene	**0.045**	0.044	0.037	0.015	
156-60-5	trans-1,2-Dichloroethene	**0.027**	0.044	0.037	0.013	**J**
75-34-3	1,1-Dichloroethane	**0.051**	0.044	0.035	0.011	
156-59-2	cis-1,2-Dichloroethene	**3.0**	0.044	0.037	0.016	
79-01-6	Trichloroethene	**2.6**	0.044	0.037	0.015	
127-18-4	Tetrachloroethene	**5.4**	0.044	0.037	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-1-02-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-006

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00778
Initial Pressure (psig): -1.85 Final Pressure (psig): 3.83

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.011	**U**
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	0.030	0.036	0.030	0.013	**U**
79-01-6	Trichloroethene	**0.072**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.043**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-1-03-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-007

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01026
Initial Pressure (psig): -1.96 Final Pressure (psig): 3.77

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.011	**U**
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	0.030	0.036	0.030	0.013	**U**
79-01-6	Trichloroethene	**0.060**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.050**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M510-A-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-008

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01168
Initial Pressure (psig): -1.86 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.010	**U**
75-34-3	1,1-Dichloroethane	0.028	0.036	0.028	0.0087	**U**
156-59-2	cis-1,2-Dichloroethene	0.030	0.036	0.030	0.013	**U**
79-01-6	Trichloroethene	**0.037**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.052**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-1-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-009

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02087
Initial Pressure (psig): -2.61 Final Pressure (psig): 3.64

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.019**	0.038	0.032	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.011**	0.038	0.030	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.069**	0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.21**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.059**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-1-03-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-010

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01002

Initial Pressure (psig): -3.34 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.032	0.040	0.032	0.012	**U**
75-35-4	1,1-Dichloroethene	0.034	0.040	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.016**	0.040	0.034	0.012	**J**
75-34-3	1,1-Dichloroethane	**0.014**	0.040	0.032	0.0098	**J**
156-59-2	cis-1,2-Dichloroethene	**0.066**	0.040	0.034	0.015	
79-01-6	Trichloroethene	**0.19**	0.040	0.034	0.014	
127-18-4	Tetrachloroethene	**0.061**	0.040	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M355-1-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-011

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01732

Initial Pressure (psig): -0.22 Final Pressure (psig): 3.73
Initial Pressure 2 (psig): -12.91 Final Pressure 2 (psig): 3.62

Canister Dilution Factor: 13.03

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.26	0.33	0.26	0.099	**U**
75-35-4	1,1-Dichloroethene	0.27	0.33	0.27	0.11	**U**
156-60-5	trans-1,2-Dichloroethene	0.27	0.33	0.27	0.095	**U**
75-34-3	1,1-Dichloroethane	0.26	0.33	0.26	0.079	**U**
156-59-2	cis-1,2-Dichloroethene	0.27	0.33	0.27	0.12	**U**
79-01-6	Trichloroethene	**0.16**	0.33	0.27	0.11	**J**
127-18-4	Tetrachloroethene	0.27	0.33	0.27	0.11	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M555-A-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-012

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02130
Initial Pressure (psig): -2.17 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.037	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.031	0.037	0.031	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.011**	0.037	0.031	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.0091**	0.037	0.029	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.024**	0.037	0.031	0.014	**J**
79-01-6	Trichloroethene	**0.23**	0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.032**	0.037	0.031	0.012	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-013

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00036
Initial Pressure (psig): -3.15 Final Pressure (psig): 3.84

Canister Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.032	0.040	0.032	0.012	**U**
75-35-4	1,1-Dichloroethene	0.034	0.040	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.040	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.017**	0.040	0.032	0.0098	**J**
156-59-2	cis-1,2-Dichloroethene	**0.019**	0.040	0.034	0.015	**J**
79-01-6	Trichloroethene	**0.20**	0.040	0.034	0.014	
127-18-4	Tetrachloroethene	**0.064**	0.040	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-02-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-014

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00812
Initial Pressure (psig): -3.45 Final Pressure (psig): 3.64

Canister Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.041	0.033	0.012	**U**
75-35-4	1,1-Dichloroethene	0.034	0.041	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.041	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	0.033	0.041	0.033	0.0099	**U**
156-59-2	cis-1,2-Dichloroethene	0.034	0.041	0.034	0.015	**U**
79-01-6	Trichloroethene	**0.029**	0.041	0.034	0.014	**J**
127-18-4	Tetrachloroethene	**0.18**	0.041	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-03-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-015

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01936
Initial Pressure (psig): -2.01 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.011	**U**
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.49**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.14**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-04-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-016

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01910

Initial Pressure (psig): -2.78 Final Pressure (psig): 3.74
Initial Pressure 2 (psig): -1.09 Final Pressure 2 (psig): 1.97

Canister Dilution Factor: 1.89

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.038	0.047	0.038	0.014	**U**
75-35-4	1,1-Dichloroethene	0.040	0.047	0.040	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	0.040	0.047	0.040	0.014	**U**
75-34-3	1,1-Dichloroethane	0.038	0.047	0.038	0.012	**U**
156-59-2	cis-1,2-Dichloroethene	0.040	0.047	0.040	0.017	**U**
79-01-6	Trichloroethene	**0.44**	0.047	0.040	0.016	
127-18-4	Tetrachloroethene	**0.055**	0.047	0.040	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-05-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-017

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01881
Initial Pressure (psig): -1.57 Final Pressure (psig): 3.77

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.035	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.035	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.019**	0.035	0.030	0.010	**J**
75-34-3	1,1-Dichloroethane	**0.010**	0.035	0.028	0.0086	**J**
156-59-2	cis-1,2-Dichloroethene	**0.030**	0.035	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.27**	0.035	0.030	0.012	
127-18-4	Tetrachloroethene	**0.057**	0.035	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-06-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-018

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01028

Initial Pressure (psig): -0.14 Final Pressure (psig): 3.63

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.036**	0.032	0.025	0.0096	
75-35-4	1,1-Dichloroethene	**0.017**	0.032	0.026	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.086**	0.032	0.026	0.0092	
75-34-3	1,1-Dichloroethane	**0.030**	0.032	0.025	0.0077	**J**
156-59-2	cis-1,2-Dichloroethene	**0.089**	0.032	0.026	0.012	
79-01-6	Trichloroethene	**0.57**	0.032	0.026	0.011	
127-18-4	Tetrachloroethene	**1.5**	0.032	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M316-1-02-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-019

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00990

Initial Pressure (psig): -3.65 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034	0.042	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035	0.042	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.035	0.042	0.035	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.017**	0.042	0.034	0.010	**J**
156-59-2	cis-1,2-Dichloroethene	**0.025**	0.042	0.035	0.015	**J**
79-01-6	Trichloroethene	**0.43**	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.099**	0.042	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-A-01-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-020

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02054
Initial Pressure (psig): -1.94 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	0.030	0.036	0.030	0.011	**U**
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.030**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.17**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.030**	0.036	0.030	0.012	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170202-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170206-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170207-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/18/17
Analyst: Cory Lewis Date(s) Received: 1/23/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 2/2 - 2/7/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170202-MB	**103**	**100**	**93**	70-130	
Method Blank	P170206-MB	**100**	**100**	**99**	70-130	
Method Blank	P170207-MB	**93**	**98**	**111**	70-130	
Lab Control Sample	P170202-LCS	**102**	**101**	**97**	70-130	
Lab Control Sample	P170206-LCS	**99**	**101**	**101**	70-130	
Lab Control Sample	P170207-LCS	**93**	**99**	**113**	70-130	
17M013-1-01	P1700288-001	**106**	**103**	**95**	70-130	
17M013-1-02	P1700288-002	**107**	**102**	**93**	70-130	
17M313-1-02	P1700288-003	**109**	**103**	**97**	70-130	
17M013-A-01	P1700288-004	**105**	**102**	**95**	70-130	
17M126-1-05-N	P1700288-005	**100**	**102**	**103**	70-130	
17M510-1-02-N	P1700288-006	**98**	**101**	**100**	70-130	
17M510-1-03-N	P1700288-007	**99**	**102**	**100**	70-130	
17M510-A-01-N	P1700288-008	**100**	**103**	**102**	70-130	
17M555-1-01-N	P1700288-009	**98**	**101**	**101**	70-130	
17M555-1-03-N	P1700288-010	**97**	**100**	**104**	70-130	
17M355-1-01-N	P1700288-011	**103**	**101**	**99**	70-130	
17M555-A-01-N	P1700288-012	**101**	**103**	**102**	70-130	
17M016-1-01-N	P1700288-013	**101**	**101**	**106**	70-130	
17M016-1-02-N	P1700288-014	**99**	**103**	**102**	70-130	
17M016-1-03-N	P1700288-015	**100**	**103**	**105**	70-130	
17M016-1-04-N	P1700288-016	**98**	**101**	**107**	70-130	
17M016-1-05-N	P1700288-017	**99**	**100**	**109**	70-130	
17M016-1-06-N	P1700288-018	**96**	**100**	**102**	70-130	
17M316-1-02-N	P1700288-019	**94**	**99**	**115**	70-130	
17M016-A-01-N	P1700288-020	**94**	**99**	**115**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170202-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**4.15**	**99**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.18**	**98**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.44**	**104**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.26**	**100**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.29**	**101**	70-121	
79-01-6	Trichloroethene	4.25	**4.18**	**98**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.08**	**96**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170206-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**4.15**	**99**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.22**	**99**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.42**	**104**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.21**	**99**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.36**	**103**	70-121	
79-01-6	Trichloroethene	4.25	**4.37**	**103**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.22**	**99**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170207-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	DOD Acceptance Limits	**Data Qualifier**
75-01-4	Vinyl Chloride	4.20	**3.98**	**95**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.13**	**97**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.19**	**98**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.96**	**93**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.19**	**99**	70-121	
79-01-6	Trichloroethene	4.25	**4.30**	**101**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.30**	**101**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02021703.D
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:26
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170202-LCS	02021704.D	03:57
17M013-1-01	P1700288-001	02021722.D	14:28
17M013-1-02	P1700288-002	02021724.D	15:31
17M313-1-02	P1700288-003	02021725.D	16:02
17M013-A-01	P1700288-004	02021726.D	16:34

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02061705.D
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:59
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170206-LCS	02061706.D	09:31
17M126-1-05-N	P1700288-005	02061708.D	10:39
17M510-1-02-N	P1700288-006	02061709.D	11:10
17M510-1-03-N	P1700288-007	02061710.D	11:41
17M510-A-01-N	P1700288-008	02061711.D	12:12
17M555-1-01-N	P1700288-009	02061712.D	12:44
17M555-1-03-N	P1700288-010	02061713.D	13:15
17M355-1-01-N	P1700288-011	02061715.D	14:17
17M555-A-01-N	P1700288-012	02061716.D	14:48
17M016-1-01-N	P1700288-013	02061718.D	16:02
17M016-1-02-N	P1700288-014	02061719.D	16:33
17M016-1-03-N	P1700288-015	02061720.D	17:05
17M016-1-05-N	P1700288-017	02061723.D	18:39
17M016-1-06-N	P1700288-018	02061725.D	19:41
17M316-1-02-N	P1700288-019	02061726.D	20:13
17M016-A-01-N	P1700288-020	02061727.D	20:13

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02071703.D
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:25
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170207-LCS	02071704.D	03:57
17M016-1-04-N	P1700288-016	02071710.D	09:45

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02021702.D

Analyst: Cory Lewis Date Analyzed: 2/2/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:54

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	42362		9.76	202980		11.71		33966		16.05	
	Upper Limit	59307		10.09	284172		12.04		47552		16.38	
	Lower Limit	25417		9.43	121788		11.38		20380		15.72	
	Client Sample ID											
01	Method Blank	41818		9.78	202055		11.72		33539		16.06	
02	Lab Control Sample	41544		9.76	200771		11.71		33287		16.05	
03	17M013-1-01	41431		9.76	198260		11.71		34031		16.05	
04	17M013-1-02	38428		9.76	186979		11.71		32603		16.05	
05	17M313-1-02	38145		9.76	190747		11.71		32895		16.05	
06	17M013-A-01	42011		9.76	202164		11.71		34793		16.05	
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02061704.D

Analyst: Cory Lewis Date Analyzed: 2/6/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:28

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	54422		9.76	264473		11.71		45785		16.05	
	Upper Limit	76191		10.09	370262		12.04		64099		16.38	
	Lower Limit	32653		9.43	158684		11.38		27471		15.72	
	Client Sample ID											
01	Method Blank	51975		9.78	253570		11.72		43764		16.06	
02	Lab Control Sample	53207		9.76	259467		11.71		45451		16.05	
03	17M126-1-05-N	54656		9.75	270386		11.71		49052		16.05	
04	17M510-1-02-N	55397		9.76	265358		11.71		47686		16.05	
05	17M510-1-03-N	53714		9.76	262137		11.71		46863		16.05	
06	17M510-A-01-N	52754		9.76	258453		11.71		46338		16.05	
07	17M555-1-01-N	55348		9.76	270055		11.71		47669		16.05	
08	17M555-1-03-N	55746		9.76	280692		11.71		48385		16.05	
09	17M355-1-01-N	51096		9.76	255389		11.71		45981		16.06	
10	17M555-A-01-N	52152		9.76	253035		11.71		45909		16.05	
11	17M016-1-01-N	51604		9.76	261789		11.71		46100		16.05	
12	17M016-1-02-N	53673		9.76	261610		11.71		47908		16.05	
13	17M016-1-03-N	53505		9.76	262295		11.71		47708		16.05	
14	17M016-1-05-N	59917		9.76	306348		11.71		54026		16.05	
15	17M016-1-06-N	59517		9.76	302902		11.71		59123		16.05	
16	17M316-1-02-N	61156		9.76	308412		11.71		51843		16.05	
17	17M016-A-01-N	60032		9.76	297009		11.71		49238		16.06	
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700288

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02071702.D

Analyst: Cory Lewis Date Analyzed: 2/7/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:54

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	54654		9.75	268758		11.71		44086		16.05	
	Upper Limit	76516		10.08	376261		12.04		61720		16.38	
	Lower Limit	32792		9.42	161255		11.38		26452		15.72	
	Client Sample ID											
01	Method Blank	53273		9.78	263102		11.72		42772		16.06	
02	Lab Control Sample	53781		9.75	263913		11.71		44025		16.05	
03	17M016-1-04-N	50336		9.76	247244		11.71		42789		16.05	
04												
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18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:33:51 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	55348	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	270055	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	47669	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	94599	978.931 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.89%		
33) Toluene-d8 (SS2)	14.15	98	276671	1005.092 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.51%		
45) Bromofluorobenzene (SS3)	17.55	174	87721	1006.660 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.67%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	222631	1605.937 pg	100
3) Chloromethane	4.64	52	5804	180.632 pg	92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	9260	70.091 pg	98
5) Vinyl Chloride	4.94	62	302	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.46	94	1135	23.120 pg	99
8) Chloroethane	5.67	64	449	11.730 pg	99
9) Acrolein	6.25	56	42157	1343.268 pg	93
10) Acetone	6.39	58	1122929	27359.937 pg	99
11) Trichlorofluoromethane	6.60	101	93992	889.755 pg	100
12) 1,1-Dichloroethene	0.00	96	0	N.D.	
13) Methylene Chloride	7.48	84	19758	306.474 pg	96
14) Trichlorotrifluoroethane	7.80	151	18877	322.450 pg	99
15) trans-1,2-Dichloroethene	8.51	96	762	12.410 pg	92
16) 1,1-Dichloroethane	8.73	63	791	7.203 pg	97
17) Methyl tert-Butyl Ether	8.79	73	776	N.D.	
18) cis-1,2-Dichloroethene	9.60	96	3003	45.675 pg	99
19) Chloroform	9.89	83	17146	144.203 pg	99
21) 1,2-Dichloroethane	10.64	62	5860	65.615 pg	100
22) 1,1,1-Trichloroethane	10.91	97	1440	13.293 pg	100
23) Benzene	11.37	78	99579	388.861 pg	99
24) Carbon Tetrachloride	11.52	117	30490	311.419 pg	99
26) 1,2-Dichloropropane	12.18	63	1709	28.375 pg	98
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	8807	134.936 pg	99
29) 1,4-Dioxane	12.38	88	6278	121.332 pg	99
30) cis-1,3-Dichloropropene	13.26	75	102	N.D.	
31) trans-1,3-Dichloropropene	13.76	75	124	N.D.	
32) 1,1,2-Trichloroethane	13.94	83	230	N.D.	
34) Toluene	14.25	91	559167	2151.914 pg	100
35) Dibromochloromethane	14.66	129	367	5.332 pg	97
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	2634	38.681 pg	99
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	176242	637.027 pg	100
41) m,p-Xylene	16.65	91	501343	2329.069 pg	100
42) Styrene	17.01	104	23797	150.537 pg	99
43) o-Xylene	17.12	106	72578	684.827 pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	16689	71.187 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	61697	264.384 pg	88
48) 1,3-Dichlorobenzene	18.92	146	136	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	4451	33.959 pg	99
50) 1,2-Dichlorobenzene	19.31	146	334	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	204	N.D.	
53) Naphthalene	21.06	128	13867	50.173 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:33:51 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

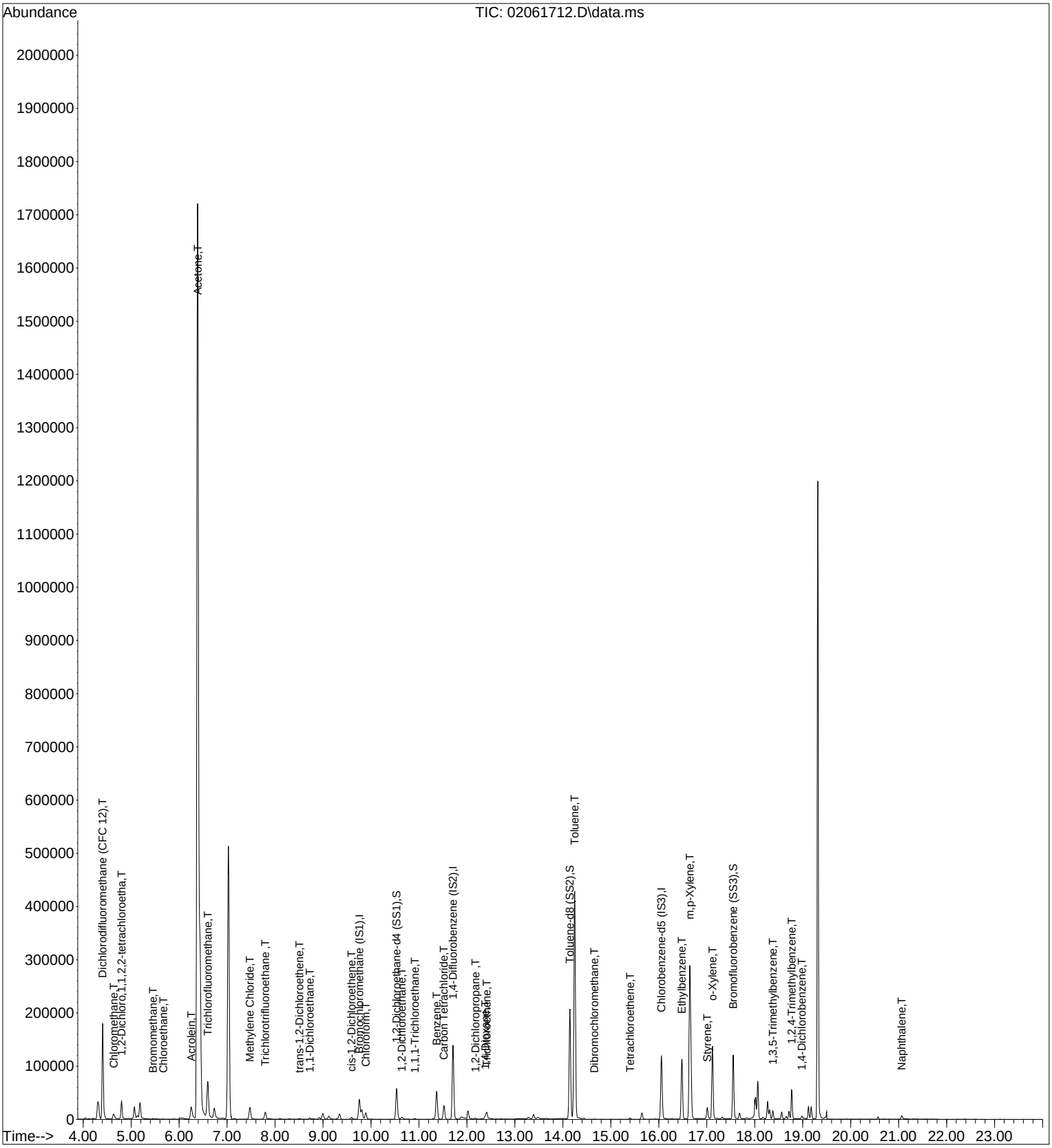
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

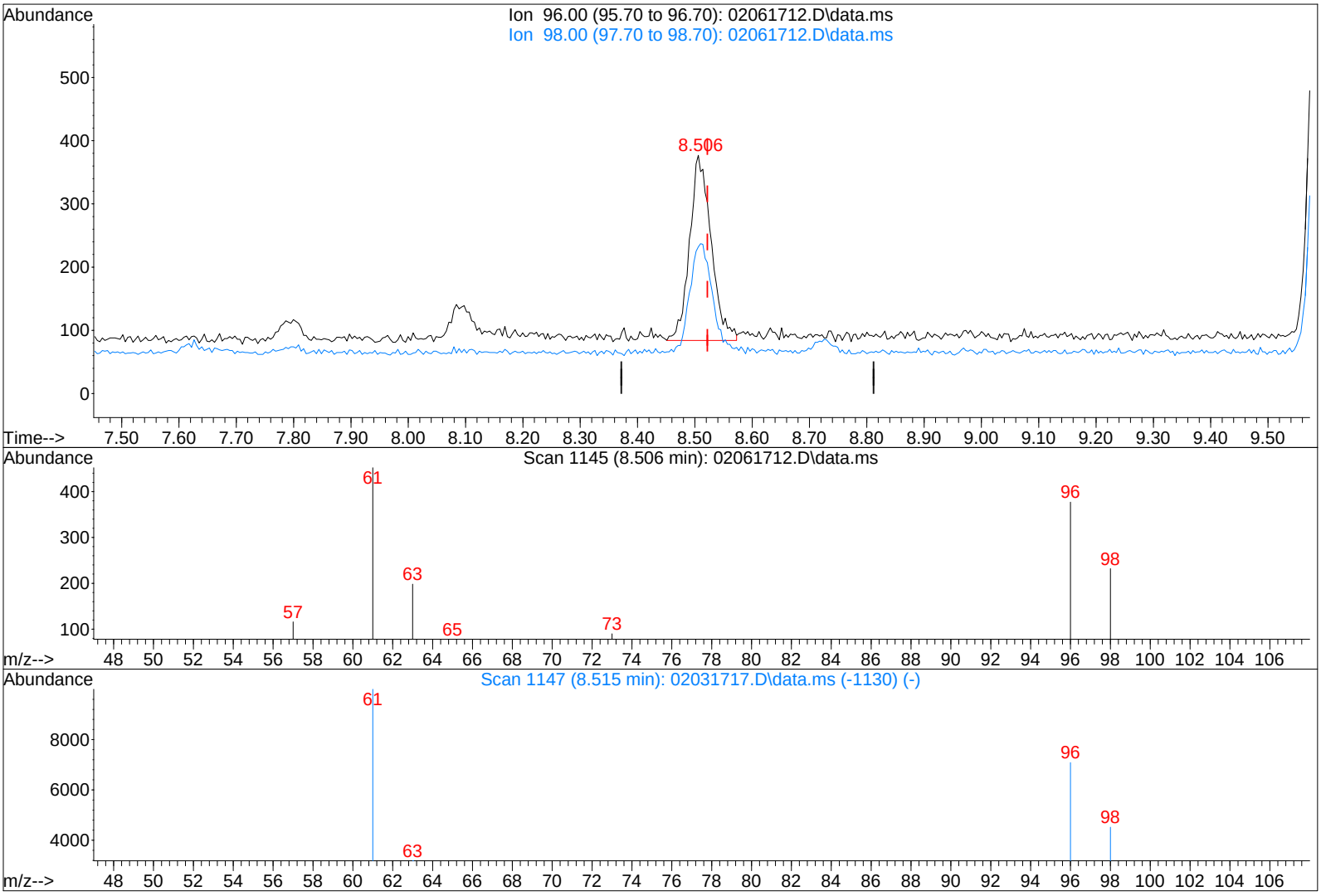
Quant Time: Feb 06 13:33:51 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:29:11 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061712.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.506min (-0.016) 12.41pg

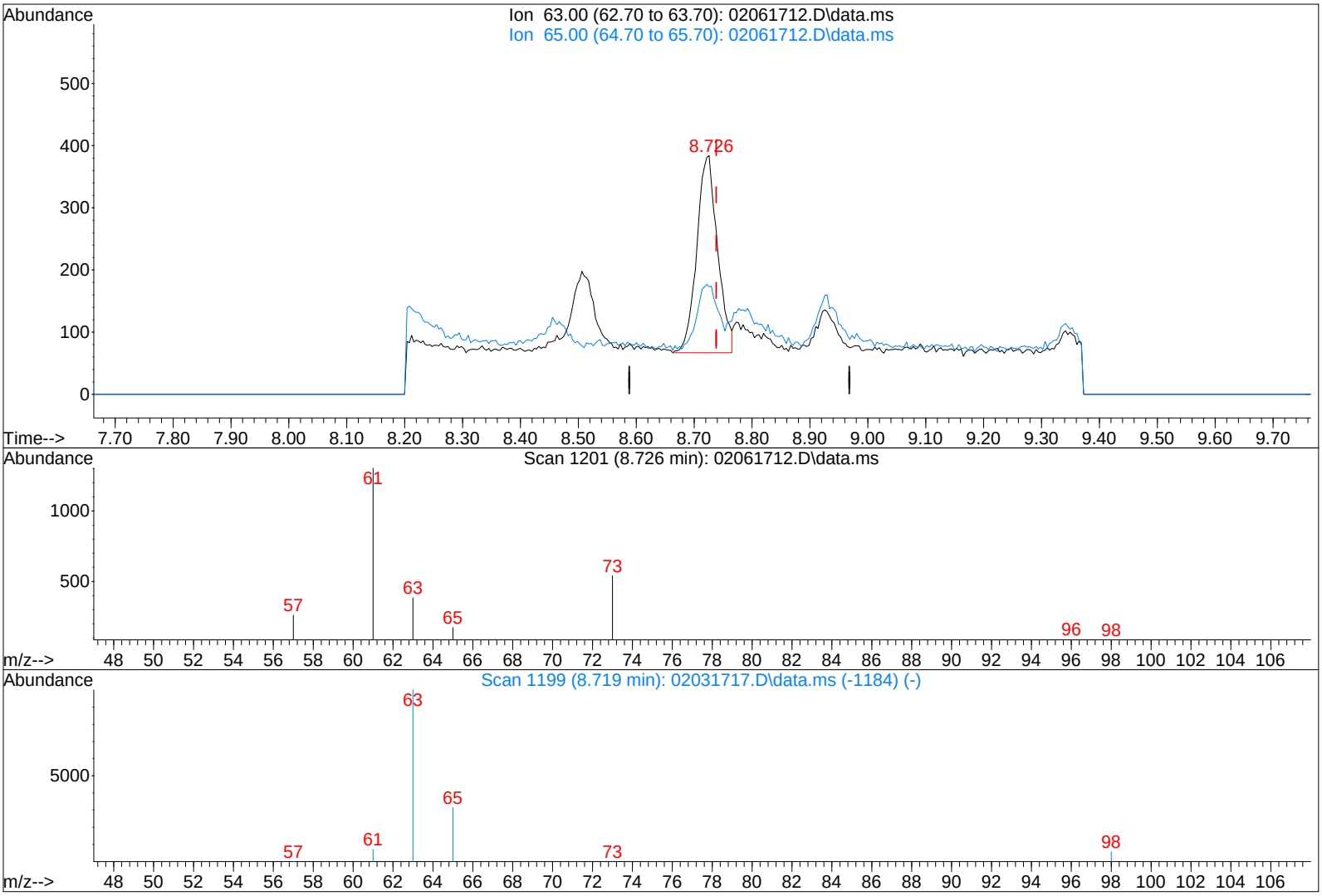
response 762

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	55.51
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:29:11 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061712.D\data.ms

(16) 1,1-Dichloroethane (T)

8.726min (-0.012) 7.20pg

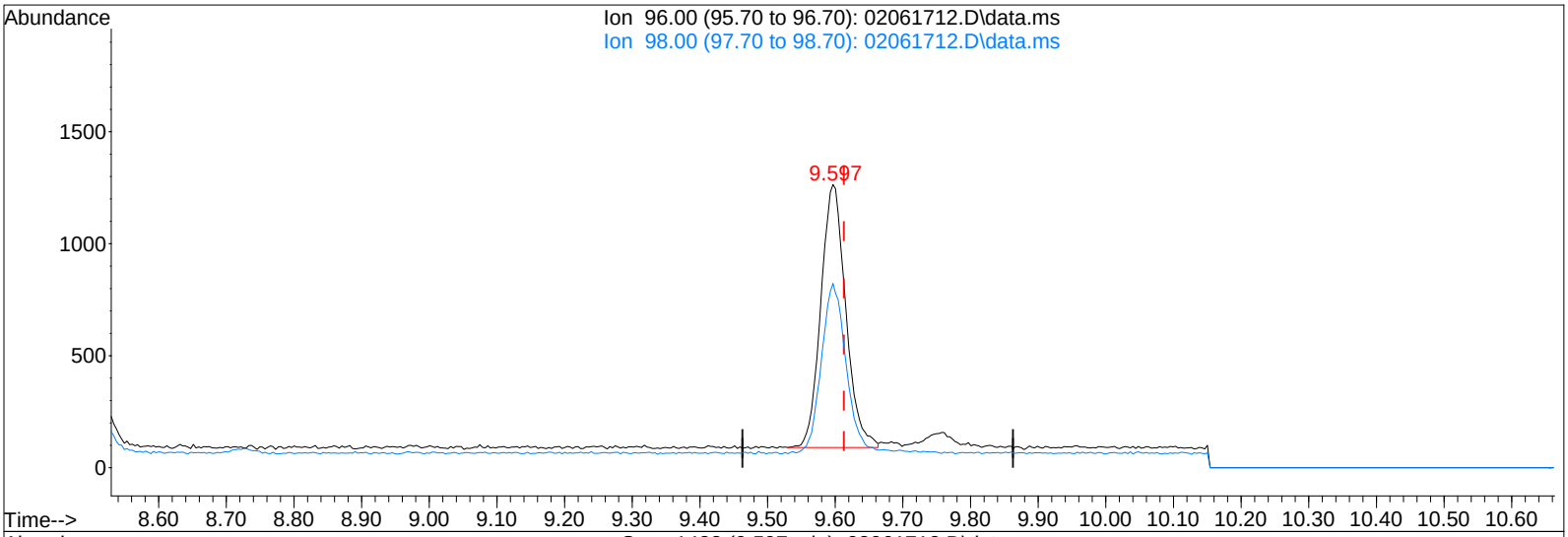
response 791

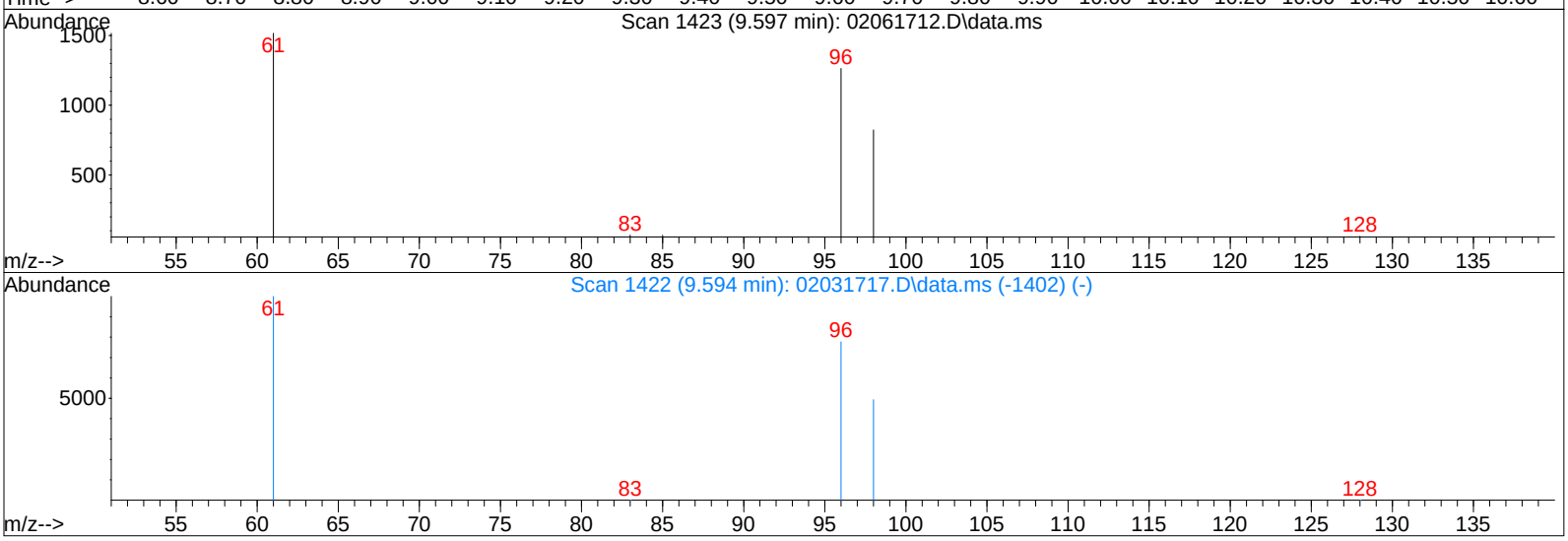
Ion	Exp%	Act%
63.00	100	100
65.00	31.30	32.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:29:11 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02061712.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.597min (-0.016) 45.67pg

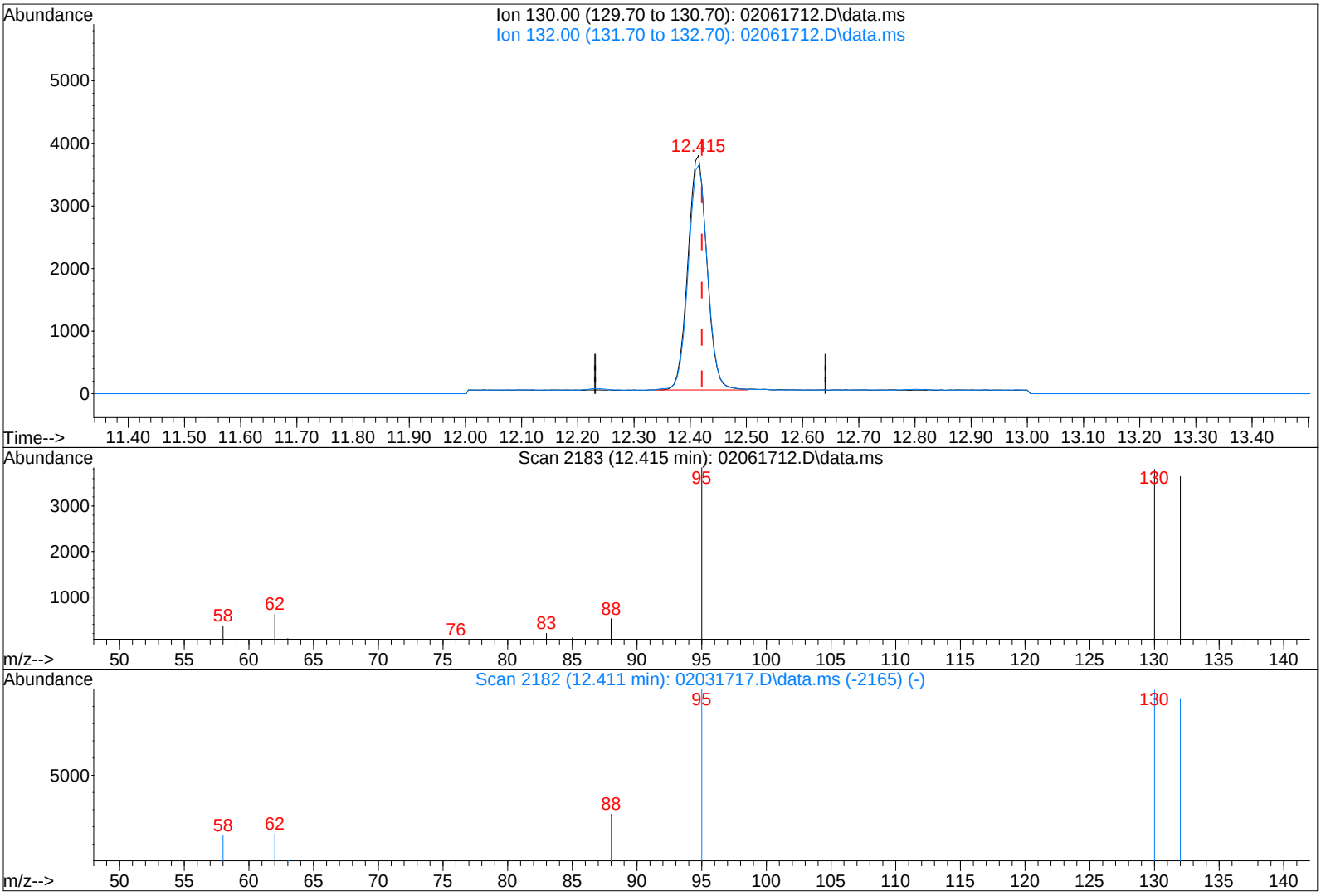
response 3003

Ion	Exp%	Act%
96.00	100	100
98.00	64.00	63.44
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:29:11 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061712.D\data.ms

(28) Trichloroethene (T)

12.415min (-0.006) 134.94pg

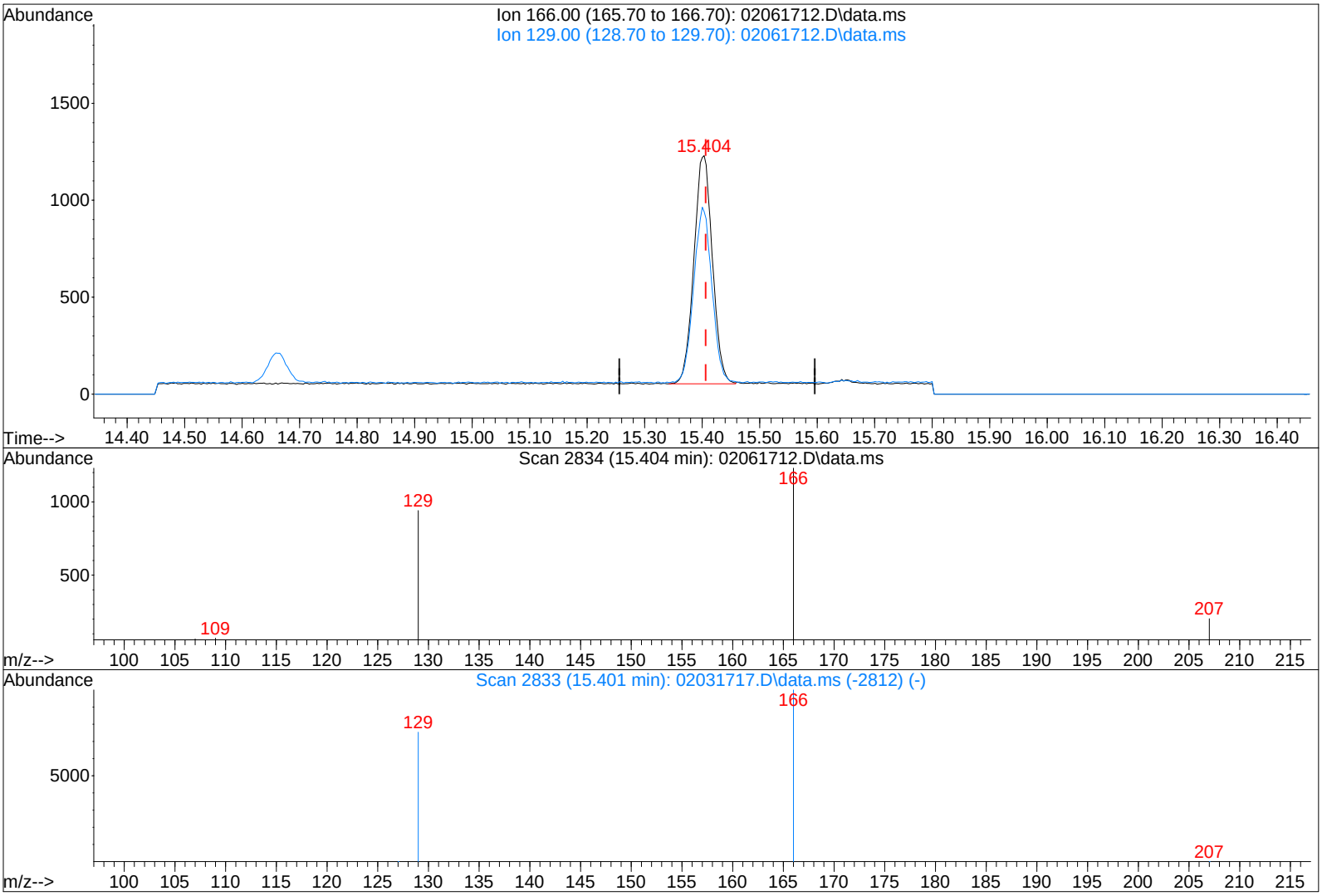
response 8807

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	95.67
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061712.D Vial: 6
Acq On : 6 Feb 2017 12:44 Operator: CL
Sample : P1700288-009 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 06 13:29:11 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061712.D\data.ms

(37) Tetrachloroethene (T)

15.404min (-0.003) 38.68pg

response 2634

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	75.89
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061719.D Vial: 11
Acq On : 6 Feb 2017 16:33 Operator: CL
Sample : P1700288-014 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 08:51:13 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	53673	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	261610	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	47908	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	93036	992.802 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.28%			
33) Toluene-d8 (SS2)	14.15	98	274414	1029.073 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.91%			
45) Bromofluorobenzene (SS3)	17.55	174	89137	1017.806 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.78%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	324975	2417.346 pg		100
3) Chloromethane	4.62	52	7144	229.274 pg		92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	13454	105.014 pg		100
5) Vinyl Chloride	4.94	62	171	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.46	94	1117	23.463 pg		93
8) Chloroethane	5.68	64	434	11.692 pg		86
9) Acrolein	6.25	56	9529	313.102 pg		94
10) Acetone	6.39	58	437019	10980.173 pg	#	82
11) Trichlorofluoromethane	6.59	101	134478	1312.734 pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.46	84	714286	11425.337 pg		95
14) Trichlorotrifluoroethane	7.79	151	27166	478.522 pg		100
15) trans-1,2-Dichloroethene	8.51	96	272	N.D.		
16) 1,1-Dichloroethane	8.71	63	461	N.D.		
17) Methyl tert-Butyl Ether	8.80	73	1263	6.640 pg	#	54
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.89	83	12283	106.527 pg		99
21) 1,2-Dichloroethane	10.64	62	8094	93.457 pg		100
22) 1,1,1-Trichloroethane	10.91	97	2553	24.303 pg		99
23) Benzene	11.37	78	138785	558.876 pg		100
24) Carbon Tetrachloride	11.52	117	45747	481.833 pg		99
26) 1,2-Dichloropropane	12.18	63	1299	22.264 pg		96
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	1109	17.540 pg		93
29) 1,4-Dioxane	12.39	88	957	19.093 pg		84
30) cis-1,3-Dichloropropene	13.26	75	57	N.D.		
31) trans-1,3-Dichloropropene	13.73	75	265	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	1420800	5644.353 pg		99
35) Dibromochloromethane	14.66	129	543	8.143 pg		97
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	7156	108.479 pg		99
39) Chlorobenzene	16.06	112	739	N.D.		
40) Ethylbenzene	16.48	91	131565	473.169 pg		100
41) m,p-Xylene	16.65	91	377429	1744.659 pg		100
42) Styrene	17.01	104	19940	125.509 pg		99
43) o-Xylene	17.12	106	55384	519.982 pg		100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.38	105	43860	186.151 pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	161435	688.330 pg		88
48) 1,3-Dichlorobenzene	18.92	146	119	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	4759	36.127 pg		100
50) 1,2-Dichlorobenzene	19.31	146	204	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.94	182	123	N.D.		
53) Naphthalene	21.06	128	59544	214.363 pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061719.D Vial: 11
Acq On : 6 Feb 2017 16:33 Operator: CL
Sample : P1700288-014 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 08:51:13 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

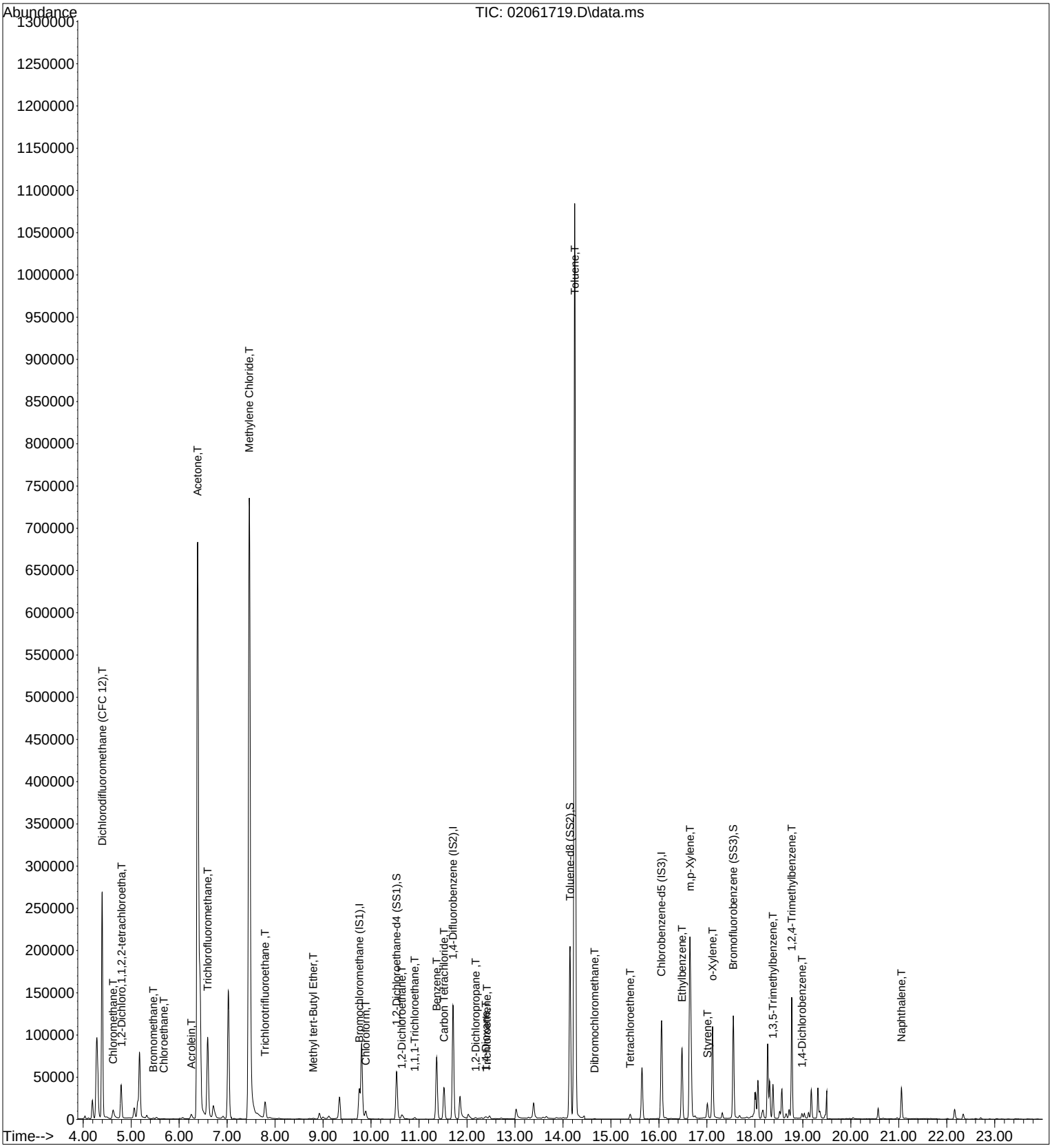
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061719.D Vial: 11
Acq On : 6 Feb 2017 16:33 Operator: CL
Sample : P1700288-014 (1000mL) Inst : MS19
Misc : S29-01241701

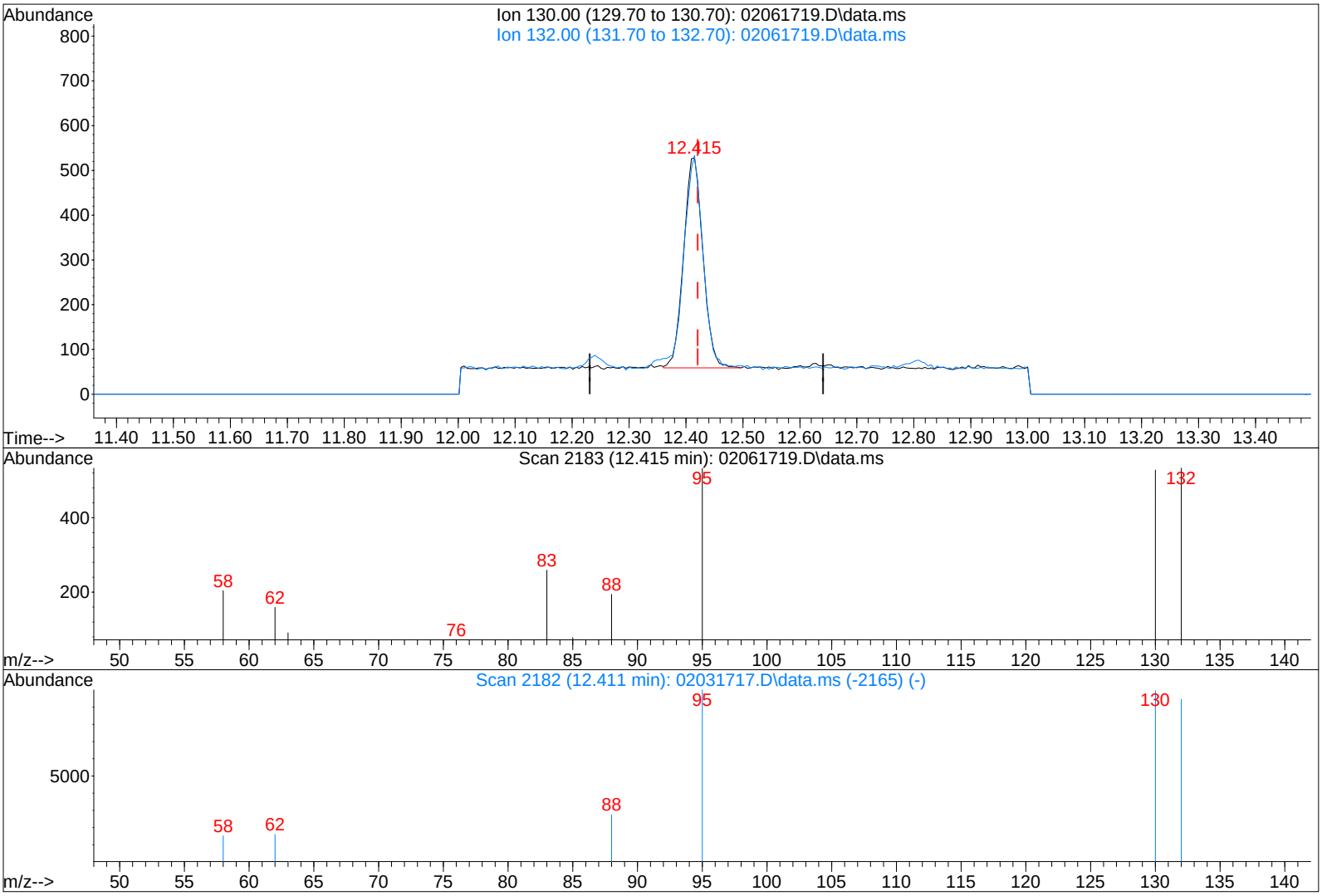
Quant Time: Feb 07 08:51:13 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061719.D Vial: 11
Acq On : 6 Feb 2017 16:33 Operator: CL
Sample : P1700288-014 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:51 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061719.D\data.ms

(28) Trichloroethene (T)

12.415min (-0.006) 17.54pg

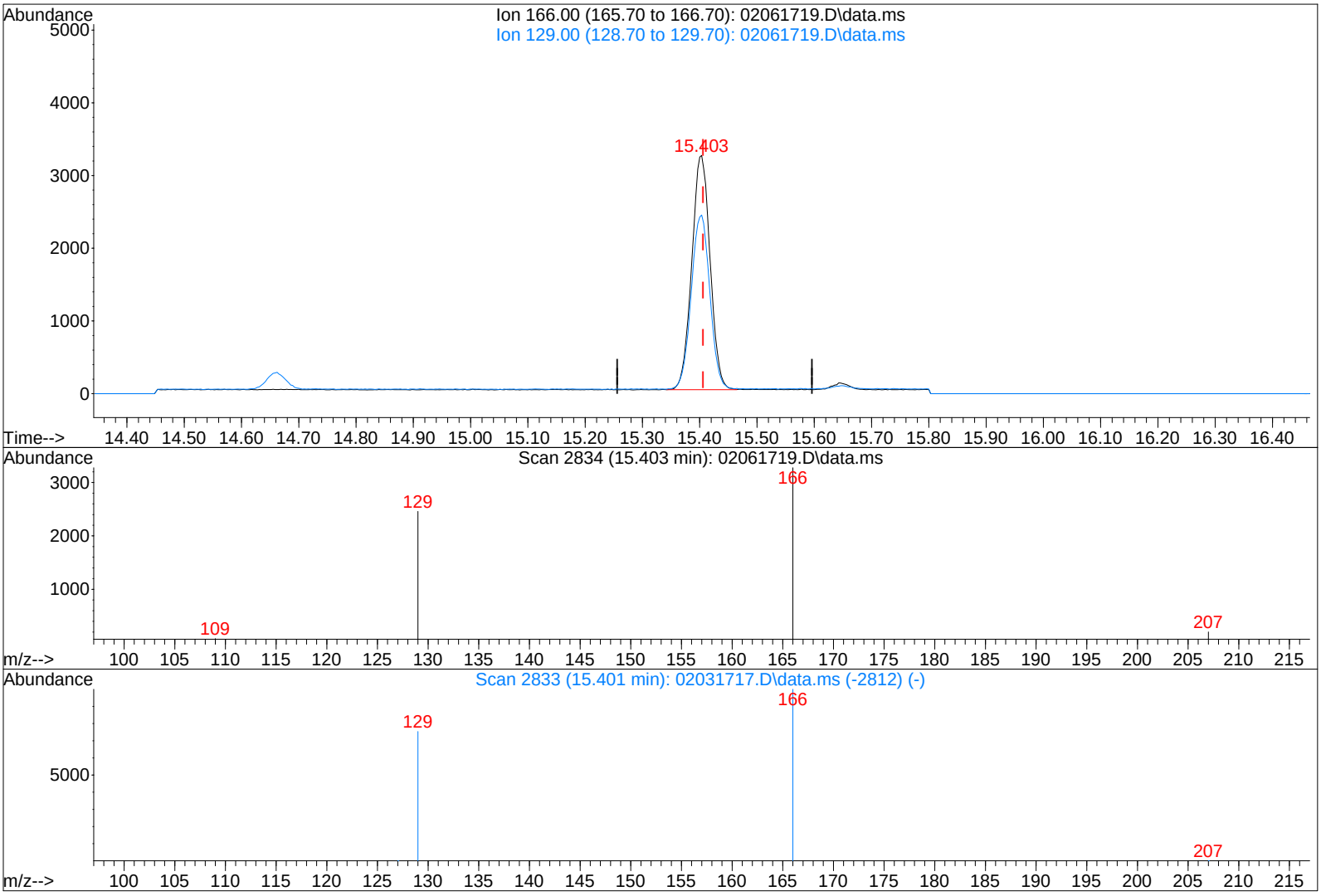
response 1109

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	101.53
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061719.D Vial: 11
Acq On : 6 Feb 2017 16:33 Operator: CL
Sample : P1700288-014 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:51 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061719.D\data.ms

(37) Tetrachloroethene (T)

15.403min (-0.003) 108.48pg

response 7156

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	75.66
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 09:06:04 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	59917	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	306348	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	54026	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	103843	992.646 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.27%			
33) Toluene-d8 (SS2)	14.15	98	311314	996.961 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.70%			
45) Bromofluorobenzene (SS3)	17.55	174	107274	1086.192 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.62%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	269737	1797.360 pg		100
3) Chloromethane	4.65	52	9020	259.314 pg		94
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	10430	72.927 pg		100
5) Vinyl Chloride	4.95	62	493	N.D.		
6) 1,3-Butadiene	5.13	54	1787	19.195 pg	#	84
7) Bromomethane	5.45	94	2410	45.348 pg		98
8) Chloroethane	5.67	64	572	13.804 pg		95
9) Acrolein	6.26	56	10944	322.122 pg		87
10) Acetone	6.38	58	516784	11631.179 pg		97
11) Trichlorofluoromethane	6.59	101	105123	919.240 pg		100
12) 1,1-Dichloroethene	7.33	96	230	N.D.		
13) Methylene Chloride	7.47	84	16088	230.518 pg		85
14) Trichlorotrifluoroethane	7.80	151	22790	359.605 pg		99
15) trans-1,2-Dichloroethene	8.51	96	893	13.434 pg		100
16) 1,1-Dichloroethane	8.71	63	876	7.369 pg		98
17) Methyl tert-Butyl Ether	8.79	73	597	N.D.		
18) cis-1,2-Dichloroethene	9.60	96	1502	21.103 pg		98
19) Chloroform	9.89	83	10700	83.128 pg		97
21) 1,2-Dichloroethane	10.64	62	5488	56.764 pg		98
22) 1,1,1-Trichloroethane	10.91	97	4954	42.245 pg		100
23) Benzene	11.37	78	77067	278.001 pg		99
24) Carbon Tetrachloride	11.52	117	35043	330.629 pg		100
26) 1,2-Dichloropropane	12.18	63	1395	20.418 pg		96
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.41	130	14234	192.249 pg		98
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	126469	429.047 pg		100
35) Dibromochloromethane	14.66	129	785	10.053 pg		96
36) 1,2-Dibromoethane	0.00	107	0	N.D. d		
37) Tetrachloroethene	15.40	166	3113	40.299 pg		99
39) Chlorobenzene	16.10	112	3968	21.403 pg		95
40) Ethylbenzene	16.48	91	28720	91.594 pg		100
41) m,p-Xylene	16.65	91	69330	284.185 pg		100
42) Styrene	17.01	104	10454	58.350 pg		98
43) o-Xylene	17.12	106	12093	100.680 pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.38	105	8415	31.671 pg		95
47) 1,2,4-Trimethylbenzene	18.77	105	28367	107.255 pg		90
48) 1,3-Dichlorobenzene	18.92	146	2477	17.298 pg		97
49) 1,4-Dichlorobenzene	18.98	146	5849	39.374 pg		95
50) 1,2-Dichlorobenzene	19.31	146	2494	17.366 pg		92
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D. d		
52) 1,2,4-Trichlorobenzene	20.94	182	1408	14.946 pg		93
53) Naphthalene	21.06	128	19102	60.981 pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 09:06:04 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

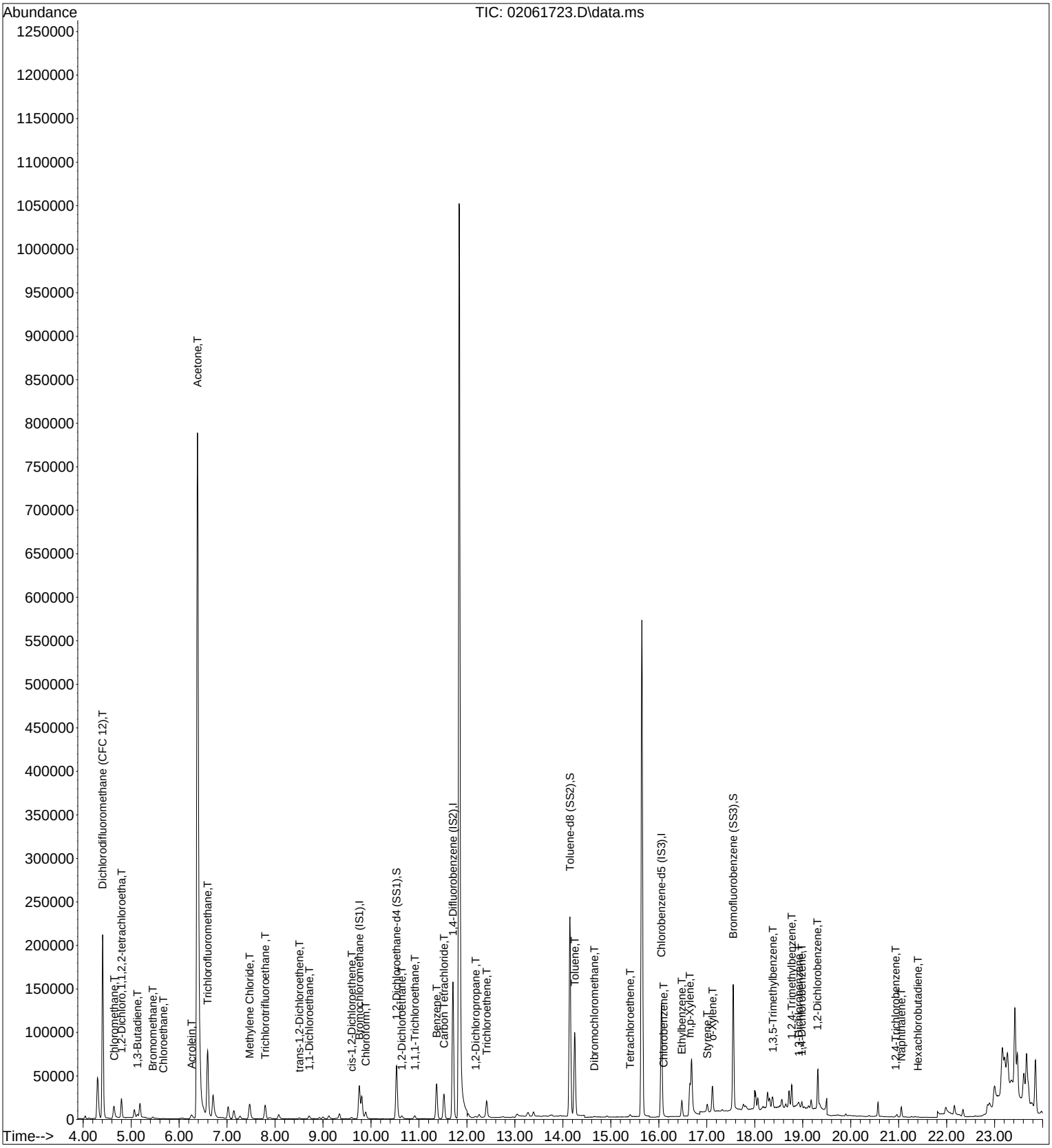
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	508	8.457	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

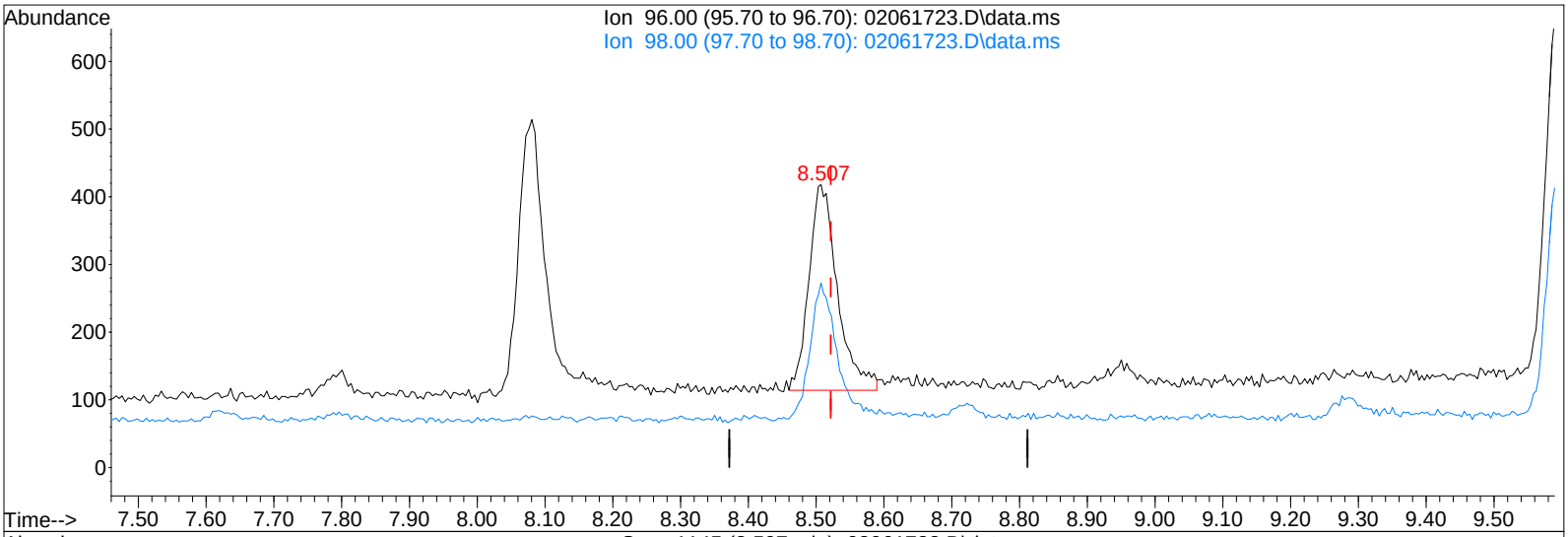
Quant Time: Feb 07 09:06:04 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

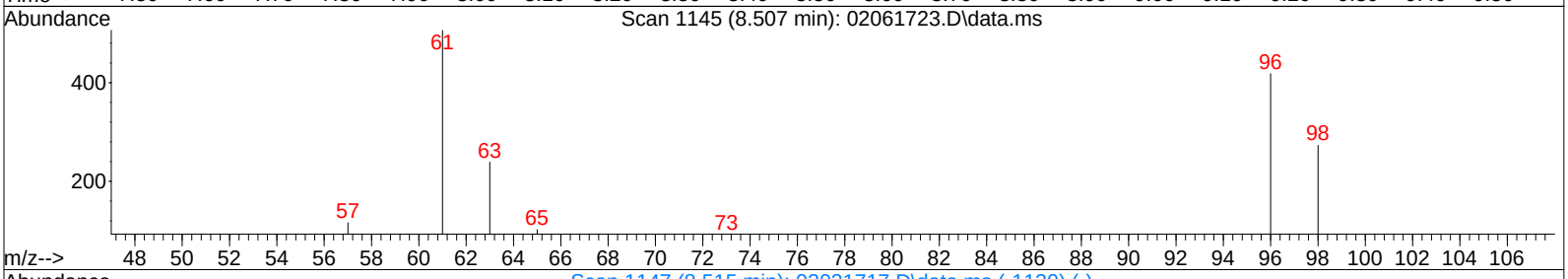


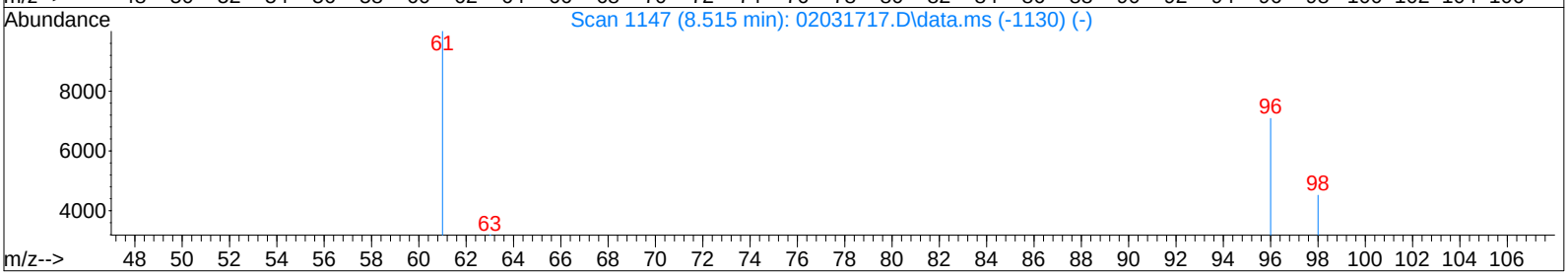
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:55 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02061723.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 13.43pg

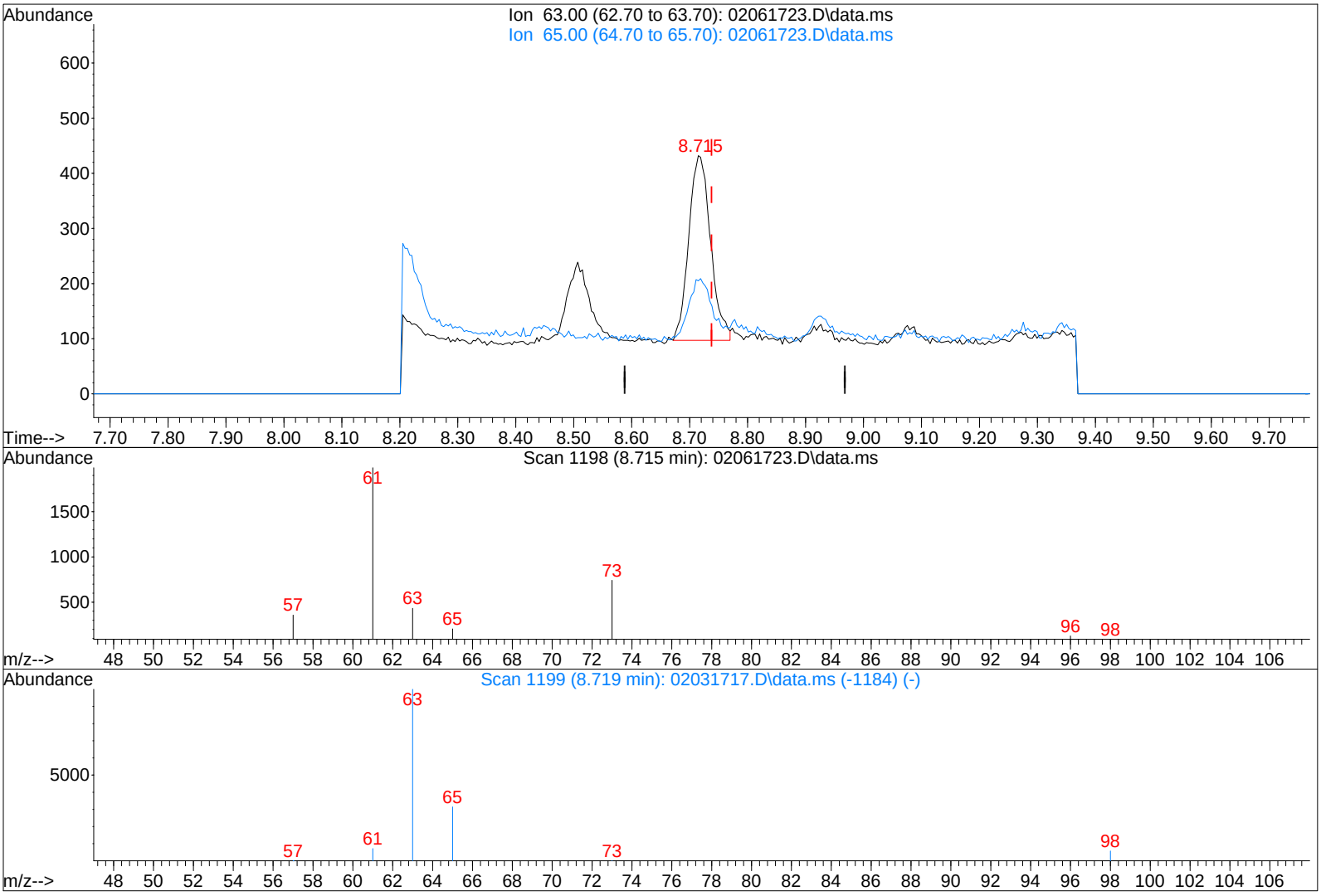
response 893

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	61.59
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:55 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061723.D\data.ms

(16) 1,1-Dichloroethane (T)

8.715min (-0.023) 7.37pg

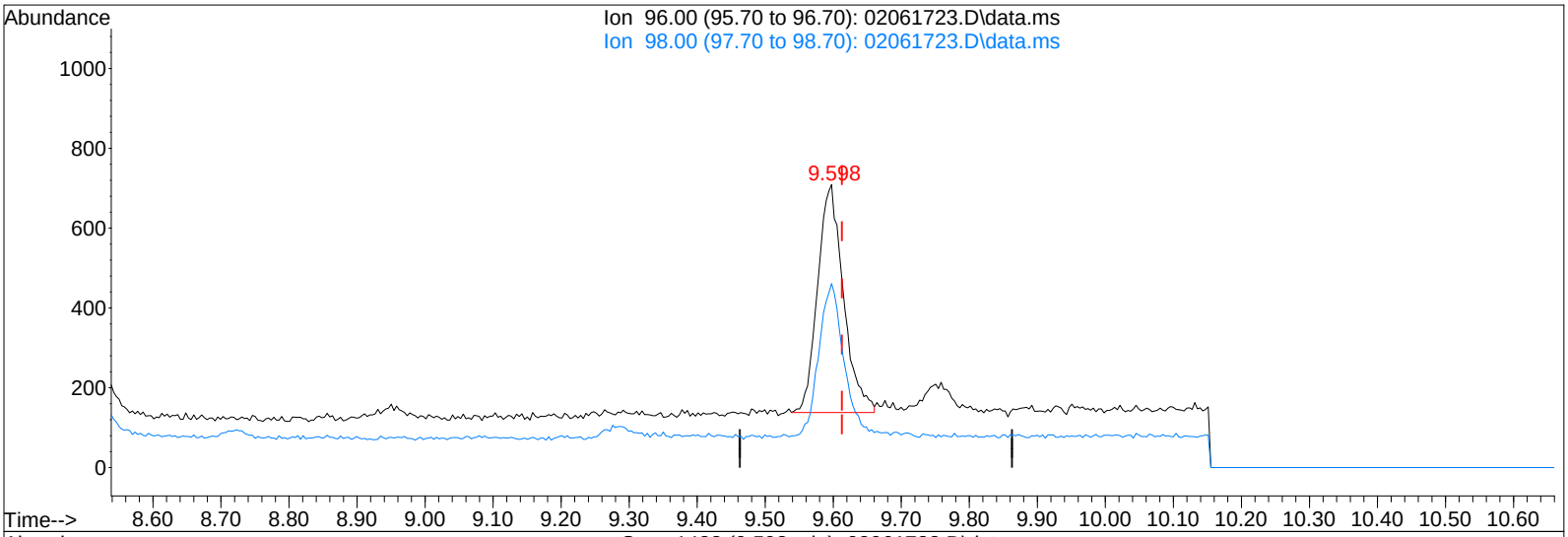
response 876

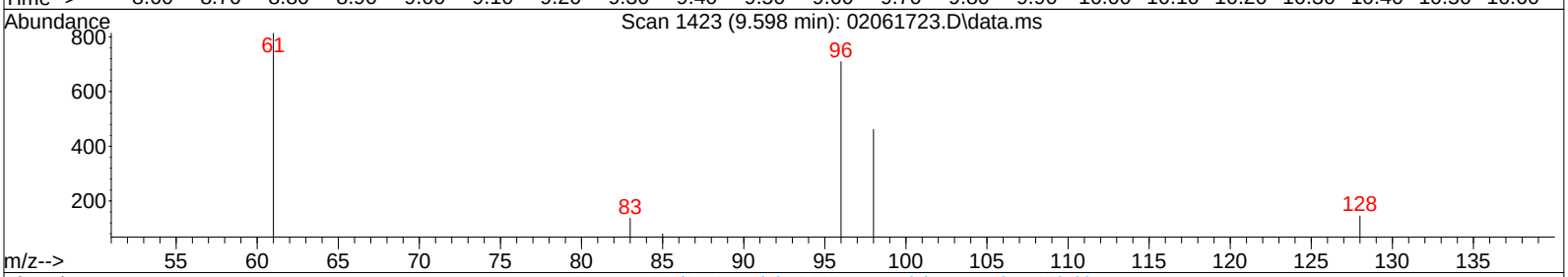
Ion	Exp%	Act%
63.00	100	100
65.00	31.30	32.42
0.00	0.00	0.00
0.00	0.00	0.00

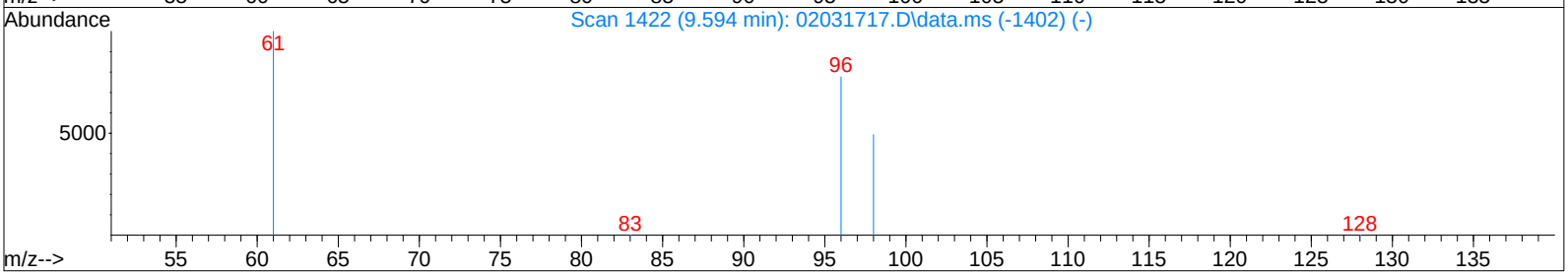
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:55 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02061723.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.598min (-0.015) 21.10pg

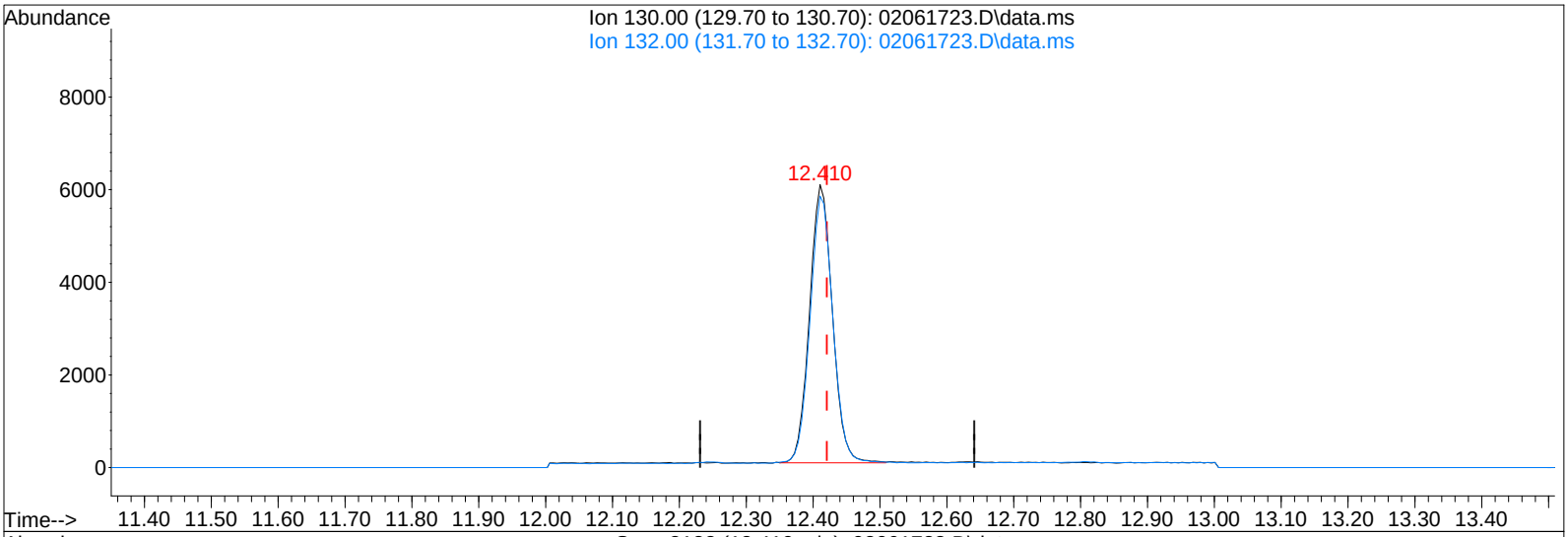
response 1502

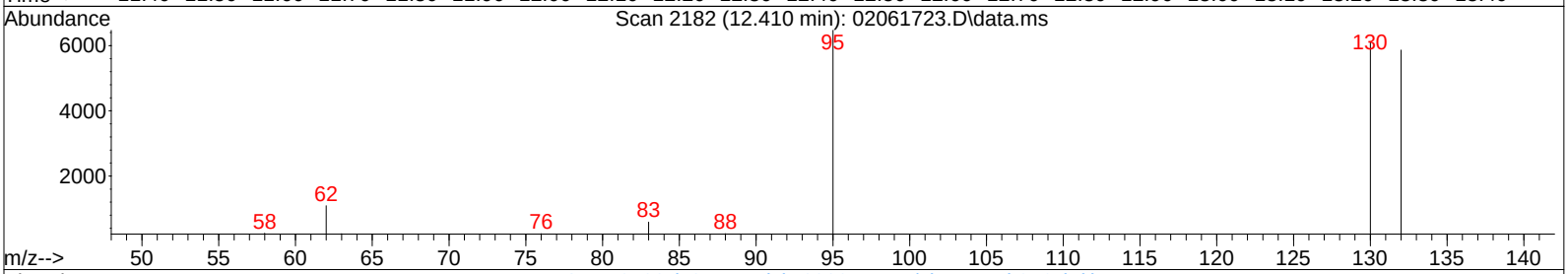
Ion	Exp%	Act%
96.00	100	100
98.00	64.00	65.78
0.00	0.00	0.00
0.00	0.00	0.00

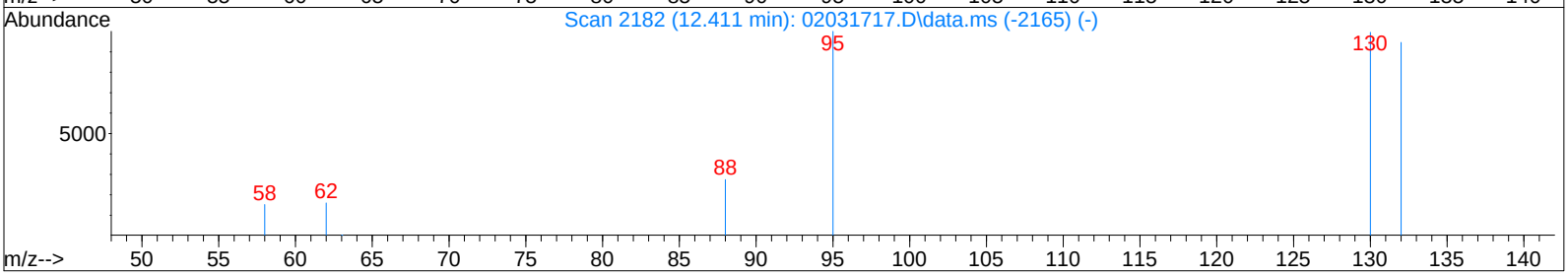
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:55 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02061723.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.010) 192.25pg

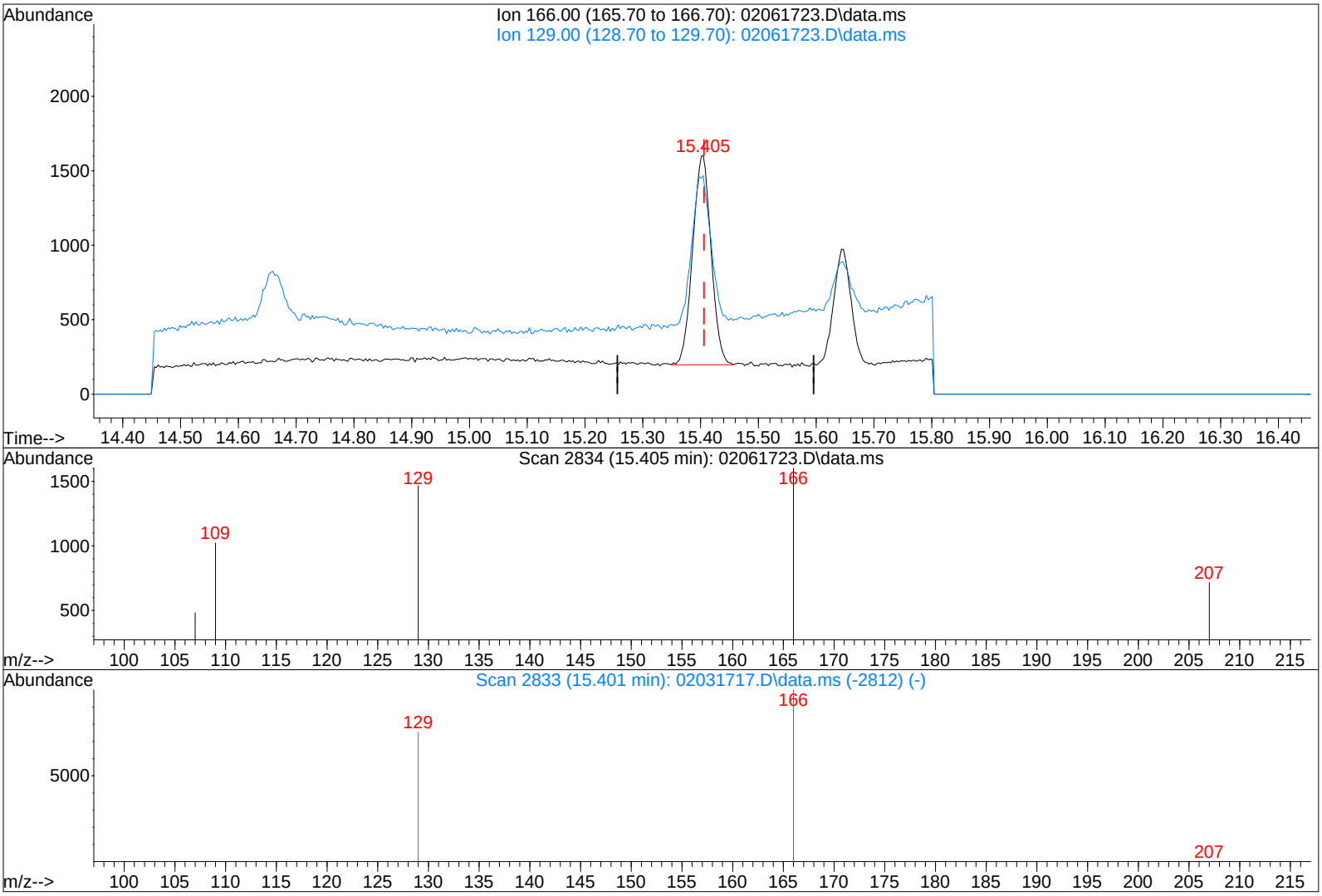
response 14234

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	96.61
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\06\02061723.D Vial: 14
Acq On : 6 Feb 2017 18:39 Operator: CL
Sample : P1700288-017 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 07:20:55 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02061723.D\data.ms

(37) Tetrachloroethene (T)

15.405min (-0.002) 40.30pg

response 3113

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	75.97
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41818	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	202055	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	33539	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	67749	1033.325	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.33%				
33) Toluene-d8 (SS2)	14.15	98	202774	998.293	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.83%				
45) Bromofluorobenzene (SS3)	17.55	174	66747	931.271	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.13%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	81	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.48	58	2990	106.620	pg	#	90
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.52	84	217	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	803	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	2381	N.D.			
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	12.42	88	54	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.26	91	1045	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.10	112	92	N.D.			
40) Ethylbenzene	16.49	91	96	N.D.			
41) m,p-Xylene	16.67	91	289	N.D.			
42) Styrene	17.05	104	140	N.D.			
43) o-Xylene	17.13	106	56	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	169	N.D.			
46) 1,3,5-Trimethylbenzene	18.32	105	66	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	67	N.D.			
48) 1,3-Dichlorobenzene	18.94	146	59	N.D.			
49) 1,4-Dichlorobenzene	19.00	146	84	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	74	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	21.00	182	98	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

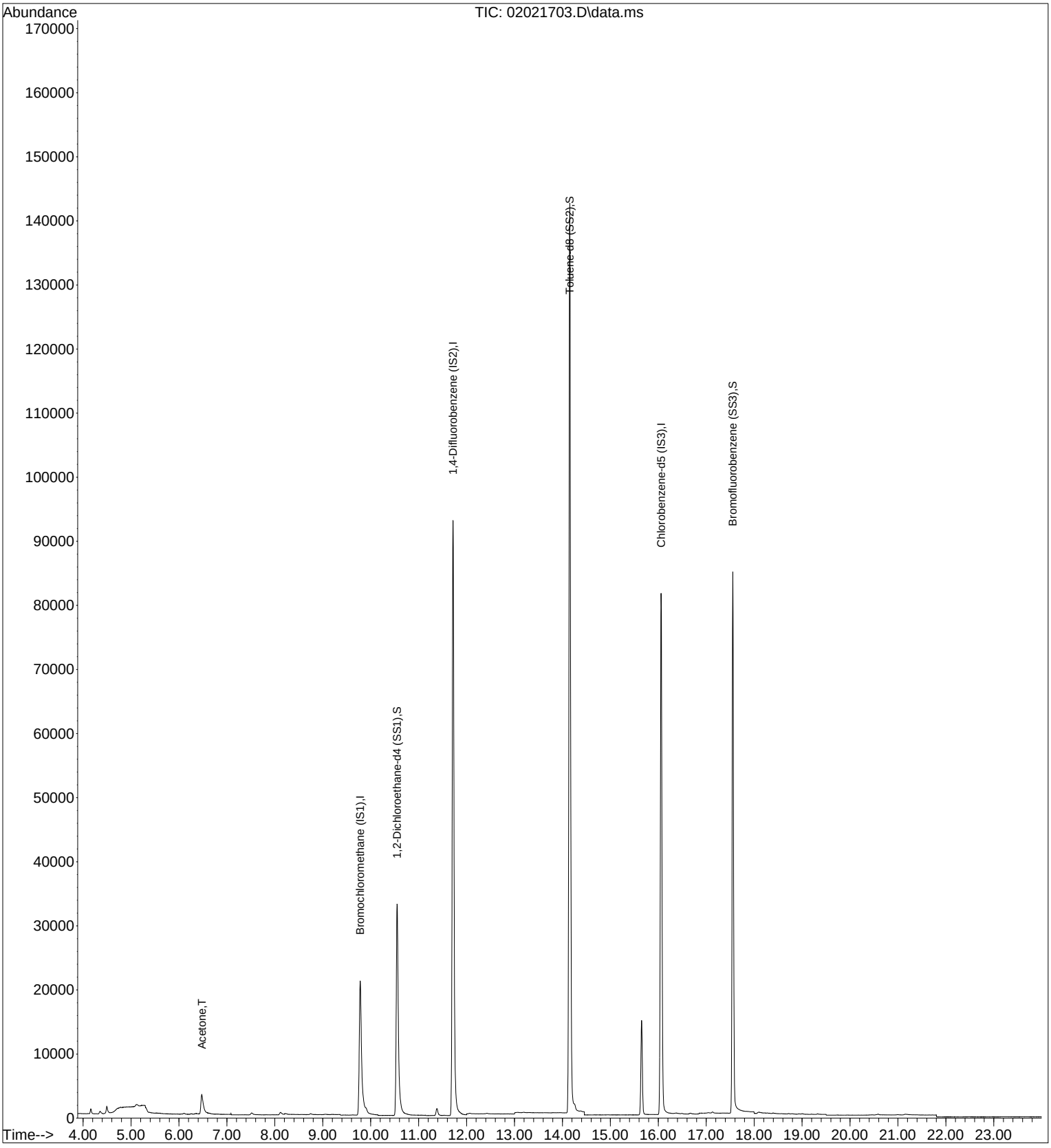
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021703.D Vial: 2
Acq On : 2 Feb 2017 3:26 Operator: CL
Sample : MB S19020217 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 02 07:12:26 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	51975	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	253570	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	43764	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	90349	995.626	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.56%				
33) Toluene-d8 (SS2)	14.15	98	257551	996.460	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.65%				
45) Bromofluorobenzene (SS3)	17.56	174	79294	991.148	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.11%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	117	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.44	94	53	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.47	58	8214	213.120	pg	#	72
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.53	84	348	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.74	73	396	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	1489	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3967	N.D.			
24) Carbon Tetrachloride	11.53	117	52	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	12.42	130	101	N.D.			
29) 1,4-Dioxane	12.42	88	71	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	1273	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.11	112	148	N.D.			
40) Ethylbenzene	16.49	91	173	N.D.			
41) m,p-Xylene	16.66	91	540	N.D.			
42) Styrene	17.04	104	209	N.D.			
43) o-Xylene	17.12	106	92	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	219	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	77	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	207	N.D.			
48) 1,3-Dichlorobenzene	18.93	146	118	N.D.			
49) 1,4-Dichlorobenzene	18.99	146	172	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	119	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.98	182	117	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

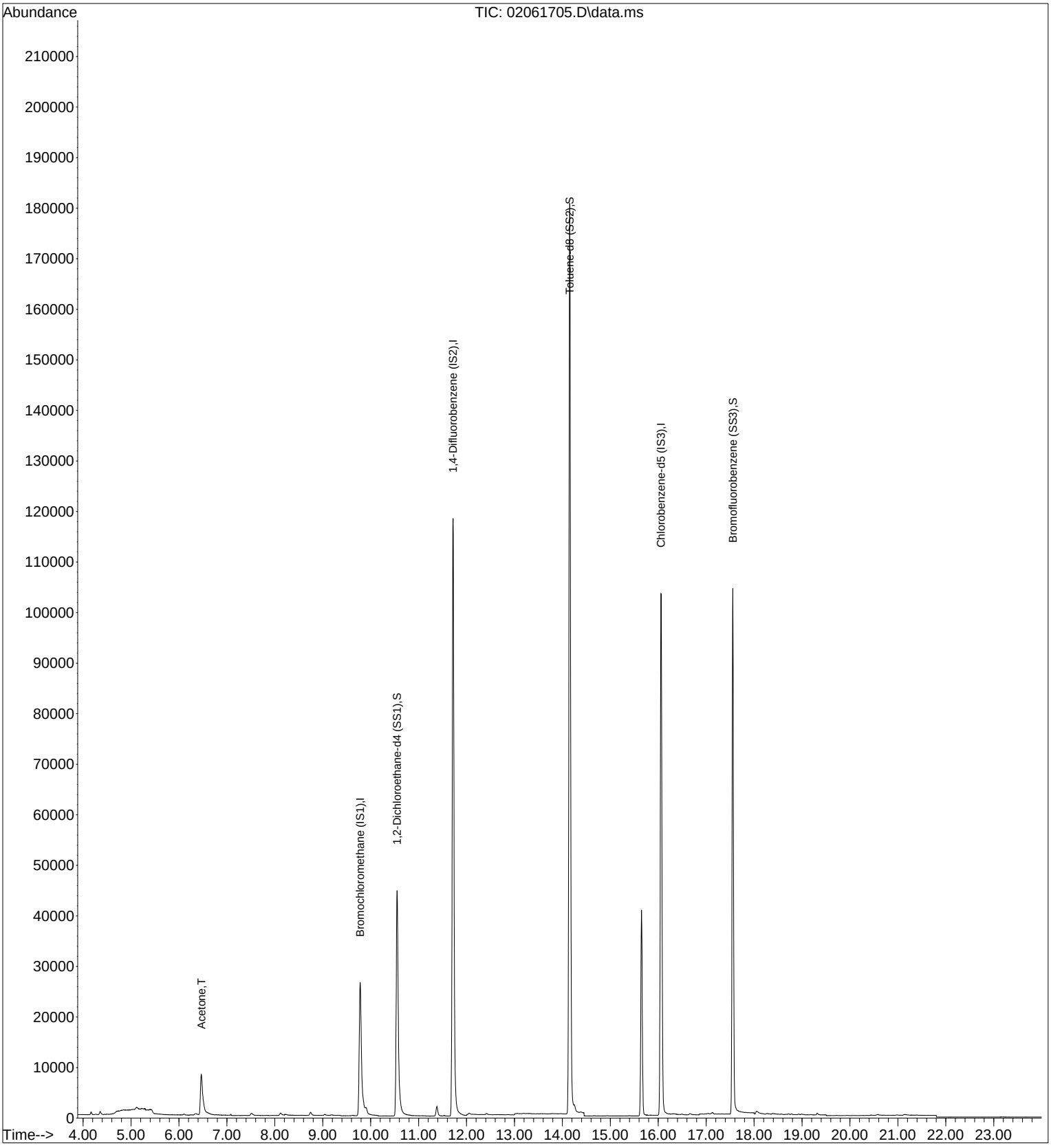
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	53273	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	263102	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42772	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	86067	925.331	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.53%			
33) Toluene-d8 (SS2)	14.15	98	261254	974.166	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.42%			
45) Bromofluorobenzene (SS3)	17.56	174	86502	1106.322	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.63%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	113	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	6.33	56	100	N.D.		
10) Acetone	6.47	58	4052	102.572	pg #	89
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	471	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	63	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	1035	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	3429	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	13.78	75	63	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	1197	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.11	112	117	N.D.		
40) Ethylbenzene	16.49	91	169	N.D.		
41) m,p-Xylene	16.66	91	369	N.D.		
42) Styrene	17.03	104	191	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	222	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	70	N.D.		
47) 1,2,4-Trimethylbenzene	18.78	105	142	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	96	N.D.		
49) 1,4-Dichlorobenzene	18.99	146	116	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	99	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.98	182	138	N.D.		
53) Naphthalene	21.12	128	797	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

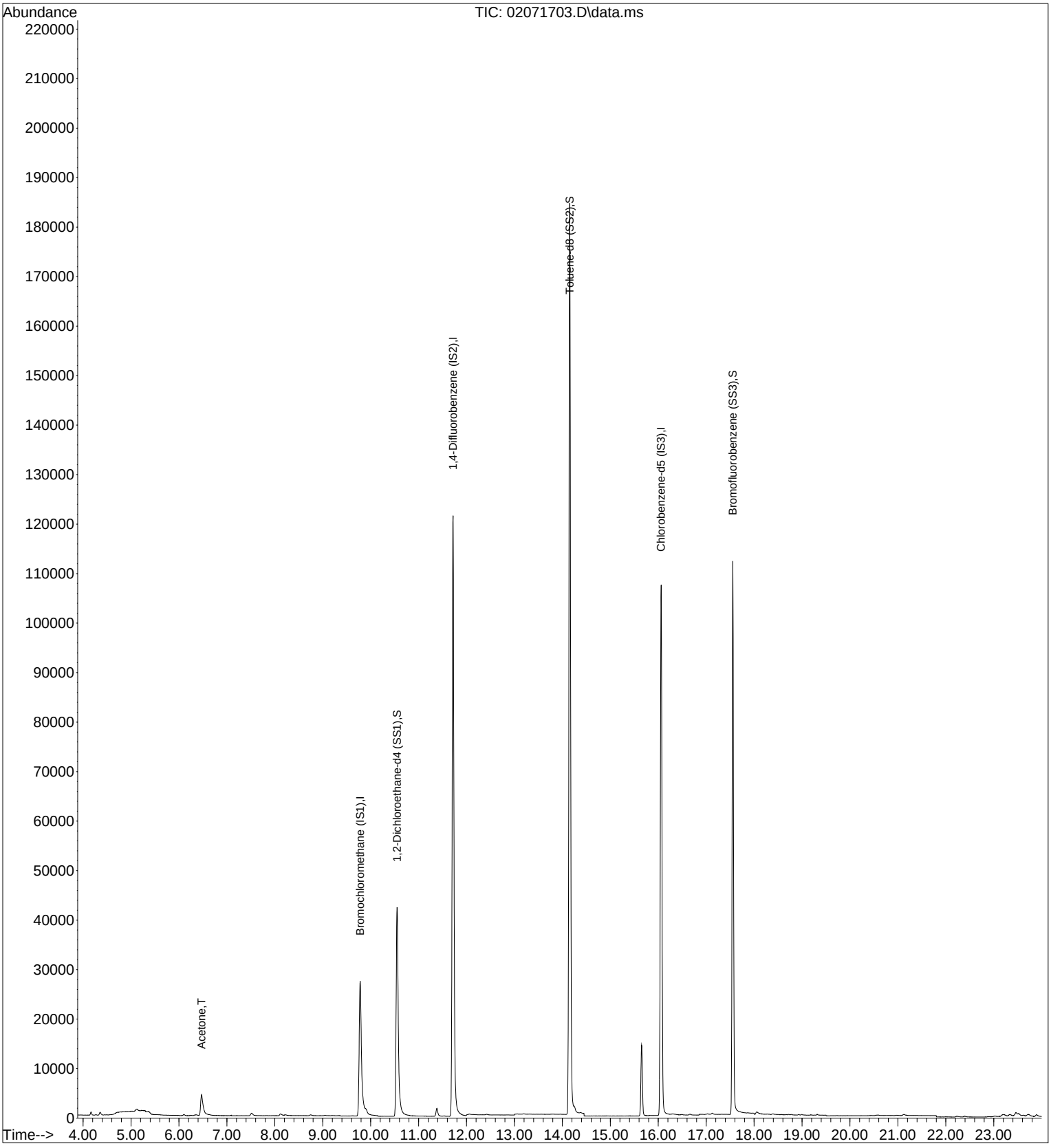
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	41544	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	200771	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33287	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	66481	1020.673	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.07%			
33) Toluene-d8 (SS2)	14.15	98	203563	1008.587	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.86%			
45) Bromofluorobenzene (SS3)	17.55	174	68951	969.305	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.93%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	52618	536.449	pg	100
3) Chloromethane	4.65	52	12976	591.455	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	45548	491.881	pg	100
5) Vinyl Chloride	4.96	62	44937	519.142	pg	100
6) 1,3-Butadiene	5.14	54	30823	584.497	pg	99
7) Bromomethane	5.48	94	18454	537.742	pg	100
8) Chloroethane	5.70	64	14309	524.080	pg	99
9) Acrolein	6.27	56	9823	437.632	pg	89
10) Acetone	6.40	58	91183	3272.919	pg	98
11) Trichlorofluoromethane	6.62	101	40045	530.498	pg	100
12) 1,1-Dichloroethene	7.35	96	23103	521.881	pg	99
13) Methylene Chloride	7.48	84	23691	519.212	pg	100
14) Trichlorotrifluoroethane	7.80	151	23010	506.192	pg	100
15) trans-1,2-Dichloroethene	8.51	96	24836	555.093	pg	99
16) 1,1-Dichloroethane	8.72	63	41367	532.845	pg	100
17) Methyl tert-Butyl Ether	8.79	73	74891	525.066	pg	100
18) cis-1,2-Dichloroethene	9.59	96	25833	535.945	pg	99
19) Chloroform	9.89	83	43947	523.709	pg	100
21) 1,2-Dichloroethane	10.64	62	33308	539.386	pg	100
22) 1,1,1-Trichloroethane	10.91	97	41899	529.975	pg	100
23) Benzene	11.37	78	101724	557.910	pg	100
24) Carbon Tetrachloride	11.52	117	38072	517.055	pg	100
26) 1,2-Dichloropropane	12.17	63	22934	513.208	pg	99
27) Bromodichloromethane	12.35	83	34034	522.508	pg	100
28) Trichloroethene	12.41	130	26818	522.659	pg	99
29) 1,4-Dioxane	12.38	88	19994	511.026	pg	100
30) cis-1,3-Dichloropropene	13.26	75	36974	509.044	pg	99
31) trans-1,3-Dichloropropene	13.77	75	32811	522.360	pg	99
32) 1,1,2-Trichloroethane	13.95	83	19941	527.062	pg	99
34) Toluene	14.25	91	96700	502.787	pg	100
35) Dibromochloromethane	14.66	129	27775	497.467	pg	100
36) 1,2-Dibromoethane	14.92	107	26241	522.285	pg	99
37) Tetrachloroethene	15.40	166	27966	510.069	pg	98
39) Chlorobenzene	16.10	112	65889	524.171	pg	100
40) Ethylbenzene	16.48	91	111486	530.112	pg	99
41) m,p-Xylene	16.66	91	171364	1045.029	pg	99
42) Styrene	17.01	104	63652	506.647	pg	100
43) o-Xylene	17.12	106	41970	514.850	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39527	507.613	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	91793	518.979	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	92014	516.754	pg	99
48) 1,3-Dichlorobenzene	18.92	146	52013	531.882	pg	100
49) 1,4-Dichlorobenzene	18.98	146	52259	506.369	pg	100
50) 1,2-Dichlorobenzene	19.31	146	50397	510.954	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	16783	472.897	pg	94
52) 1,2,4-Trichlorobenzene	20.94	182	30867	440.798	pg	99
53) Naphthalene	21.06	128	106866	476.970	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

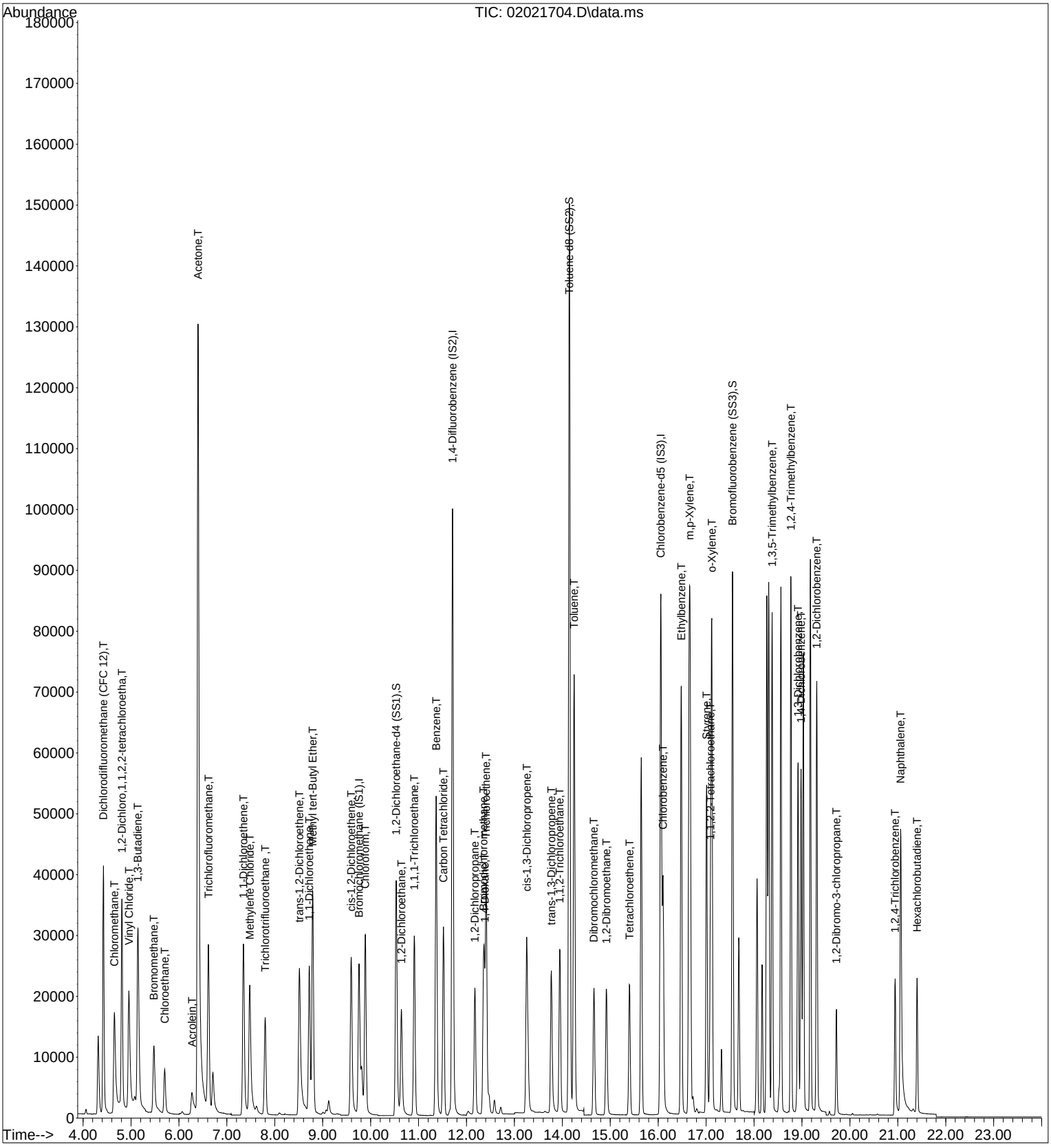
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	21632	474.077	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021704.D Vial: 2
Acq On : 2 Feb 2017 3:57 Operator: CL
Sample : LCS S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 02 07:12:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	53207	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	259467	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	45451	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91424	984.144	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.41%			
33) Toluene-d8 (SS2)	14.15	98	265817	1005.067	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.51%			
45) Bromofluorobenzene (SS3)	17.55	174	84028	1011.337	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	71163	533.986	pg	100
3) Chloromethane	4.65	52	15974	517.147	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	61713	485.916	pg	100
5) Vinyl Chloride	4.96	62	60183	519.060	pg	100
6) 1,3-Butadiene	5.14	54	42751	517.131	pg	95
7) Bromomethane	5.48	94	24270	514.275	pg	99
8) Chloroethane	5.70	64	18996	516.241	pg	99
9) Acrolein	6.27	56	12523	415.083	pg	89
10) Acetone	6.40	58	129950	3293.611	pg	93
11) Trichlorofluoromethane	6.62	101	52933	521.242	pg	100
12) 1,1-Dichloroethene	7.35	96	29975	527.316	pg	98
13) Methylene Chloride	7.48	84	31414	506.882	pg	98
14) Trichlorotrifluoroethane	7.80	151	28873	513.044	pg	100
15) trans-1,2-Dichloroethene	8.52	96	32590	552.111	pg	100
16) 1,1-Dichloroethane	8.72	63	55500	525.747	pg	99
17) Methyl tert-Butyl Ether	8.79	73	99703	528.791	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34450	545.058	pg	100
19) Chloroform	9.89	83	59680	522.123	pg	100
21) 1,2-Dichloroethane	10.64	62	45745	532.819	pg	98
22) 1,1,1-Trichloroethane	10.91	97	55677	534.654	pg	100
23) Benzene	11.37	78	139735	567.630	pg	100
24) Carbon Tetrachloride	11.52	117	48737	517.822	pg	100
26) 1,2-Dichloropropane	12.18	63	30623	529.189	pg	99
27) Bromodichloromethane	12.36	83	44950	538.092	pg	100
28) Trichloroethene	12.41	130	34228	545.822	pg	99
29) 1,4-Dioxane	12.38	88	26183	526.677	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48275	526.494	pg	100
31) trans-1,3-Dichloropropene	13.77	75	42349	528.484	pg	100
32) 1,1,2-Trichloroethane	13.95	83	26212	543.878	pg	99
34) Toluene	14.25	91	127727	511.607	pg	100
35) Dibromochloromethane	14.66	129	34268	518.136	pg	100
36) 1,2-Dibromoethane	14.92	107	33700	540.537	pg	99
37) Tetrachloroethene	15.40	166	34547	528.031	pg	100
39) Chlorobenzene	16.10	112	84998	544.966	pg	100
40) Ethylbenzene	16.48	91	145914	553.143	pg	100
41) m,p-Xylene	16.66	91	225501	1098.724	pg	100
42) Styrene	17.01	104	79487	527.365	pg	100
43) o-Xylene	17.12	106	54195	536.325	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	52122	532.269	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	118264	529.072	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	119511	537.120	pg	100
48) 1,3-Dichlorobenzene	18.92	146	65463	543.398	pg	100
49) 1,4-Dichlorobenzene	18.98	146	64923	519.497	pg	100
50) 1,2-Dichlorobenzene	19.31	146	63278	523.729	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19838	508.914	pg	98
52) 1,2,4-Trichlorobenzene	20.95	182	36822	464.612	pg	100
53) Naphthalene	21.06	128	129677	492.084	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

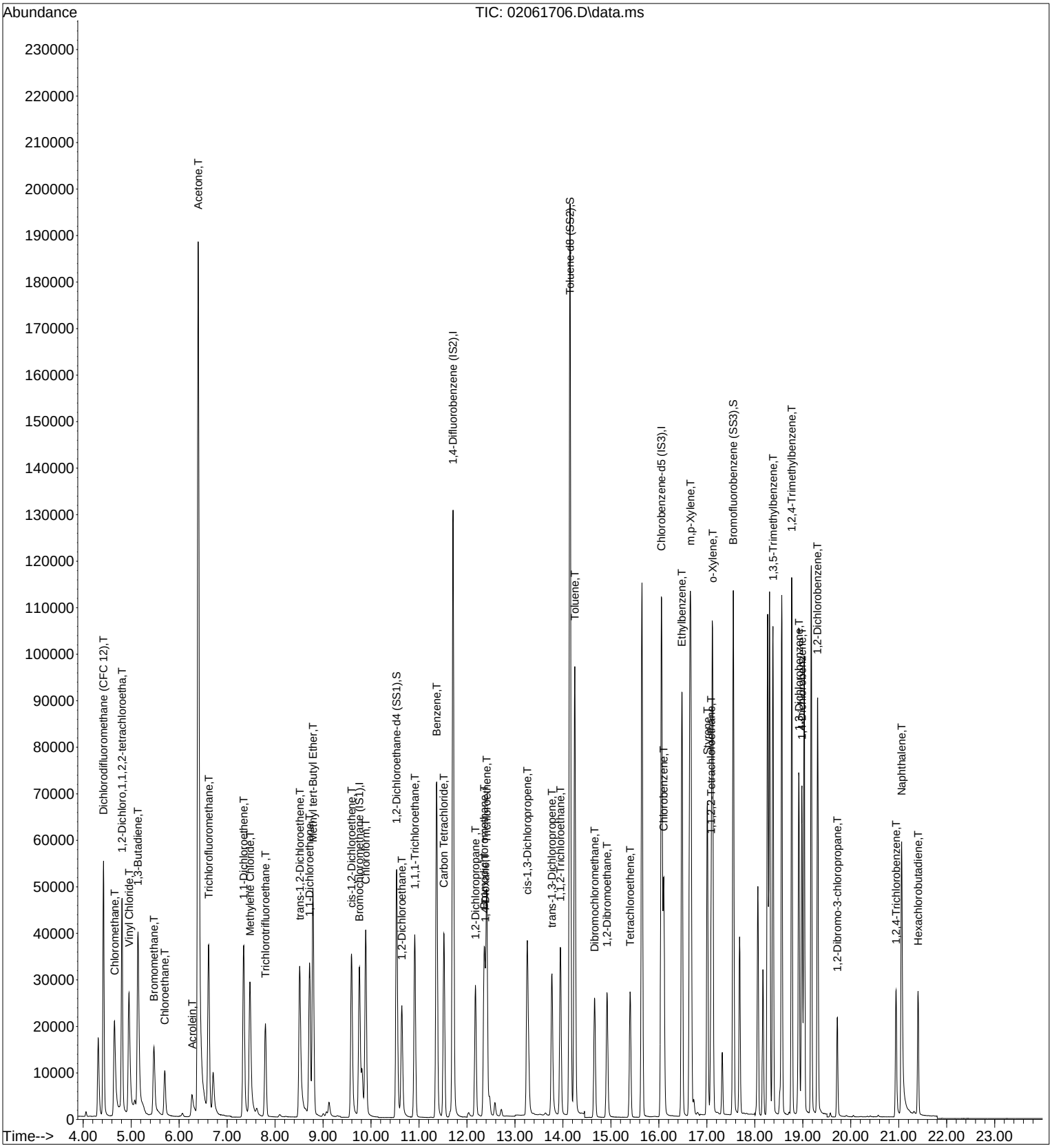
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	25761	509.785	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	53781	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	263913	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	44025	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	86942	925.909	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.59%			
33) Toluene-d8 (SS2)	14.15	98	267147	993.079	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.31%			
45) Bromofluorobenzene (SS3)	17.55	174	90440	1123.767	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.38%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	67795	503.284	pg	100
3) Chloromethane	4.65	52	15674	502.019	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	59758	465.501	pg	100
5) Vinyl Chloride	4.95	62	58332	497.726	pg	100
6) 1,3-Butadiene	5.14	54	41756	499.704	pg	98
7) Bromomethane	5.47	94	24466	512.895	pg	98
8) Chloroethane	5.70	64	18758	504.333	pg	99
9) Acrolein	6.26	56	12225	400.881	pg	91
10) Acetone	6.40	58	128561	3223.629	pg	# 90
11) Trichlorofluoromethane	6.61	101	52563	512.074	pg	100
12) 1,1-Dichloroethene	7.34	96	29667	516.328	pg	95
13) Methylene Chloride	7.47	84	30433	485.812	pg	97
14) Trichlorotrifluoroethane	7.80	151	29113	511.788	pg	100
15) trans-1,2-Dichloroethene	8.51	96	31214	523.156	pg	98
16) 1,1-Dichloroethane	8.72	63	52870	495.488	pg	99
17) Methyl tert-Butyl Ether	8.79	73	96423	505.937	pg	98
18) cis-1,2-Dichloroethene	9.59	96	33431	523.291	pg	100
19) Chloroform	9.89	83	56131	485.833	pg	100
21) 1,2-Dichloroethane	10.64	62	42703	492.079	pg	100
22) 1,1,1-Trichloroethane	10.91	97	53064	504.124	pg	100
23) Benzene	11.37	78	131950	530.285	pg	100
24) Carbon Tetrachloride	11.52	117	46885	492.828	pg	100
26) 1,2-Dichloropropane	12.18	63	29148	495.214	pg	100
27) Bromodichloromethane	12.36	83	42129	495.826	pg	100
28) Trichloroethene	12.41	130	34316	538.007	pg	99
29) 1,4-Dioxane	12.38	88	25548	505.246	pg	96
30) cis-1,3-Dichloropropene	13.26	75	46165	495.000	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40609	498.233	pg	100
32) 1,1,2-Trichloroethane	13.95	83	25252	515.132	pg	98
34) Toluene	14.25	91	124901	491.859	pg	100
35) Dibromochloromethane	14.66	129	33241	494.140	pg	100
36) 1,2-Dibromoethane	14.92	107	32864	518.248	pg	99
37) Tetrachloroethene	15.40	166	35750	537.213	pg	98
39) Chlorobenzene	16.10	112	84575	559.818	pg	100
40) Ethylbenzene	16.48	91	141768	554.834	pg	99
41) m,p-Xylene	16.66	91	218627	1099.735	pg	98
42) Styrene	17.01	104	77762	532.631	pg	100
43) o-Xylene	17.12	106	53719	548.833	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	49223	518.946	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	116326	537.258	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	116781	541.851	pg	99
48) 1,3-Dichlorobenzene	18.92	146	65788	563.784	pg	100
49) 1,4-Dichlorobenzene	18.98	146	65360	539.934	pg	100
50) 1,2-Dichlorobenzene	19.31	146	63291	540.804	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19224	509.137	pg	92
52) 1,2,4-Trichlorobenzene	20.95	182	36938	481.172	pg	98
53) Naphthalene	21.06	128	127487	499.443	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

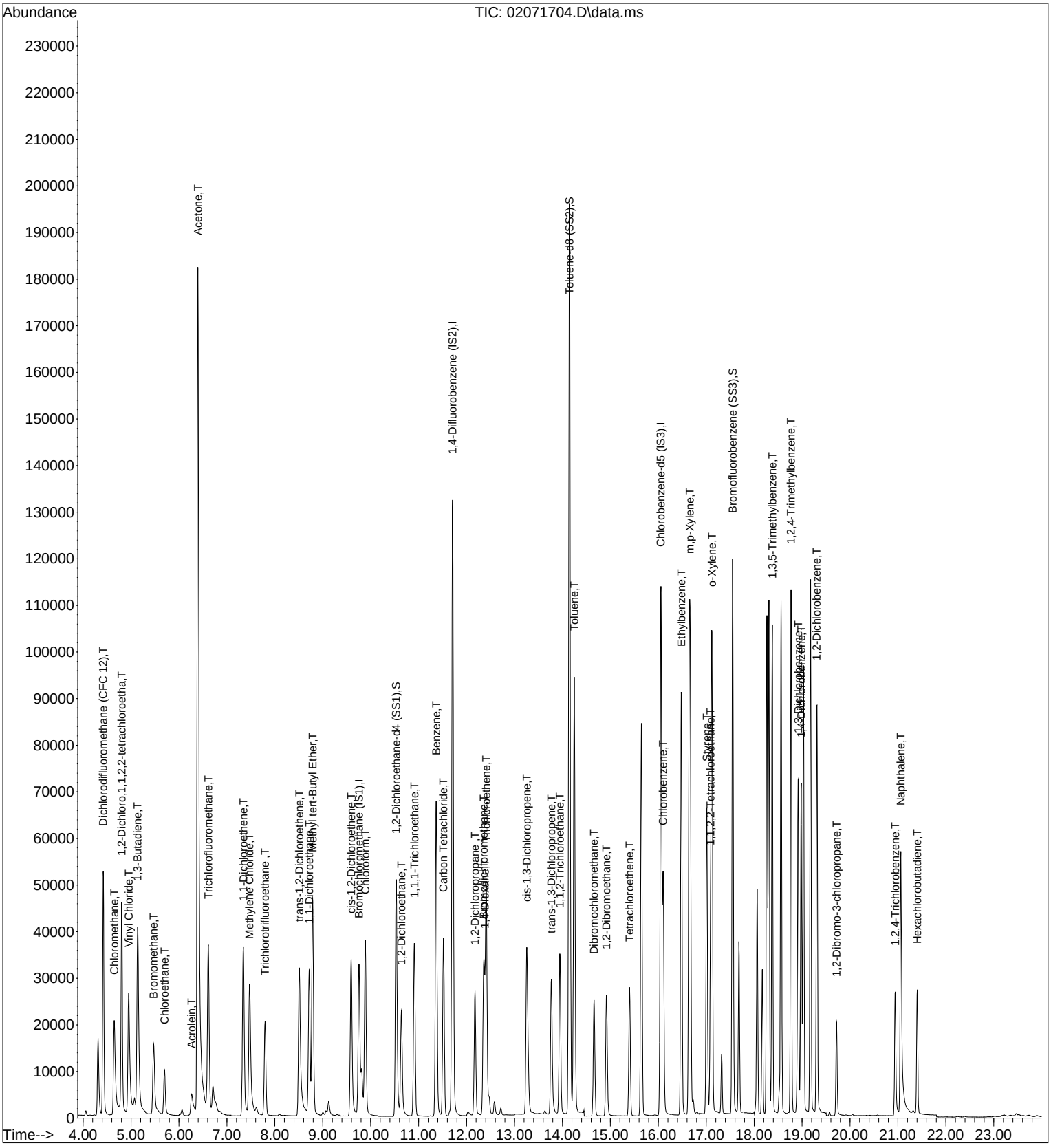
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26334	538.004	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response Via : Initial Calibration

CL 2/1/17

Calibration Files
10 =01311715.D 20 =01311716.D 50 =01311717.D 100 =01311718.D 500 =01311719.D 1000=01311720.D 2000=01311721.D
5000=01311722.D 10K =01311723.D 50K =01311725.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	2.608	2.820	2.639	2.389	2.332	2.624	2.277	2.121	1.991	1.810	2.361	13.58
3)	T	Chloromethane			0.722	0.582	0.495	0.720	0.567	0.439	0.268	0.433	0.528	29.04
4)	T	1,2-Dichloro,1...	2.506	2.728	2.524	2.214	2.212	2.453	2.105	1.960	1.845	1.743	2.229	14.46
5)	T	Vinyl Chloride	2.663	2.164	2.406	2.063	2.012	2.274	1.955	1.854	1.767	1.677	2.084	14.51
6)	T	1,3-Butadiene		1.373	0.773	1.008	1.147	1.606	1.340	1.428	1.357	1.393	1.269	19.82
7)	T	Bromomethane	0.848	0.944	0.863	0.807	0.819	0.917	0.815	0.767	0.735	0.745	0.826	8.38
8)	T	Chloroethane	0.639	0.757	0.678	0.658	0.651	0.730	0.640	0.620	0.602	0.596	0.657	7.96
9)	T	Acrolein			0.641	0.565	0.484	0.567	0.514	0.516	0.509	0.528	0.540	9.11
10)	T	Acetone				0.927	0.642	0.710	0.613	0.580	0.565	0.657	0.671	18.39
11)	T	Trichlorofluor...	1.889	2.169	2.029	1.820	1.775	1.978	1.713	1.642	1.571	1.583	1.817	10.99
12)	T	1,1-Dichloroet...	1.063	1.220	1.141	1.044	1.040	1.179	1.038	1.000	0.964	0.967	1.066	8.22
13)	T	Methylene Chlo...		1.370	1.220	1.075	1.059	1.181	1.034	0.993	0.964	0.989	1.098	12.17
14)	T	Trichlorotrifl...	1.138	1.282	1.192	1.063	1.060	1.208	1.049	1.008	0.944	0.999	1.094	9.77
15)	T	trans-1,2-Dich...	1.075	1.096	1.026	1.058	1.085	1.246	1.103	1.060	1.012	1.009	1.077	6.31
16)	T	1,1-Dichloroet...	1.843	2.111	1.994	1.821	1.872	2.104	1.837	1.744	1.677	1.683	1.869	8.37
17)	T	Methyl tert-Bu...	3.545	4.009	3.704	3.377	3.408	3.797	3.293	3.114	2.997	3.088	3.433	9.63
18)	T	cis-1,2-Dichlo...	1.158	1.080	1.249	1.134	1.174	1.327	1.174	1.131	1.089	1.088	1.160	6.70
19)	T	Chloroform			2.631	2.164	1.969	2.189	1.899	1.809	1.738	1.760	2.020	14.87
20)	S	1,2-Dichloroet...	1.545	1.552	1.558	1.566	1.600	1.551	1.560	1.577	1.604	1.567	1.568	1.28
21)	T	1,2-Dichloroet...	1.442	1.617	1.548	1.425	1.455	1.671	1.477	1.433	1.389	1.406	1.486	6.36
22)	T	1,1,1-Trichlor...	1.944	2.218	2.057	1.856	1.876	2.111	1.845	1.755	1.679	1.688	1.903	9.47
23)	T	Benzene			5.575	4.588	4.295	4.800	4.160	3.970	3.819	3.904	4.389	13.37
24)	T	Carbon Tetrach...	2.006	2.025	1.906	1.717	1.714	1.922	1.679	1.609	1.555	1.590	1.772	9.97
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.256	0.234	0.231	0.210	0.213	0.244	0.216	0.209	0.202	0.212	0.223	7.87
27)	T	Bromodichlorom...	0.314	0.380	0.346	0.312	0.311	0.355	0.315	0.303	0.291	0.318	0.324	8.39
28)	T	Trichloroethene	0.268	0.294	0.272	0.248	0.249	0.283	0.247	0.234	0.223	0.238	0.256	8.90
29)	T	1,4-Dioxane	0.197	0.220	0.202	0.186	0.191	0.215	0.190	0.182	0.173	0.192	0.195	7.42
30)	T	cis-1,3-Dichlo...	0.354	0.361	0.359	0.336	0.349	0.406	0.366	0.358	0.347	0.383	0.362	5.51
31)	T	trans-1,3-Dich...	0.276	0.284	0.293	0.287	0.304	0.360	0.331	0.330	0.322	0.342	0.313	8.98
32)	T	1,1,2-Trichlor...	0.199	0.210	0.196	0.177	0.182	0.209	0.184	0.177	0.169	0.181	0.188	7.48
33)	S	Toluene-d8 (SS2)	1.002	1.004	1.005	1.006	1.012	1.015	1.013	1.006	1.000	0.991	1.005	0.70
34)	T	Toluene	1.177	1.131	1.031	0.915	0.903	1.024	0.899	0.856	0.814	0.830	0.958	13.18
35)	T	Dibromochlorom...	0.256	0.310	0.296	0.270	0.265	0.305	0.274	0.269	0.261	0.275	0.278	6.78
36)	T	1,2-Dibromoethane	0.243	0.258	0.256	0.239	0.243	0.283	0.253	0.246	0.237	0.244	0.250	5.39
37)	T	Tetrachloroethene	0.276	0.304	0.285	0.259	0.264	0.302	0.269	0.261	0.250	0.261	0.273	6.77
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	4.147	4.403	4.142	3.703	3.717	4.228	3.718	3.529	3.298	2.878	3.776	12.41
40)	T	Ethylbenzene	6.758	7.267	6.938	6.280	6.372	7.205	6.271	5.889	5.468	4.732	6.318	12.59
41)	T	m,p-Xylene	5.487	5.879	5.505	4.783	4.870	5.477	4.740	4.490	4.271	3.761	4.926	13.36

Method Path : I:\MS19\METHODS\
Method File : S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	3.409	3.984	3.895	3.642	3.755	4.367	3.917	3.831	3.661	3.283	3.774	8.09
43)	T	o-Xylene	2.601	2.846	2.666	2.400	2.404	2.709	2.365	2.258	2.153	2.089	2.449	10.19
44)	T	1,1,2,2-Tetrac...	2.558	2.718	2.475	2.246	2.274	2.580	2.277	2.198	2.097	1.971	2.339	10.06
45)	S	Bromofluoroben...	2.101	2.135	2.143	2.135	2.150	2.173	2.208	2.245	2.217	1.863	2.137	4.95
46)	T	1,3,5-Trimethy...	5.354	6.071	5.706	5.192	5.320	6.016	5.271	5.108	4.886	4.211	5.314	10.27
47)	T	1,2,4-Trimethy...	4.773	5.865	5.673	5.206	5.357	6.143	5.444	5.330	5.135	4.566	5.349	8.86
48)	T	1,3-Dichlorobe...	2.261	2.915	3.101	2.893	2.965	3.499	3.117	3.073	2.910	2.645	2.938	11.00
49)	T	1,4-Dichlorobe...	2.987	3.454	3.363	3.076	3.006	3.456	3.111	3.056	2.909	2.586	3.100	8.63
50)	T	1,2-Dichlorobe...	2.752	3.125	3.134	2.878	2.894	3.368	3.014	2.963	2.817	2.687	2.963	6.90
51)	T	1,2-Dibromo-3-...	1.023	0.919	1.026	0.972	1.032	1.236	1.155	1.176	1.136	0.986	1.066	9.65
52)	T	1,2,4-Trichlor...	2.244	2.238	2.104	1.943	1.957	2.364	2.177	2.153	2.045	1.811	2.104	7.91
53)	T	Naphthalene	7.624	6.628	7.035	6.524	6.421	7.586	6.914	6.734	6.395	5.449	6.731	9.34
54)	T	Hexachlorobuta...	1.522	1.509	1.440	1.296	1.319	1.522	1.366	1.329	1.247	1.157	1.371	9.13

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 2/1/17

0.2ng/L Std. ID:	S29-01171712
1ng/L Std. ID:	S29-01301707
4ng/L Std. ID:	S29-01301704
20ng/L Std. ID:	S29-01301703
200ng/L Std. ID:	S29-01301701

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
		Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	Source Std. mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301703	
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01301701	
4ng/L Std. ID:	S29-01301704				

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
		Primary Working Standards					Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	Source Std. mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19013117.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration

CL 2/1/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_01\31\01311715.D
2	20	21	1000	I:\MS19\DATA\2017_01\31\01311716.D
3	50	52	1000	I:\MS19\DATA\2017_01\31\01311717.D
4	100	105	1000	I:\MS19\DATA\2017_01\31\01311718.D
5	500	524	1000	I:\MS19\DATA\2017_01\31\01311719.D
6	1000	1047	1000	I:\MS19\DATA\2017_01\31\01311720.D
7	2000	2094	1000	I:\MS19\DATA\2017_01\31\01311721.D
8	5000	5235	1000	I:\MS19\DATA\2017_01\31\01311722.D
9	10K	10470	1000	I:\MS19\DATA\2017_01\31\01311723.D
10	50K	52350	1000	I:\MS19\DATA\2017_01\31\01311725.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Feb 01 07:43 2017	Feb 01 07:15 2017	31 Jan 2017 15:23
2	20	Feb 01 07:43 2017	Feb 01 07:38 2017	31 Jan 2017 15:54
3	50	Feb 01 07:43 2017	Feb 01 07:39 2017	31 Jan 2017 16:25
4	100	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 16:57
5	500	Feb 01 07:43 2017	Feb 01 07:40 2017	31 Jan 2017 17:28
6	1000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:00
7	2000	Feb 01 07:28 2017	Feb 01 07:13 2017	31 Jan 2017 18:31
8	5000	Feb 01 07:43 2017	Feb 01 07:13 2017	31 Jan 2017 19:02
9	10K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 19:34
10	50K	Feb 01 07:44 2017	Feb 01 07:13 2017	31 Jan 2017 20:37

S19013117.M Wed Feb 01 08:33:20 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	43243	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	212631	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	34615	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66797	891.924	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.19%				
33) Toluene-d8 (SS2)	14.15	98	213056	1008.718	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.87%				
45) Bromofluorobenzene (SS3)	17.56	174	72725	1148.441	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.84%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	1181	10.811	pg		99
3) Chloromethane	4.70	52	341m	10.477	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	1089	10.132	pg		96
5) Vinyl Chloride	5.01	62	1178	11.280	pg	#	58
6) 1,3-Butadiene	5.22	54	815	13.126	pg	#	76
7) Bromomethane	5.53	94	364	8.664	pg		99
8) Chloroethane	5.75	64	279	8.683	pg		94
9) Acrolein	6.37	56	545m	23.877	pg		
10) Acetone	6.47	58	8870	300.554	pg	#	67
11) Trichlorofluoromethane	6.64	101	857	11.470	pg		97
12) 1,1-Dichloroethene	7.38	96	487	10.404	pg		94
13) Methylene Chloride	7.52	84	736	14.489	pg		96
14) Trichlorotrifluoroethane	7.82	151	516	11.049	pg		99
15) trans-1,2-Dichloroethene	8.55	96	496	9.829	pg		93
16) 1,1-Dichloroethane	8.75	63	813	9.080	pg		97
17) Methyl tert-Butyl Ether	8.83	73	1634	12.230	pg		89
18) cis-1,2-Dichloroethene	9.62	96	533	10.065	pg		90
19) Chloroform	9.90	83	2277	24.184	pg		98
21) 1,2-Dichloroethane	10.66	62	656	9.051	pg		96
22) 1,1,1-Trichloroethane	10.92	97	903	10.332	pg		98
23) Benzene	11.38	78	3668	17.682	pg		99
24) Carbon Tetrachloride	11.53	117	915	13.038	pg		98
26) 1,2-Dichloropropane	12.19	63	577	10.654	pg		87
27) Bromodichloromethane	12.37	83	711	9.507	pg		99
28) Trichloroethene	12.42	130	603	10.908	pg		99
29) 1,4-Dioxane	12.42	88	445	10.962	pg		99
30) cis-1,3-Dichloropropene	13.28	75	840	11.531	pg		91
31) trans-1,3-Dichloropropene	13.80	75	624	10.526	pg	#	82
32) 1,1,2-Trichloroethane	13.96	83	449	9.801	pg		96
34) Toluene	14.25	91	2635	13.357	pg		100
35) Dibromochloromethane	14.67	129	577	10.562	pg		94
36) 1,2-Dibromoethane	14.94	107	546	10.568	pg		95
37) Tetrachloroethene	15.41	166	622	10.851	pg		96
39) Chlorobenzene	16.11	112	1523	11.413	pg		99
40) Ethylbenzene	16.49	91	2468	12.542	pg		98
41) m,p-Xylene	16.67	91	4032	27.318	pg		98
42) Styrene	17.03	104	1252	12.108	pg		99
43) o-Xylene	17.13	106	949	12.516	pg		98
44) 1,1,2,2-Tetrachloroethane	17.10	83	935	10.732	pg		93
46) 1,3,5-Trimethylbenzene	18.39	105	1944	12.443	pg		96
47) 1,2,4-Trimethylbenzene	18.79	105	1738	11.333	pg		96
48) 1,3-Dichlorobenzene	18.94	146	828	8.785	pg		96
49) 1,4-Dichlorobenzene	19.00	146	1094	11.148	pg		97
50) 1,2-Dichlorobenzene	19.34	146	1008	10.494	pg		96
51) 1,2-Dibromo-3-chloropr...	19.75	157	373	12.846	pg		90
52) 1,2,4-Trichlorobenzene	21.00	182	810	14.247	pg		99
53) Naphthalene	21.14	128	2858	15.831	pg		90

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

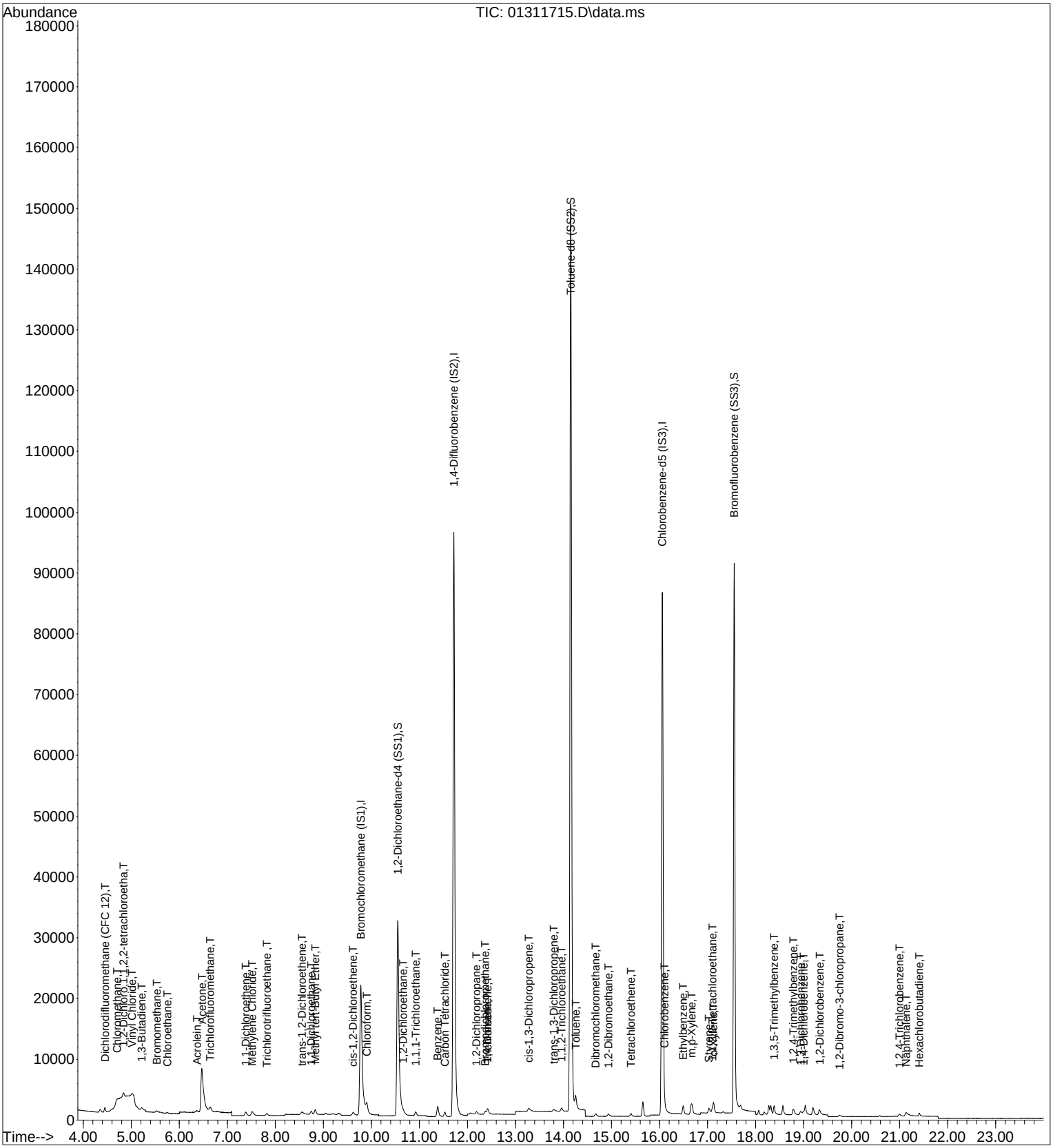
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	558	12.406	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

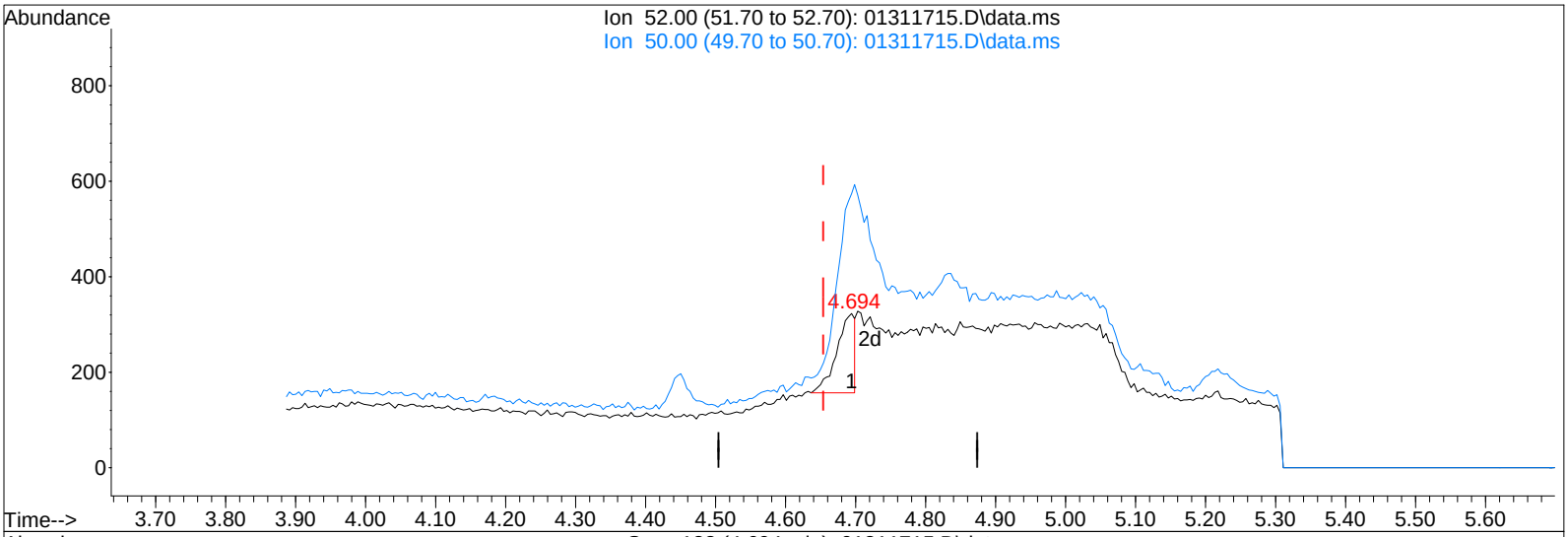
Quant Time: Feb 01 07:15:17 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

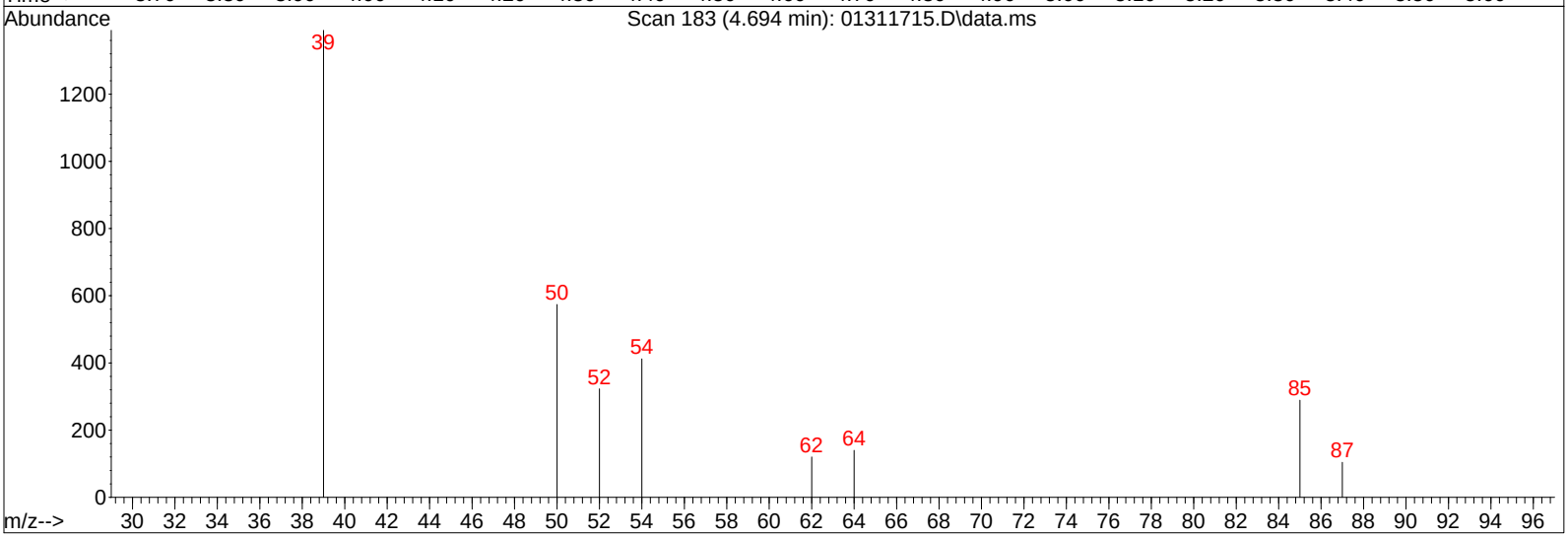


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 9.25pg

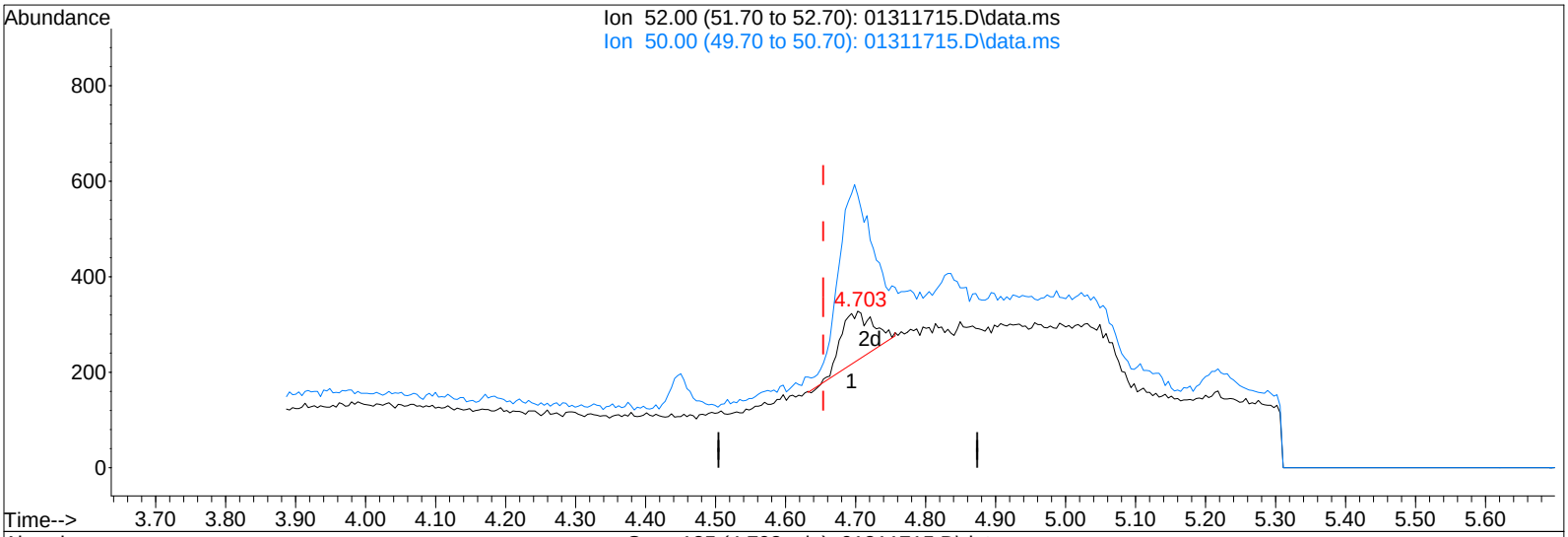
response 301

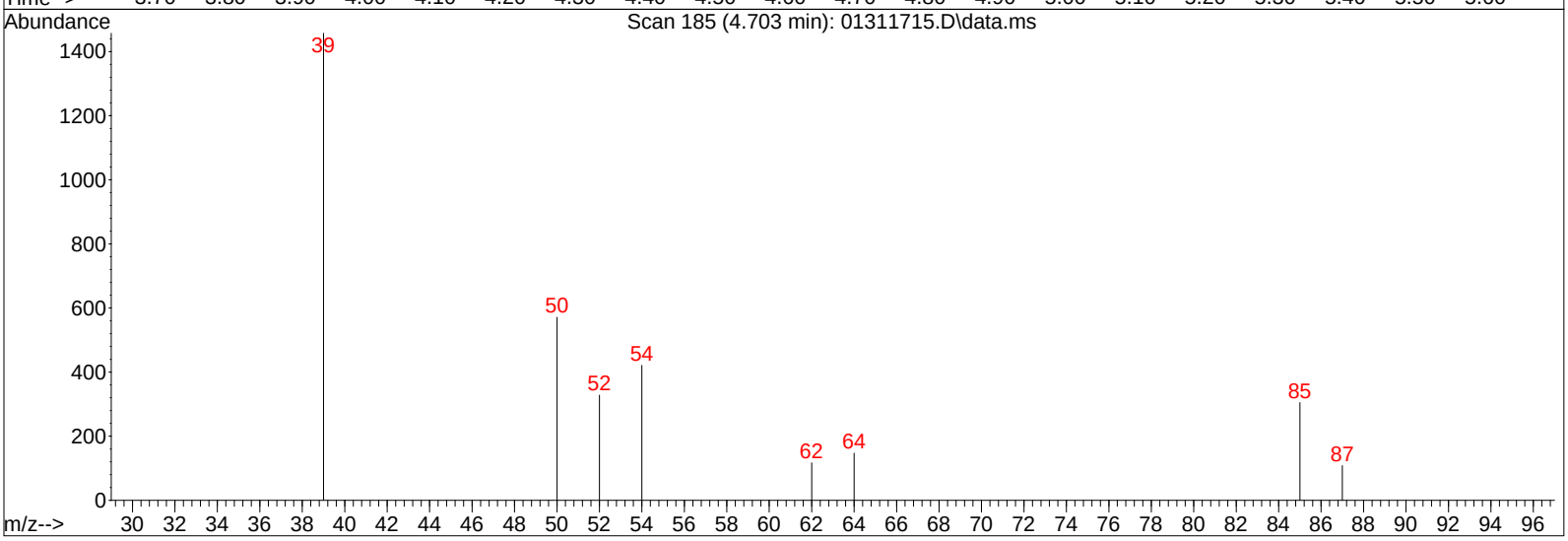
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	749.50#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 10.48pg m

response 341

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	661.58#
0.00	0.00	0.00
0.00	0.00	0.00

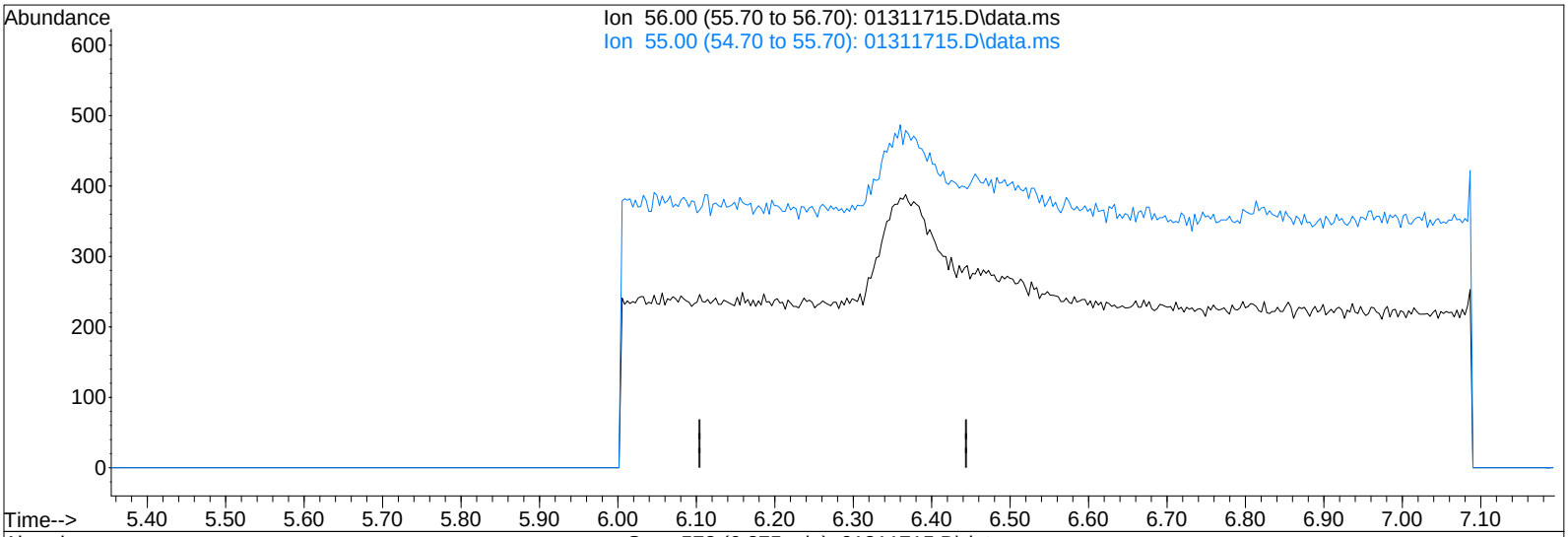
BLC

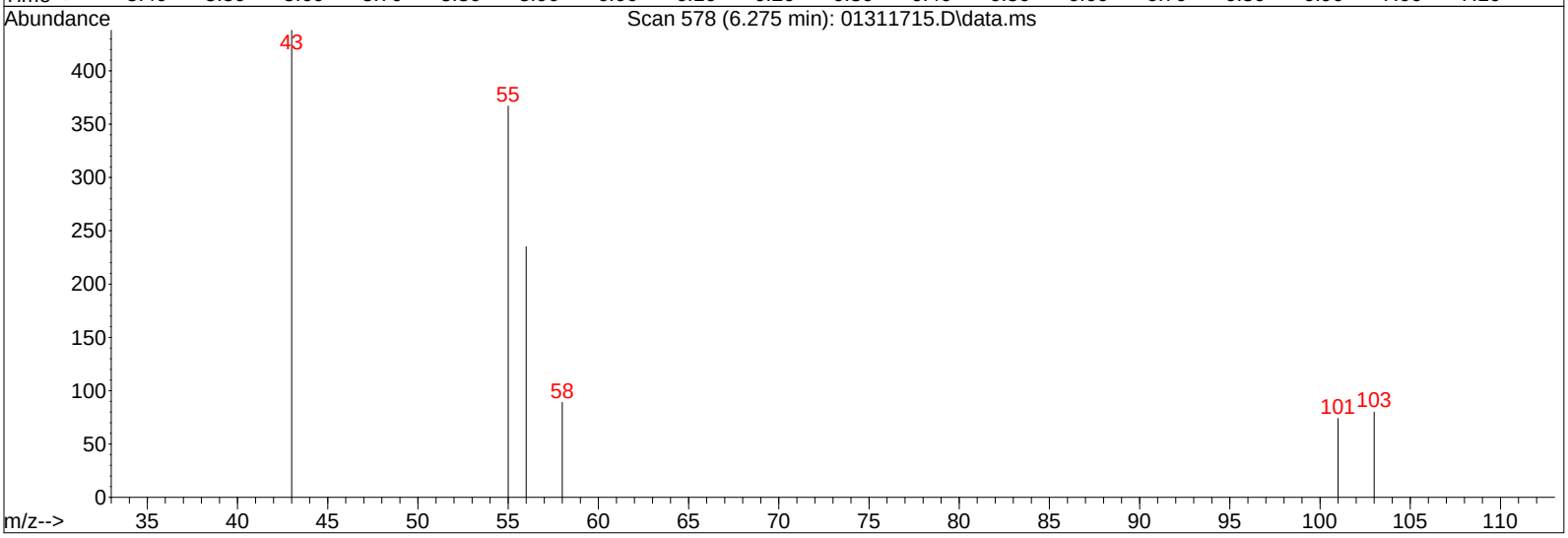
CL 2/1/17 VOA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.274min (-6.274) 0.00pg

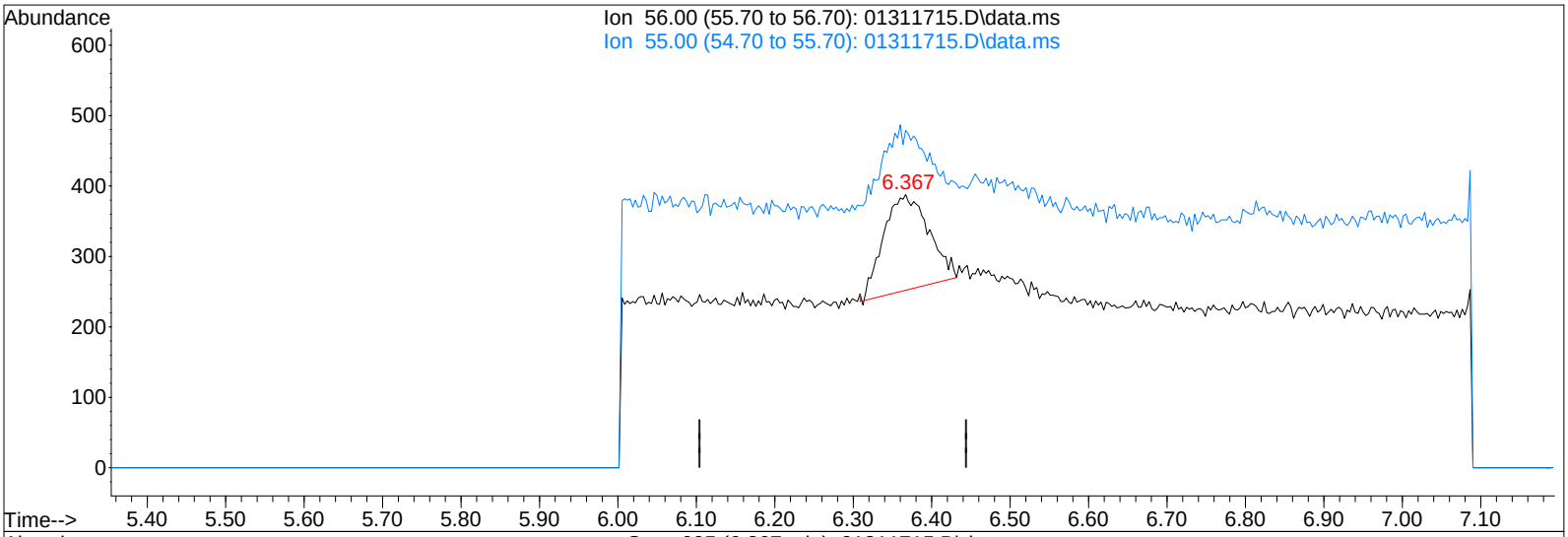
response 0

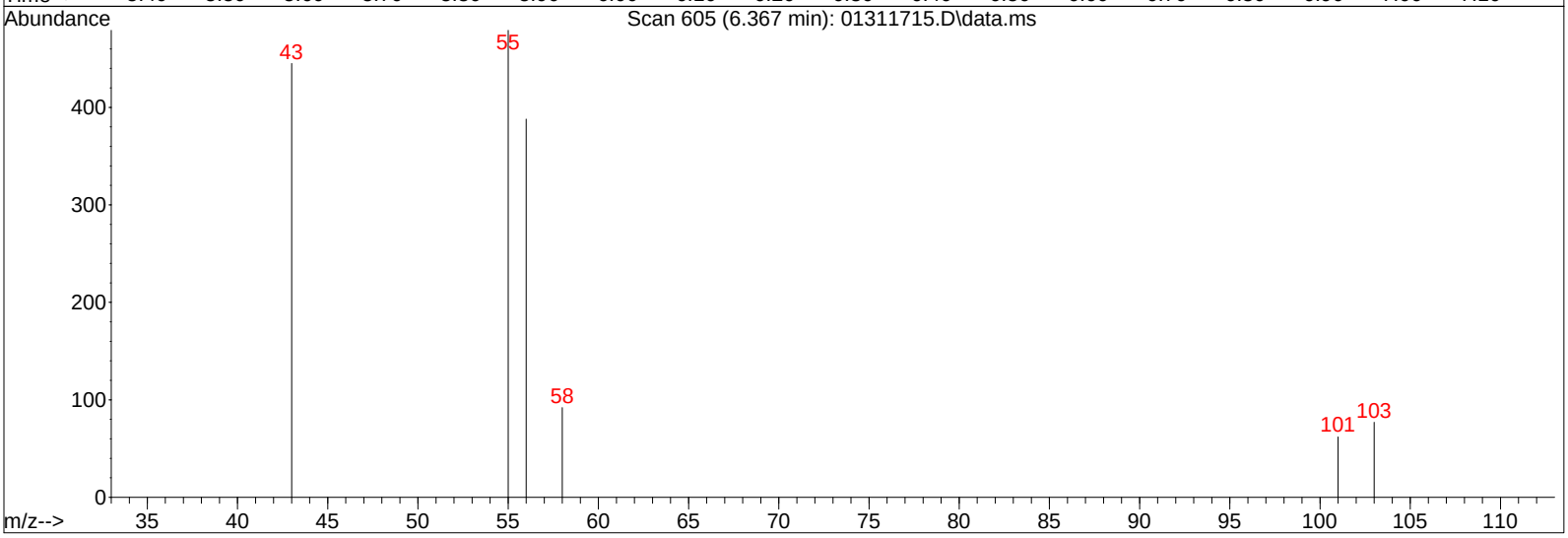
Ion	Exp%	Act%
56.00	100	0.00
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311715.D Vial: 11
Acq On : 31 Jan 2017 15:23 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 01 07:13:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311715.D\data.ms

(9) Acrolein (T)

6.367min (+0.093) 23.88pg m

response 545

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

PIM

CL 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	43136	1000.000	pg		0.03
25) 1,4-Difluorobenzene (IS2)	11.72	114	212326	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	34375	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	66952	896.211	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.62%				
33) Toluene-d8 (SS2)	14.15	98	213118	1010.461	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.05%				
45) Bromofluorobenzene (SS3)	17.56	174	73387	1166.986	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	2547	23.373	pg		98
3) Chloromethane	4.70	52	642m	19.774	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2365	22.059	pg		100
5) Vinyl Chloride	5.02	62	1910	18.334	pg	#	62
6) 1,3-Butadiene	5.22	54	1252	20.213	pg	#	50
7) Bromomethane	5.53	94	809	19.304	pg		99
8) Chloroethane	5.76	64	659	20.560	pg		95
9) Acrolein	6.37	56	700m	30.743	pg		
10) Acetone	6.48	58	5971	202.825	pg		100
11) Trichlorofluoromethane	6.65	101	1963	26.337	pg		99
12) 1,1-Dichloroethene	7.39	96	1115	23.878	pg		99
13) Methylene Chloride	7.53	84	1249	24.648	pg		92
14) Trichlorotrifluoroethane	7.83	151	1160	24.900	pg		100
15) trans-1,2-Dichloroethene	8.57	96	1009	20.044	pg		99
16) 1,1-Dichloroethane	8.75	63	1858	20.804	pg		99
17) Methyl tert-Butyl Ether	8.83	73	3687	27.665	pg		94
18) cis-1,2-Dichloroethene	9.62	96	991	18.760	pg		88
19) Chloroform	9.91	83	3149	33.529	pg		100
21) 1,2-Dichloroethane	10.67	62	1468	20.305	pg		97
22) 1,1,1-Trichloroethane	10.93	97	2055	23.571	pg		98
23) Benzene	11.39	78	6687	32.316	pg		99
24) Carbon Tetrachloride	11.53	117	1843	26.327	pg		96
26) 1,2-Dichloropropane	12.19	63	1057	19.544	pg		96
27) Bromodichloromethane	12.37	83	1721	23.044	pg		99
28) Trichloroethene	12.43	130	1324	23.984	pg		95
29) 1,4-Dioxane	12.41	88	994	24.522	pg		94
30) cis-1,3-Dichloropropene	13.28	75	1711	23.521	pg		95
31) trans-1,3-Dichloropropene	13.80	75	1283	21.673	pg	#	88
32) 1,1,2-Trichloroethane	13.96	83	947	20.701	pg		98
34) Toluene	14.26	91	5057	25.671	pg		100
35) Dibromochloromethane	14.67	129	1397	25.609	pg		99
36) 1,2-Dibromoethane	14.94	107	1158	22.445	pg		98
37) Tetrachloroethene	15.40	166	1368	23.901	pg		99
39) Chlorobenzene	16.11	112	3212	24.239	pg		98
40) Ethylbenzene	16.49	91	5271	26.974	pg		100
41) m,p-Xylene	16.67	91	8581	58.545	pg		98
42) Styrene	17.02	104	2906	28.300	pg		100
43) o-Xylene	17.13	106	2062	27.385	pg		99
44) 1,1,2,2-Tetrachloroethane	17.10	83	1973	22.805	pg		92
46) 1,3,5-Trimethylbenzene	18.38	105	4378	28.217	pg		98
47) 1,2,4-Trimethylbenzene	18.78	105	4242	27.855	pg		100
48) 1,3-Dichlorobenzene	18.93	146	2120	22.650	pg		99
49) 1,4-Dichlorobenzene	18.99	146	2512	25.777	pg		98
50) 1,2-Dichlorobenzene	19.32	146	2273	23.830	pg		99
51) 1,2-Dibromo-3-chloropr...	19.74	157	665	23.063	pg		85
52) 1,2,4-Trichlorobenzene	20.98	182	1605	28.427	pg		99
53) Naphthalene	21.11	128	4935	27.527	pg		93

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

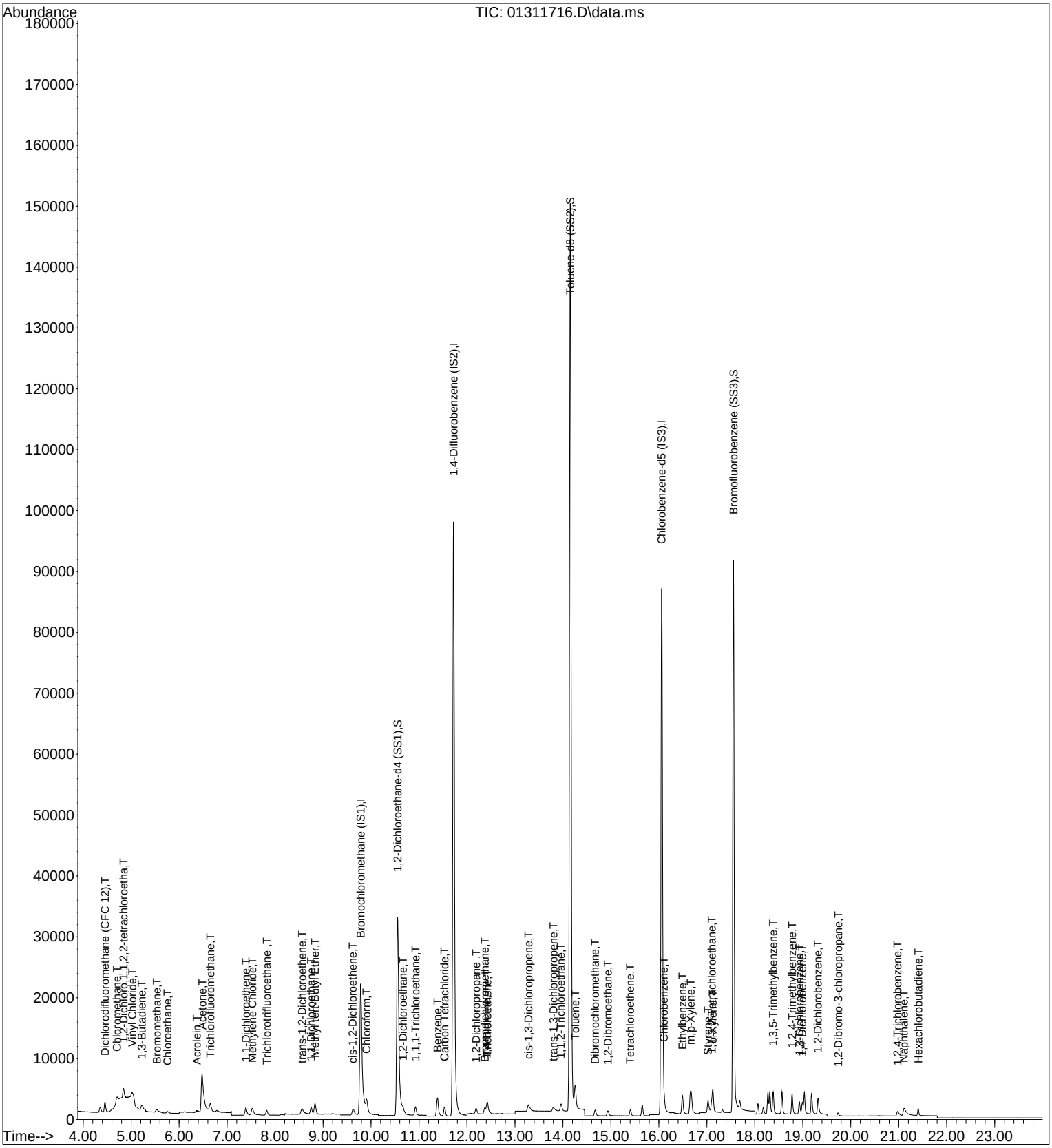
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	1099	24.604	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

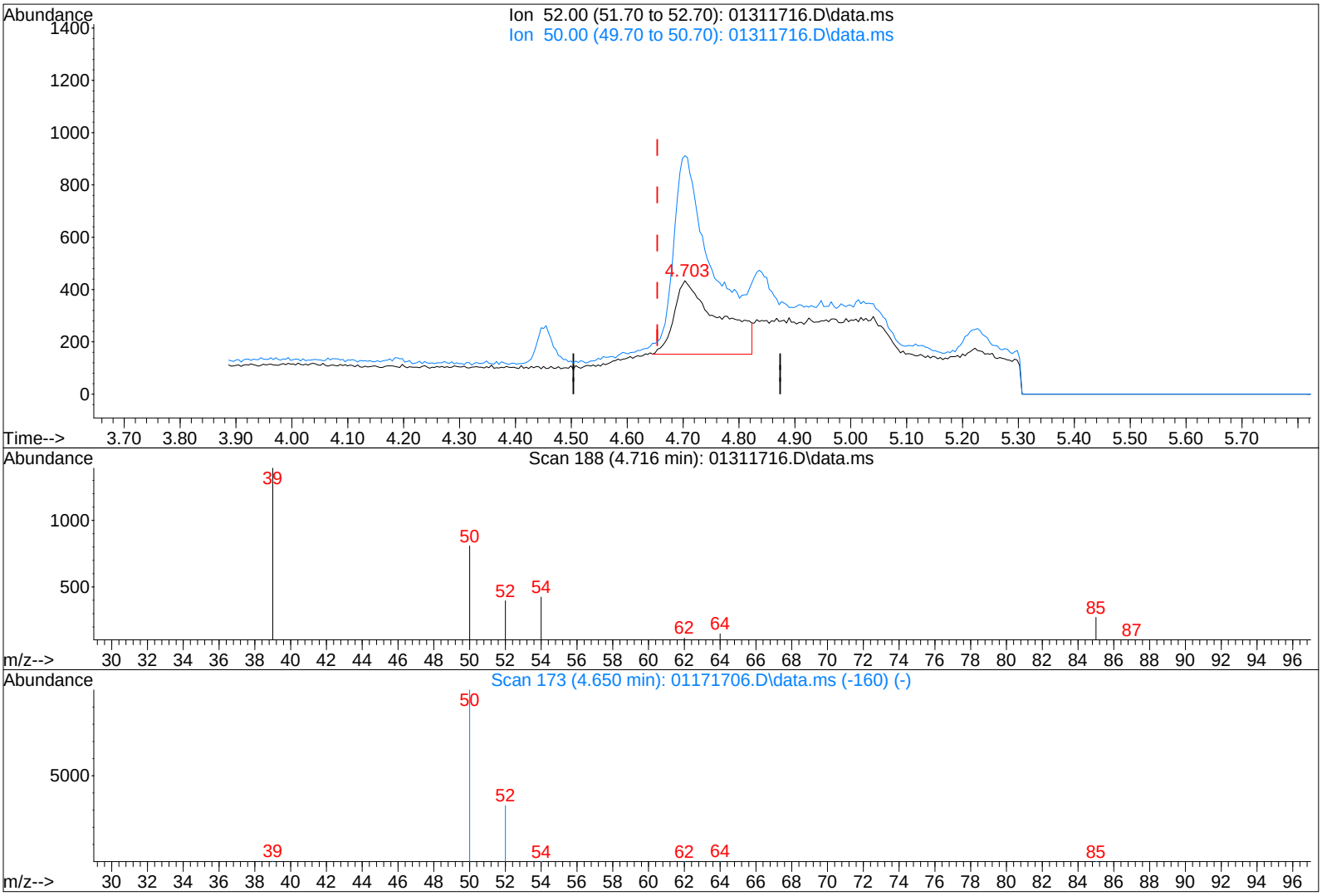
Quant Time: Feb 01 07:38:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 48.79pg

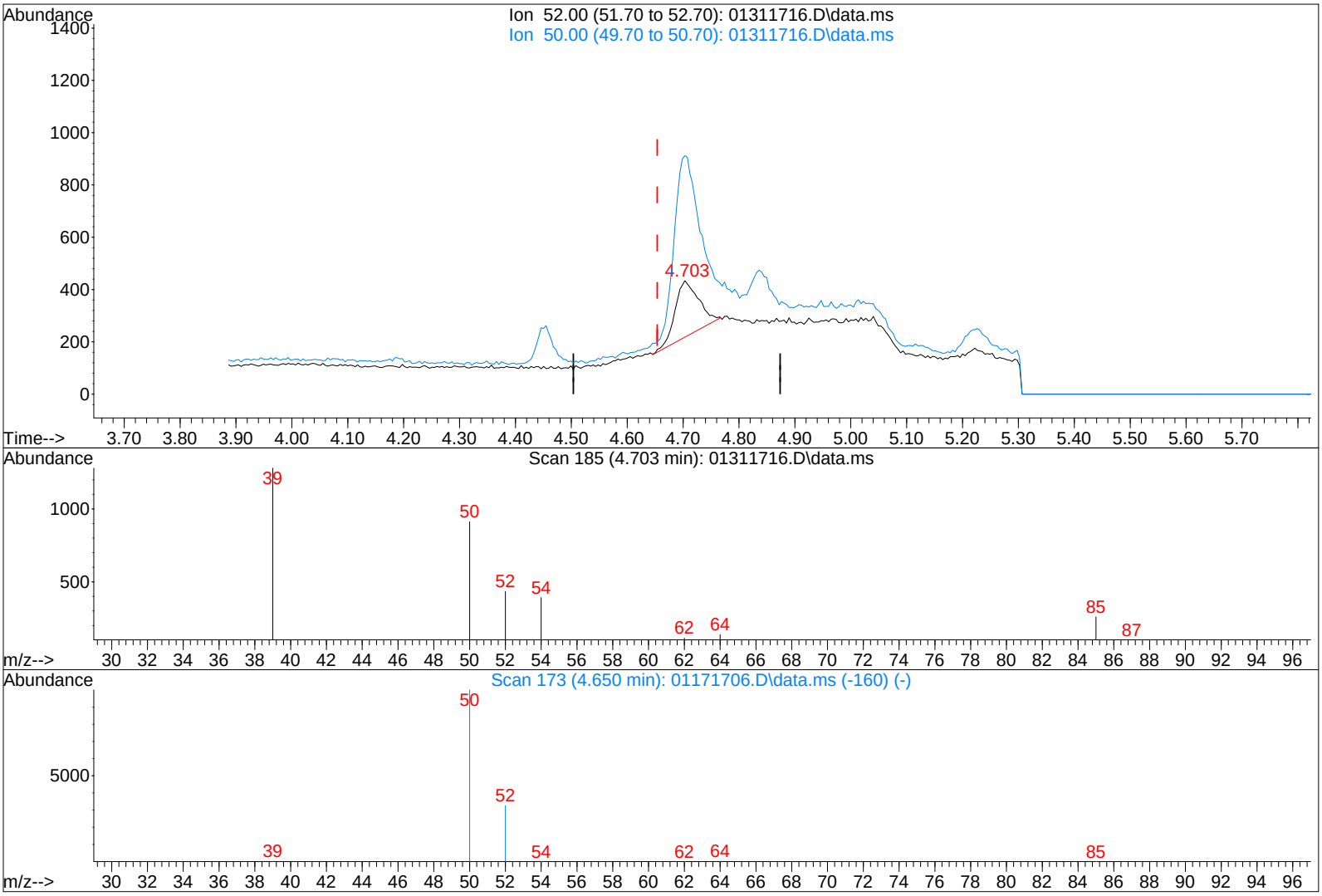
response 1584

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.55#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:17:20 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 01311716.D\data.ms

(3) Chloromethane (T)

4.703min (+0.049) 19.77pg m

response 642

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	566.36#
0.00	0.00	0.00
0.00	0.00	0.00

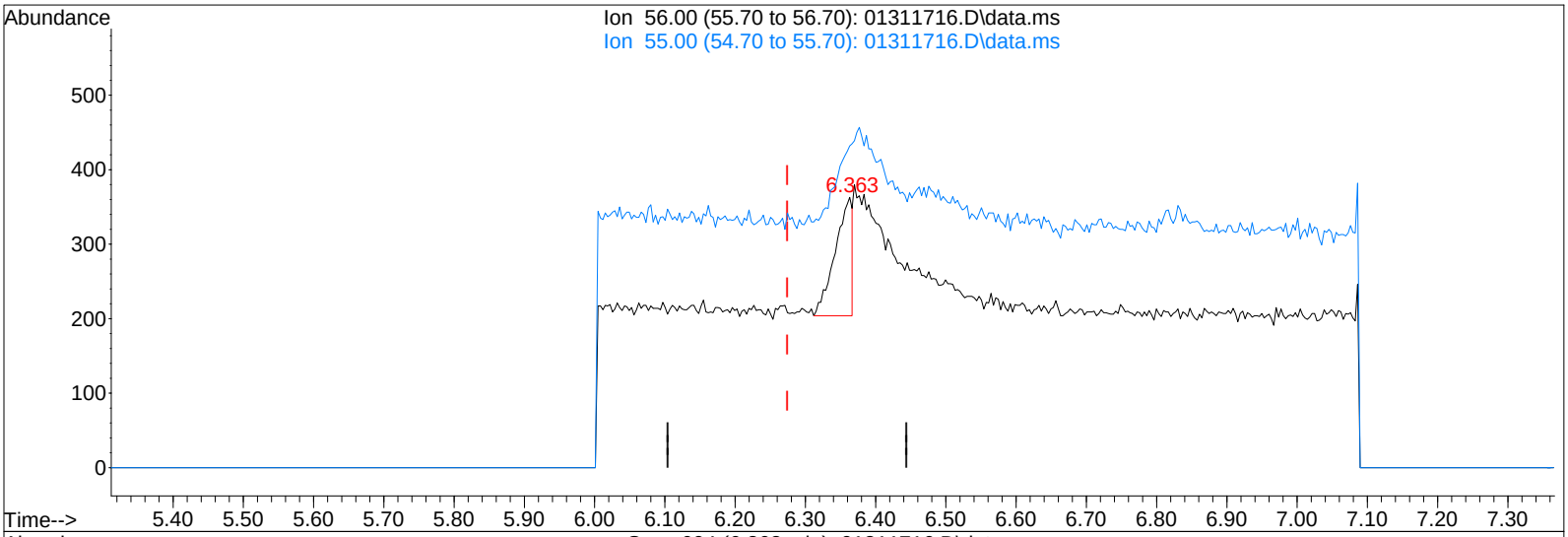
BLC

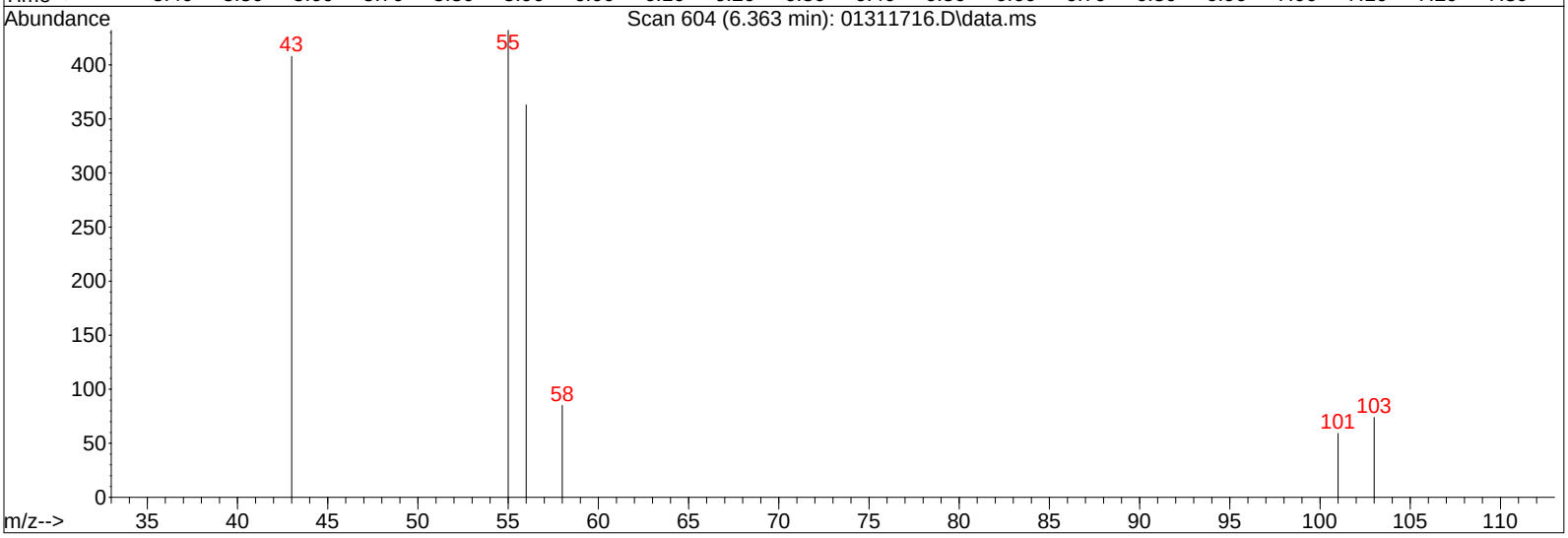
CL 2/1/17 WA 2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.363min (+0.089) 11.81pg

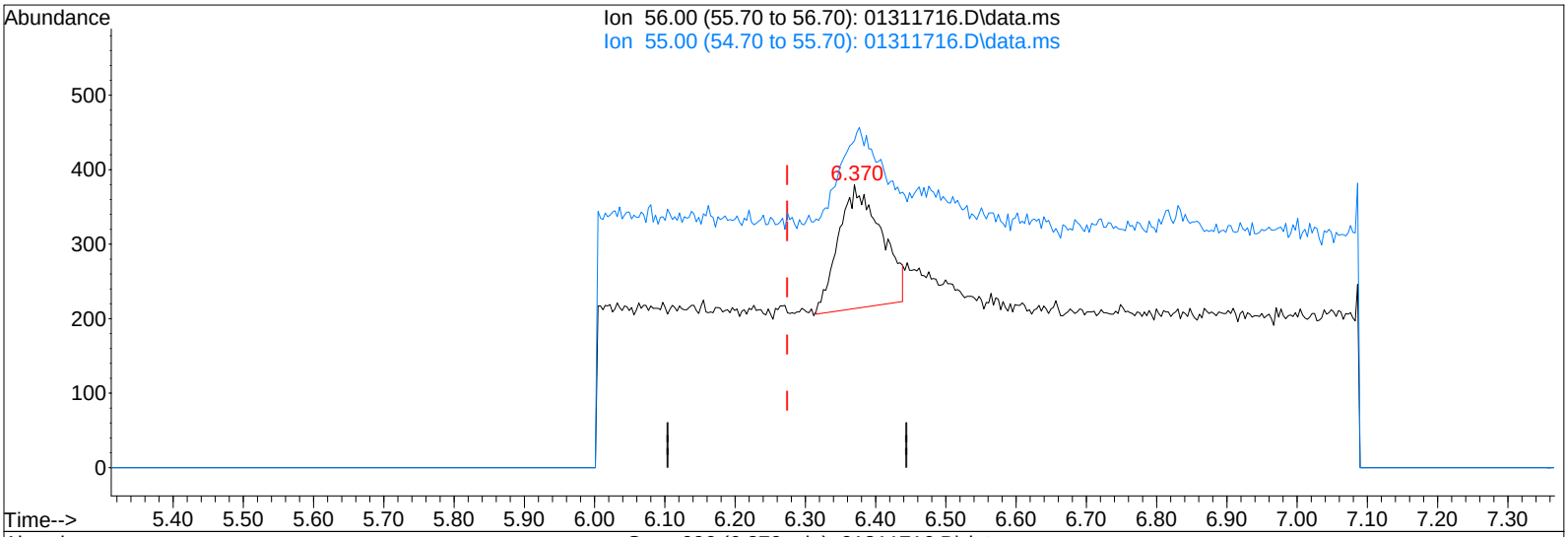
response 269

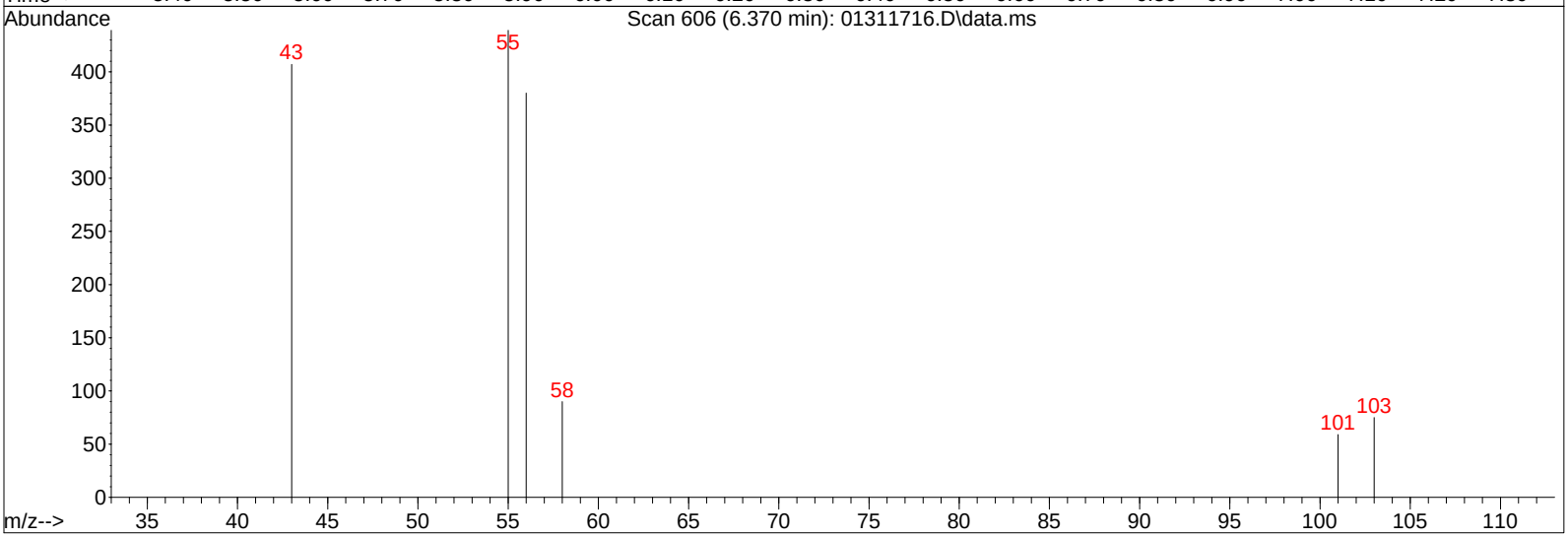
Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311716.D Vial: 12
Acq On : 31 Jan 2017 15:54 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:27 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311716.D\data.ms

(9) Acrolein (T)

6.370min (+0.096) 30.74pg m

response 700

Ion	Exp%	Act%
56.00	100	100
55.00	74.60	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WDA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	41753	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	205331	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33355	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	65059	899.718	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.97%			
33) Toluene-d8 (SS2)	14.15	98	206339	1011.648	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.16%			
45) Bromofluorobenzene (SS3)	17.55	174	71476	1171.355	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	5768	54.683	pg	100
3) Chloromethane	4.69	52	1515m	48.210	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	5296	51.033	pg	98
5) Vinyl Chloride	5.00	62	5139	50.963	pg	85
6) 1,3-Butadiene	5.20	54	1706m	28.456	pg	
7) Bromomethane	5.53	94	1789	44.102	pg	99
8) Chloroethane	5.74	64	1428	46.028	pg	97
9) Acrolein	6.35	56	1392	63.160	pg	98
10) Acetone	6.47	58	12155	426.562	pg	93
11) Trichlorofluoromethane	6.64	101	4444	61.599	pg	100
12) 1,1-Dichloroethene	7.38	96	2523	55.821	pg	99
13) Methylene Chloride	7.52	84	2693	54.905	pg	93
14) Trichlorotrifluoroethane	7.82	151	2611	57.903	pg	99
15) trans-1,2-Dichloroethene	8.55	96	2286	46.915	pg	92
16) 1,1-Dichloroethane	8.74	63	4247	49.128	pg	100
17) Methyl tert-Butyl Ether	8.82	73	8243	63.900	pg	100
18) cis-1,2-Dichloroethene	9.62	96	2774	54.251	pg	98
19) Chloroform	9.90	83	5811	63.922	pg	99
21) 1,2-Dichloroethane	10.66	62	3400	48.586	pg	98
22) 1,1,1-Trichloroethane	10.92	97	4612	54.653	pg	99
23) Benzene	11.38	78	12243	61.126	pg	98
24) Carbon Tetrachloride	11.53	117	4199	61.968	pg	100
26) 1,2-Dichloropropane	12.19	63	2514	48.068	pg	99
27) Bromodichloromethane	12.37	83	3783	52.380	pg	98
28) Trichloroethene	12.42	130	2963	55.504	pg	99
29) 1,4-Dioxane	12.40	88	2201	56.149	pg	99
30) cis-1,3-Dichloropropene	13.27	75	4118	58.539	pg	99
31) trans-1,3-Dichloropropene	13.79	75	3202	55.932	pg	97
32) 1,1,2-Trichloroethane	13.96	83	2132	48.193	pg	99
34) Toluene	14.25	91	11143	58.492	pg	99
35) Dibromochloromethane	14.67	129	3231	61.247	pg	98
36) 1,2-Dibromoethane	14.93	107	2770	55.519	pg	99
37) Tetrachloroethene	15.40	166	3108	56.150	pg	99
39) Chlorobenzene	16.10	112	7329	56.999	pg	99
40) Ethylbenzene	16.49	91	12207	64.378	pg	100
41) m,p-Xylene	16.66	91	19492	137.055	pg	98
42) Styrene	17.02	104	6892	69.169	pg	99
43) o-Xylene	17.12	106	4686	64.137	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	4359	51.924	pg	98
46) 1,3,5-Trimethylbenzene	18.38	105	9983	66.310	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	9954	67.362	pg	100
48) 1,3-Dichlorobenzene	18.92	146	5471	60.239	pg	100
49) 1,4-Dichlorobenzene	18.99	146	5934	62.755	pg	98
50) 1,2-Dichlorobenzene	19.31	146	5529	59.737	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	1802	64.406	pg	99
52) 1,2,4-Trichlorobenzene	20.96	182	3660	66.807	pg	99
53) Naphthalene	21.09	128	12706	73.039	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

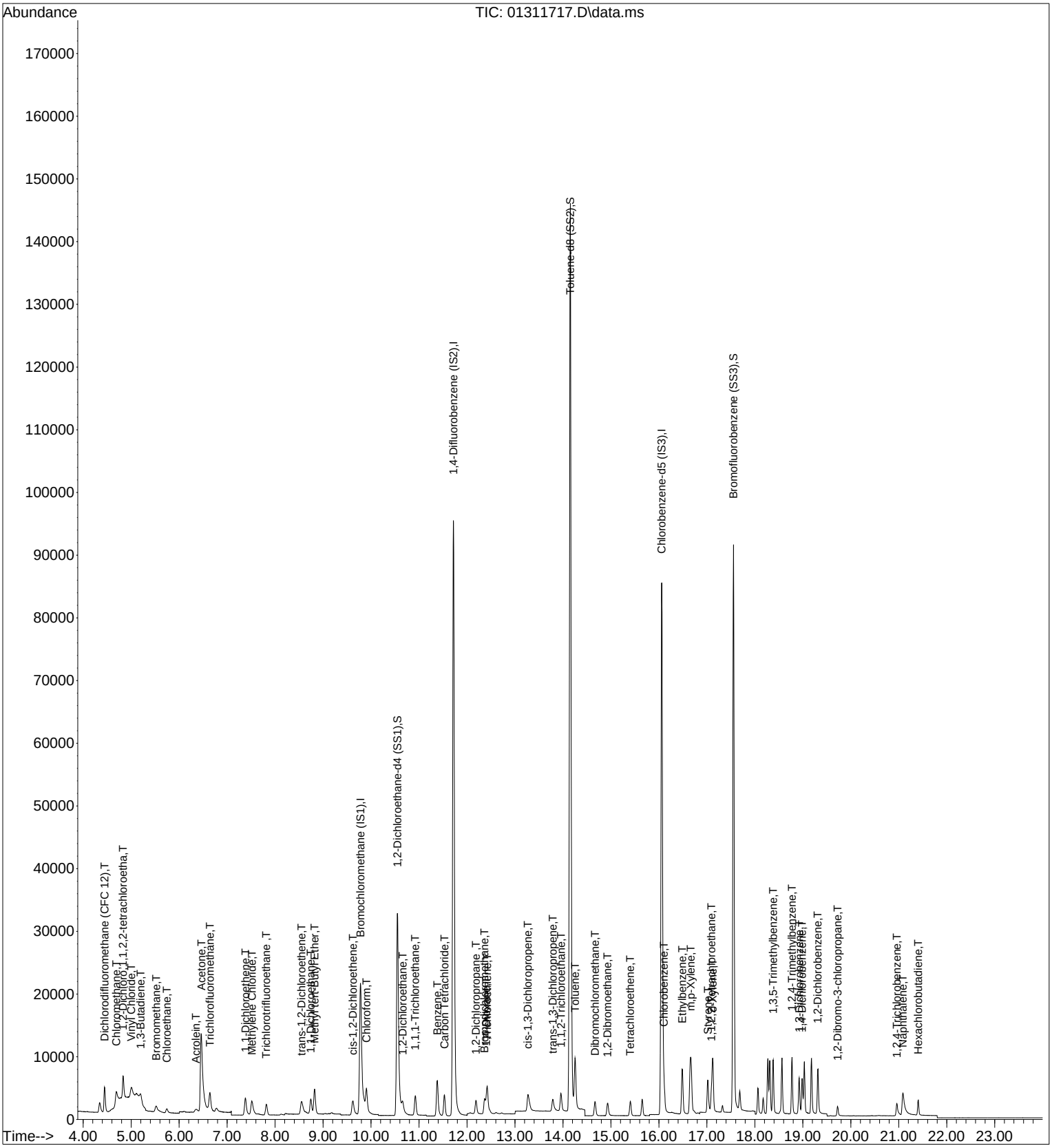
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	2543	58.673	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

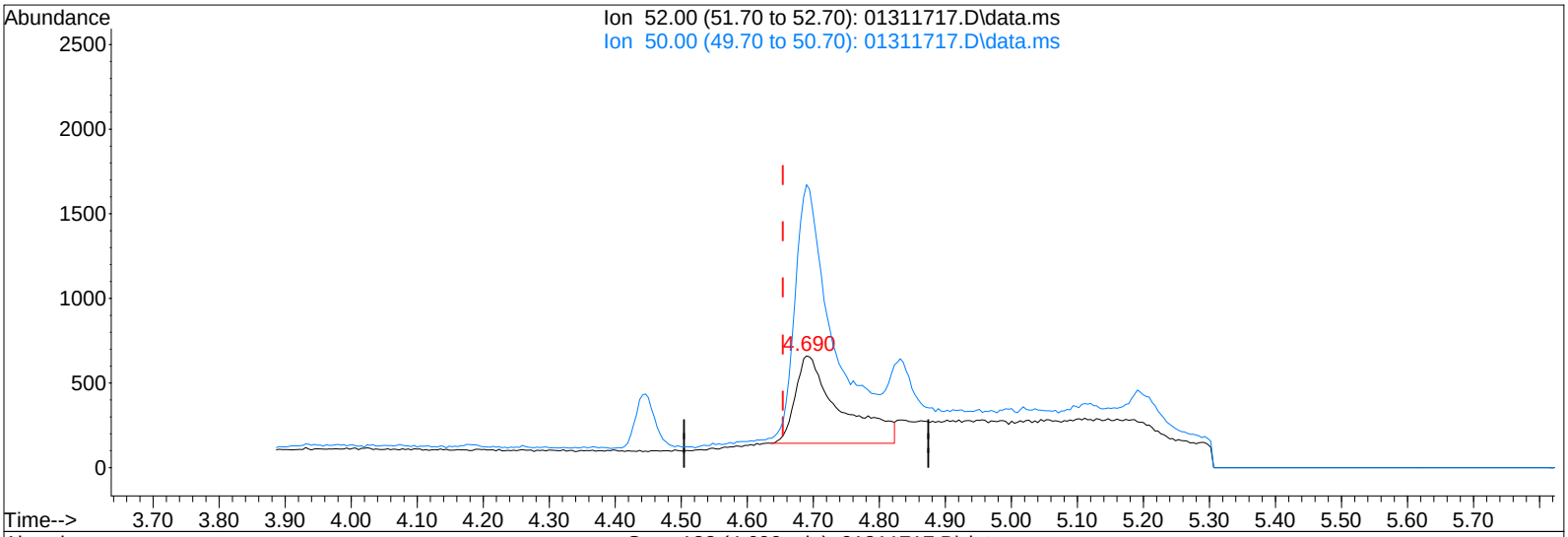
Quant Time: Feb 01 07:39:14 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

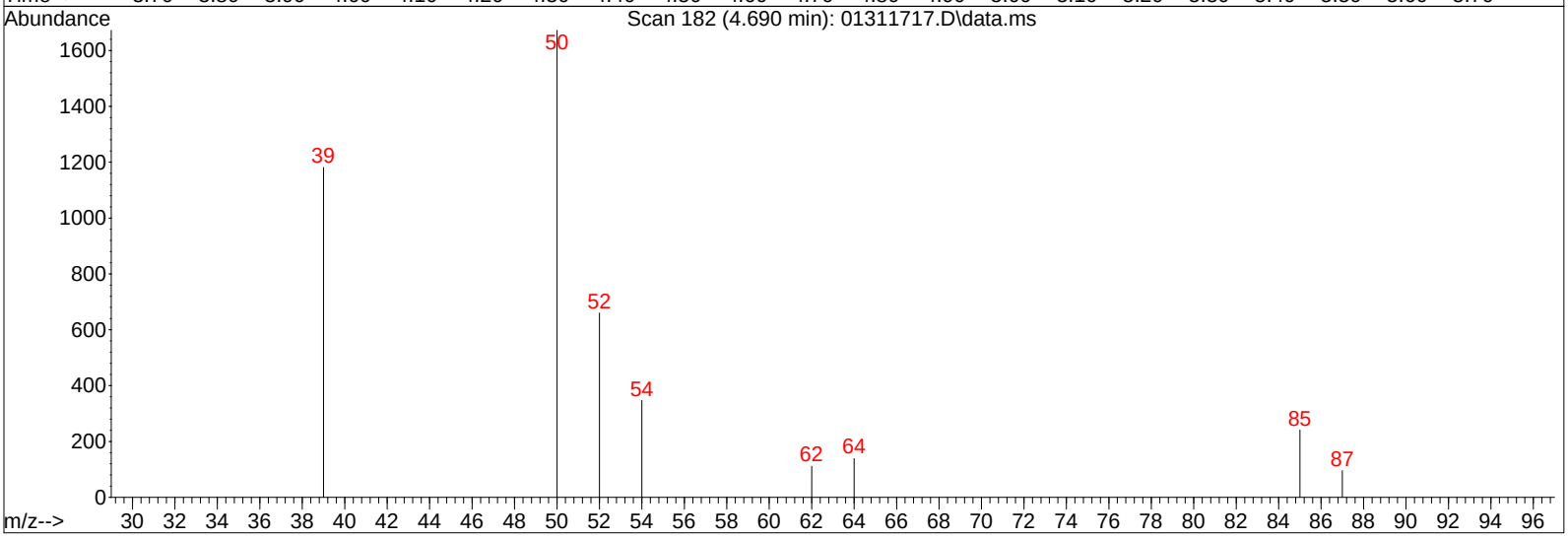


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 77.39pg

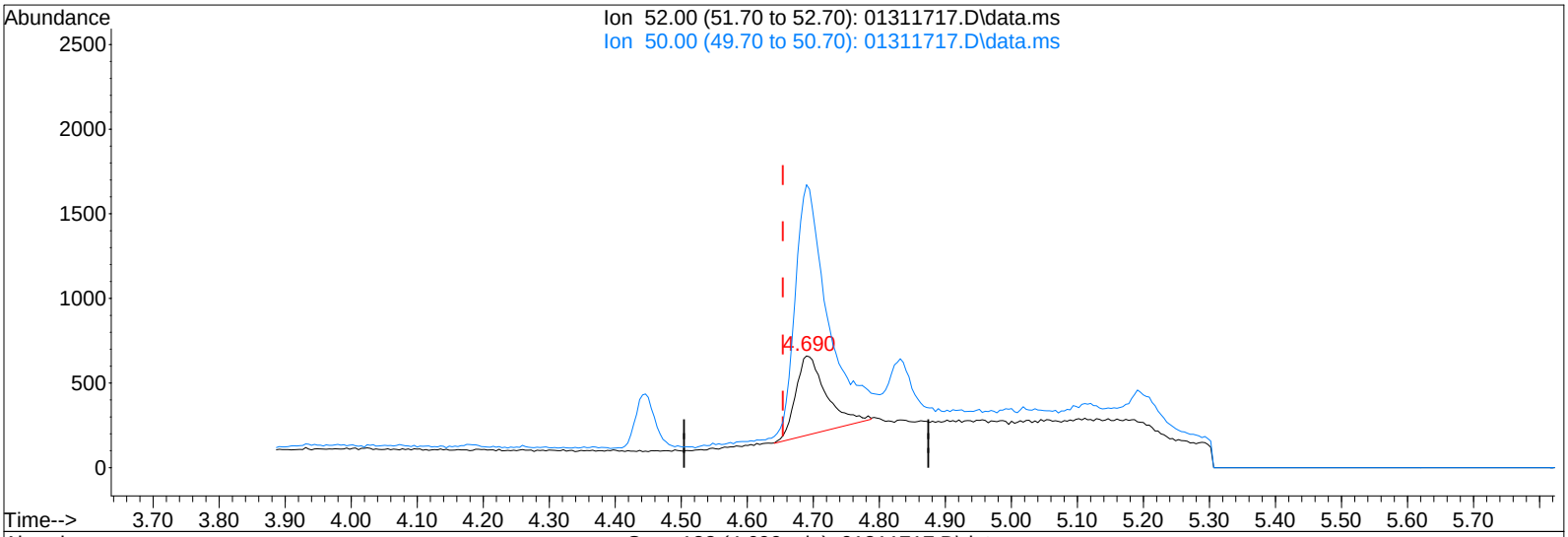
response 2432

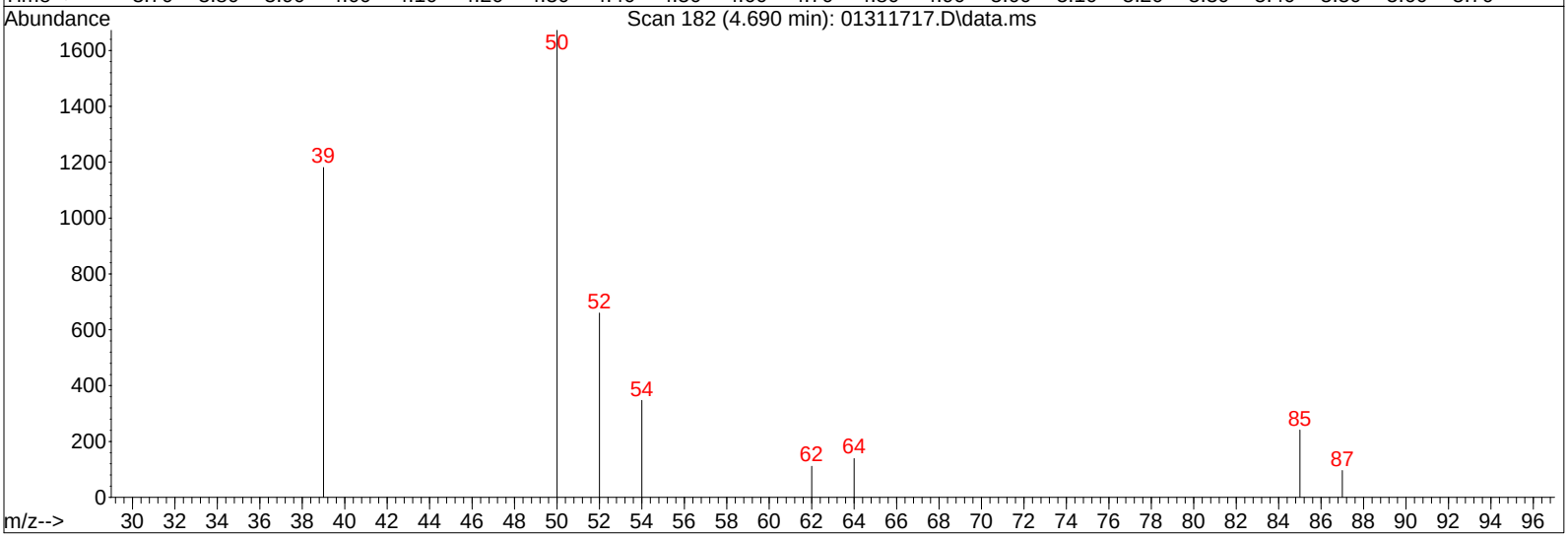
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	243.30#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:18:39 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(3) Chloromethane (T)

4.690min (+0.036) 48.21pg m

response 1515

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	390.56#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

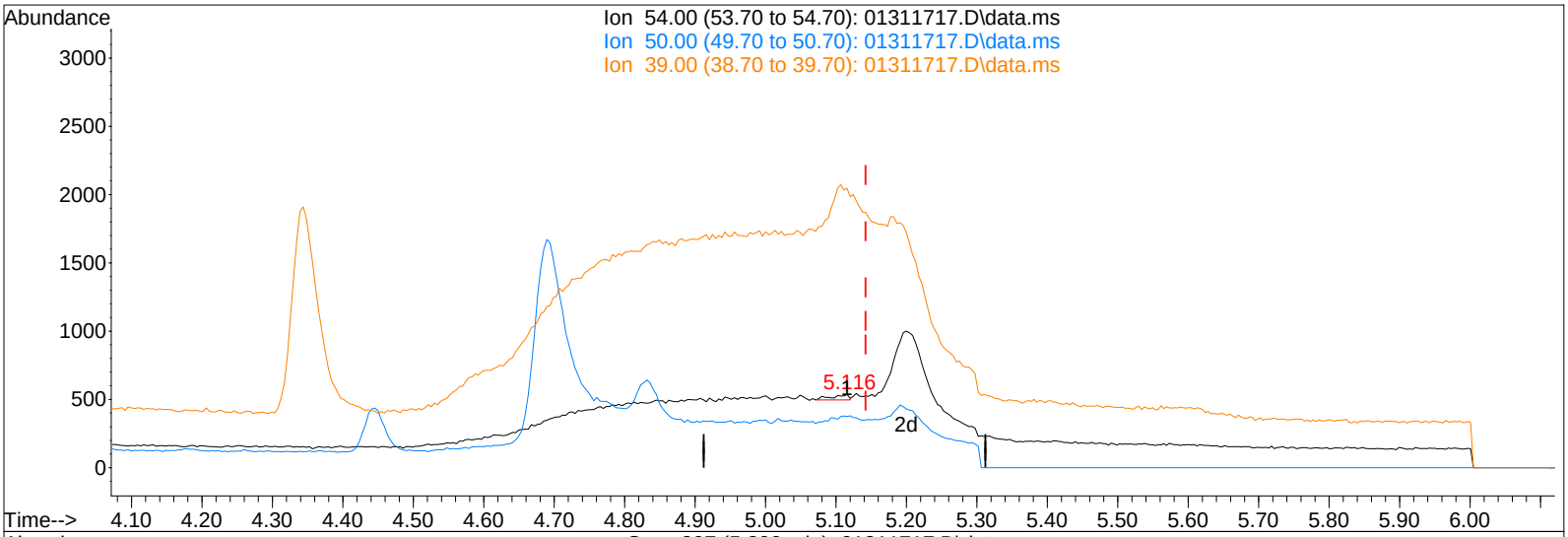
CL 2/1/17

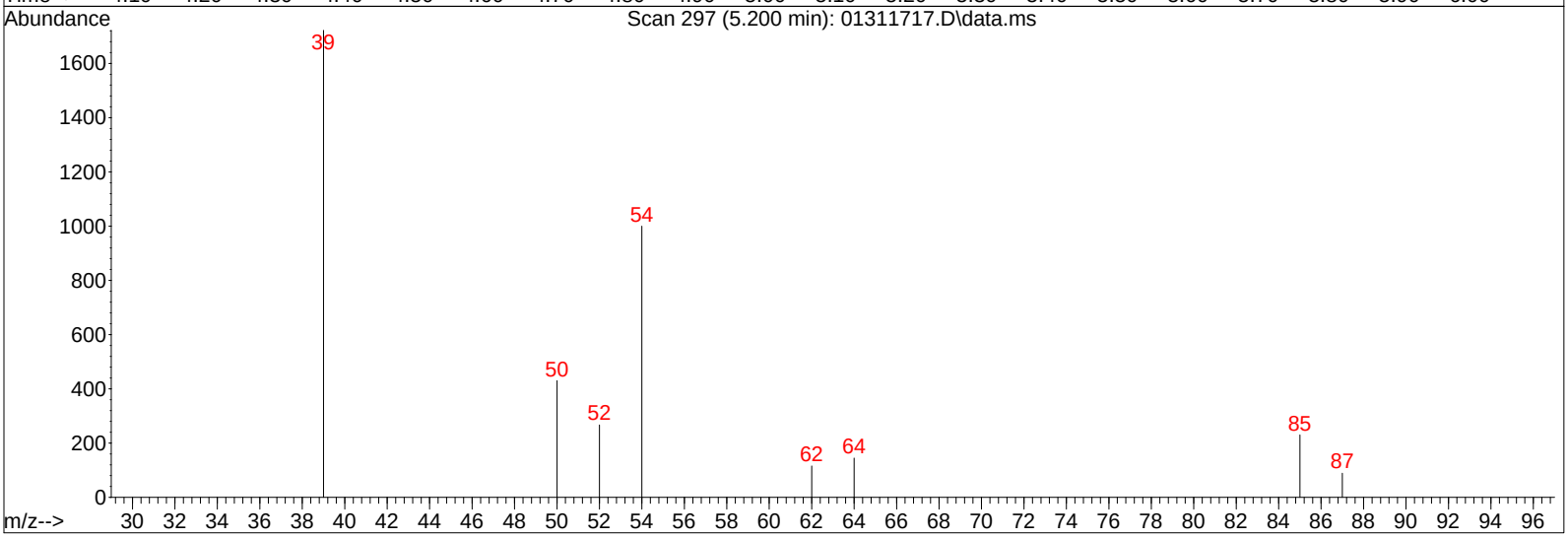
2/1/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.116min (-0.027) 1.10pg

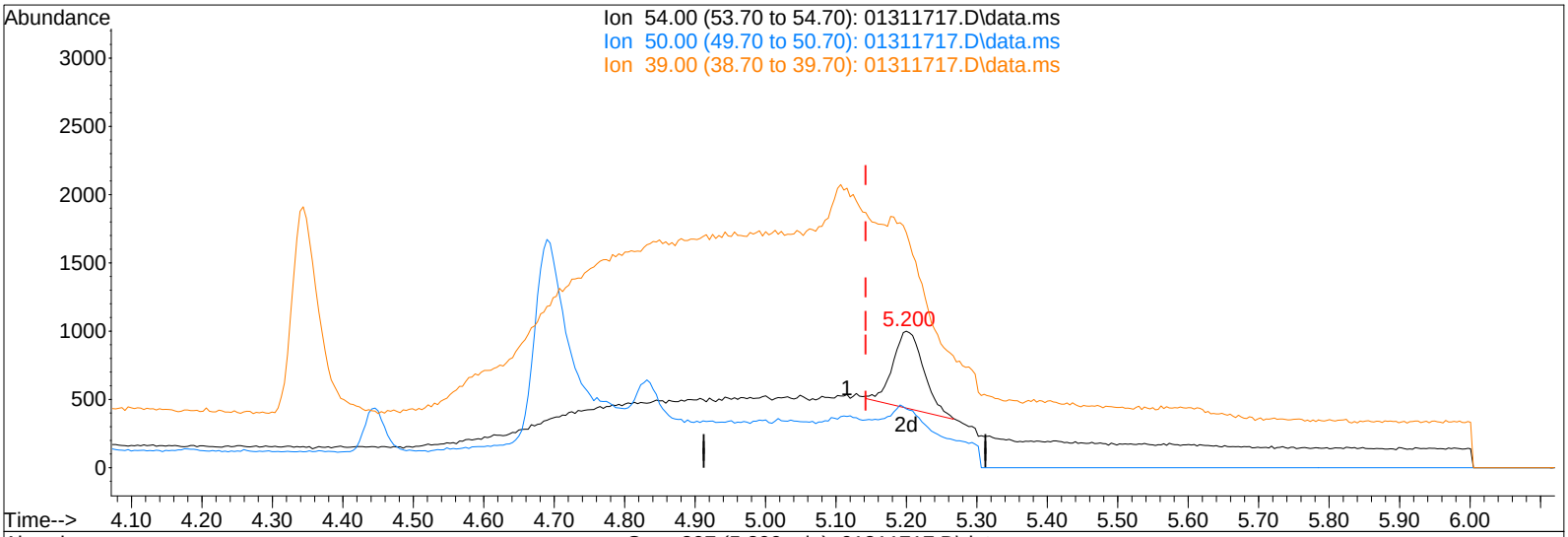
response 66

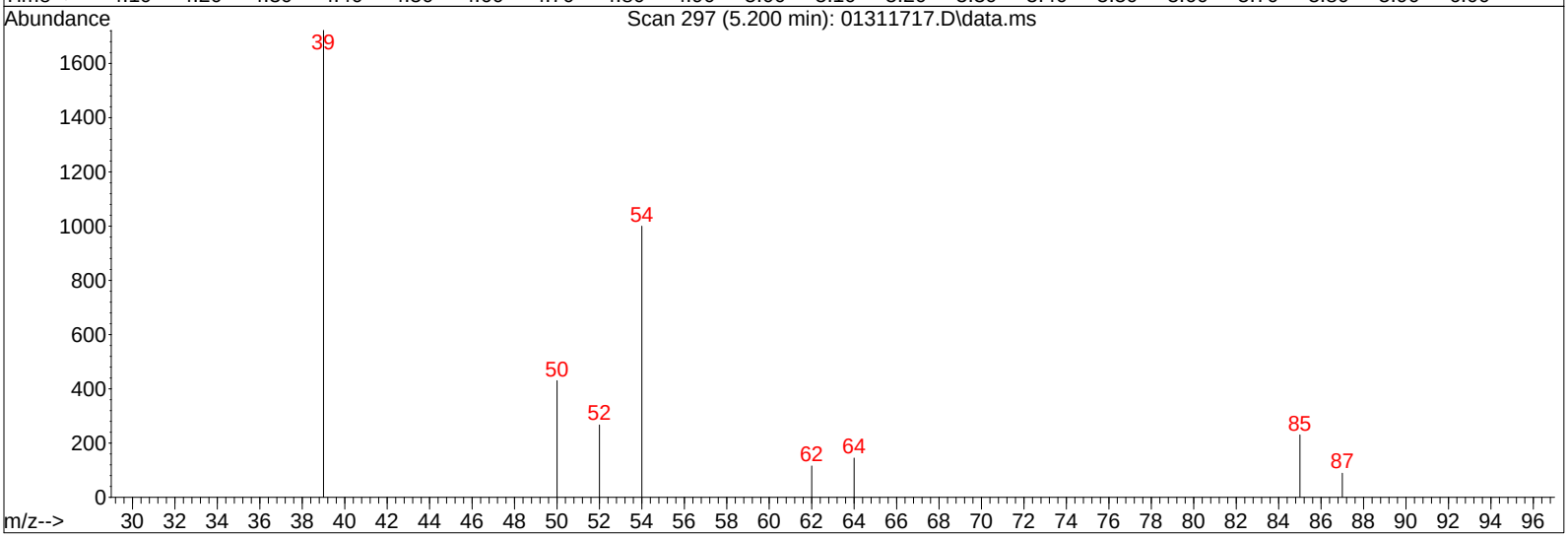
Ion	Exp%	Act%
54.00	100	100
50.00	33.40	1819.70#
39.00	114.60	17968.18#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311717.D Vial: 12
Acq On : 31 Jan 2017 16:25 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:28 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311717.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.058) 28.46pg m

response 1706

BLC

CL 2/1/17 WDA 2/1/17

Ion	Exp%	Act%
54.00	100	100
50.00	33.40	70.40#
39.00	114.60	695.13#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	45285	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	222412	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	36515	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	70924	904.327	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.43%				
33) Toluene-d8 (SS2)	14.15	98	223732	1012.681	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.27%				
45) Bromofluorobenzene (SS3)	17.55	174	77950	1166.901	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 116.69%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.44	85	11328	99.018	pg		100
3) Chloromethane	4.69	52	2647m	77.662	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	10078	89.538	pg		100
5) Vinyl Chloride	4.99	62	9555	87.365	pg		86
6) 1,3-Butadiene	5.19	54	4827	74.233	pg	#	83
7) Bromomethane	5.51	94	3629	82.485	pg		95
8) Chloroethane	5.73	64	3008	89.394	pg		96
9) Acrolein	6.33	56	2662	111.364	pg		92
10) Acetone	6.44	58	22310	721.872	pg	#	89
11) Trichlorofluoromethane	6.63	101	8644	110.470	pg		99
12) 1,1-Dichloroethene	7.37	96	5006	102.118	pg		99
13) Methylene Chloride	7.51	84	5144	96.696	pg		94
14) Trichlorotrifluoroethane	7.81	151	5048	103.215	pg		99
15) trans-1,2-Dichloroethene	8.54	96	5113	96.749	pg		98
16) 1,1-Dichloroethane	8.74	63	8410	89.697	pg		98
17) Methyl tert-Butyl Ether	8.81	73	16302	116.517	pg		99
18) cis-1,2-Dichloroethene	9.61	96	5464	98.525	pg		98
19) Chloroform	9.90	83	10370	105.175	pg		100
21) 1,2-Dichloroethane	10.66	62	6787	89.422	pg		96
22) 1,1,1-Trichloroethane	10.92	97	9029	98.650	pg		100
23) Benzene	11.38	78	21857	100.615	pg		100
24) Carbon Tetrachloride	11.53	117	8203	111.617	pg		100
26) 1,2-Dichloropropane	12.19	63	4956	87.482	pg		100
27) Bromodichloromethane	12.36	83	7398	94.566	pg		99
28) Trichloroethene	12.42	130	5856	101.272	pg		100
29) 1,4-Dioxane	12.40	88	4393	103.462	pg		100
30) cis-1,3-Dichloropropene	13.26	75	8329	109.307	pg		99
31) trans-1,3-Dichloropropene	13.78	75	6788	109.466	pg		99
32) 1,1,2-Trichloroethane	13.96	83	4185	87.335	pg		98
34) Toluene	14.25	91	21436	103.881	pg		100
35) Dibromochloromethane	14.67	129	6389	111.810	pg		100
36) 1,2-Dibromoethane	14.93	107	5612	103.842	pg		98
37) Tetrachloroethene	15.40	166	6110	101.908	pg		100
39) Chlorobenzene	16.10	112	14346	101.916	pg		99
40) Ethylbenzene	16.48	91	24193	116.549	pg		100
41) m,p-Xylene	16.66	91	37076	238.133	pg		100
42) Styrene	17.01	104	14110	129.355	pg		100
43) o-Xylene	17.12	106	9237	115.486	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	8659	94.220	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	19888	120.670	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	19999	123.627	pg		100
48) 1,3-Dichlorobenzene	18.92	146	11178	112.425	pg		99
49) 1,4-Dichlorobenzene	18.98	146	11885	114.813	pg		100
50) 1,2-Dichlorobenzene	19.31	146	11117	109.718	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	3739	122.073	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	7401	123.402	pg		99
53) Naphthalene	21.07	128	25799	135.469	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

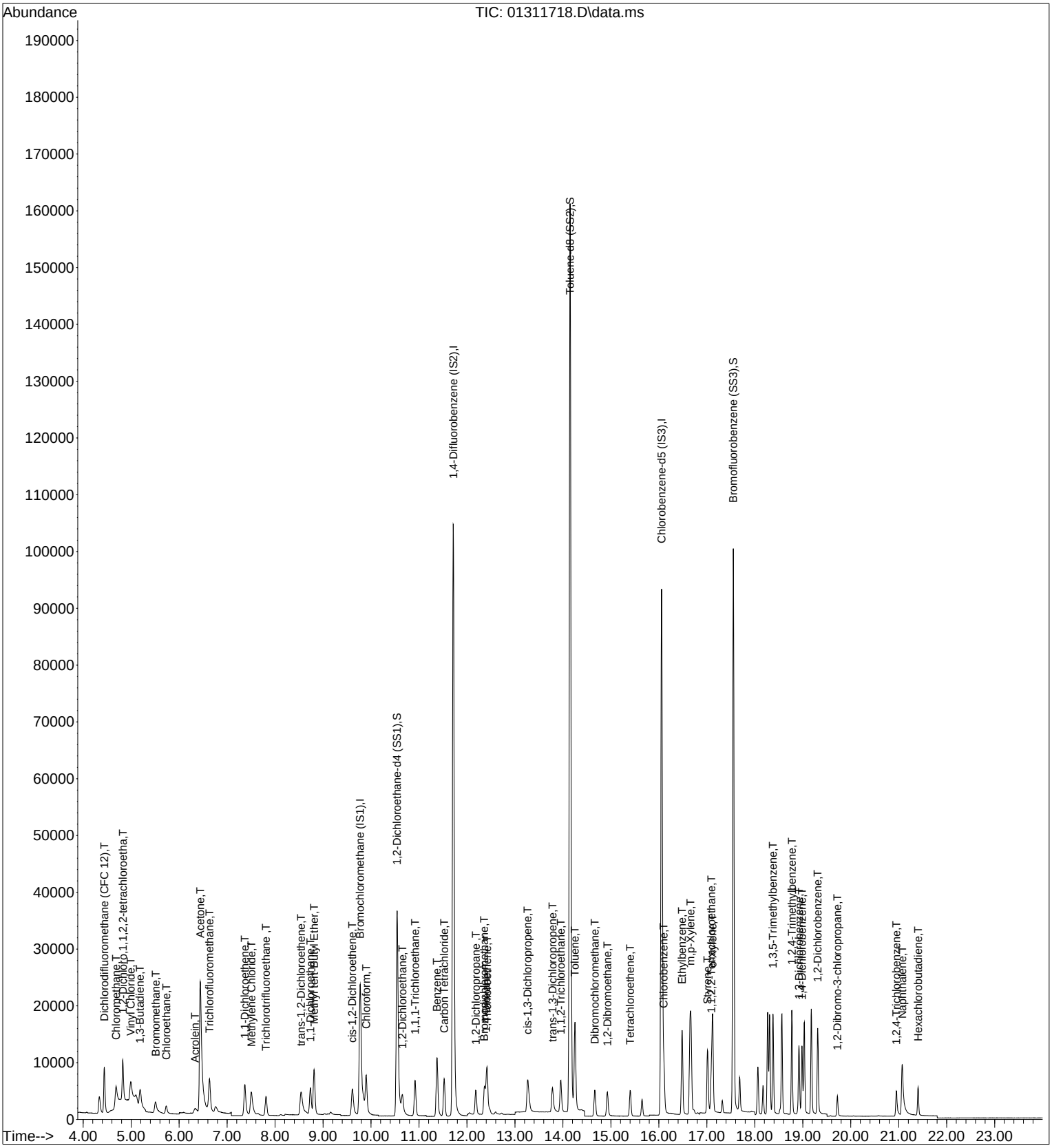
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	5012	105.631	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

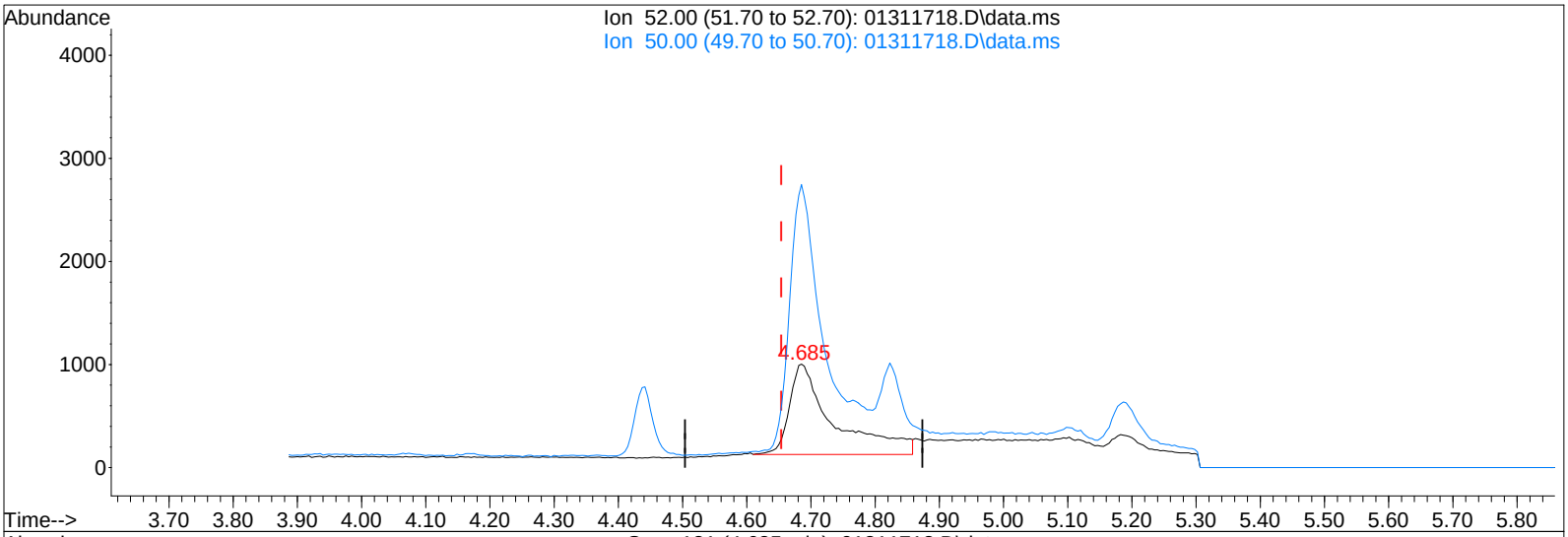
Quant Time: Feb 01 07:40:23 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

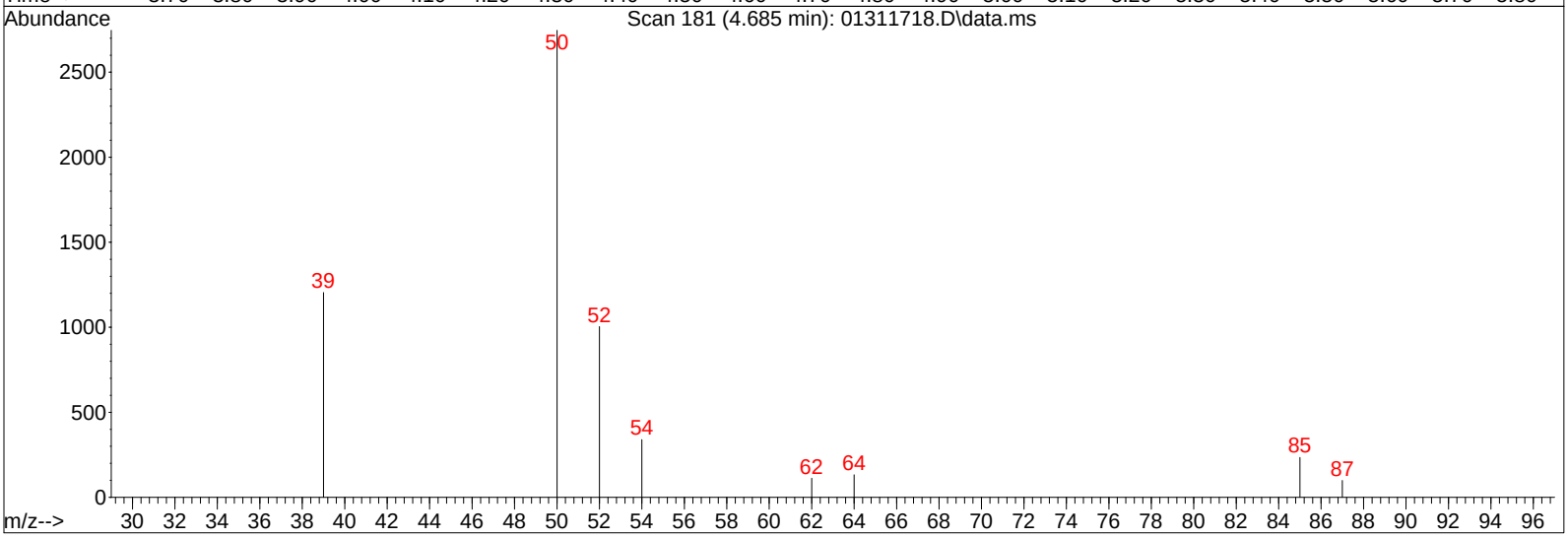


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 123.73pg

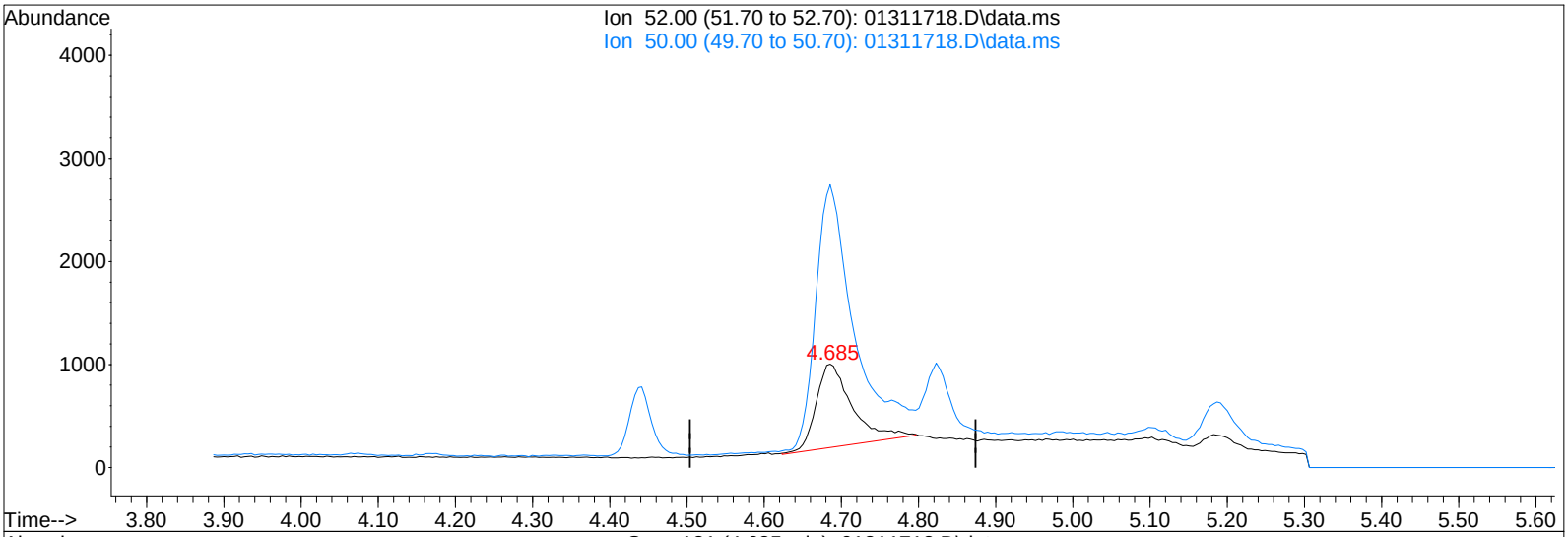
response 4217

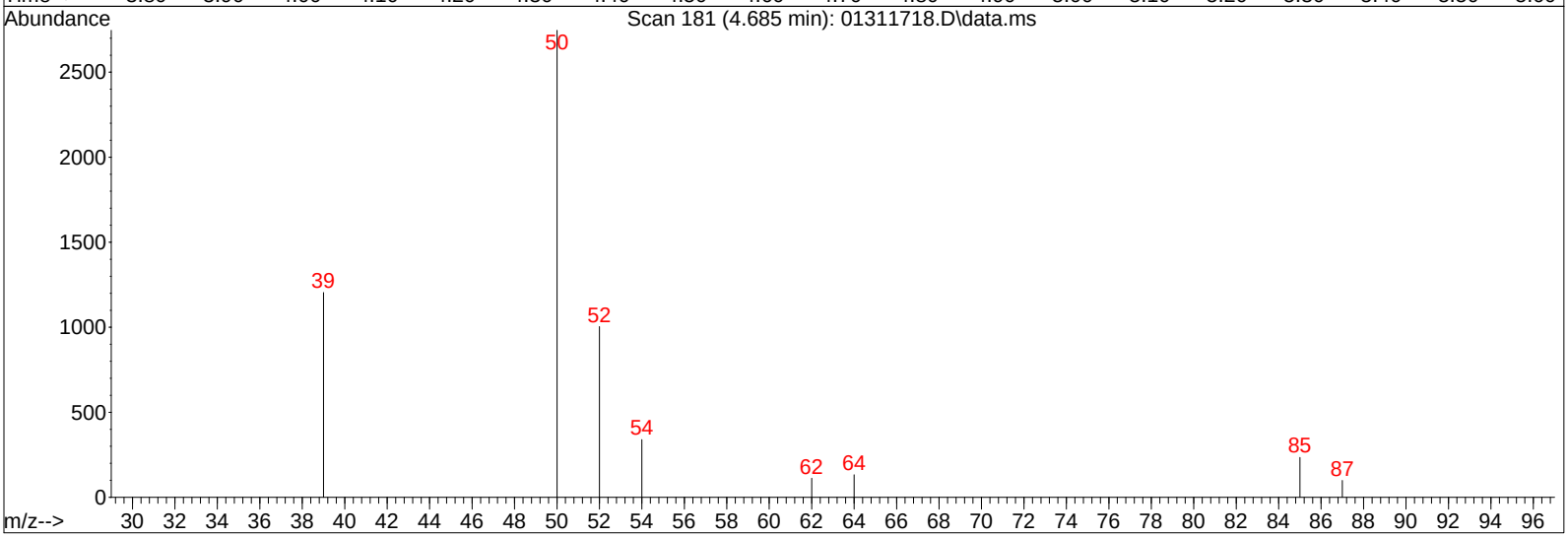
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	229.83#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311718.D Vial: 12
Acq On : 31 Jan 2017 16:57 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 01 07:13:29 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311718.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 77.66pg m

response 2647

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

WA 2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	44789	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	219635	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	36216	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	71641	923.585	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.36%			
33) Toluene-d8 (SS2)	14.15	98	222183	1018.385	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.84%			
45) Bromofluorobenzene (SS3)	17.55	174	77862	1175.207	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 117.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	54680	483.252	pg	100
3) Chloromethane	4.65	52	11134m	330.285	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	49784	447.204	pg	100
5) Vinyl Chloride	4.96	62	46092	426.104	pg	100
6) 1,3-Butadiene	5.14	54	27149	422.143	pg	97
7) Bromomethane	5.48	94	18208	418.438	pg	100
8) Chloroethane	5.70	64	14708	441.943	pg	100
9) Acrolein	6.27	56	11290	477.545	pg	99
10) Acetone	6.40	58	76435	2500.552	pg	100
11) Trichlorofluoromethane	6.62	101	41690	538.697	pg	100
12) 1,1-Dichloroethene	7.35	96	24654	508.490	pg	100
13) Methylene Chloride	7.48	84	25077	476.615	pg	100
14) Trichlorotrifluoroethane	7.80	151	24901	514.784	pg	100
15) trans-1,2-Dichloroethene	8.52	96	25919	495.873	pg	100
16) 1,1-Dichloroethane	8.72	63	42758	461.084	pg	100
17) Methyl tert-Butyl Ether	8.79	73	81366	587.998	pg	100
18) cis-1,2-Dichloroethene	9.59	96	27973	509.983	pg	100
19) Chloroform	9.89	83	46651	478.387	pg	100
21) 1,2-Dichloroethane	10.64	62	34289	456.777	pg	100
22) 1,1,1-Trichloroethane	10.91	97	45127	498.513	pg	100
23) Benzene	11.37	78	101187	470.958	pg	100
24) Carbon Tetrachloride	11.52	117	40496	557.125	pg	100
26) 1,2-Dichloropropane	12.18	63	24877	444.675	pg	100
27) Bromodichloromethane	12.36	83	36381	470.928	pg	100
28) Trichloroethene	12.41	130	29035	508.469	pg	100
29) 1,4-Dioxane	12.38	88	22240	530.407	pg	100
30) cis-1,3-Dichloropropene	13.26	75	42729	567.850	pg	100
31) trans-1,3-Dichloropropene	13.77	75	35546	580.476	pg	100
32) 1,1,2-Trichloroethane	13.95	83	21252	449.105	pg	100
34) Toluene	14.25	91	104379	512.227	pg	100
35) Dibromochloromethane	14.66	129	30904	547.669	pg	100
36) 1,2-Dibromoethane	14.92	107	28232	528.997	pg	100
37) Tetrachloroethene	15.40	166	30762	519.562	pg	100
39) Chlorobenzene	16.10	112	71422	511.579	pg	100
40) Ethylbenzene	16.48	91	121724	591.245	pg	100
41) m,p-Xylene	16.65	91	187213	1212.365	pg	100
42) Styrene	17.01	104	72134	666.756	pg	100
43) o-Xylene	17.12	106	45881	578.366	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	43481	477.028	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	101046	618.158	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	102046	636.021	pg	100
48) 1,3-Dichlorobenzene	18.92	146	56800	575.993	pg	100
49) 1,4-Dichlorobenzene	18.98	146	57596	560.989	pg	100
50) 1,2-Dichlorobenzene	19.31	146	55446	551.735	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19674	647.629	pg	100
52) 1,2,4-Trichlorobenzene	20.94	182	36959	621.329	pg	100
53) Naphthalene	21.06	128	125927	666.692	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

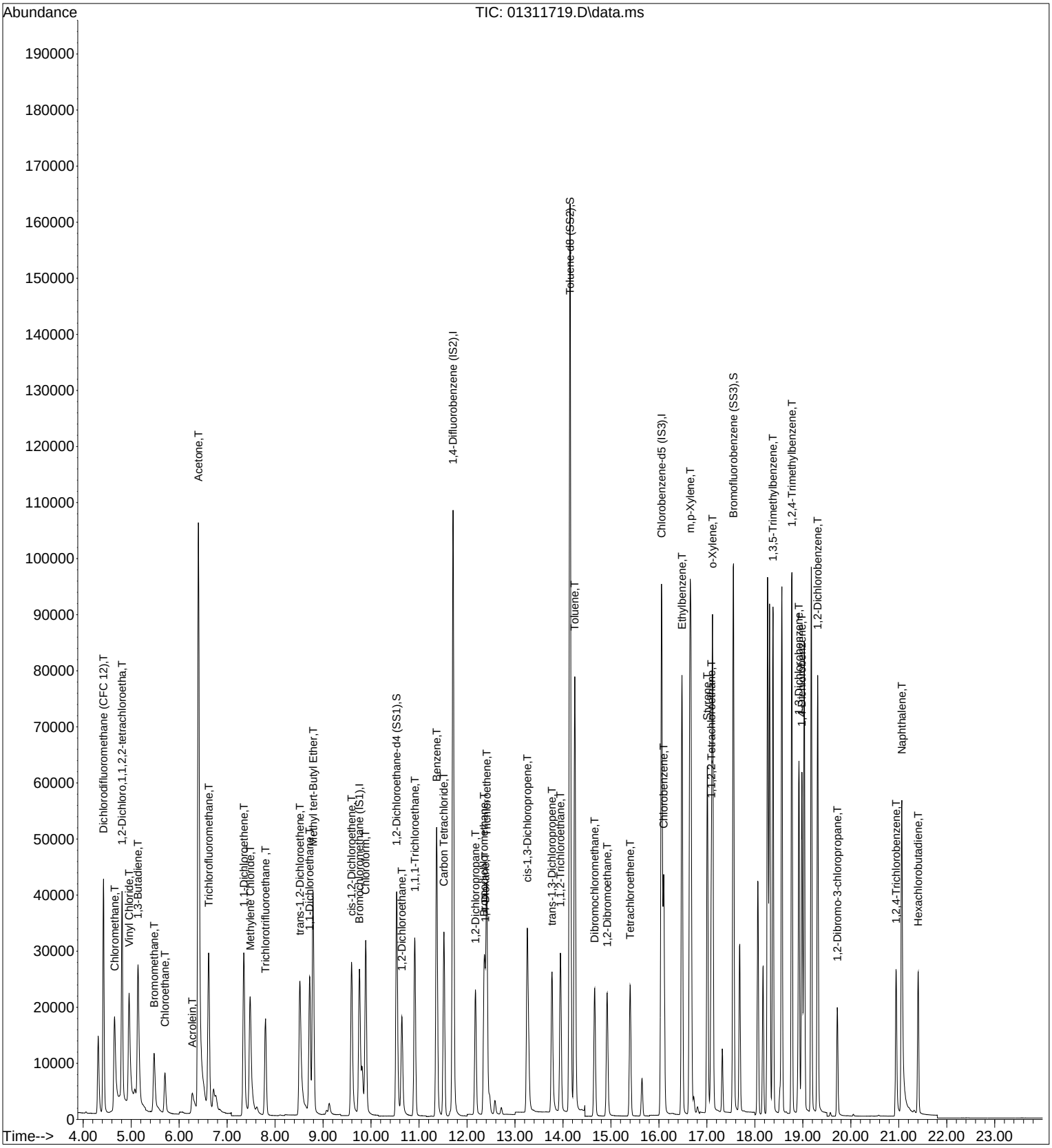
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	25291	537.422	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

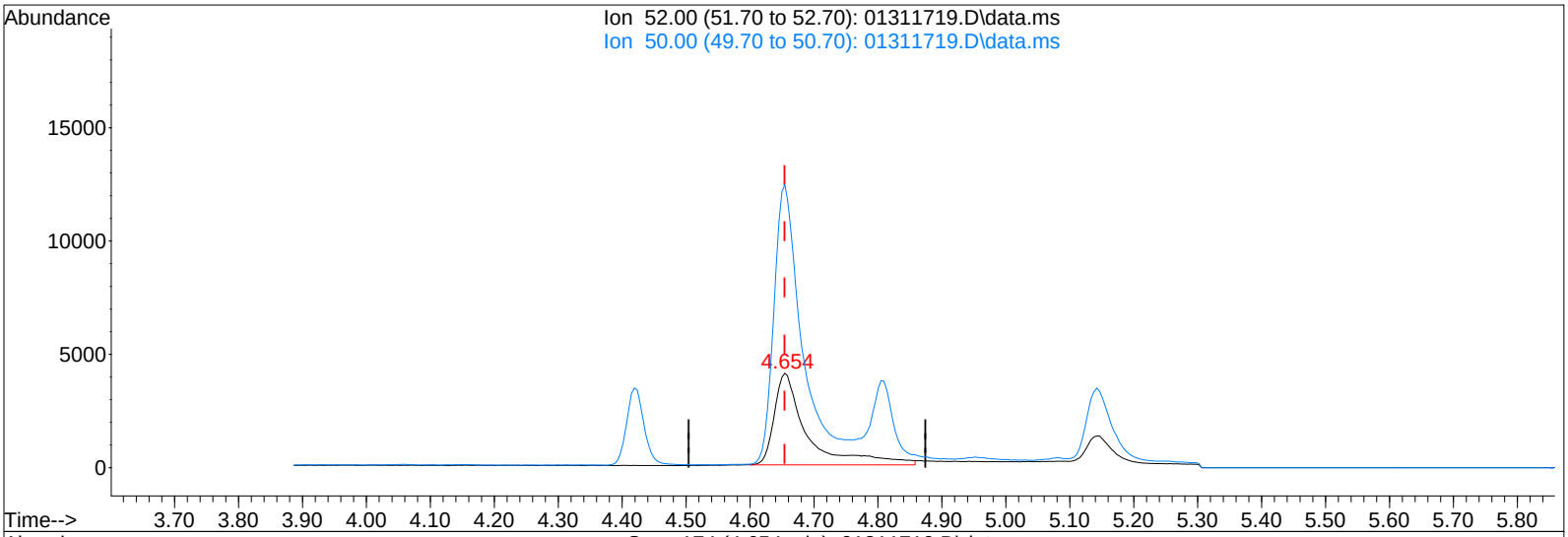
Quant Time: Feb 01 07:40:59 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

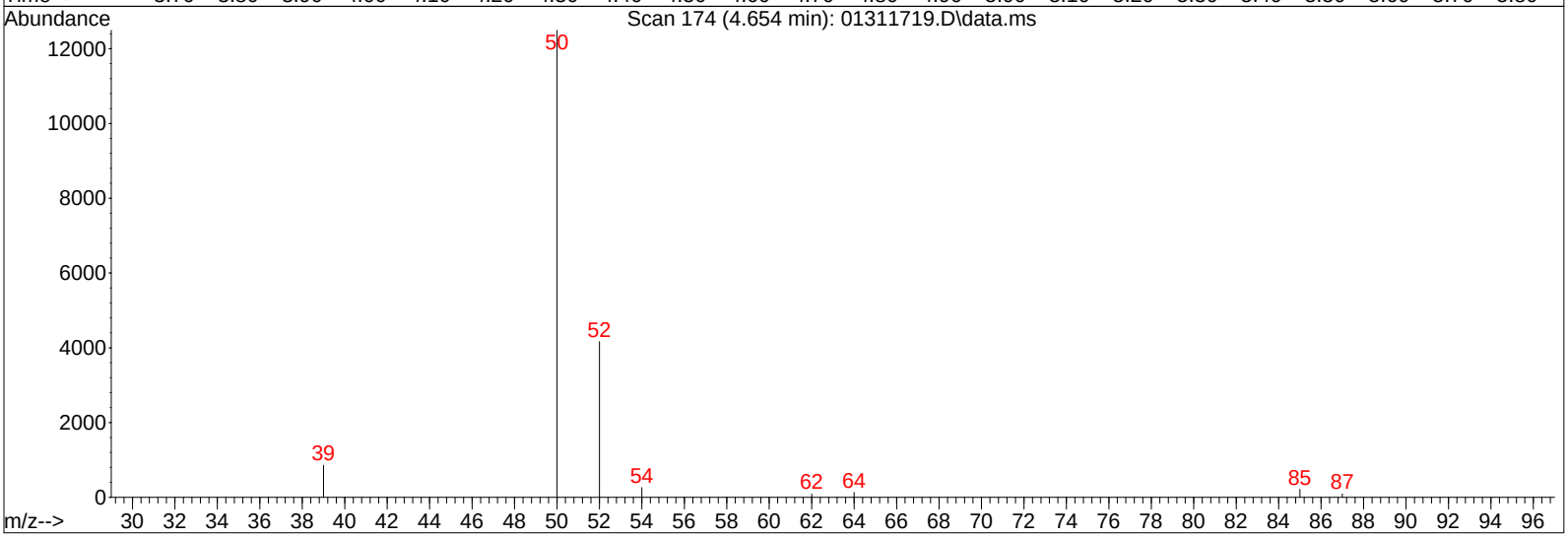


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 425.98pg

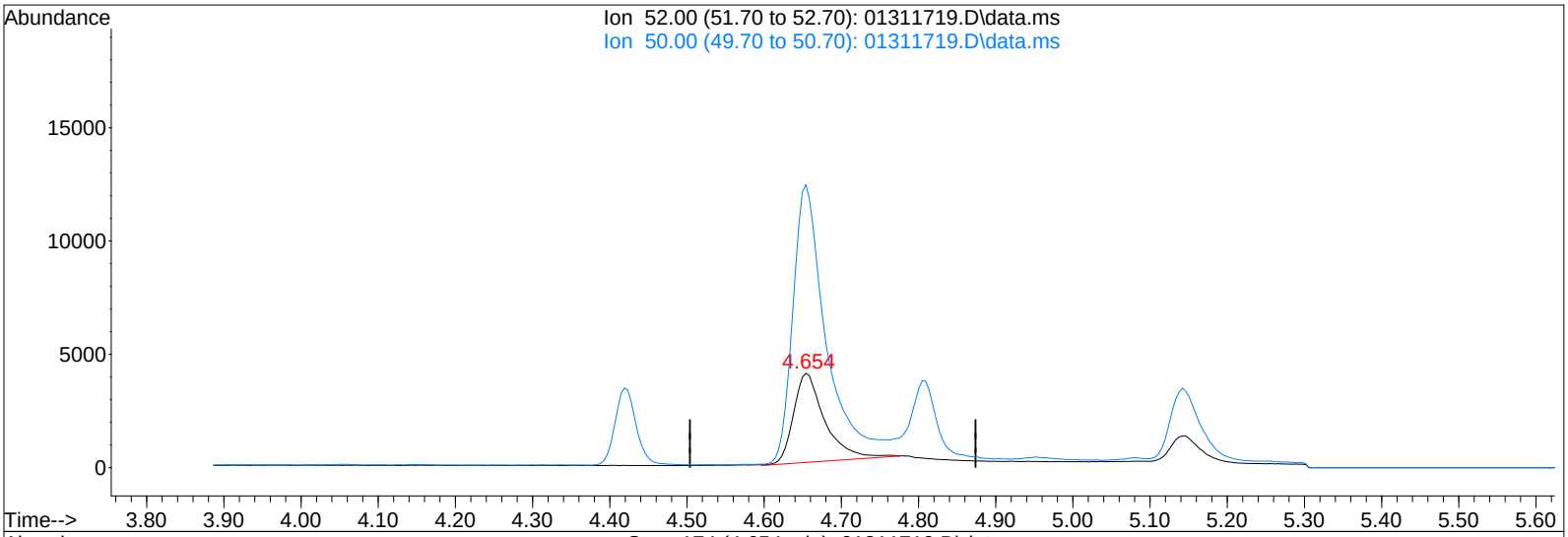
response 14360

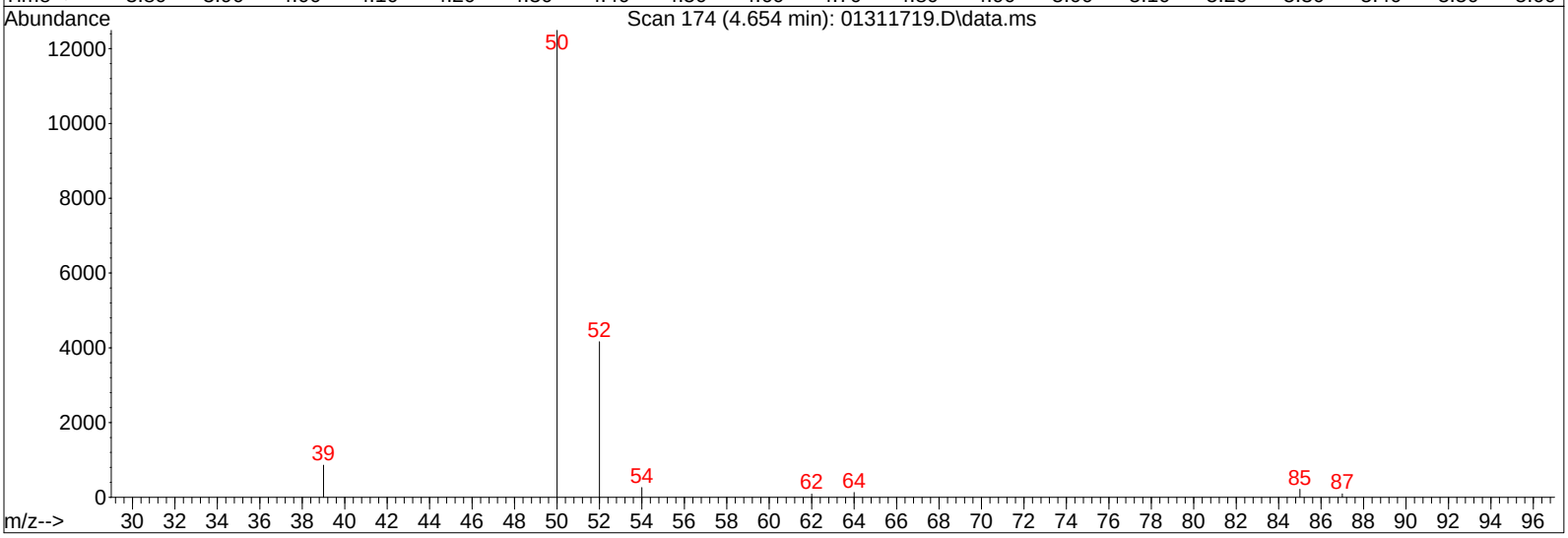
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	273.80
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311719.D Vial: 13
Acq On : 31 Jan 2017 17:28 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 01 07:13:30 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311719.D\data.ms

(3) Chloromethane (T)

4.654min (0.000) 330.29pg m

response 11134

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/1/17

2/1/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	41256	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	201950	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	33722	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	63980	895.455	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.55%			
33) Toluene-d8 (SS2)	14.14	98	205034	1022.080	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.21%			
45) Bromofluorobenzene (SS3)	17.55	174	73290	1188.011	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	113332	1087.382	pg	100
3) Chloromethane	4.64	52	26928m	867.214	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	101721	991.998	pg	100
5) Vinyl Chloride	4.94	62	95990	963.386	pg	100
6) 1,3-Butadiene	5.12	54	70019	1181.968	pg	96
7) Bromomethane	5.46	94	37586	937.734	pg	100
8) Chloroethane	5.69	64	30402	991.743	pg	99
9) Acrolein	6.26	56	24355	1118.389	pg	87
10) Acetone	6.39	58	155710	5530.245	pg	100
11) Trichlorofluoromethane	6.60	101	85620	1201.080	pg	100
12) 1,1-Dichloroethene	7.34	96	51528	1153.780	pg	100
13) Methylene Chloride	7.47	84	51520	1063.046	pg	99
14) Trichlorotrifluoroethane	7.79	151	52266	1173.037	pg	100
15) trans-1,2-Dichloroethene	8.51	96	54829	1138.798	pg	99
16) 1,1-Dichloroethane	8.71	63	88528	1036.400	pg	100
17) Methyl tert-Butyl Ether	8.78	73	166983	1310.054	pg	100
18) cis-1,2-Dichloroethene	9.59	96	58245	1152.816	pg	100
19) Chloroform	9.89	83	95528	1063.489	pg	100
21) 1,2-Dichloroethane	10.64	62	72512	1048.681	pg	99
22) 1,1,1-Trichloroethane	10.91	97	93518	1121.552	pg	100
23) Benzene	11.36	78	208308	1052.561	pg	100
24) Carbon Tetrachloride	11.52	117	83663	1249.564	pg	100
26) 1,2-Dichloropropane	12.18	63	52269	1016.124	pg	100
27) Bromodichloromethane	12.36	83	76414	1075.747	pg	100
28) Trichloroethene	12.41	130	60477	1151.837	pg	100
29) 1,4-Dioxane	12.38	88	46199	1198.297	pg	99
30) cis-1,3-Dichloropropene	13.25	75	91457	1321.861	pg	100
31) trans-1,3-Dichloropropene	13.77	75	77319	1373.212	pg	100
32) 1,1,2-Trichloroethane	13.95	83	44749	1028.464	pg	100
34) Toluene	14.25	91	217850	1162.691	pg	100
35) Dibromochloromethane	14.66	129	65423	1260.932	pg	100
36) 1,2-Dibromoethane	14.92	107	60364	1230.120	pg	100
37) Tetrachloroethene	15.40	166	64784	1190.005	pg	99
39) Chlorobenzene	16.10	112	151267	1163.622	pg	100
40) Ethylbenzene	16.48	91	256326	1337.123	pg	100
41) m,p-Xylene	16.66	91	392109	2727.040	pg	100
42) Styrene	17.01	104	156256	1551.139	pg	100
43) o-Xylene	17.12	106	96286	1303.527	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	91871	1082.455	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	212828	1398.287	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	217940	1458.812	pg	100
48) 1,3-Dichlorobenzene	18.92	146	124843	1359.628	pg	100
49) 1,4-Dichlorobenzene	18.98	146	123287	1289.634	pg	100
50) 1,2-Dichlorobenzene	19.31	146	120177	1284.308	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	43897	1551.872	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	83154	1501.315	pg	100
53) Naphthalene	21.06	128	277042	1575.213	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

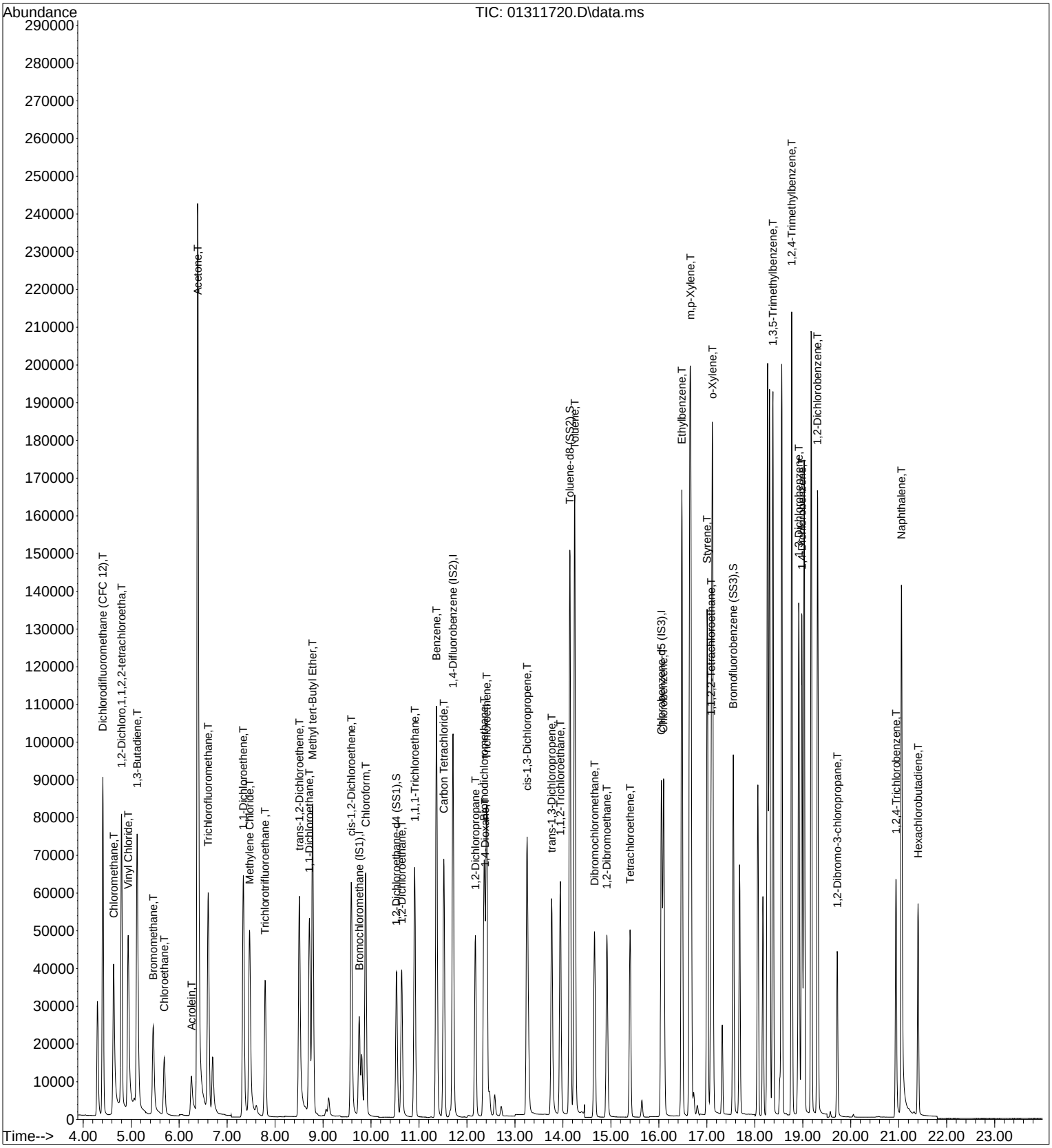
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	54368	1240.737	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

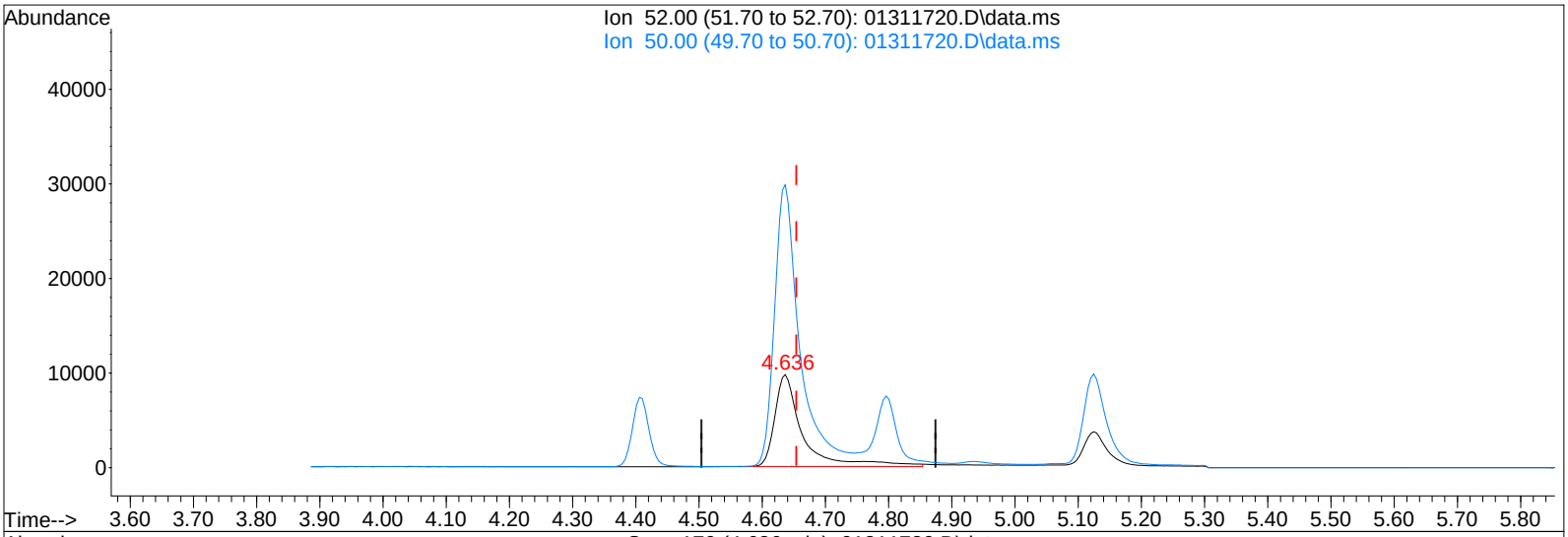
Quant Time: Feb 01 07:41:34 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

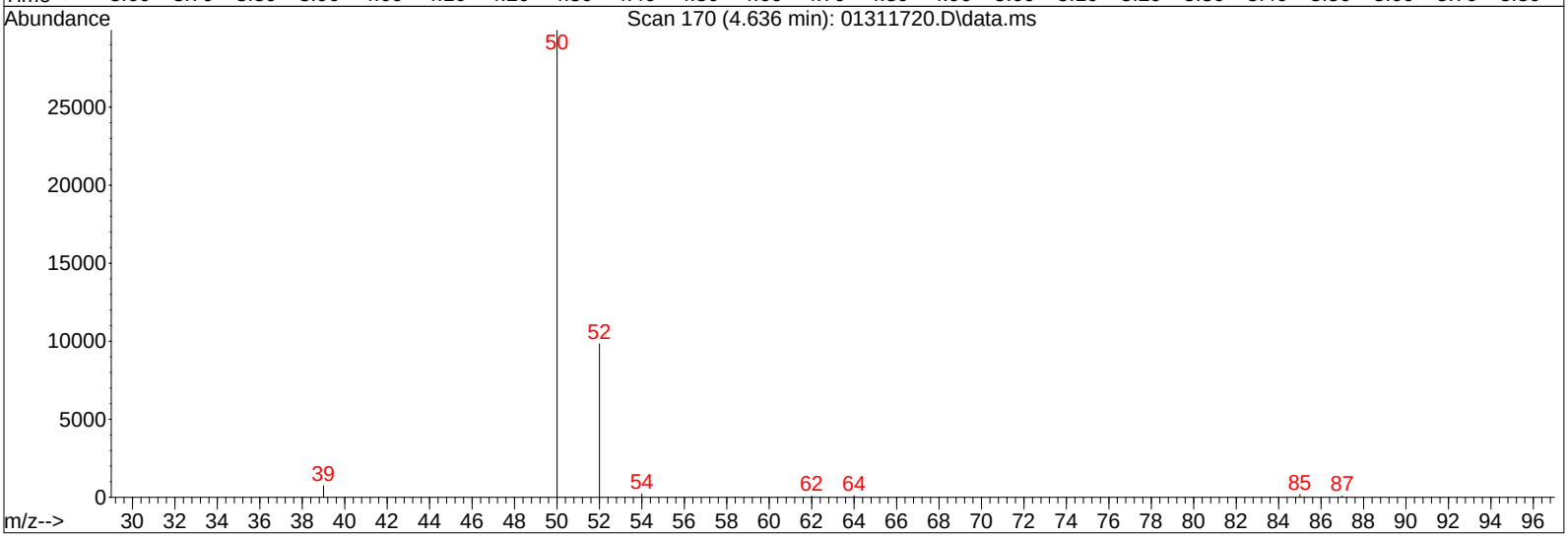


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 960.90pg

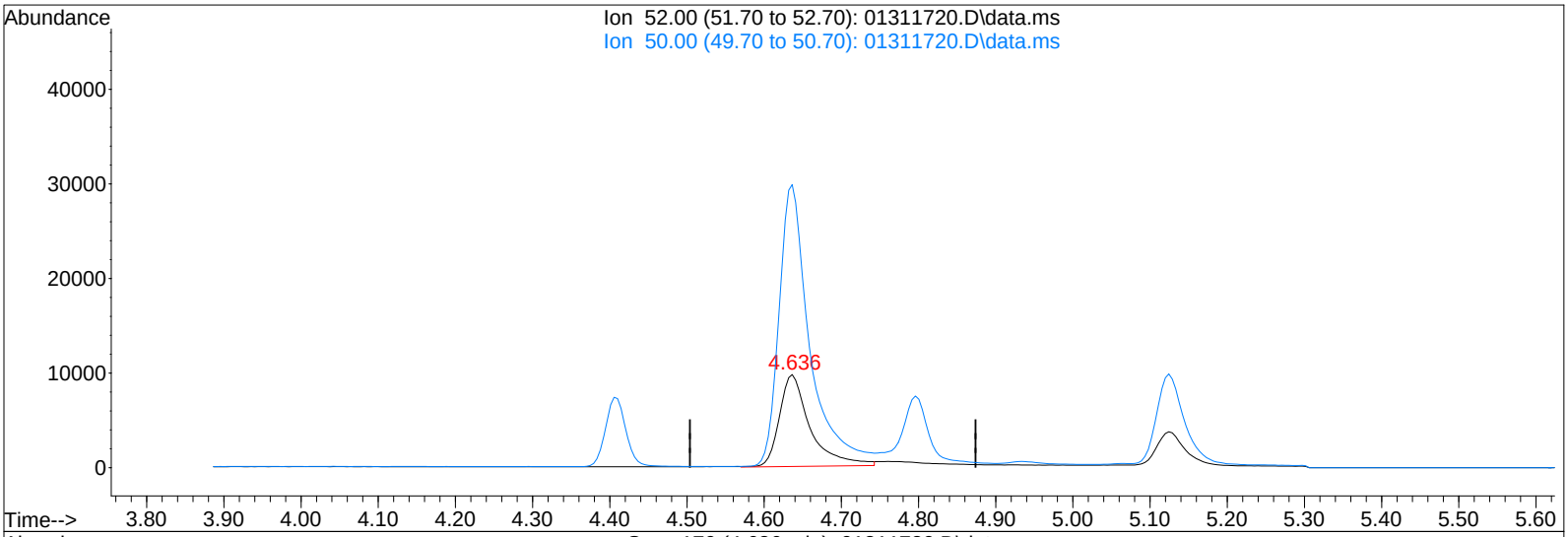
response 29837

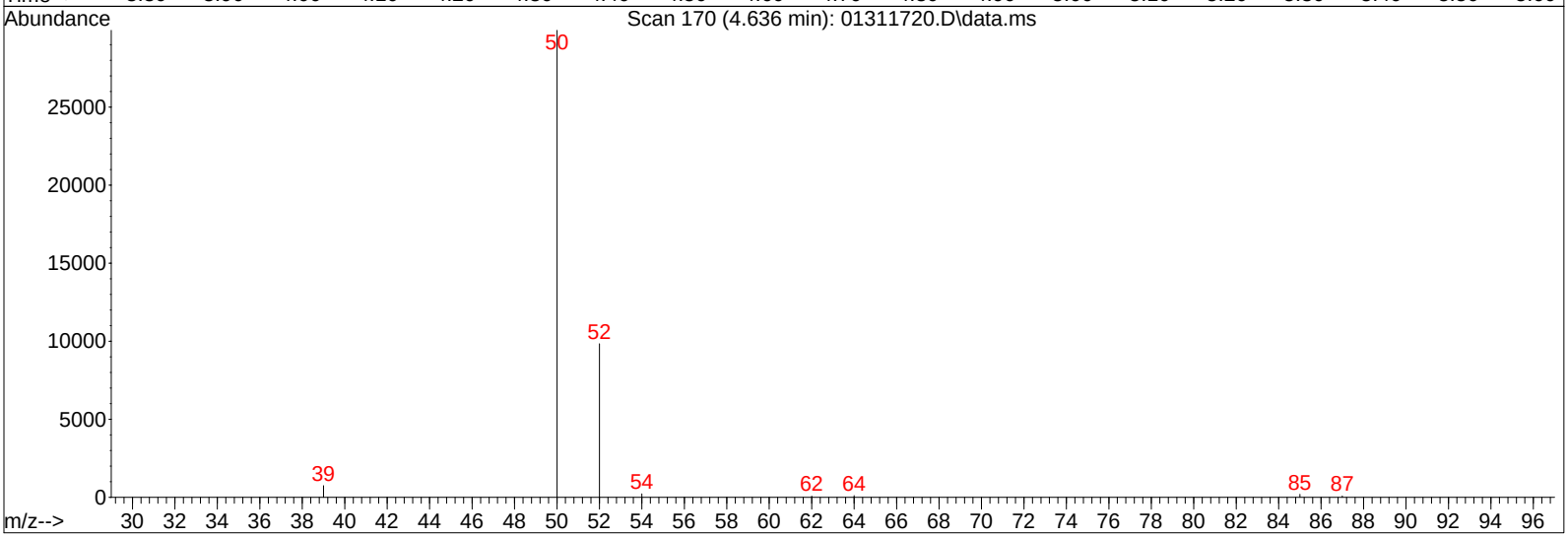
Ion	Exp%	Act%
52.00	100	100
50.00	288.40	282.21
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 01\31\01311720.D Vial: 14
Acq On : 31 Jan 2017 18:00 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:31 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 01311720.D\data.ms

(3) Chloromethane (T)

4.636min (-0.018) 867.21pg m

response 26928

BLC

CL 2/1/17 VOA 2/1/17

Ion	Exp%	Act%
52.00	100	100
50.00	288.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46260	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	226658	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38224	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	72163	900.732	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.07%			
33) Toluene-d8 (SS2)	14.14	98	229595	1019.751	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%			
45) Bromofluorobenzene (SS3)	17.55	174	84385	1206.753	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 120.68%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	220557	1887.260	pg	100
3) Chloromethane	4.63	52	52734	1514.587	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	195750	1702.486	pg	100
5) Vinyl Chloride	4.93	62	185043	1656.260	pg	100
6) 1,3-Butadiene	5.12	54	131000	1972.162	pg	99
7) Bromomethane	5.46	94	74906	1666.677	pg	99
8) Chloroethane	5.68	64	59772	1738.906	pg	100
9) Acrolein	6.25	56	49479	2026.316	pg	89
10) Acetone	6.39	58	301398	9546.622	pg	100
11) Trichlorofluoromethane	6.60	101	166282	2080.289	pg	100
12) 1,1-Dichloroethene	7.34	96	101668	2030.230	pg	100
13) Methylene Chloride	7.47	84	101112	1860.632	pg	97
14) Trichlorotrifluoroethane	7.80	151	101840	2038.413	pg	100
15) trans-1,2-Dichloroethene	8.51	96	108910	2017.370	pg	100
16) 1,1-Dichloroethane	8.72	63	173363	1810.026	pg	100
17) Methyl tert-Butyl Ether	8.78	73	324803	2272.577	pg	100
18) cis-1,2-Dichloroethene	9.59	96	115529	2039.266	pg	100
19) Chloroform	9.89	83	185900	1845.709	pg	100
21) 1,2-Dichloroethane	10.64	62	143714	1853.592	pg	100
22) 1,1,1-Trichloroethane	10.91	97	183355	1961.094	pg	100
23) Benzene	11.36	78	404925	1824.725	pg	100
24) Carbon Tetrachloride	11.52	117	163921	2183.439	pg	100
26) 1,2-Dichloropropane	12.18	63	103854	1798.865	pg	100
27) Bromodichloromethane	12.36	83	152005	1906.637	pg	100
28) Trichloroethene	12.41	130	118710	2014.470	pg	100
29) 1,4-Dioxane	12.37	88	91438	2113.156	pg	98
30) cis-1,3-Dichloropropene	13.25	75	184937	2381.581	pg	100
31) trans-1,3-Dichloropropene	13.77	75	159452	2523.214	pg	100
32) 1,1,2-Trichloroethane	13.95	83	88554	1813.371	pg	100
34) Toluene	14.25	91	428948	2039.785	pg	100
35) Dibromochloromethane	14.66	129	131890	2264.884	pg	100
36) 1,2-Dibromoethane	14.92	107	121296	2202.363	pg	100
37) Tetrachloroethene	15.40	166	129617	2121.366	pg	99
39) Chlorobenzene	16.10	112	301544	2046.425	pg	100
40) Ethylbenzene	16.48	91	505745	2327.488	pg	100
41) m,p-Xylene	16.65	91	769225	4719.710	pg	100
42) Styrene	17.01	104	317729	2782.583	pg	100
43) o-Xylene	17.12	106	190542	2275.751	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	183818	1910.717	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	422729	2450.230	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	437807	2585.368	pg	100
48) 1,3-Dichlorobenzene	18.92	146	252089	2422.071	pg	99
49) 1,4-Dichlorobenzene	18.98	146	251599	2321.857	pg	100
50) 1,2-Dichlorobenzene	19.31	146	243739	2297.999	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	93012	2900.929	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	173590	2764.971	pg	99
53) Naphthalene	21.06	128	572431	2871.402	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

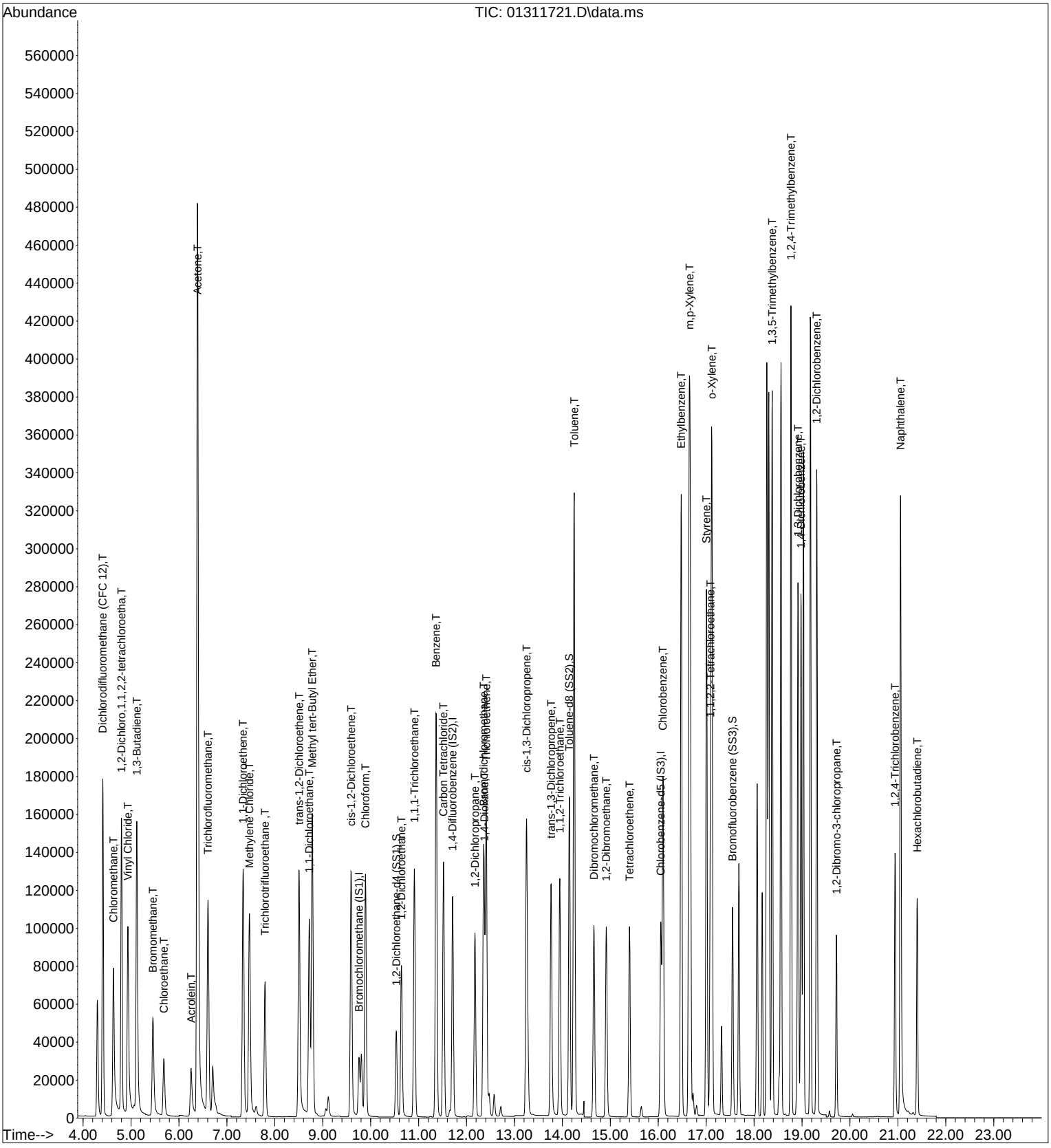
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	110571	2226.153	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311721.D Vial: 14
Acq On : 31 Jan 2017 18:31 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:32 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46202	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	228263	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	38988	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	72838	910.299 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.03%		
33) Toluene-d8 (SS2)	14.15	98	229599	1012.598 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.26%		
45) Bromofluorobenzene (SS3)	17.55	174	87524	1227.115 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 122.71%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	512896	4394.253 pg	100
3) Chloromethane	4.62	52	101977	2932.585 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	454932	3961.623 pg	100
5) Vinyl Chloride	4.92	62	438115	3926.349 pg	100
6) 1,3-Butadiene	5.11	54	348673	5255.748 pg	99
7) Bromomethane	5.44	94	175953	3919.913 pg	99
8) Chloroethane	5.67	64	144617	4212.525 pg	100
9) Acrolein	6.25	56	124001	5084.593 pg	91
10) Acetone	6.39	58	711848	22575.713 pg	99
11) Trichlorofluoromethane	6.60	101	397999	4985.460 pg	100
12) 1,1-Dichloroethene	7.33	96	244670	4892.002 pg	100
13) Methylene Chloride	7.47	84	242354	4465.323 pg	96
14) Trichlorotrifluoroethane	7.79	151	244226	4894.525 pg	100
15) trans-1,2-Dichloroethene	8.51	96	261214	4844.613 pg	100
16) 1,1-Dichloroethane	8.72	63	410941	4295.885 pg	100
17) Methyl tert-Butyl Ether	8.78	73	766770	5371.660 pg	99
18) cis-1,2-Dichloroethene	9.59	96	277890	4911.346 pg	100
19) Chloroform	9.90	83	442175	4395.649 pg	100
21) 1,2-Dichloroethane	10.65	62	348344	4498.505 pg	99
22) 1,1,1-Trichloroethane	10.91	97	435529	4664.096 pg	100
23) Benzene	11.37	78	964790	4353.119 pg	100
24) Carbon Tetrachloride	11.52	117	392094	5229.275 pg	100
26) 1,2-Dichloropropane	12.18	63	253346	4357.376 pg	100
27) Bromodichloromethane	12.36	83	368912	4594.819 pg	100
28) Trichloroethene	12.41	130	283057	4769.610 pg	100
29) 1,4-Dioxane	12.37	88	220451	5058.858 pg	98
30) cis-1,3-Dichloropropene	13.25	75	456001	5830.998 pg	100
31) trans-1,3-Dichloropropene	13.76	75	400676	6295.829 pg	100
32) 1,1,2-Trichloroethane	13.95	83	213984	4351.062 pg	100
34) Toluene	14.25	91	1028667	4857.246 pg	99
35) Dibromochloromethane	14.66	129	325836	5556.082 pg	100
36) 1,2-Dibromoethane	14.92	107	296590	5347.298 pg	100
37) Tetrachloroethene	15.40	166	315696	5130.483 pg	98
39) Chlorobenzene	16.10	112	729817	4855.838 pg	99
40) Ethylbenzene	16.48	91	1211043	5464.123 pg	99
41) m,p-Xylene	16.66	91	1858111	11177.347 pg	99
42) Styrene	17.01	104	792274	6802.551 pg	100
43) o-Xylene	17.12	106	463877	5431.779 pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	452508	4611.475 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1044605	5936.113 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	1092958	6327.736 pg	99
48) 1,3-Dichlorobenzene	18.92	146	633841	5970.608 pg	99
49) 1,4-Dichlorobenzene	18.98	146	630188	5701.667 pg	100
50) 1,2-Dichlorobenzene	19.31	146	611111	5648.722 pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	241334	7379.414 pg	97
52) 1,2,4-Trichlorobenzene	20.94	182	437718	6835.425 pg	99
53) Naphthalene	21.06	128	1421593	6991.193 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

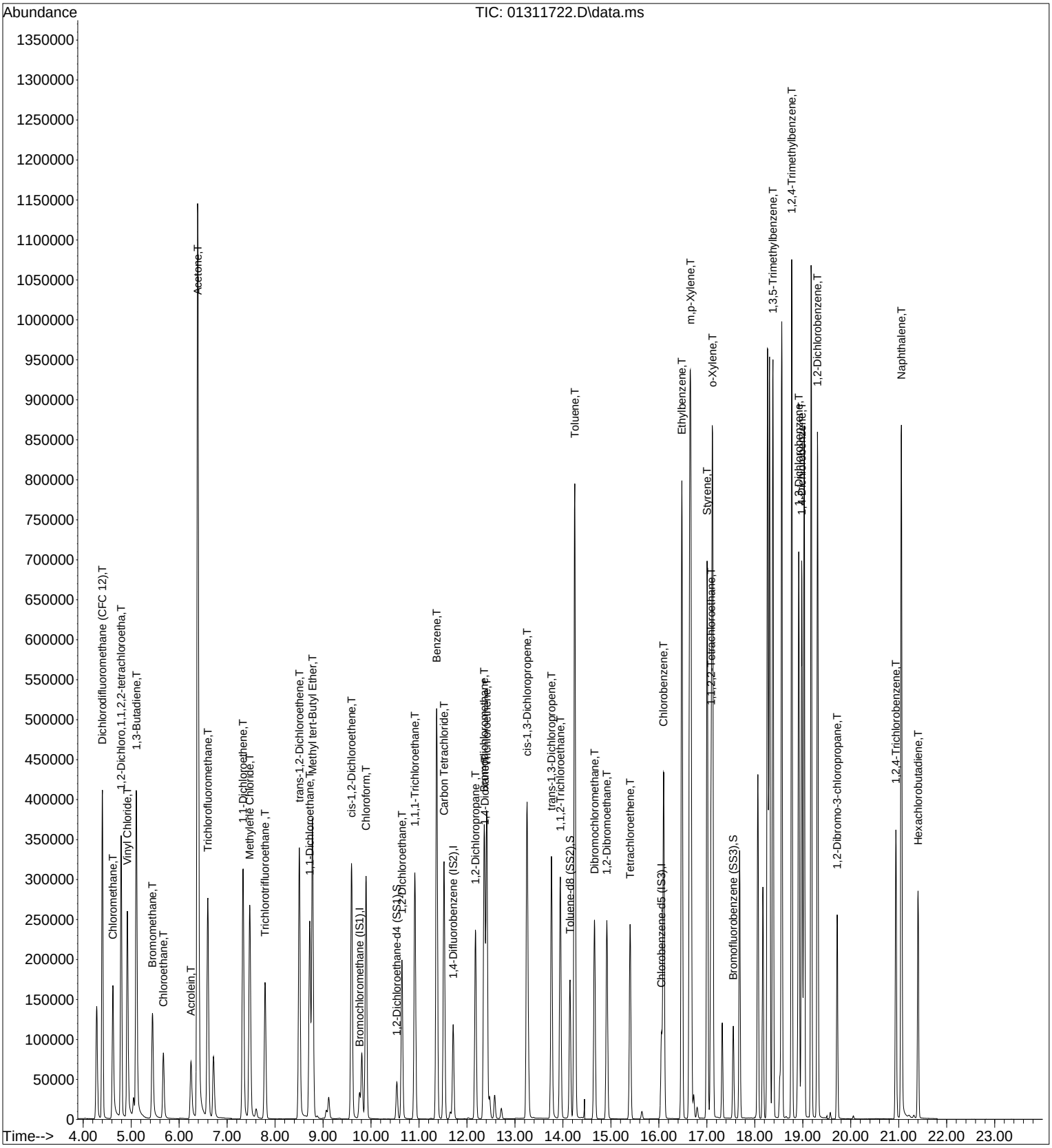
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	274391	5416.126	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311722.D Vial: 14
Acq On : 31 Jan 2017 19:02 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:33 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	47579	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	237335	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	41485	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	76306	926.041	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.60%			
33) Toluene-d8 (SS2)	14.15	98	237217	1006.206	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%			
45) Bromofluorobenzene (SS3)	17.55	174	91990	1212.101	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 121.21%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	991839	8251.680	pg	99
3) Chloromethane	4.62	52	127941	3572.758	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	882023	7458.509	pg	99
5) Vinyl Chloride	4.92	62	860171	7485.676	pg	100
6) 1,3-Butadiene	5.11	54	682216	9985.816	pg	98
7) Bromomethane	5.44	94	347157	7510.193	pg	99
8) Chloroethane	5.67	64	288891	8171.516	pg	100
9) Acrolein	6.25	56	251909	10030.444	pg	93
10) Acetone	6.40	58	1427049	43947.944	pg	98
11) Trichlorofluoromethane	6.60	101	783993	9536.321	pg	100
12) 1,1-Dichloroethene	7.33	96	485554	9427.334	pg	100
13) Methylene Chloride	7.48	84	484801	8673.844	pg	94
14) Trichlorotrifluoroethane	7.79	151	470953	9165.195	pg	100
15) trans-1,2-Dichloroethene	8.51	96	513980	9256.661	pg	99
16) 1,1-Dichloroethane	8.73	63	814059	8263.700	pg	99
17) Methyl tert-Butyl Ether	8.78	73	1520229	10341.841	pg	99
18) cis-1,2-Dichloroethene	9.60	96	551238	9460.460	pg	99
19) Chloroform	9.90	83	875033	8446.926	pg	99
21) 1,2-Dichloroethane	10.65	62	695439	8720.961	pg	99
22) 1,1,1-Trichloroethane	10.92	97	857745	8919.779	pg	99
23) Benzene	11.37	78	1911739	8376.099	pg	100
24) Carbon Tetrachloride	11.53	117	780654	10110.098	pg	100
26) 1,2-Dichloropropane	12.18	63	508782	8416.208	pg	100
27) Bromodichloromethane	12.36	83	735652	8812.352	pg	100
28) Trichloroethene	12.42	130	560675	9086.442	pg	100
29) 1,4-Dioxane	12.37	88	437282	9651.075	pg	97
30) cis-1,3-Dichloropropene	13.25	75	918356	11294.367	pg	100
31) trans-1,3-Dichloropropene	13.76	75	813807	12298.574	pg	99
32) 1,1,2-Trichloroethane	13.95	83	426818	8347.000	pg	100
34) Toluene	14.25	91	2034557	9239.721	pg	98
35) Dibromochloromethane	14.66	129	658702	10802.700	pg	100
36) 1,2-Dibromoethane	14.92	107	594139	10302.431	pg	100
37) Tetrachloroethene	15.40	166	629830	9844.333	pg	98
39) Chlorobenzene	16.10	112	1451673	9077.347	pg	99
40) Ethylbenzene	16.48	91	2393354	10148.638	pg	98
41) m,p-Xylene	16.66	91	3762008	21268.000	pg	98
42) Styrene	17.01	104	1611198	13001.252	pg	99
43) o-Xylene	17.12	106	941259	10358.294	pg	97
44) 1,1,2,2-Tetrachloroethane	17.09	83	918804	8799.871	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2126238	11355.384	pg	97
47) 1,2,4-Trimethylbenzene	18.77	105	2241162	12194.331	pg	99
48) 1,3-Dichlorobenzene	18.92	146	1277210	11306.817	pg	99
49) 1,4-Dichlorobenzene	18.98	146	1276991	10858.239	pg	100
50) 1,2-Dichlorobenzene	19.31	146	1236325	10739.958	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	496260	14261.083	pg	98
52) 1,2,4-Trichlorobenzene	20.94	182	884931	12987.345	pg	99
53) Naphthalene	21.06	128	2873218	13279.584	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

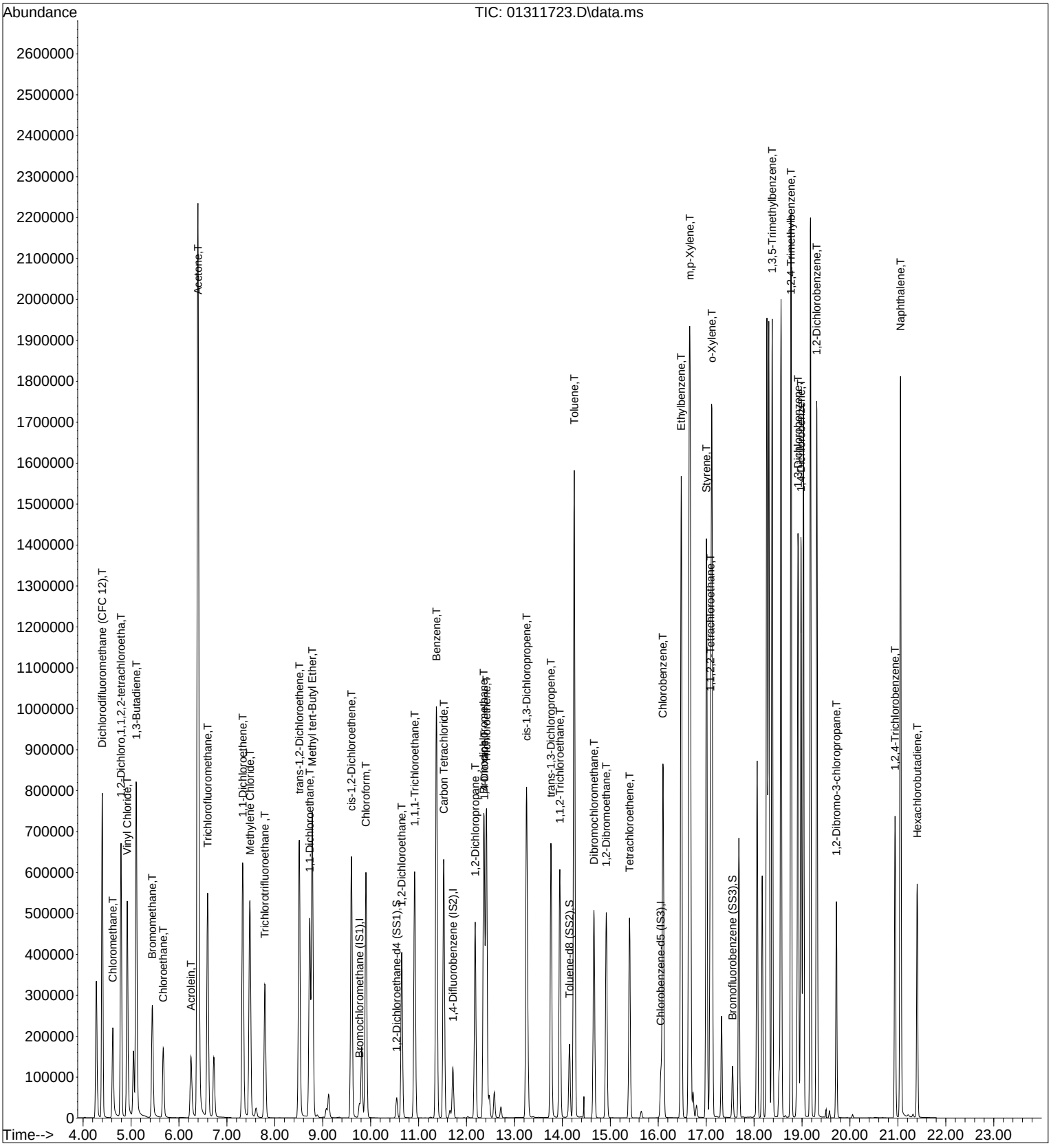
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	547888	10163.670	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311723.D Vial: 14
Acq On : 31 Jan 2017 19:34 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301703 (2/28)

Quant Time: Feb 01 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	51008	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	248382	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	50853	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	79915	904.642	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.46%			
33) Toluene-d8 (SS2)	14.15	98	246142	997.627	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.76%			
45) Bromofluorobenzene (SS3)	17.55	174	94754	1018.521	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.85%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	4831857	37496.636	pg	97
3) Chloromethane	4.62	52	1109290	28894.555	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	4467055	35234.690	pg	97
5) Vinyl Chloride	4.93	62	4376577	35526.941	pg	98
6) 1,3-Butadiene	5.12	54	3755422	51274.027	pg	94
7) Bromomethane	5.45	94	1886990	38077.796	pg	98
8) Chloroethane	5.68	64	1532792	40441.649	pg	99
9) Acrolein	6.27	56	1401244	52043.591	pg	94
10) Acetone	6.42	58	8896584	255564.177	pg	# 80
11) Trichlorofluoromethane	6.61	101	4235811	48059.834	pg	98
12) 1,1-Dichloroethene	7.34	96	2610496	47277.161	pg	100
13) Methylene Chloride	7.50	84	2665787	44488.788	pg	90
14) Trichlorotrifluoroethane	7.80	151	2673416	48529.712	pg	99
15) trans-1,2-Dichloroethene	8.52	96	2744721	46108.752	pg	98
16) 1,1-Dichloroethane	8.74	63	4379006	41464.002	pg	98
17) Methyl tert-Butyl Ether	8.79	73	8396415	53279.453	pg	96
18) cis-1,2-Dichloroethene	9.61	96	2951308	47245.957	pg	98
19) Chloroform	9.92	83	4748565	42757.634	pg	98
21) 1,2-Dichloroethane	10.66	62	3773335	44137.496	pg	98
22) 1,1,1-Trichloroethane	10.93	97	4624723	44859.935	pg	98
23) Benzene	11.38	78	10474309	42807.079	pg	98
24) Carbon Tetrachloride	11.54	117	4279022	51691.403	pg	99
26) 1,2-Dichloropropane	12.19	63	2794563	44171.312	pg	99
27) Bromodichloromethane	12.37	83	4215899	48255.994	pg	98
28) Trichloroethene	12.42	130	3126783	48419.700	pg	99
29) 1,4-Dioxane	12.38	88	2532494	53407.740	pg	93
30) cis-1,3-Dichloropropene	13.26	75	5308516	62382.910	pg	98
31) trans-1,3-Dichloropropene	13.77	75	4519148	65257.673	pg	97
32) 1,1,2-Trichloroethane	13.95	83	2379757	44469.470	pg	98
34) Toluene	14.25	91	10853205	47096.505	pg	92
35) Dibromochloromethane	14.66	129	3622438	56765.697	pg	99
36) 1,2-Dibromoethane	14.92	107	3194806	52934.377	pg	98
37) Tetrachloroethene	15.40	166	3433974	51286.329	pg	99
39) Chlorobenzene	16.10	112	7764894	39609.574	pg	95
40) Ethylbenzene	16.48	91	12694196	43911.727	pg	92
41) m,p-Xylene	16.67	91	20303130	93636.342	pg	90
42) Styrene	17.01	104	8856150	58298.282	pg	100
43) o-Xylene	17.13	106	5598686	50261.993	pg	90
44) 1,1,2,2-Tetrachloroethane	17.10	83	5290996	41339.517	pg	97
46) 1,3,5-Trimethylbenzene	18.38	105	11232735	48938.422	pg	90
47) 1,2,4-Trimethylbenzene	18.77	105	12214167	54215.455	pg	91
48) 1,3-Dichlorobenzene	18.92	146	7114347	51379.234	pg	96
49) 1,4-Dichlorobenzene	18.98	146	6957694	48262.676	pg	97
50) 1,2-Dichlorobenzene	19.31	146	7228086	51223.324	pg	97
51) 1,2-Dibromo-3-chloropr...	19.72	157	2640311	61897.459	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	4803773	57513.257	pg	100
53) Naphthalene	21.06	128	15004633	56573.857	pg	91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

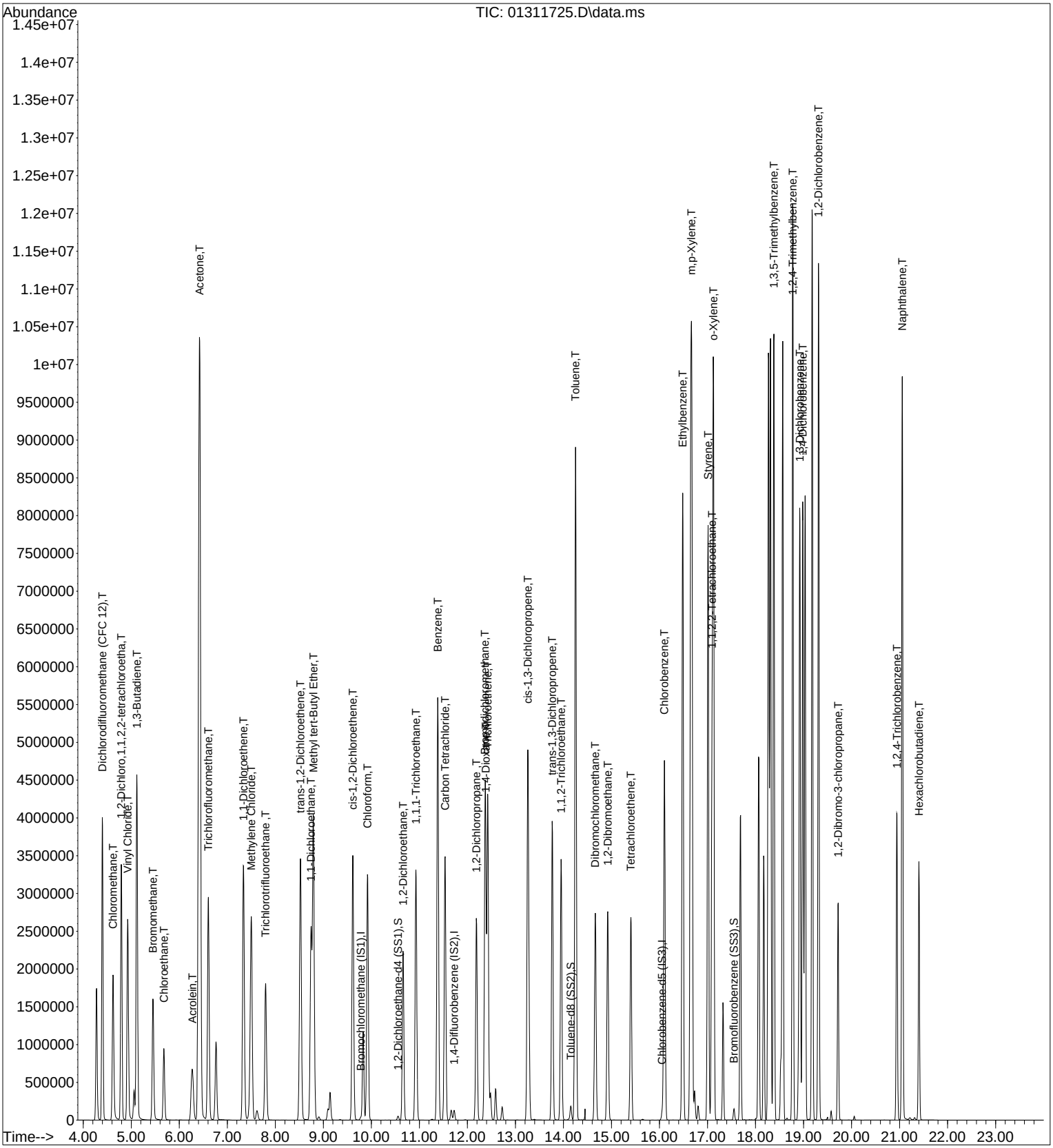
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3115382	47145.970	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311725.D Vial: 15
Acq On : 31 Jan 2017 20:37 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301701 (2/28)

Quant Time: Feb 01 07:13:37 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:12:59 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/1/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46682	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228748	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	38008	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	72991	997.280	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.73%				
33) Toluene-d8 (SS2)	14.15	98	231302	1005.860	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.59%				
45) Bromofluorobenzene (SS3)	17.55	174	81360	1001.684	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	58726	532.823	pg		100
3) Chloromethane	4.65	52	14130	573.168	pg	#	85
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	50904	489.217	pg		100
5) Vinyl Chloride	4.96	62	51432	528.779	pg		100
6) 1,3-Butadiene	5.14	54	34533	582.774	pg		97
7) Bromomethane	5.47	94	21404	555.057	pg		100
8) Chloroethane	5.70	64	16647	542.604	pg		99
9) Acrolein	6.27	56	11906	472.051	pg		90
10) Acetone	6.40	58	104742	3345.808	pg		97
11) Trichlorofluoromethane	6.61	101	44194	521.024	pg		100
12) 1,1-Dichloroethene	7.35	96	26342	529.554	pg		99
13) Methylene Chloride	7.48	84	27288	532.221	pg		99
14) Trichlorotrifluoroethane	7.80	151	26905	526.733	pg		100
15) trans-1,2-Dichloroethene	8.51	96	28574	568.347	pg		99
16) 1,1-Dichloroethane	8.72	63	48276	553.398	pg		100
17) Methyl tert-Butyl Ether	8.79	73	87461	545.704	pg		100
18) cis-1,2-Dichloroethene	9.59	96	29745	549.185	pg		100
19) Chloroform	9.89	83	49973	529.974	pg		100
21) 1,2-Dichloroethane	10.64	62	37714	543.516	pg		99
22) 1,1,1-Trichloroethane	10.91	97	47679	536.707	pg		100
23) Benzene	11.37	78	114333	558.048	pg		100
24) Carbon Tetrachloride	11.52	117	43270	522.970	pg		100
26) 1,2-Dichloropropane	12.18	63	26842	527.196	pg		100
27) Bromodichloromethane	12.36	83	39146	527.486	pg		100
28) Trichloroethene	12.41	130	31218	533.999	pg		100
29) 1,4-Dioxane	12.38	88	23487	526.883	pg		99
30) cis-1,3-Dichloropropene	13.25	75	43826	529.584	pg		100
31) trans-1,3-Dichloropropene	13.77	75	39227	548.125	pg		99
32) 1,1,2-Trichloroethane	13.95	83	22792	528.739	pg		99
34) Toluene	14.25	91	113003	515.693	pg		100
35) Dibromochloromethane	14.66	129	32624	512.851	pg		100
36) 1,2-Dibromoethane	14.92	107	30738	536.966	pg		99
37) Tetrachloroethene	15.40	166	33006	528.366	pg		100
39) Chlorobenzene	16.10	112	76762	534.818	pg		100
40) Ethylbenzene	16.48	91	130496	543.431	pg		100
41) m,p-Xylene	16.65	91	200762	1072.234	pg		100
42) Styrene	17.01	104	77423	539.713	pg		100
43) o-Xylene	17.12	106	49008	526.512	pg		99
44) 1,1,2,2-Tetrachloroethane	17.09	83	46005	517.421	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	107056	530.091	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	107677	529.606	pg		100
48) 1,3-Dichlorobenzene	18.92	146	61807	553.529	pg		100
49) 1,4-Dichlorobenzene	18.98	146	62298	528.665	pg		100
50) 1,2-Dichlorobenzene	19.31	146	59538	528.653	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20699	510.794	pg		99
52) 1,2,4-Trichlorobenzene	20.94	182	38372	479.910	pg		100
53) Naphthalene	21.06	128	134865	527.170	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 01 07:49:48 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26076	500.487	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\31\01311727.D Vial: 2
Acq On : 31 Jan 2017 21:39 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

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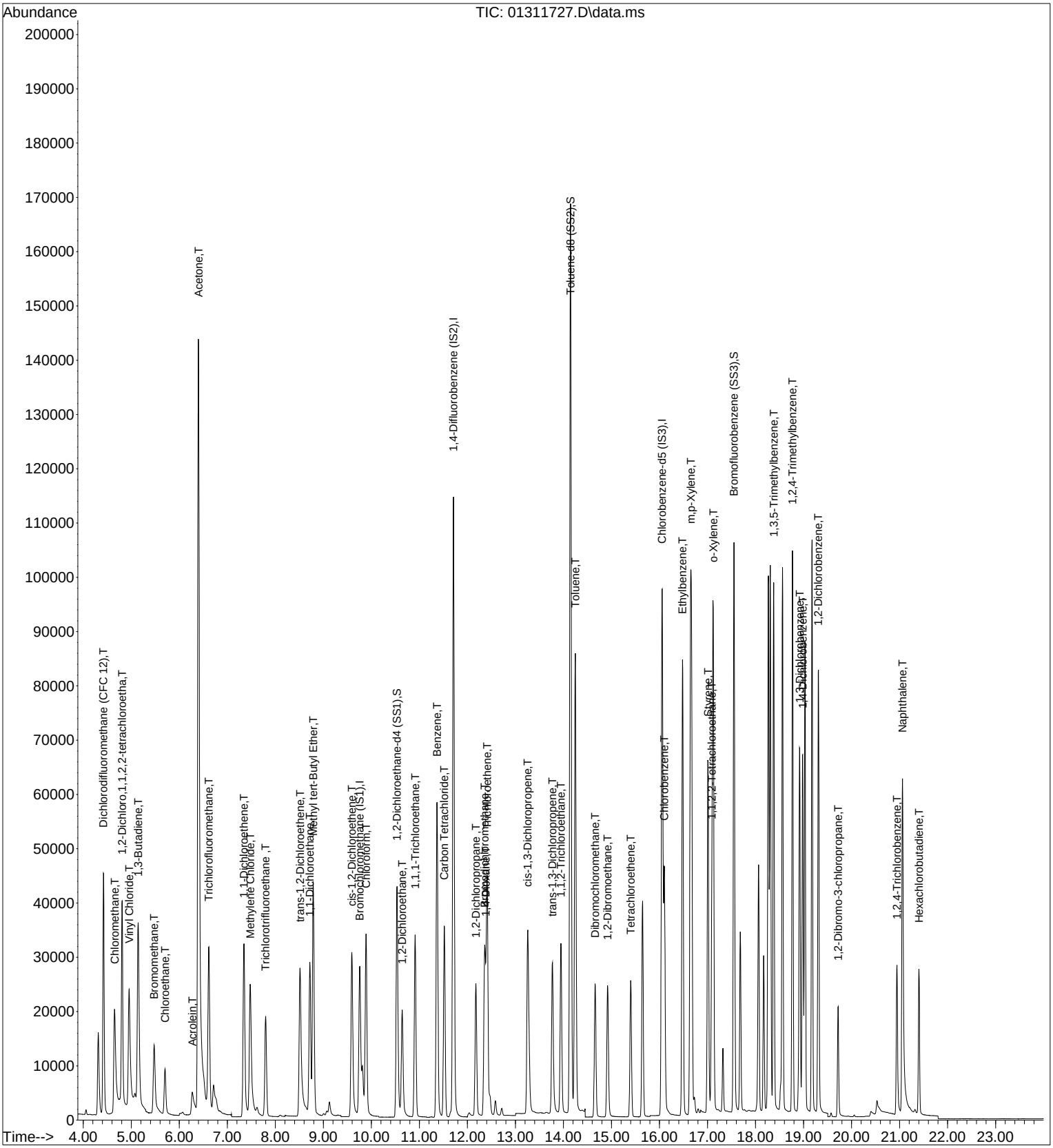
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 01311727.D
Data File Path: I:\MS19\DATA\2017_01\31\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-01241701/S29-01271703 (2/25)
Date Acquired: 1/31/17 21:39
Acq. Method File: TO15SIM.M

CL 2/1/17

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.42	525.0	532.8	101.5	68.0	108.0	*	*
3)	Chloromethane		4.65	524.5	573.2	109.3	53.0	121.0	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	*	4.81	527.5	489.2	92.7	53.0	102.0	*	*
5)	Vinyl Chloride		4.96	525.0	528.8	100.7	58.0	117.0	*	*
6)	*1,3-Butadiene*	*	5.14	525.0	582.8	111.0	47.0	129.0	*	*
7)	Bromomethane		5.47	525.0	555.1	105.7	63.0	110.0	*	*
8)	Chloroethane		5.70	524.5	542.6	103.5	67.0	112.0	*	*
9)	*Acrolein*	*	6.27	530.5	472.1	89.0	56.0	114.0	*	*
10)	Acetone		6.40	2661.0	3345.8	125.7	57.0	130.0	*	*
11)	Trichlorofluoromethane		6.61	525.5	521.0	99.1	63.0	97.0	Fail	*
12)	1,1-Dichloroethene		7.35	531.5	529.6	99.6	74.0	107.0	*	*
13)	Methylene Chloride		7.48	531.0	532.2	100.2	70.0	107.0	*	*
14)	Trichlorotrifluoroethane		7.80	529.0	526.7	99.6	71.0	105.0	*	*
15)	trans-1,2-Dichloroethene		8.51	533.5	568.3	106.5	72.0	107.0	*	*
16)	1,1-Dichloroethane		8.72	531.0	553.4	104.2	70.0	110.0	*	*
17)	Methyl tert-Butyl Ether		8.79	532.0	545.7	102.6	59.0	118.0	*	*
18)	cis-1,2-Dichloroethene		9.59	529.5	549.2	103.7	73.0	108.0	*	*
19)	Chloroform		9.89	529.5	530.0	100.1	68.0	105.0	*	*
21)	1,2-Dichloroethane		10.64	530.0	543.5	102.6	67.0	111.0	*	*
22)	1,1,1-Trichloroethane		10.91	529.5	536.7	101.4	70.0	108.0	*	*
25)	Benzene		11.37	530.5	558.0	105.2	70.0	112.0	*	*
24)	Carbon Tetrachloride		11.52	532.0	523.0	98.3	65.0	99.0	*	*
26)	1,2-Dichloropropane		12.18	530.5	527.2	99.4	66.0	108.0	*	*
27)	Bromodichloromethane		12.36	534.0	527.5	98.8	63.0	106.0	*	*
28)	Trichloroethene		12.41	531.0	534.0	100.6	66.0	101.0	*	*
29)	1,4-Dioxane		12.38	532.0	526.9	99.0	73.0	113.0	*	*
30)	cis-1,3-Dichloropropene		13.25	525.5	529.6	100.8	64.0	103.0	*	*
31)	trans-1,3-Dichloropropene		13.77	533.5	548.1	102.7	61.0	104.0	*	*
32)	1,1,2-Trichloroethane		13.95	530.5	528.7	99.7	64.0	108.0	*	*
34)	Toluene		14.15	529.0	515.7	97.5	62.0	105.0	*	*
35)	*Dibromochloromethane*	*	14.66	532.0	512.9	96.4	62.0	108.0	*	*
36)	1,2-Dibromoethane		14.92	529.0	537.0	101.5	66.0	103.0	*	*
37)	Tetrachloroethene		15.40	531.5	528.4	99.4	66.0	105.0	*	*
39)	Chlorobenzene		16.10	530.0	534.8	100.9	60.0	122.0	*	*
40)	Ethylbenzene		16.48	529.0	543.4	102.7	62.0	117.0	*	*
41)	m,p-Xylene		16.65	1060.5	1072.2	101.1	64.0	120.0	*	*
42)	*Styrene*	*	17.01	529.5	539.7	101.9	56.0	123.0	*	*
43)	o-Xylene		17.12	529.0	526.5	99.5	65.0	125.0	*	*
44)	1,1,2,2-Tetrachloroethane		17.09	530.0	517.4	97.6	56.0	124.0	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.38	530.5	530.1	99.9	61.0	129.0	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.77	530.5	529.6	99.8	57.0	127.0	*	*
48)	1,3-Dichlorobenzene		18.92	529.5	553.5	104.5	54.0	126.0	*	*
49)	1,4-Dichlorobenzene		18.98	533.0	528.7	99.2	57.0	131.0	*	*
50)	1,2-Dichlorobenzene		19.31	531.0	528.7	99.6	53.0	129.0	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.72	529.5	510.8	96.5	49.0	126.0	*	*
52)	1,2,4-Trichlorobenzene		20.94	530.0	479.9	90.5	36.0	126.0	*	*
53)	Naphthalene		19.31	534.0	527.2	98.7	25.0	141.0	*	*
54)	Hexachlorobutadiene		21.40	531.5	500.5	94.2	43.0	125.0	*	*

* ***Compounds with 70 - 130 as advisory limits***

Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017
Response Via : Initial Calibration

CL 2/4/17

Calibration Files
10 =02031713.D 20 =02031714.D 50 =02031715.D 100 =02031716.D 500 =02031717.D 1000=02031718.D 2000=02031719.D
5000=02031720.D 10K =02031721.D 50K =02031723.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------		
2)	T	Dichlorodifluo...	2.602	2.623	2.694	2.516	2.484	2.874	2.642	2.410	2.269	1.934	2.505	10.35
3)	T	Chloromethane	0.653	0.756	0.612	0.536	0.599	0.731	0.634	0.495	0.301	0.487	0.581	22.92
4)	T	1,2-Dichloro,1...	2.719	2.562	2.524	2.318	2.330	2.655	2.394	2.226	2.144	1.999	2.387	9.63
5)	T	Vinyl Chloride	2.091	2.251	2.310	2.155	2.151	2.472	2.269	2.115	2.058	1.920	2.179	7.03
6)	T	1,3-Butadiene		1.033	1.573	1.427	1.532	1.840	1.717	1.634	1.581	1.647	1.554	14.61
7)	T	Bromomethane	0.903	0.835	0.842	0.835	0.851	0.975	0.899	0.890	1.050	0.790	0.887	8.64
8)	T	Chloroethane	0.663	0.694	0.714	0.676	0.666	0.782	0.723	0.685	0.679	0.632	0.692	5.94
9)	T	Acrolein			0.659	0.562	0.492	0.587	0.568	0.567	0.567	0.533	0.567	8.32
10)	T	Acetone				1.086	0.665	0.747	0.682	0.643	0.628		0.742	23.40
11)	T	Trichlorofluor...	1.926	2.002	2.027	1.871	1.841	2.119	1.934	1.847	1.800	1.720	1.909	6.18
12)	T	1,1-Dichloroet...	0.988	1.061	1.056	1.036	1.036	1.210	1.126	1.085	1.059	1.025	1.068	5.80
13)	T	Methylene Chlo...		1.361	1.249	1.129	1.086	1.249	1.158	1.109	1.083	1.059	1.165	8.66
14)	T	Trichlorotrifl...	1.079	1.061	1.087	0.977	0.989	1.172	1.096	1.056	1.011	1.049	1.058	5.40
15)	T	trans-1,2-Dich...		1.013	1.100	0.921	1.105	1.285	1.210	1.156	1.118	1.077	1.109	9.54
16)	T	1,1-Dichloroet...	2.001	1.988	2.005	1.872	1.948	2.261	2.084	1.966	1.901	1.814	1.984	6.23
17)	T	Methyl tert-Bu...	3.550	3.512	3.625	3.389	3.442	3.987	3.682	3.489	3.407	3.354	3.544	5.28
18)	T	cis-1,2-Dichlo...	1.136	1.032	1.185	1.111	1.164	1.357	1.288	1.239	1.204	1.161	1.188	7.72
19)	T	Chloroform			2.560	2.191	2.024	2.331	2.163	2.042	1.970	1.904	2.148	10.00
20)	S	1,2-Dichloroet...	1.744	1.758	1.772	1.778	1.761	1.756	1.754	1.741	1.729	1.666	1.746	1.81
21)	T	1,2-Dichloroet...	1.469	1.529	1.613	1.520	1.582	1.865	1.751	1.668	1.611	1.528	1.614	7.45
22)	T	1,1,1-Trichlor...	1.967	1.929	1.987	1.843	1.890	2.209	2.068	1.959	1.892	1.830	1.957	5.79
23)	T	Benzene			5.252	4.583	4.379	5.071	4.699	4.462	4.329	4.240	4.627	7.85
24)	T	Carbon Tetrach...	1.929	1.720	1.770	1.630	1.663	1.948	1.833	1.771	1.728	1.697	1.769	6.00
25)	I	1,4-Difluorobenzen...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------		
26)	T	1,2-Dichloropr...	0.232	0.211	0.220	0.206	0.213	0.251	0.236	0.225	0.219	0.217	0.223	6.05
27)	T	Bromodichlorom...	0.302	0.318	0.315	0.299	0.303	0.362	0.343	0.328	0.318	0.330	0.322	6.14
28)	T	Trichloroethene	0.247	0.232	0.237	0.227	0.231	0.272	0.254	0.241	0.233	0.243	0.242	5.50
29)	T	1,4-Dioxane	0.191	0.178	0.182	0.179	0.184	0.217	0.204	0.194	0.188	0.198	0.192	6.32
30)	T	cis-1,3-Dichlo...	0.317	0.302	0.324	0.309	0.332	0.404	0.390	0.382	0.375	0.398	0.353	11.34
31)	T	trans-1,3-Dich...	0.267	0.231	0.264	0.270	0.288	0.358	0.352	0.353	0.350	0.355	0.309	15.89
32)	T	1,1,2-Trichlor...	0.177	0.172	0.184	0.173	0.179	0.212	0.199	0.190	0.184	0.188	0.186	6.63
33)	S	Toluene-d8 (SS2)	1.013	1.019	1.022	1.025	1.029	1.028	1.022	1.015	1.009	1.012	1.019	0.69
34)	T	Toluene	1.105	1.016	0.990	0.899	0.880	1.039	0.975	0.927	0.900	0.890	0.962	7.84
35)	T	Dibromochlorom...	0.221	0.232	0.242	0.231	0.233	0.284	0.275	0.274	0.274	0.284	0.255	9.86
36)	T	1,2-Dibromoethane	0.224	0.205	0.225	0.217	0.228	0.274	0.264	0.258	0.253	0.254	0.240	9.69
37)	T	Tetrachloroethene	0.249	0.238	0.242	0.229	0.234	0.278	0.265	0.260	0.257	0.270	0.252	6.54
38)	I	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------		
39)	T	Chlorobenzene	3.581	3.412	3.488	3.160	3.197	3.836	3.646	3.538	3.439	3.019	3.432	7.18
40)	T	Ethylbenzene	5.940	5.559	5.768	5.398	5.562	6.664	6.299	6.027	5.811	5.009	5.804	8.06
41)	T	m,p-Xylene	4.712	4.368	4.522	4.108	4.260	5.105	4.813	4.648	4.550	4.071	4.516	7.17

Method Path : I:\MS19\METHODS\
Method File : S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.704	2.639	2.901	2.858	3.070	3.891	3.847	3.901	3.898	3.453	3.316	16.17
43)	T	o-Xylene	2.267	2.039	2.127	2.016	2.066	2.479	2.359	2.316	2.297	2.267	2.223	6.91
44)	T	1,1,2,2-Tetrac...	2.221	2.001	2.066	1.939	2.013	2.418	2.316	2.264	2.222	2.085	2.155	7.25
45)	S	Bromofluoroben...	1.727	1.741	1.762	1.749	1.794	1.822	1.905	1.991	2.017	1.771	1.828	5.79
46)	T	1,3,5-Trimethy...	5.522	4.160	4.492	4.303	4.596	5.563	5.362	5.295	5.290	4.597	4.918	10.92
47)	T	1,2,4-Trimethy...	4.117	4.149	4.432	4.335	4.613	5.697	5.529	5.503	5.523	5.056	4.895	12.93
48)	T	1,3-Dichlorobe...	2.054	2.001	2.429	2.346	2.440	3.061	3.037	3.093	3.118	2.926	2.651	16.74
49)	T	1,4-Dichlorobe...	2.552	2.473	2.526	2.494	2.432	3.071	3.033	3.067	3.064	2.783	2.750	10.26
50)	T	1,2-Dichlorobe...	2.339	2.165	2.440	2.312	2.381	2.992	2.950	2.991	2.991	3.021	2.658	13.39
51)	T	1,2-Dibromo-3-...	0.614	0.509	0.668	0.666	0.757	1.012	1.065	1.129	1.161	0.996	0.858	27.91
52)	T	1,2,4-Trichlor...	1.814	1.320	1.493	1.466	1.470	1.976	2.015	2.043	2.039	1.802	1.744	16.08
53)	T	Naphthalene		3.711	4.969	5.093	5.014	6.840	6.930	6.892	6.936		5.798	21.63
54)	T	Hexachlorobuta...	1.172	0.821	1.005	0.950	1.005	1.246	1.242	1.247	1.239	1.193	1.112	13.83

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 2/4/17

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301702		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01241705		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards				
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L
Propene	1.036	207.2	20.72	4.144	1.036	0.2072
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232

Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301702		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01241705		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:	5	50	250	1000	5000	

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19020317.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration

CL 2/4/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_02\03\02031713.D
2	20	21	1000	I:\MS19\DATA\2017_02\03\02031714.D
3	50	52	1000	I:\MS19\DATA\2017_02\03\02031715.D
4	100	105	1000	I:\MS19\DATA\2017_02\03\02031716.D
5	500	524	1000	I:\MS19\DATA\2017_02\03\02031717.D
6	1000	1047	1000	I:\MS19\DATA\2017_02\03\02031718.D
7	2000	2094	1000	I:\MS19\DATA\2017_02\03\02031719.D
8	5000	5235	1000	I:\MS19\DATA\2017_02\03\02031720.D
9	10K	10470	1000	I:\MS19\DATA\2017_02\03\02031721.D
10	50K	52350	1000	I:\MS19\DATA\2017_02\03\02031723.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Feb 04 07:27 2017	Feb 04 07:11 2017	3 Feb 2017 14:51
2	20	Feb 04 07:27 2017	Feb 04 07:13 2017	3 Feb 2017 15:22
3	50	Feb 04 07:27 2017	Feb 04 07:15 2017	3 Feb 2017 15:54
4	100	Feb 04 07:27 2017	Feb 04 07:16 2017	3 Feb 2017 16:25
5	500	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 16:57
6	1000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 17:28
7	2000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 17:59
8	5000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 18:30
9	10K	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 19:01
10	50K	Feb 04 07:28 2017	Feb 04 07:09 2017	3 Feb 2017 20:04

S19020317.M Sat Feb 04 07:48:54 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	49044	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	242869	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42558	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	85551	1112.594	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.26%				
33) Toluene-d8 (SS2)	14.15	98	245965	1007.434	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.74%				
45) Bromofluorobenzene (SS3)	17.56	174	73508	808.254	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 80.83%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	1336	11.538	pg		99
3) Chloromethane	4.69	52	322m	12.433	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	1340	12.258	pg		93
5) Vinyl Chloride	5.01	62	1049	10.265	pg		96
6) 1,3-Butadiene	5.20	54	583m	9.365	pg		
7) Bromomethane	5.52	94	440m	10.861	pg		
8) Chloroethane	5.74	64	328	10.176	pg		88
9) Acrolein	6.36	56	906m	34.191	pg		
10) Acetone	6.47	58	10917	331.930	pg	#	70
11) Trichlorofluoromethane	6.65	101	991	11.121	pg		99
12) 1,1-Dichloroethene	7.38	96	513	9.816	pg	#	77
13) Methylene Chloride	7.51	84	920	17.079	pg		96
14) Trichlorotrifluoroethane	7.82	151	555	10.342	pg		100
15) trans-1,2-Dichloroethene	8.55	96	385	7.289	pg	#	61
16) 1,1-Dichloroethane	8.74	63	1001	10.922	pg		99
17) Methyl tert-Butyl Ether	8.83	73	1856	11.023	pg		98
18) cis-1,2-Dichloroethene	9.62	96	593	10.421	pg		100
19) Chloroform	9.90	83	2989	30.172	pg		98
21) 1,2-Dichloroethane	10.66	62	758	10.398	pg	#	64
22) 1,1,1-Trichloroethane	10.92	97	1036	11.100	pg		99
23) Benzene	11.38	78	4165	19.350	pg		96
24) Carbon Tetrachloride	11.53	117	998	11.481	pg		98
26) 1,2-Dichloropropane	12.19	63	598	11.062	pg		95
27) Bromodichloromethane	12.37	83	783	9.937	pg		99
28) Trichloroethene	12.42	130	636	10.247	pg		92
29) 1,4-Dioxane	12.42	88	492	10.395	pg		99
30) cis-1,3-Dichloropropene	13.28	75	860	9.788	pg		97
31) trans-1,3-Dichloropropene	13.80	75	690	9.081	pg	#	86
32) 1,1,2-Trichloroethane	13.96	83	456	9.963	pg		92
34) Toluene	14.26	91	2826	12.147	pg		95
35) Dibromochloromethane	14.67	129	570	8.439	pg		97
36) 1,2-Dibromoethane	14.94	107	574	9.444	pg		97
37) Tetrachloroethene	15.40	166	641	9.665	pg		97
39) Chlorobenzene	16.11	112	1617	10.062	pg		95
40) Ethylbenzene	16.49	91	2667	9.919	pg		100
41) m,p-Xylene	16.67	91	4257	20.305	pg		97
42) Styrene	17.04	104	1221	7.602	pg		97
43) o-Xylene	17.13	106	1017	9.758	pg		91
44) 1,1,2,2-Tetrachloroethane	17.10	83	998	10.025	pg		90
46) 1,3,5-Trimethylbenzene	18.39	105	2465	10.901	pg	#	85
47) 1,2,4-Trimethylbenzene	18.78	105	1843	8.096	pg		91
48) 1,3-Dichlorobenzene	18.93	146	925	7.398	pg		98
49) 1,4-Dichlorobenzene	19.00	146	1149	8.708	pg		97
50) 1,2-Dichlorobenzene	19.32	146	1053	8.350	pg		97
51) 1,2-Dibromo-3-chloropr...	19.74	157	275	6.061	pg		88
52) 1,2,4-Trichlorobenzene	20.99	182	805	8.992	pg		86
53) Naphthalene	21.13	128	2562	8.944	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

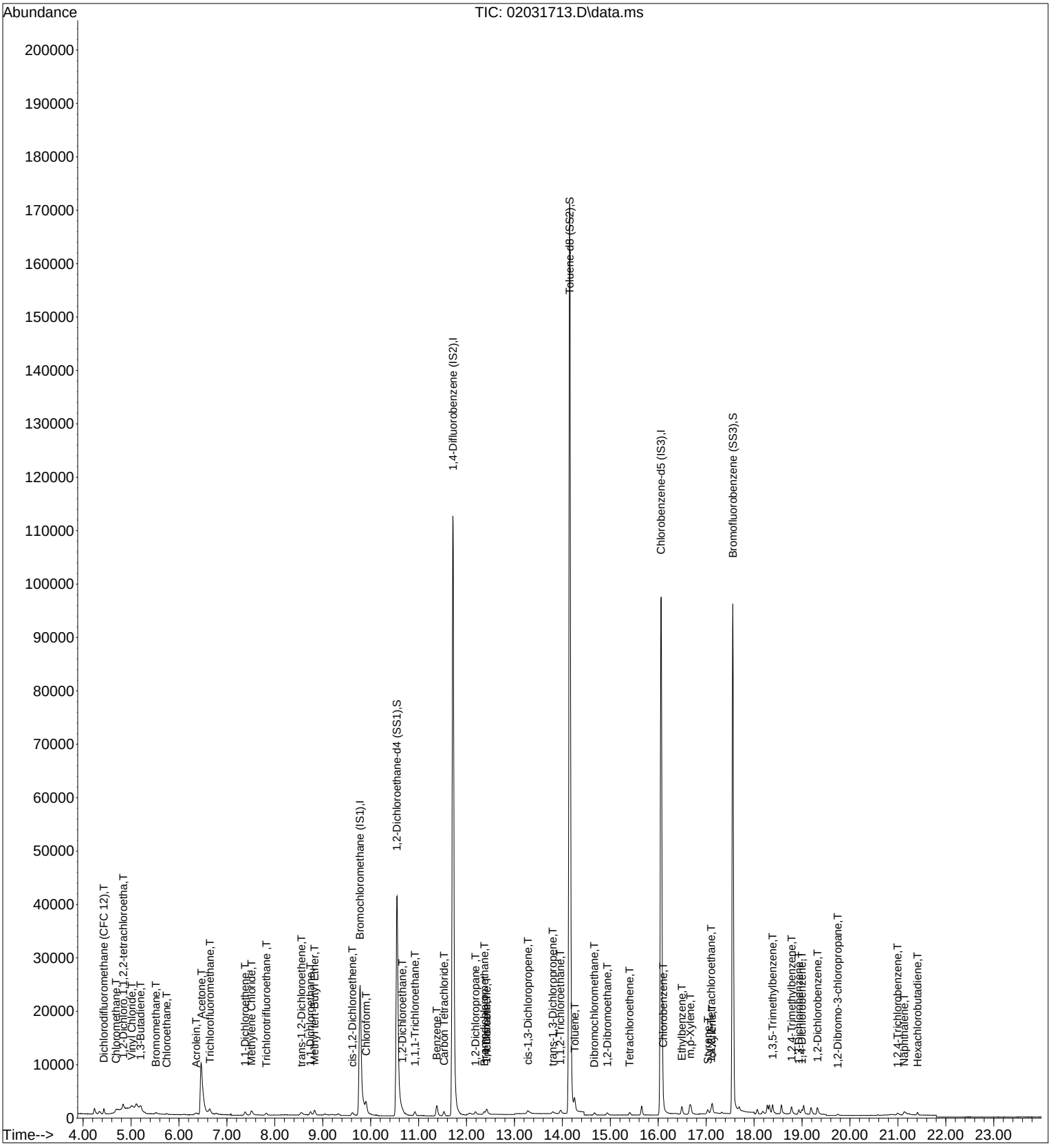
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	528	9.051	pg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

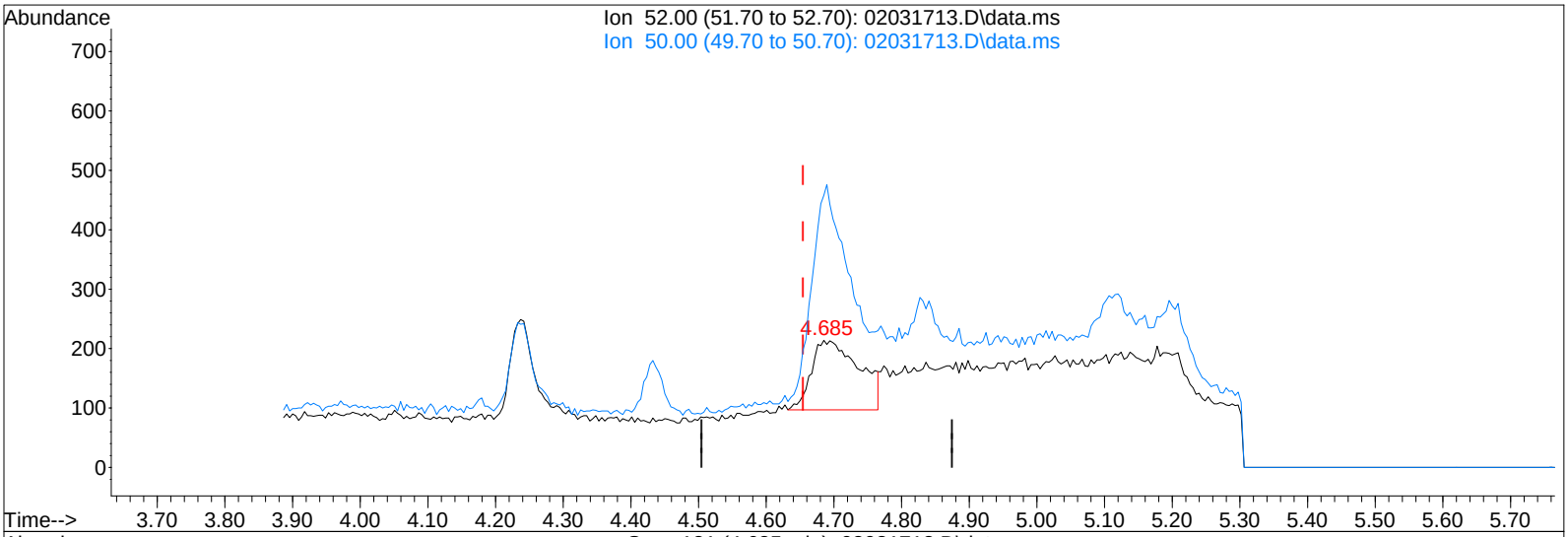
Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

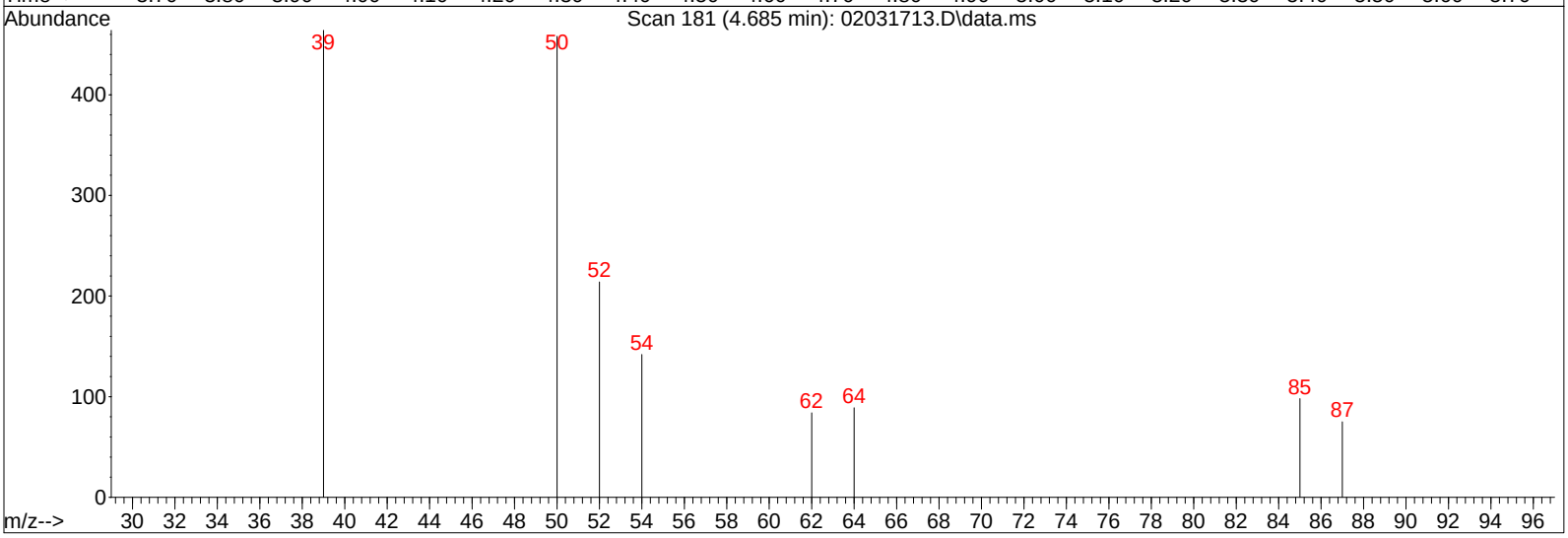


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 22.16pg

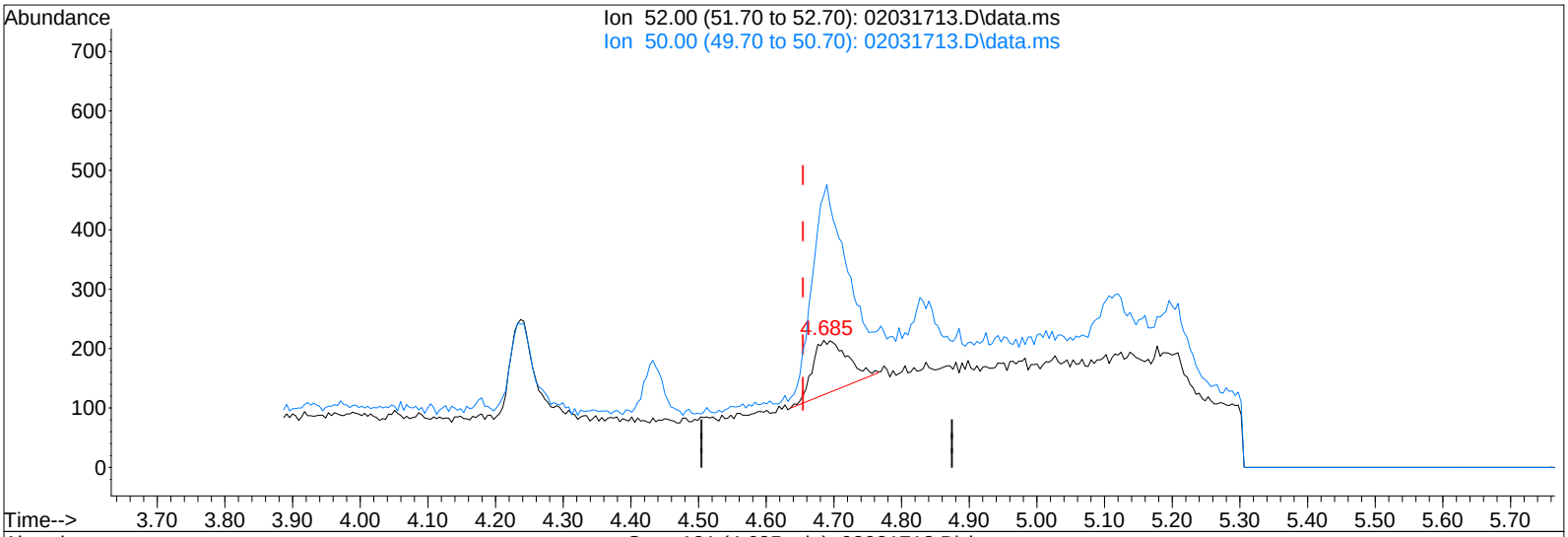
response 574

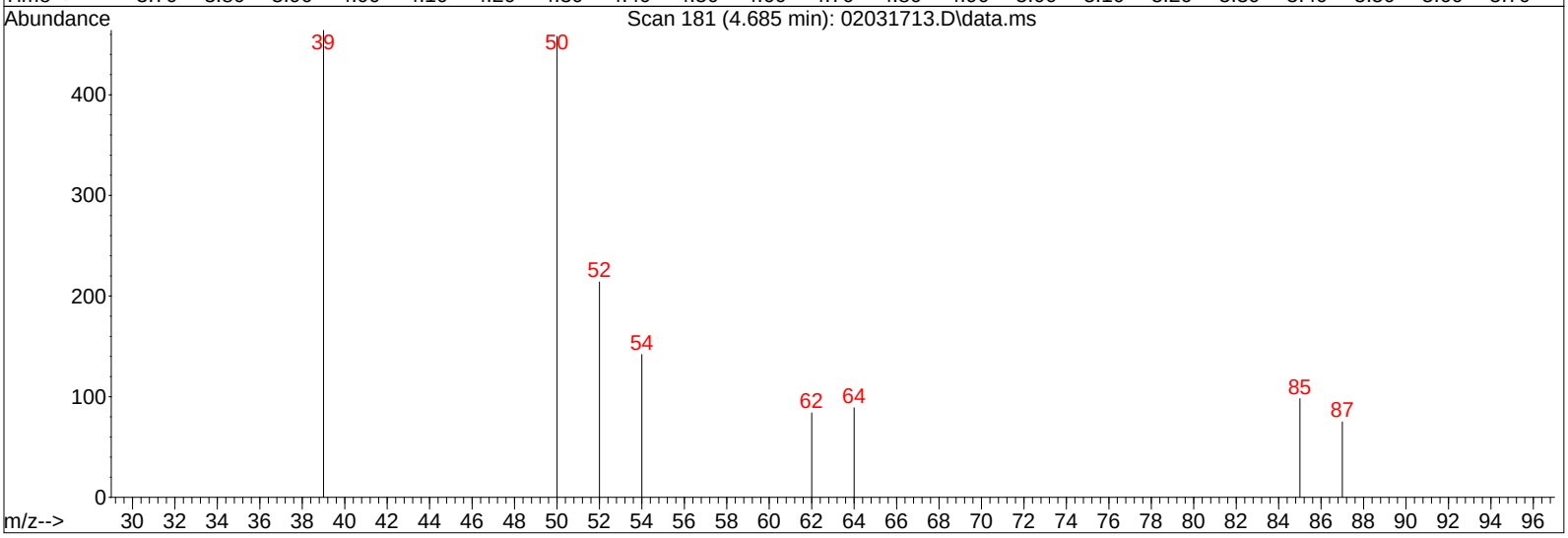
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	290.24
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 12.43pg m

response 322

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	517.39#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

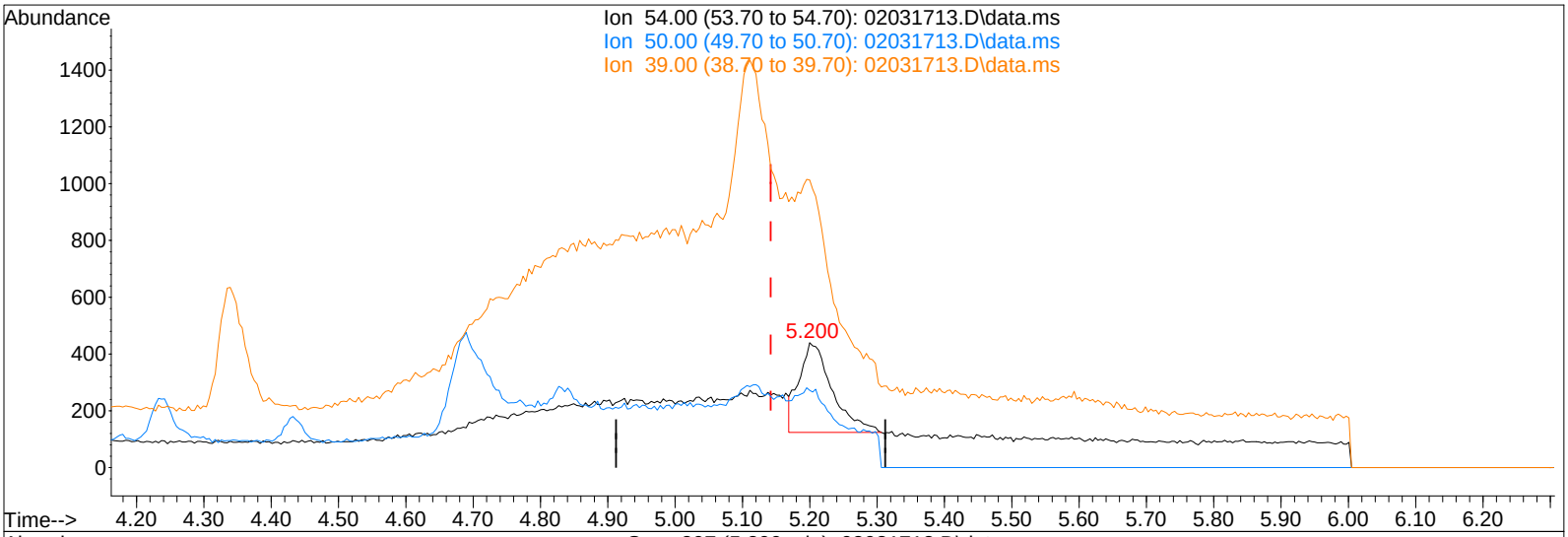
CL 2/4/17

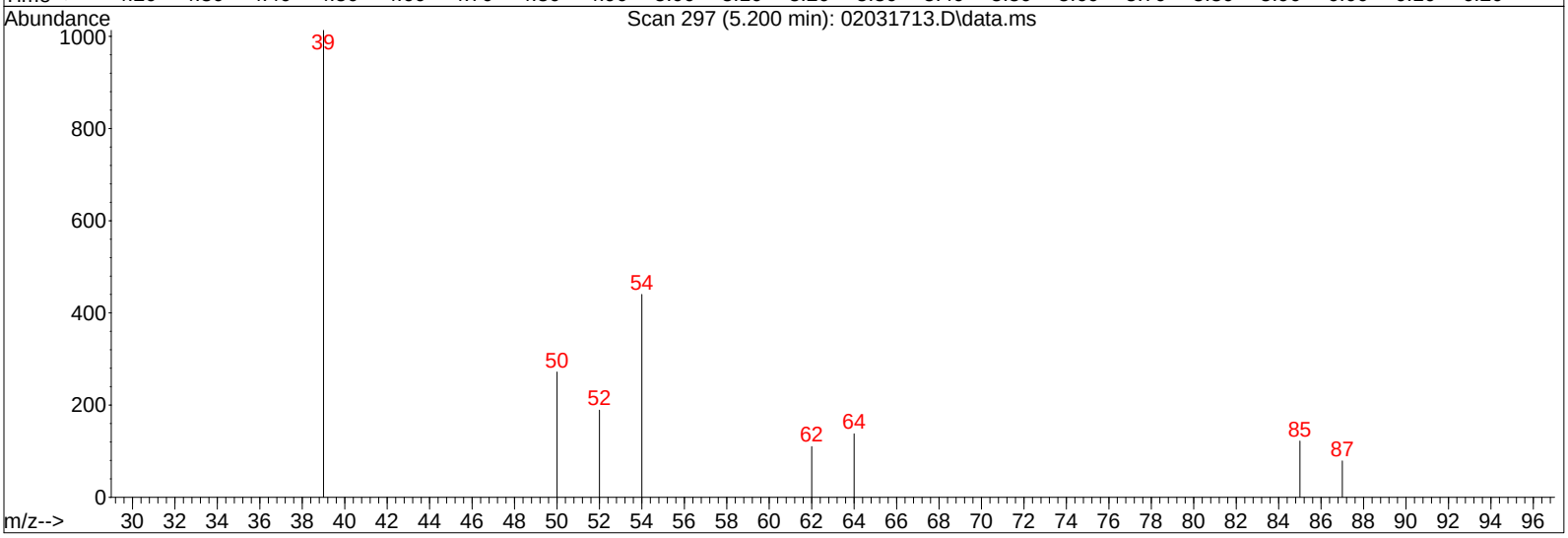
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.057) 17.38pg

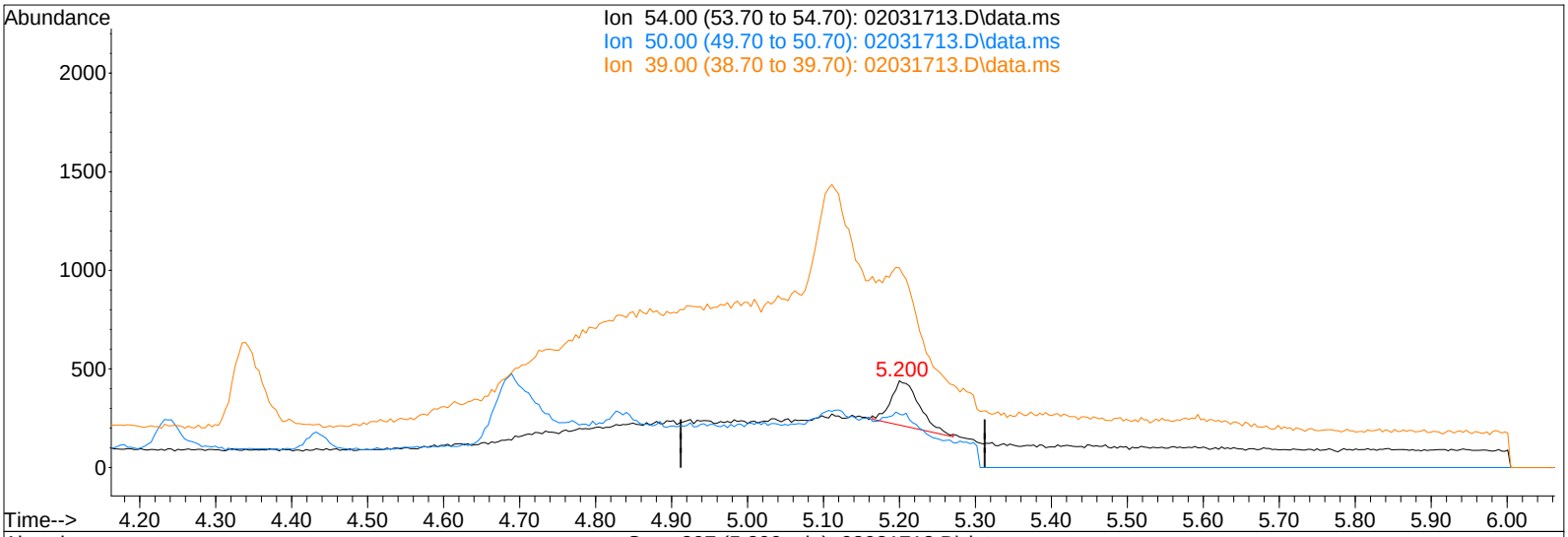
response 1082

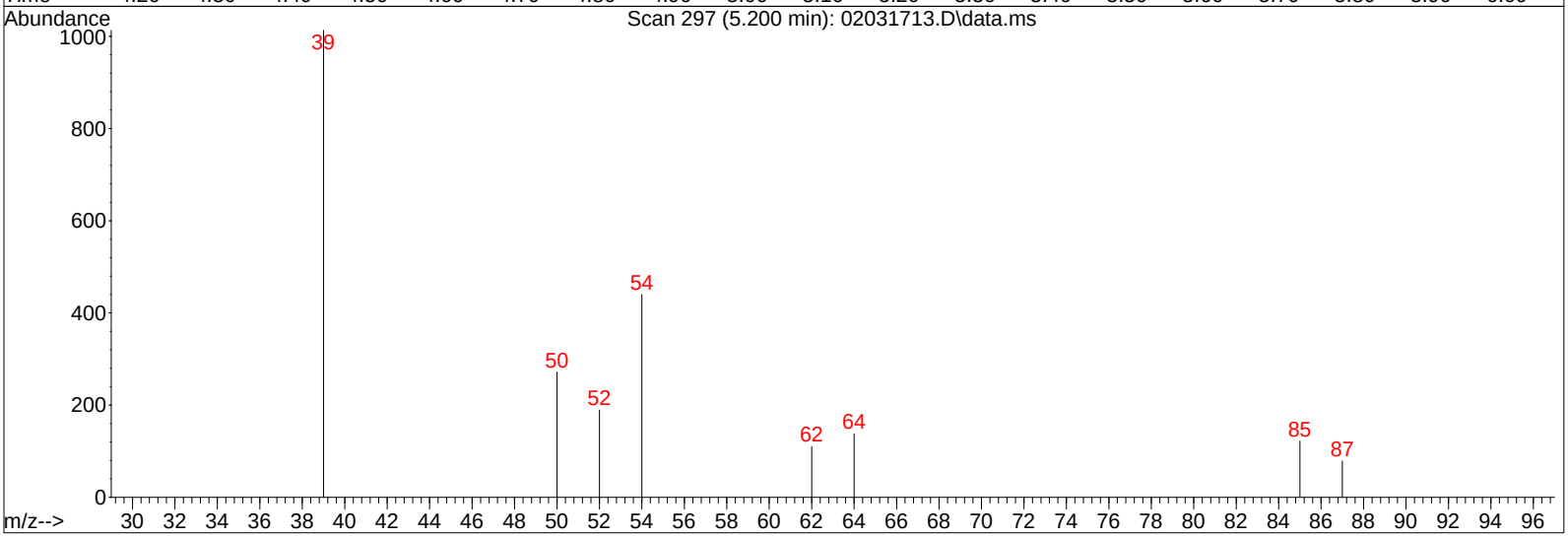
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	113.68#
39.00	111.40	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.057) 9.36pg m

response 583

Ion	Exp%	Act%
54.00	100	100
50.00	33.50	0.00#
39.00	111.40	0.00#
0.00	0.00	0.00

BLC

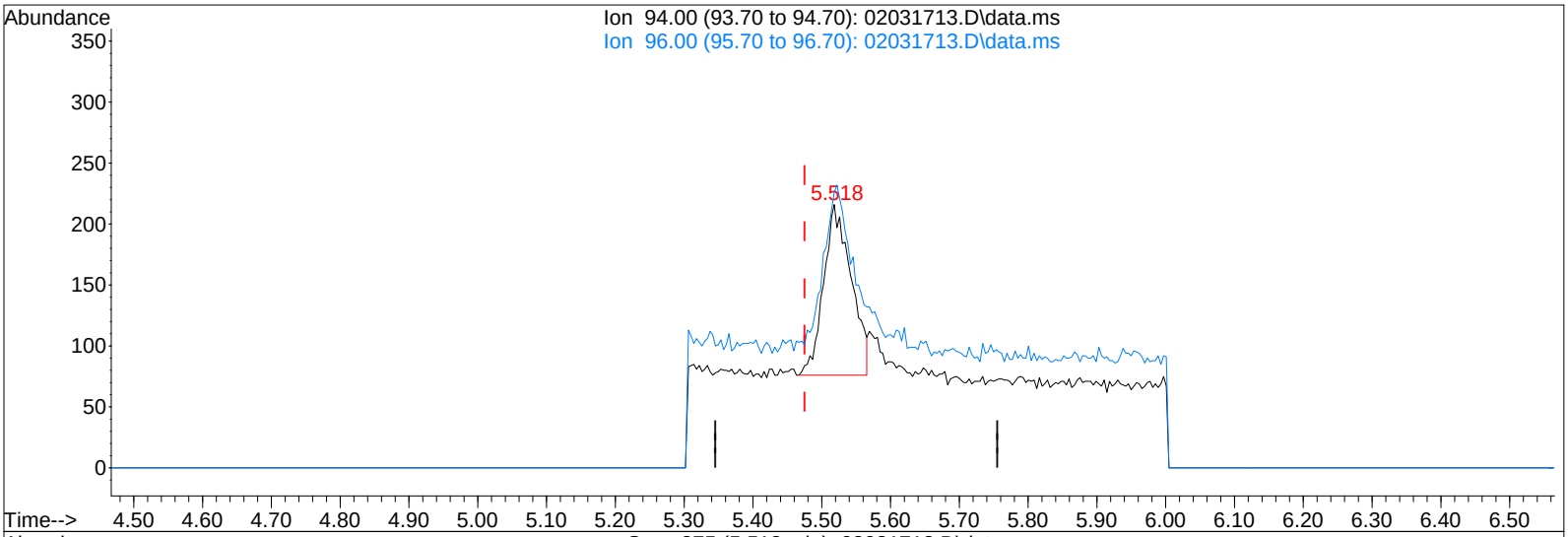
CL 2/4/17

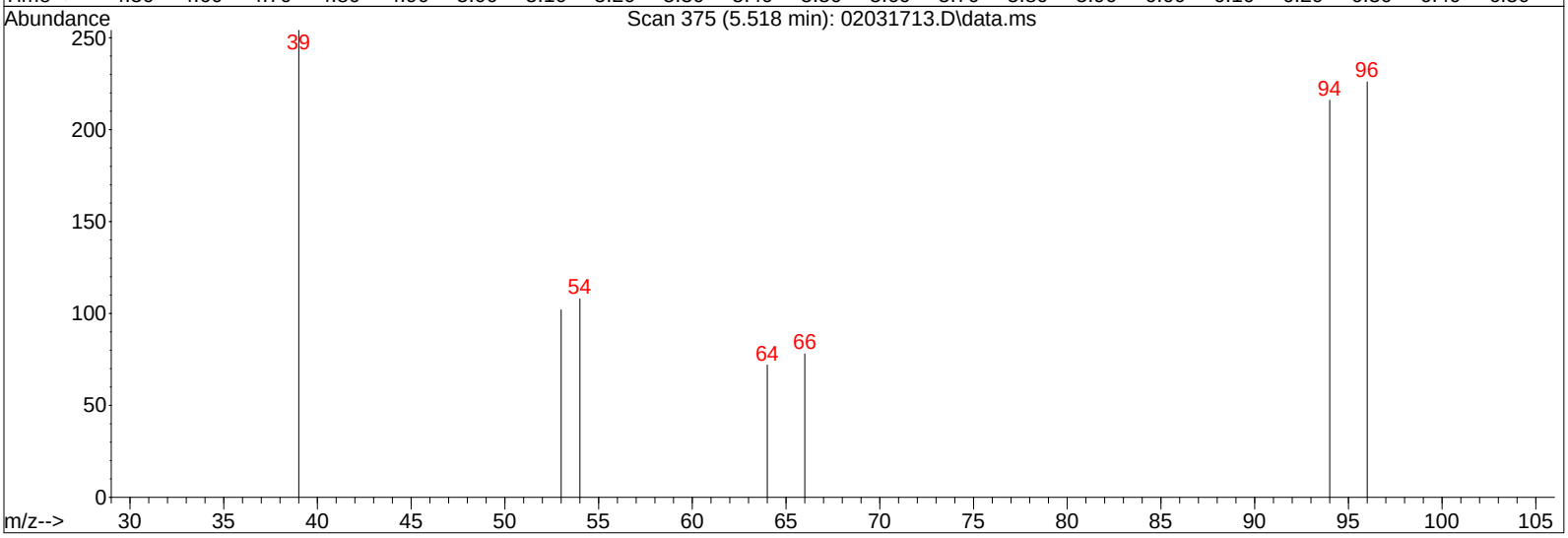
WA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(7) Bromomethane (T)

5.518min (+0.043) 9.65pg

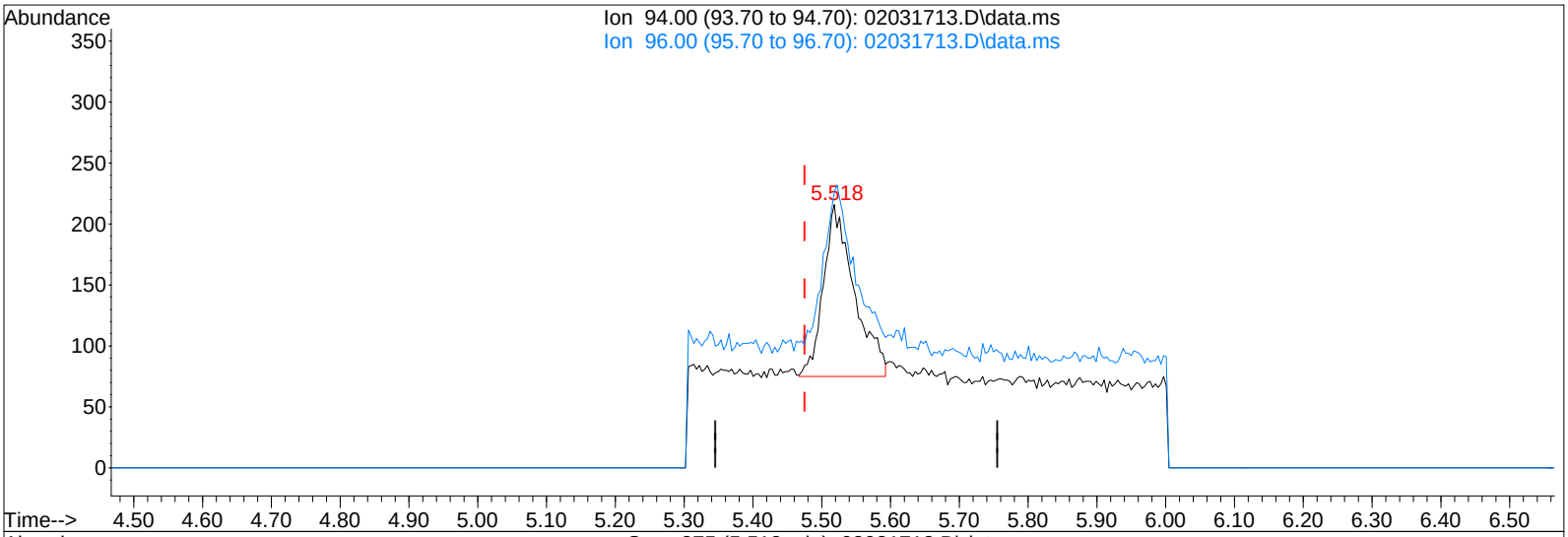
response 391

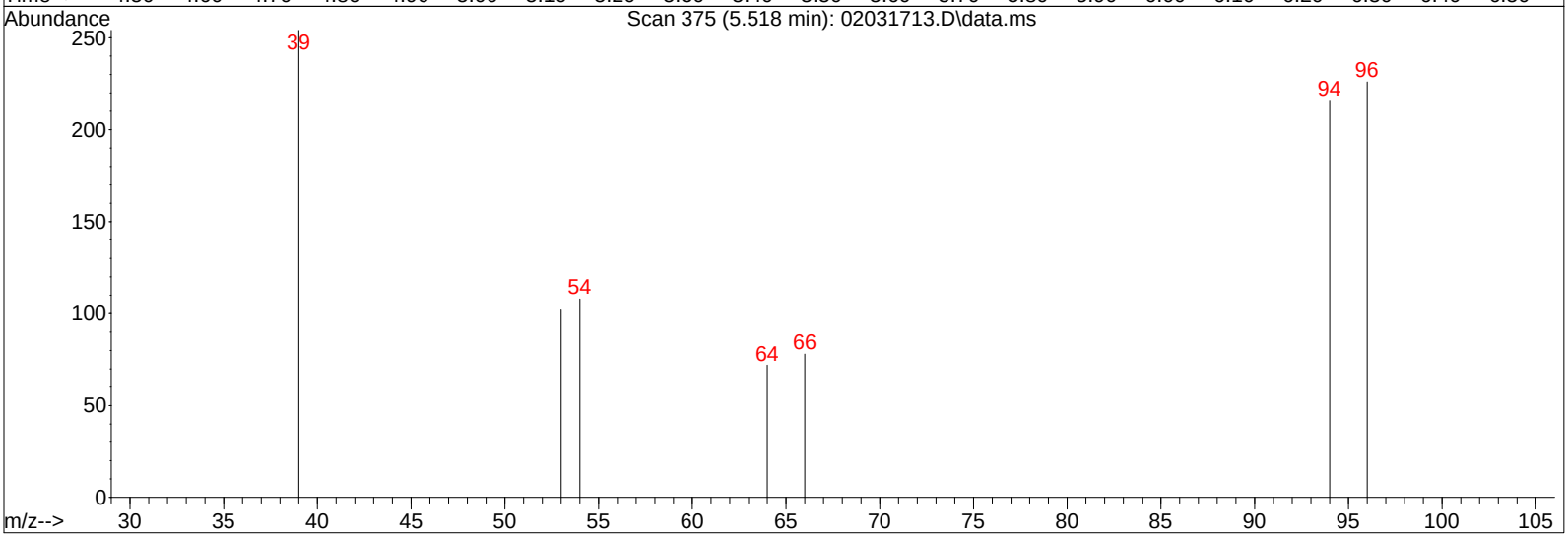
Ion	Exp%	Act%
94.00	100	100
96.00	93.00	87.98
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(7) Bromomethane (T)

5.518min (+0.043) 10.86pg m

response 440

Ion	Exp%	Act%
94.00	100	100
96.00	93.00	78.18
0.00	0.00	0.00
0.00	0.00	0.00

BLC

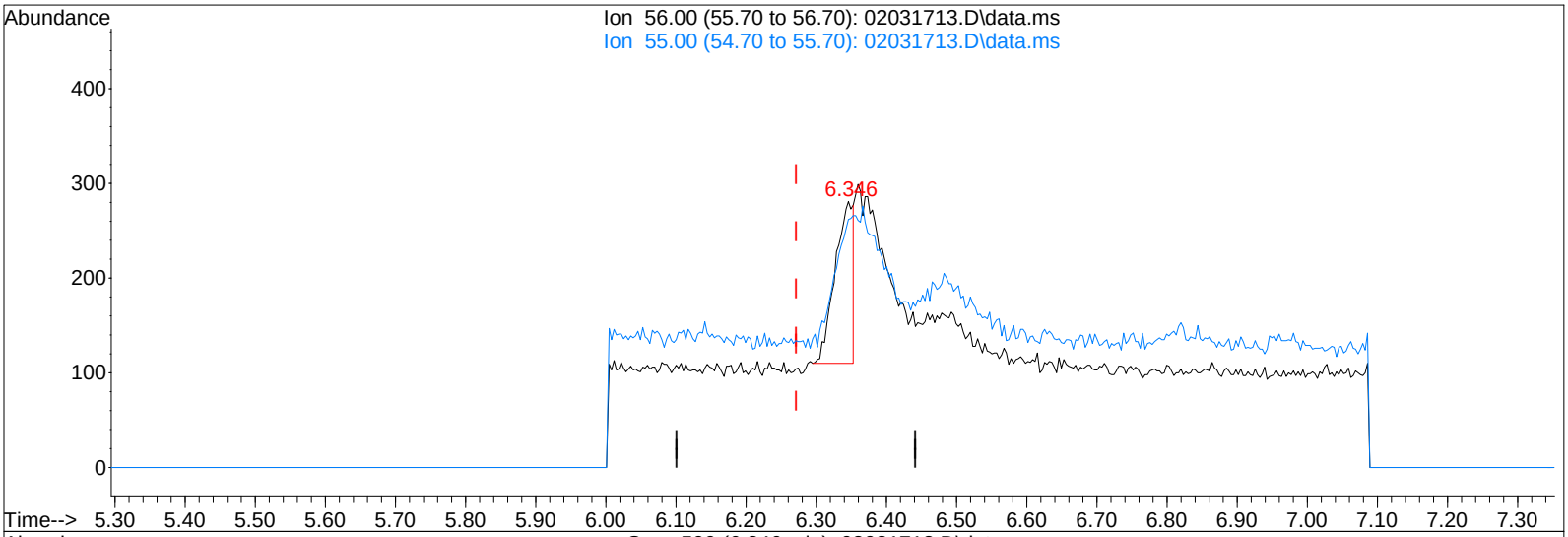
CL 2/4/17

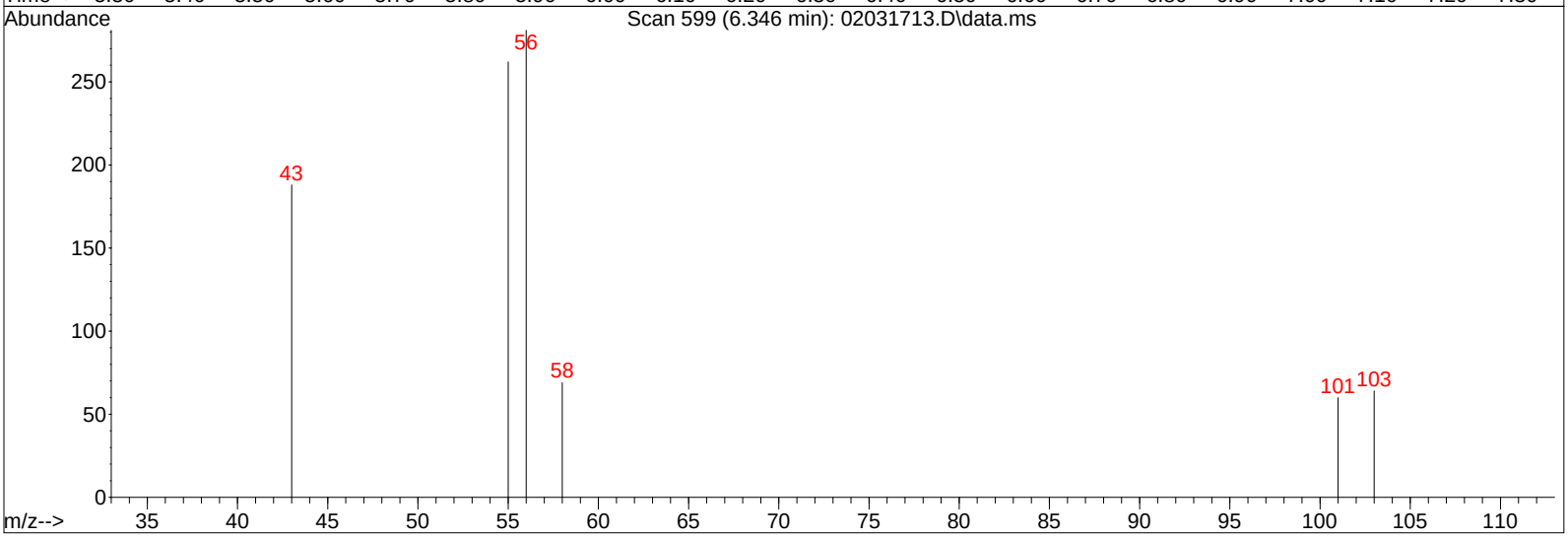
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(9) Acrolein (T)

6.346min (+0.075) 11.66pg

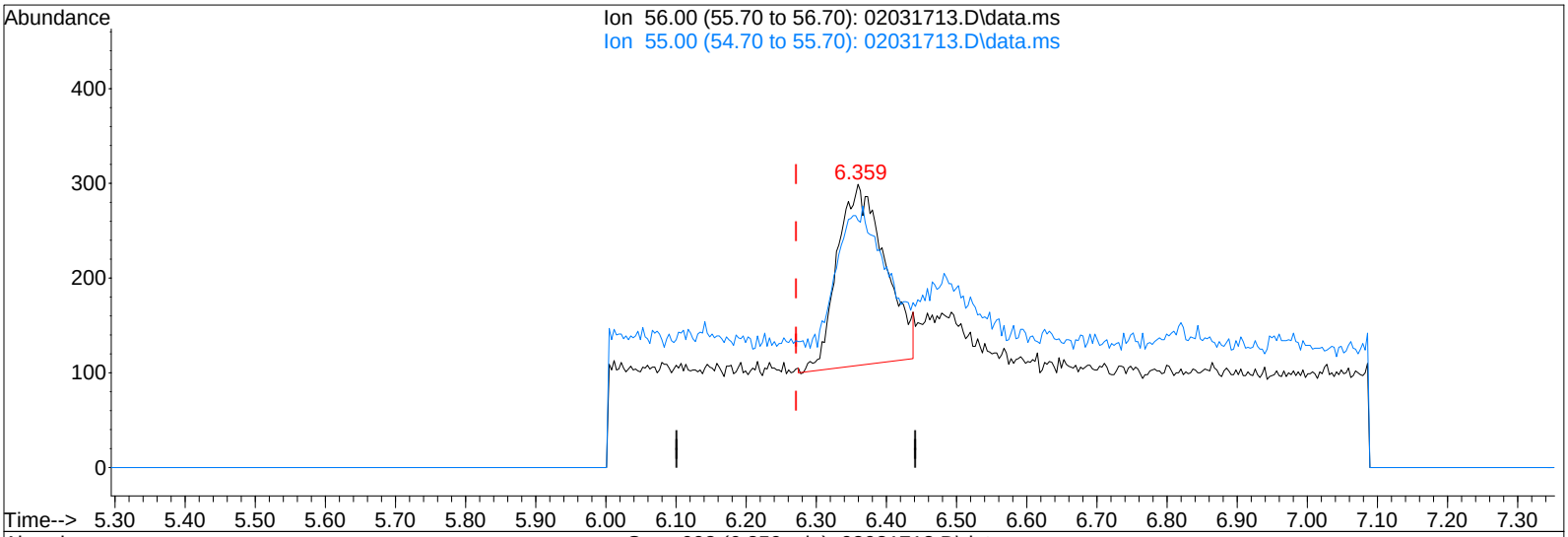
response 309

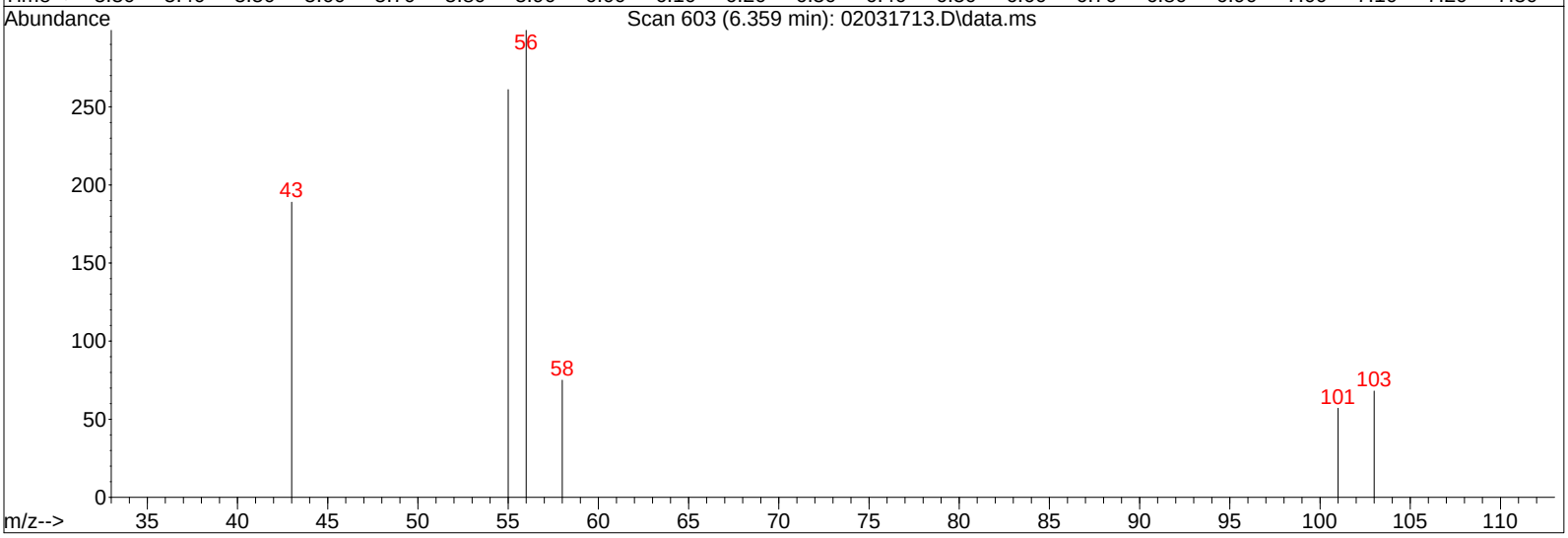
Ion	Exp%	Act%
56.00	100	100
55.00	74.00	108.41#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(9) Acrolein (T)

6.359min (+0.088) 34.19pg m

response 906

Ion	Exp%	Act%
56.00	100	100
55.00	74.00	36.98#
0.00	0.00	0.00
0.00	0.00	0.00

SP

CL 2/4/17

WH 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	48491	1000.000	pg	0.03
25) 1,4-Difluorobenzene (IS2)	11.72	114	240179	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42539	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	85268	1121.559	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.16%			
33) Toluene-d8 (SS2)	14.15	98	244738	1013.636	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%			
45) Bromofluorobenzene (SS3)	17.55	174	74065	814.743	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.47%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	2663	23.260	pg	100
3) Chloromethane	4.70	52	737m	28.780	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2497	23.102	pg	97
5) Vinyl Chloride	5.02	62	2233	22.101	pg	100
6) 1,3-Butadiene	5.22	54	1059m	17.205	pg	
7) Bromomethane	5.54	94	804	20.072	pg	93
8) Chloroethane	5.75	64	679	21.306	pg	75
9) Acrolein	6.36	56	744m	28.398	pg	
10) Acetone	6.48	58	6522	200.562	pg	92
11) Trichlorofluoromethane	6.65	101	2037	23.119	pg	100
12) 1,1-Dichloroethene	7.39	96	1090	21.095	pg	96
13) Methylene Chloride	7.53	84	1395	26.193	pg	93
14) Trichlorotrifluoroethane	7.82	151	1079	20.336	pg	99
15) trans-1,2-Dichloroethene	8.57	96	1048	20.067	pg	95
16) 1,1-Dichloroethane	8.75	63	1967	21.707	pg	99
17) Methyl tert-Butyl Ether	8.83	73	3631	21.810	pg	98
18) cis-1,2-Dichloroethene	9.63	96	1065	18.930	pg	98
19) Chloroform	9.91	83	3149	32.150	pg	99
21) 1,2-Dichloroethane	10.67	62	1560	21.643	pg	85
22) 1,1,1-Trichloroethane	10.92	97	2009	21.771	pg	98
23) Benzene	11.38	78	7074	33.239	pg	100
24) Carbon Tetrachloride	11.53	117	1760	20.478	pg	99
26) 1,2-Dichloropropane	12.19	63	1076	20.128	pg	97
27) Bromodichloromethane	12.37	83	1630	20.919	pg	99
28) Trichloroethene	12.42	130	1182	19.256	pg	99
29) 1,4-Dioxane	12.42	88	910	19.442	pg	95
30) cis-1,3-Dichloropropene	13.28	75	1618	18.621	pg	94
31) trans-1,3-Dichloropropene	13.80	75	1183	15.743	pg	93
32) 1,1,2-Trichloroethane	13.97	83	877	19.377	pg	96
34) Toluene	14.26	91	5141	22.345	pg	99
35) Dibromochloromethane	14.67	129	1185	17.742	pg	98
36) 1,2-Dibromoethane	14.93	107	1041	17.320	pg	98
37) Tetrachloroethene	15.41	166	1213	18.494	pg	99
39) Chlorobenzene	16.11	112	3080	19.173	pg	100
40) Ethylbenzene	16.49	91	4990	18.567	pg	99
41) m,p-Xylene	16.67	91	7889	37.646	pg	97
42) Styrene	17.03	104	2382	14.836	pg	96
43) o-Xylene	17.13	106	1828	17.547	pg	97
44) 1,1,2,2-Tetrachloroethane	17.10	83	1798	18.068	pg	97
46) 1,3,5-Trimethylbenzene	18.39	105	3713	16.427	pg	100
47) 1,2,4-Trimethylbenzene	18.78	105	3713	16.317	pg	99
48) 1,3-Dichlorobenzene	18.93	146	1801	14.411	pg	100
49) 1,4-Dichlorobenzene	18.99	146	2226	16.878	pg	97
50) 1,2-Dichlorobenzene	19.32	146	1949	15.462	pg	97
51) 1,2-Dibromo-3-chloropr...	19.74	157	456	10.054	pg	82
52) 1,2,4-Trichlorobenzene	20.99	182	1171	13.085	pg	97
53) Naphthalene	21.13	128	3419	11.941	pg	82

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

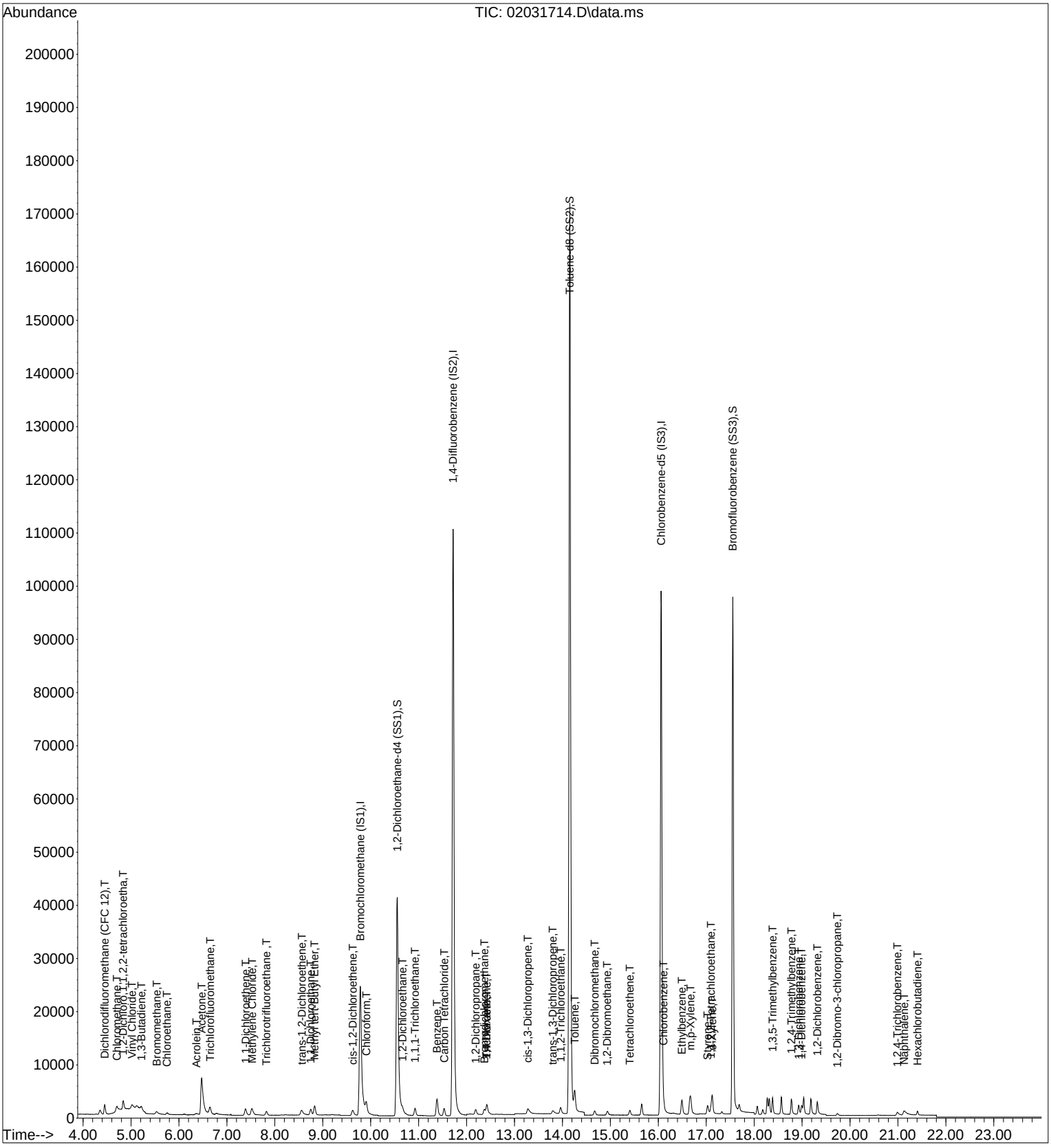
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	740	12.690	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

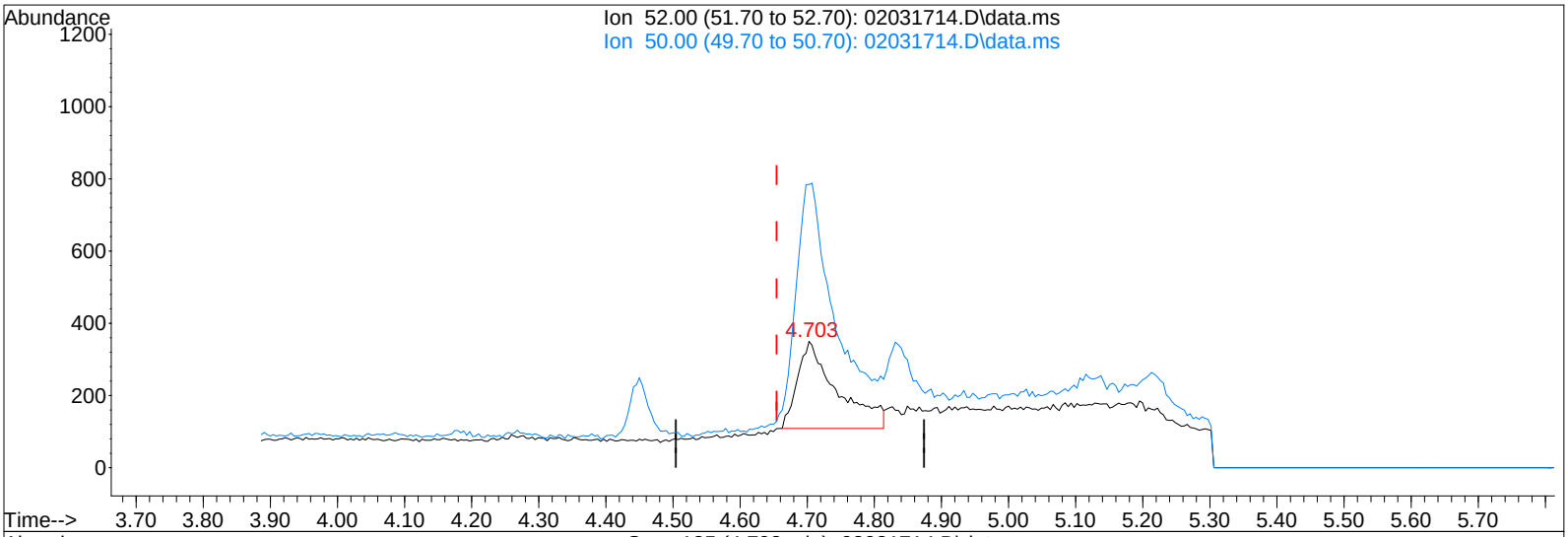
Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

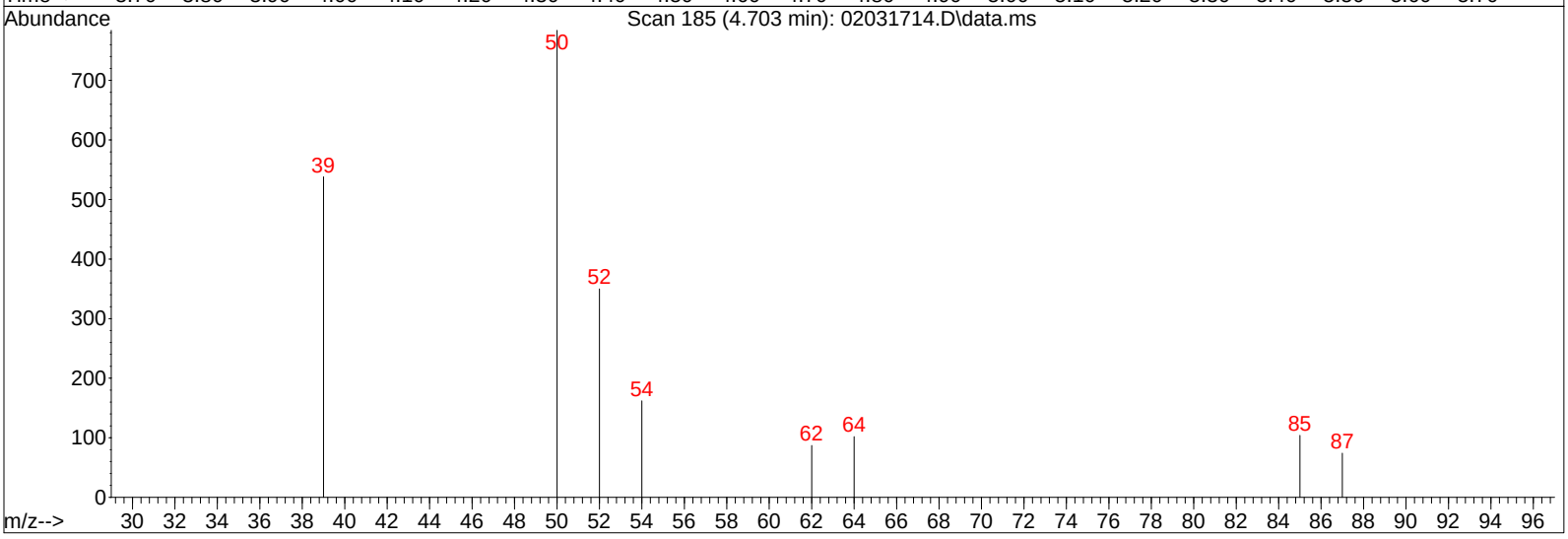


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(3) Chloromethane (T)

4.703min (+0.048) 38.66pg

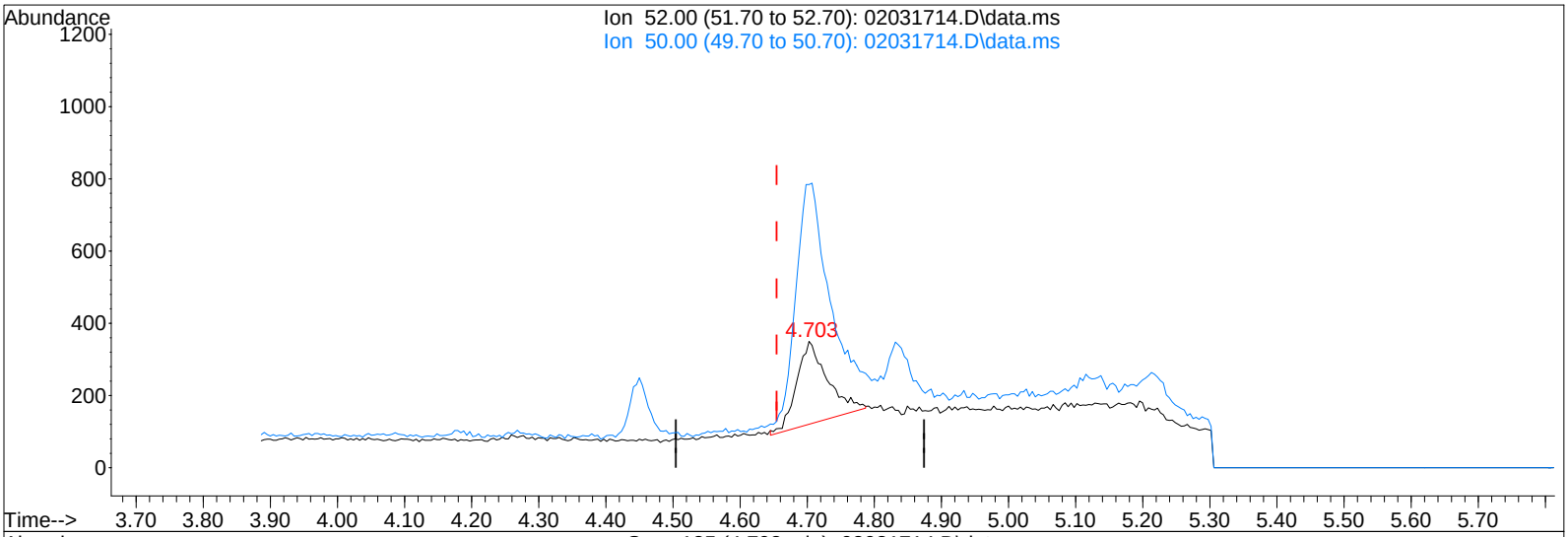
response 990

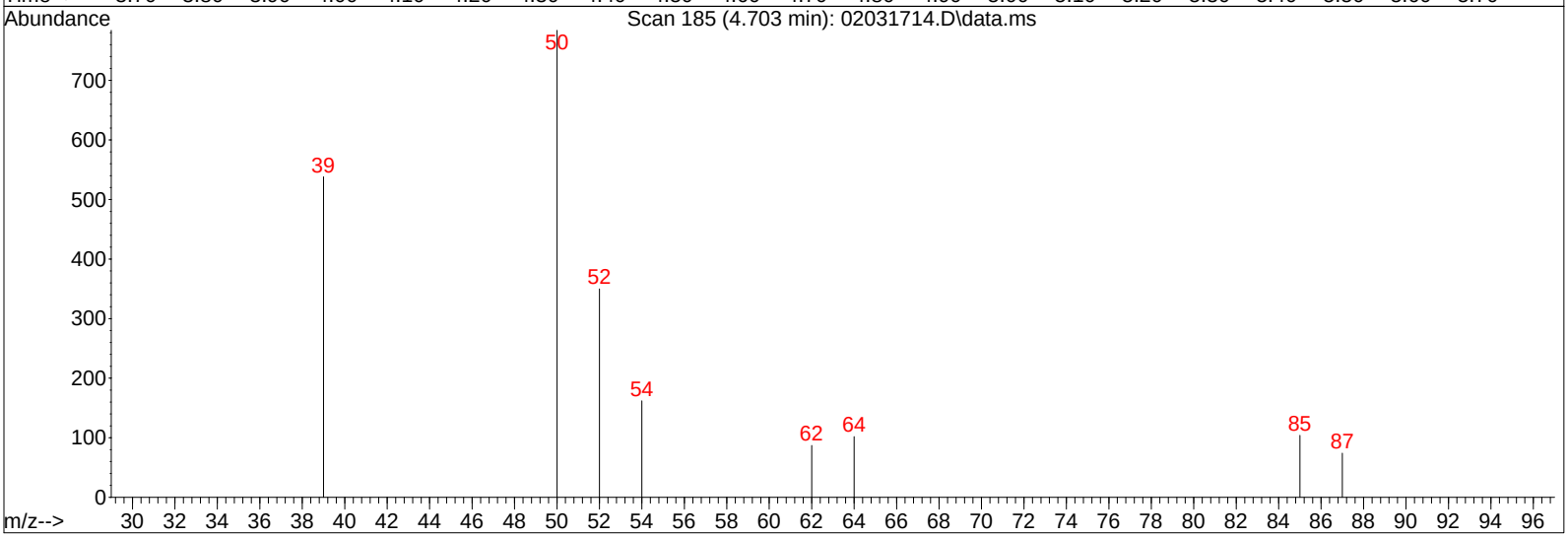
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	284.85
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(3) Chloromethane (T)

4.703min (+0.048) 28.78pg m

response 737

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	382.63#
0.00	0.00	0.00
0.00	0.00	0.00

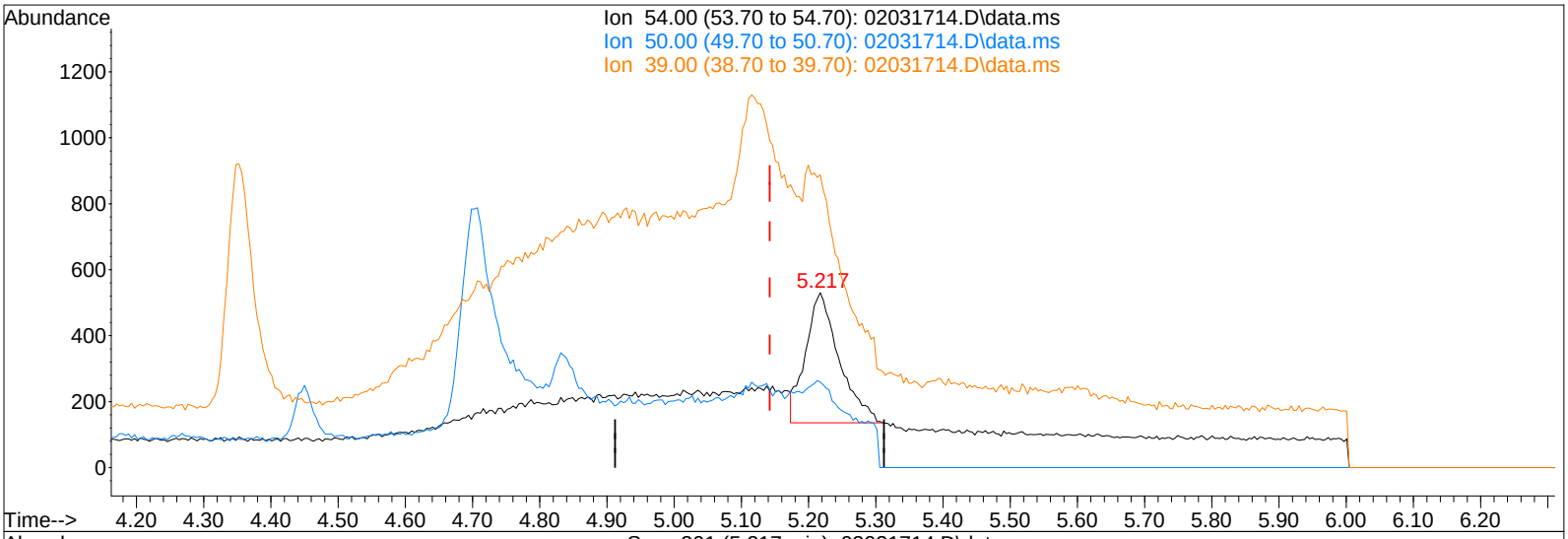
BLC

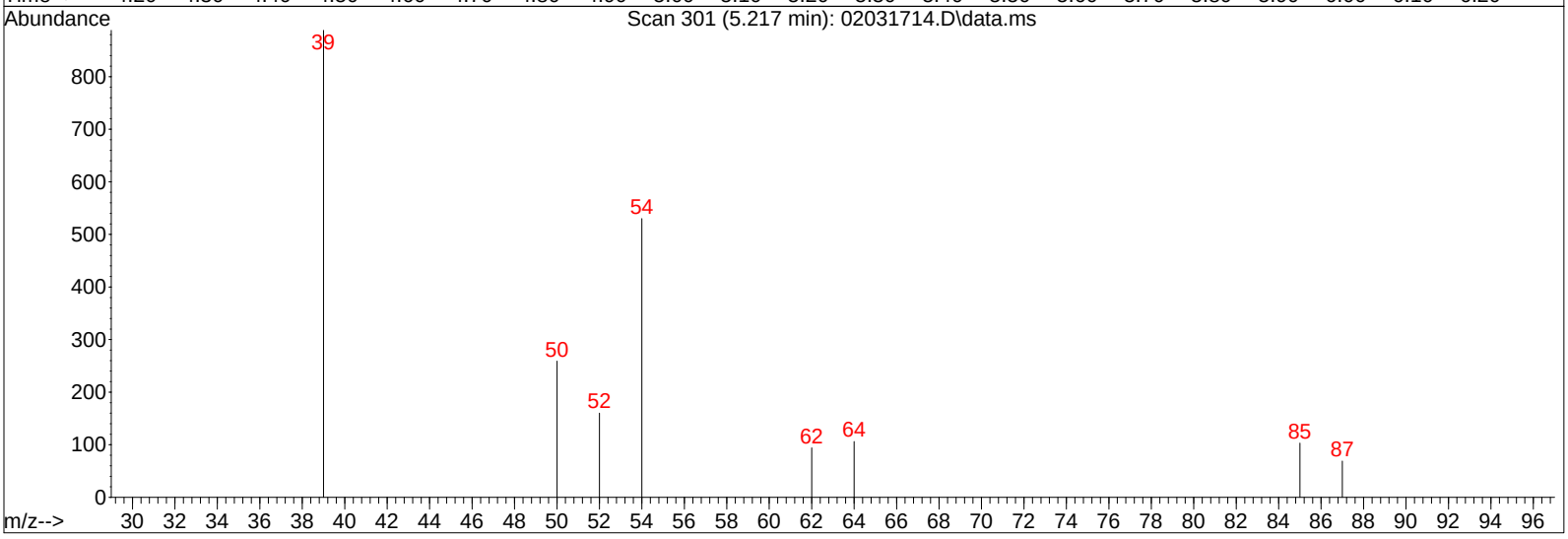
CL 2/4/17 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(6) 1,3-Butadiene (T)

5.217min (+0.075) 22.11pg

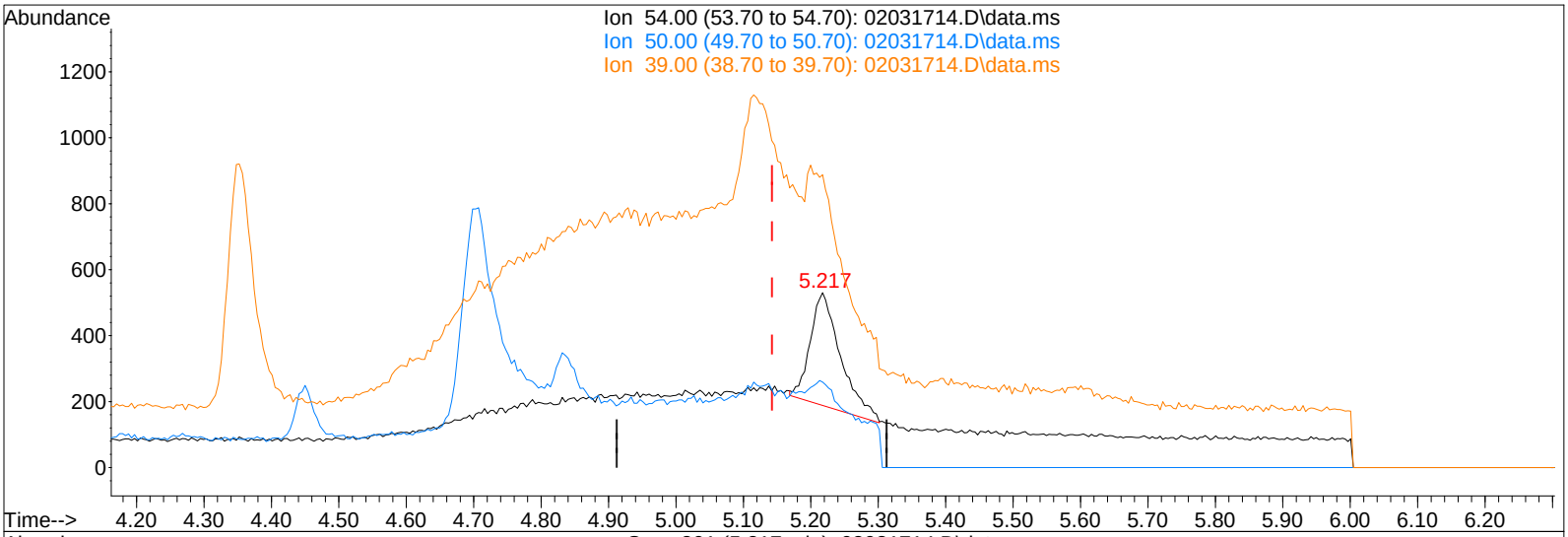
response 1361

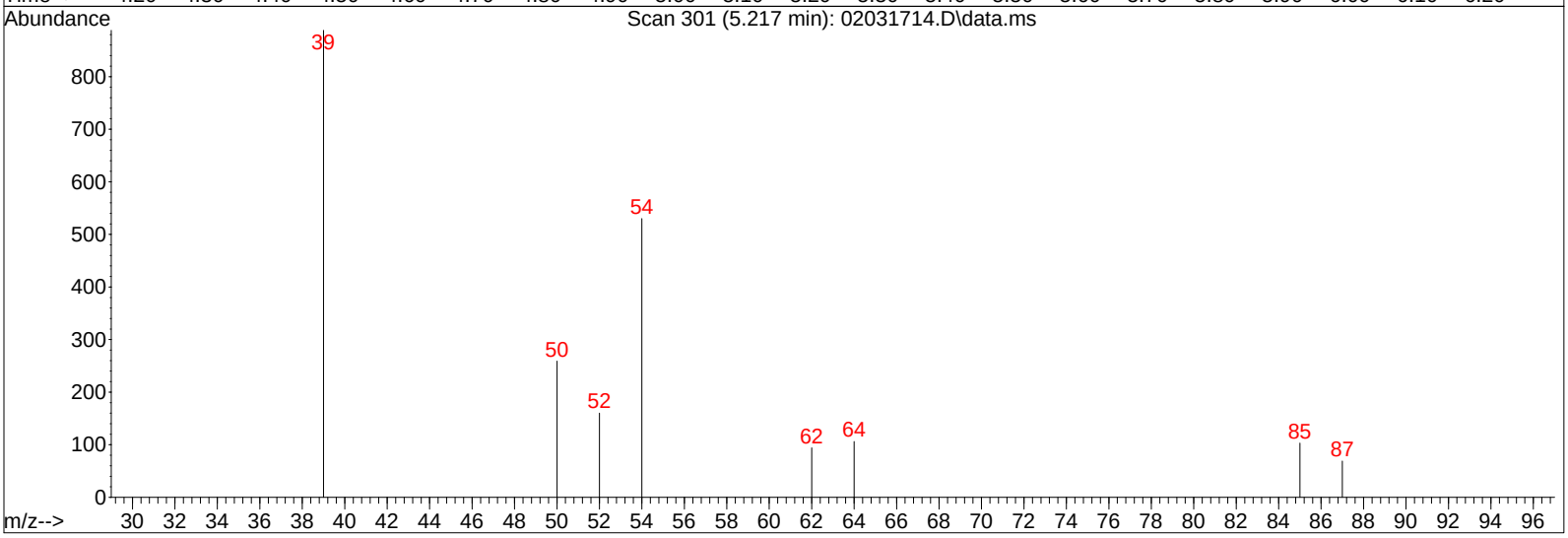
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	118.66#
39.00	111.40	160.40#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(6) 1,3-Butadiene (T)

5.217min (+0.075) 17.20pg m

response 1059

BLC

Ion	Exp%	Act%
54.00	100	100
50.00	33.50	0.00#
39.00	111.40	0.00#
0.00	0.00	0.00

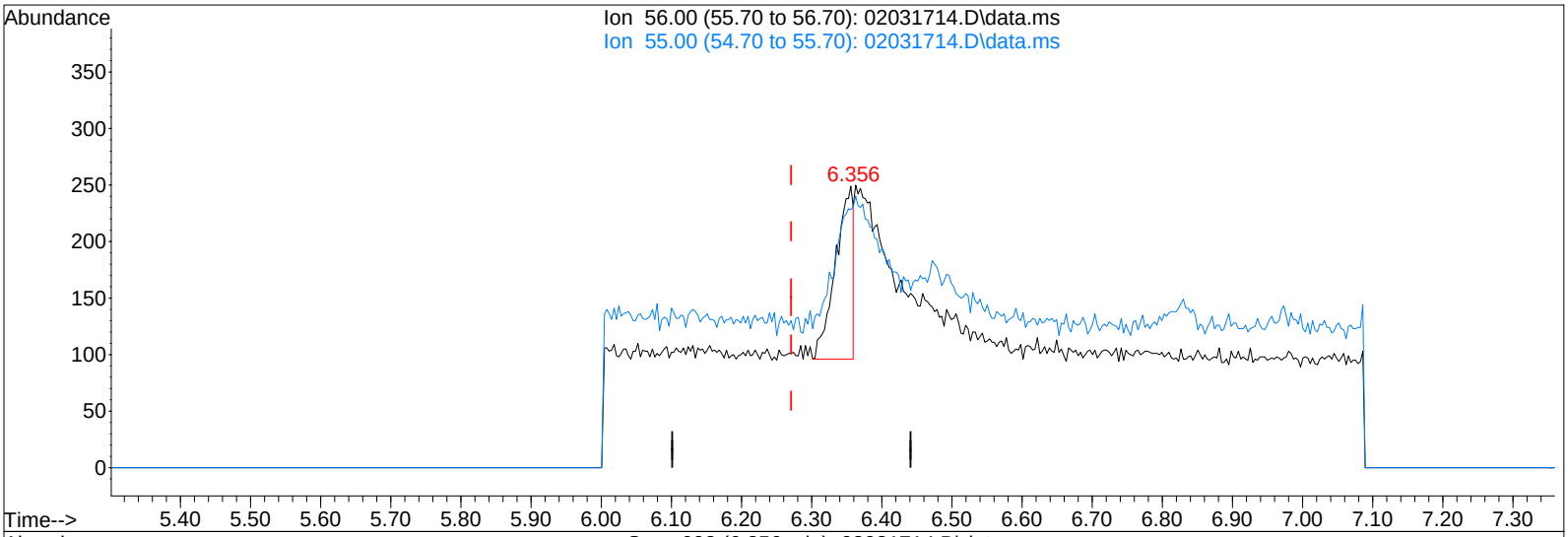
CL 2/4/17

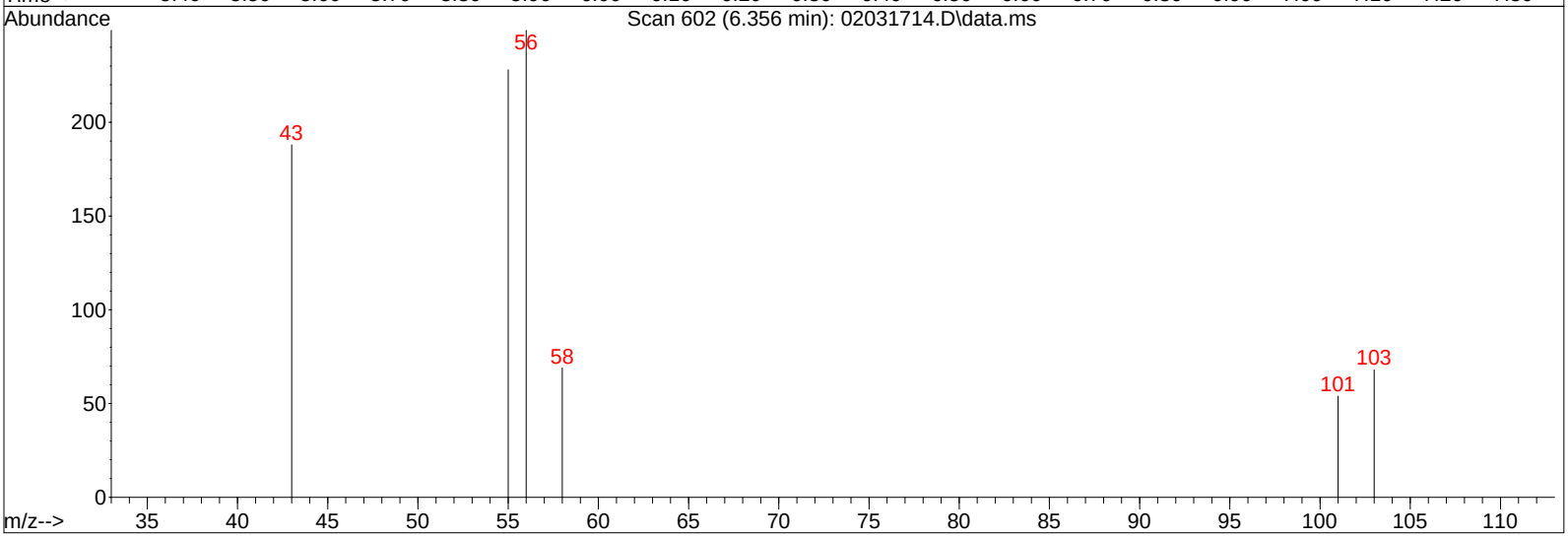
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 10.34pg

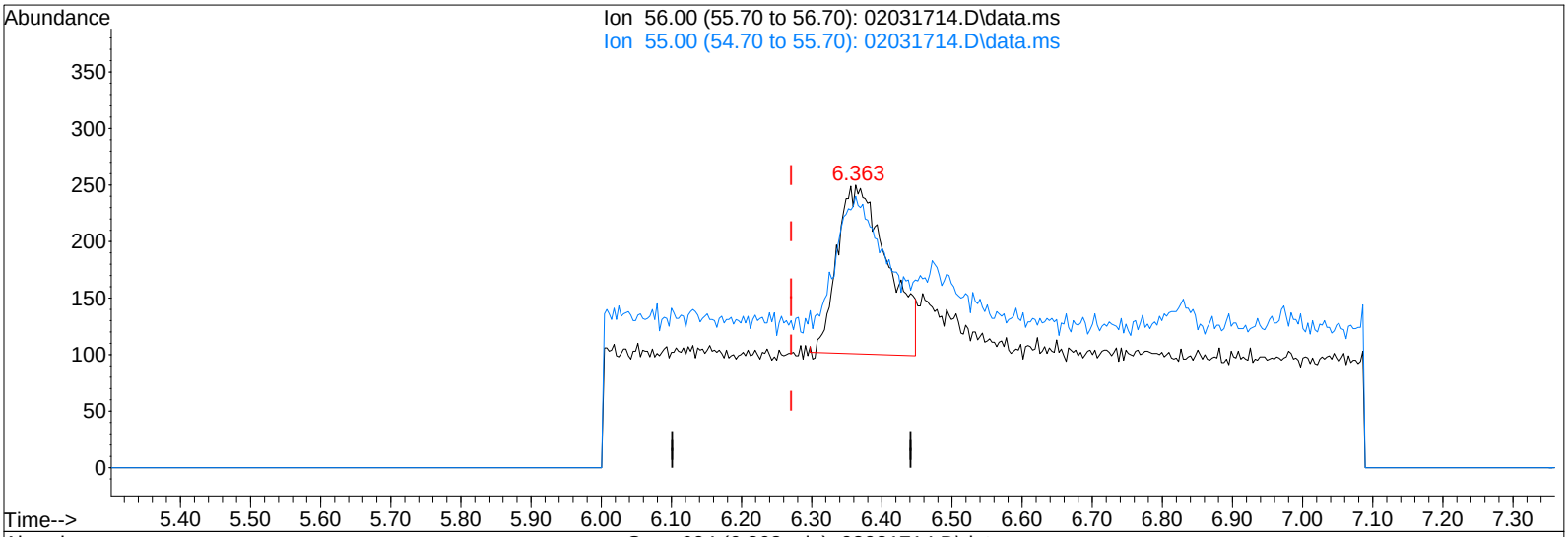
response 271

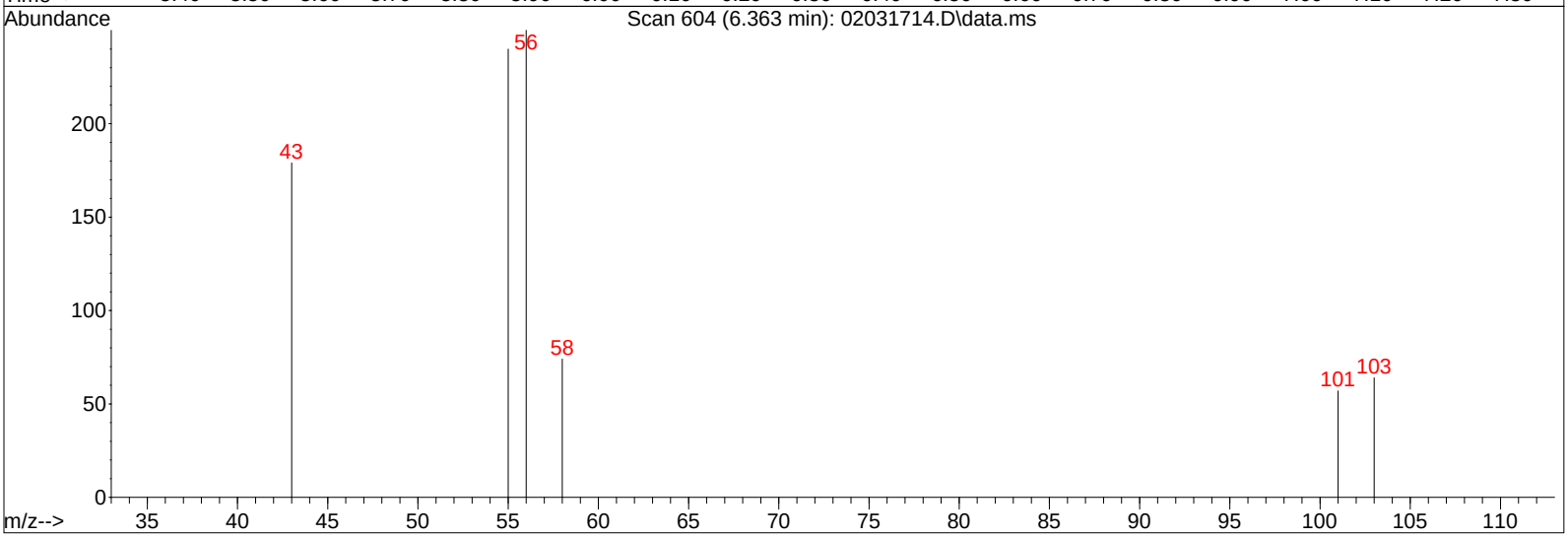
Ion	Exp%	Act%
56.00	100	100
55.00	74.00	26.57#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(9) Acrolein (T)

6.363min (+0.092) 28.40pg m

response 744

Ion	Exp%	Act%
56.00	100	100
55.00	74.00	9.68#
0.00	0.00	0.00
0.00	0.00	0.00

SP

CL 2/4/17

2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	46447	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	230528	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	41150	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	82290	1130.022	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.00%				
33) Toluene-d8 (SS2)	14.15	98	235665	1016.920	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.69%				
45) Bromofluorobenzene (SS3)	17.56	174	72508	824.538	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	6551	59.738	pg		99
3) Chloromethane	4.69	52	1429m	58.259	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	5890	56.893	pg		100
5) Vinyl Chloride	5.00	62	5489	56.719	pg		99
6) 1,3-Butadiene	5.20	54	3862m	65.504	pg		
7) Bromomethane	5.52	94	1941	50.589	pg		100
8) Chloroethane	5.74	64	1674	54.840	pg		96
9) Acrolein	6.35	56	1592	63.439	pg	#	60
10) Acetone	6.46	58	15358	493.068	pg	#	82
11) Trichlorofluoromethane	6.64	101	4937	58.499	pg		100
12) 1,1-Dichloroethene	7.38	96	2598	52.492	pg		97
13) Methylene Chloride	7.51	84	3067	60.121	pg		97
14) Trichlorotrifluoroethane	7.82	151	2649	52.123	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2725	54.475	pg		100
16) 1,1-Dichloroethane	8.74	63	4750	54.726	pg		99
17) Methyl tert-Butyl Ether	8.82	73	8974	56.276	pg		100
18) cis-1,2-Dichloroethene	9.62	96	2929	54.352	pg		99
19) Chloroform	9.90	83	6291	67.055	pg		98
21) 1,2-Dichloroethane	10.66	62	3941	57.083	pg		98
22) 1,1,1-Trichloroethane	10.93	97	4955	56.059	pg		100
23) Benzene	11.38	78	12832	62.949	pg		99
24) Carbon Tetrachloride	11.53	117	4337	52.683	pg		99
26) 1,2-Dichloropropane	12.19	63	2690	52.426	pg		99
27) Bromodichloromethane	12.37	83	3869	51.732	pg		99
28) Trichloroethene	12.42	130	2898	49.189	pg		97
29) 1,4-Dioxane	12.40	88	2232	49.684	pg		98
30) cis-1,3-Dichloropropene	13.27	75	4166	49.952	pg		99
31) trans-1,3-Dichloropropene	13.79	75	3242	44.951	pg		94
32) 1,1,2-Trichloroethane	13.96	83	2248	51.747	pg		99
34) Toluene	14.25	91	12020	54.430	pg		99
35) Dibromochloromethane	14.67	129	2963	46.219	pg		99
36) 1,2-Dibromoethane	14.93	107	2734	47.392	pg		99
37) Tetrachloroethene	15.41	166	2957	46.971	pg		100
39) Chlorobenzene	16.11	112	7614	48.998	pg		100
40) Ethylbenzene	16.49	91	12521	48.161	pg		100
41) m,p-Xylene	16.66	91	19753	97.442	pg		98
42) Styrene	17.02	104	6333	40.776	pg		100
43) o-Xylene	17.13	106	4613	45.775	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4489	46.633	pg		98
46) 1,3,5-Trimethylbenzene	18.38	105	9696	44.344	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	9594	43.585	pg		99
48) 1,3-Dichlorobenzene	18.93	146	5288	43.742	pg		100
49) 1,4-Dichlorobenzene	18.99	146	5499	43.102	pg		98
50) 1,2-Dichlorobenzene	19.31	146	5312	43.565	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	1447	32.981	pg		96
52) 1,2,4-Trichlorobenzene	20.96	182	3204	37.012	pg		98
53) Naphthalene	21.09	128	11072	39.974	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

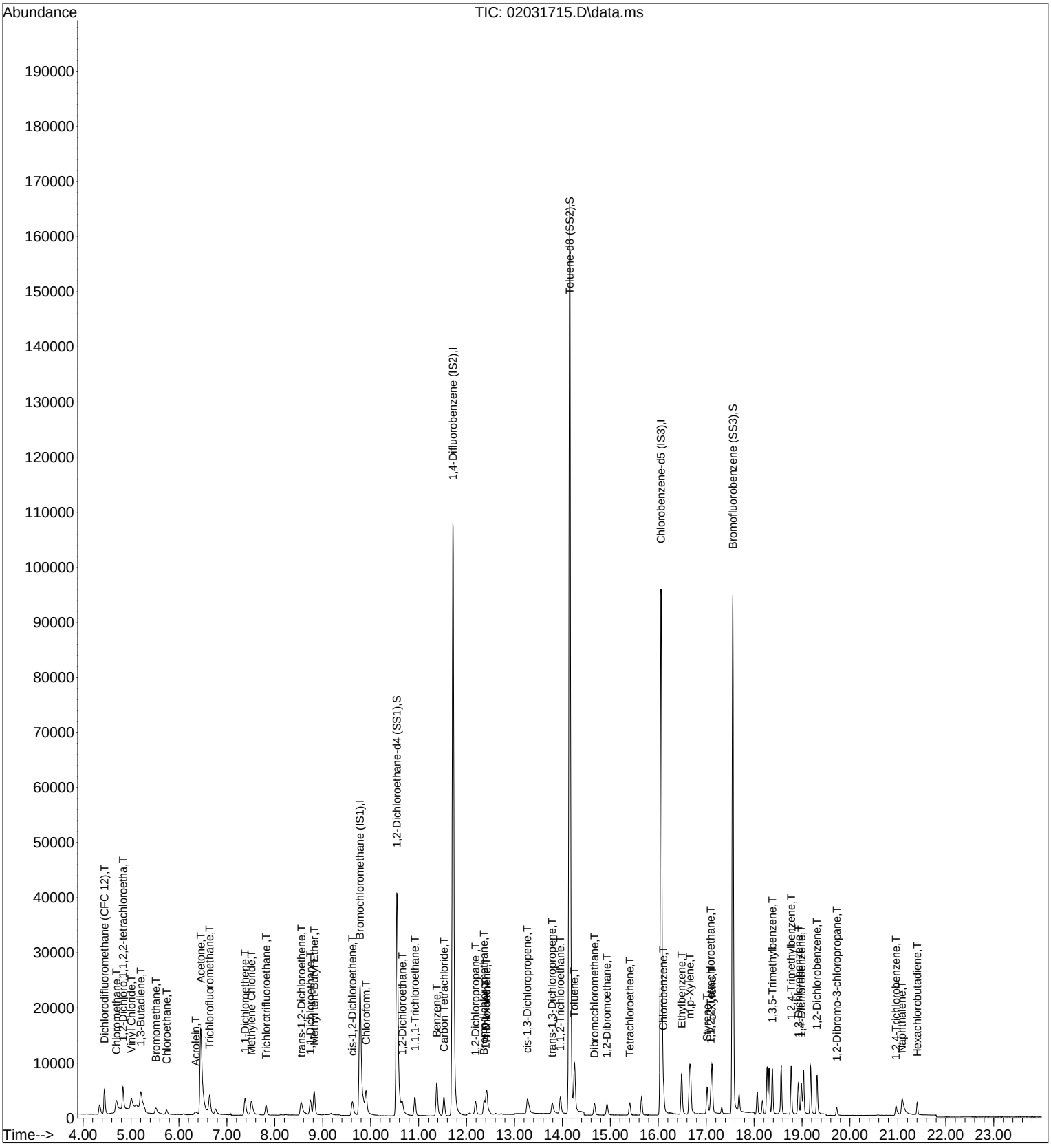
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	2190	38.824	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

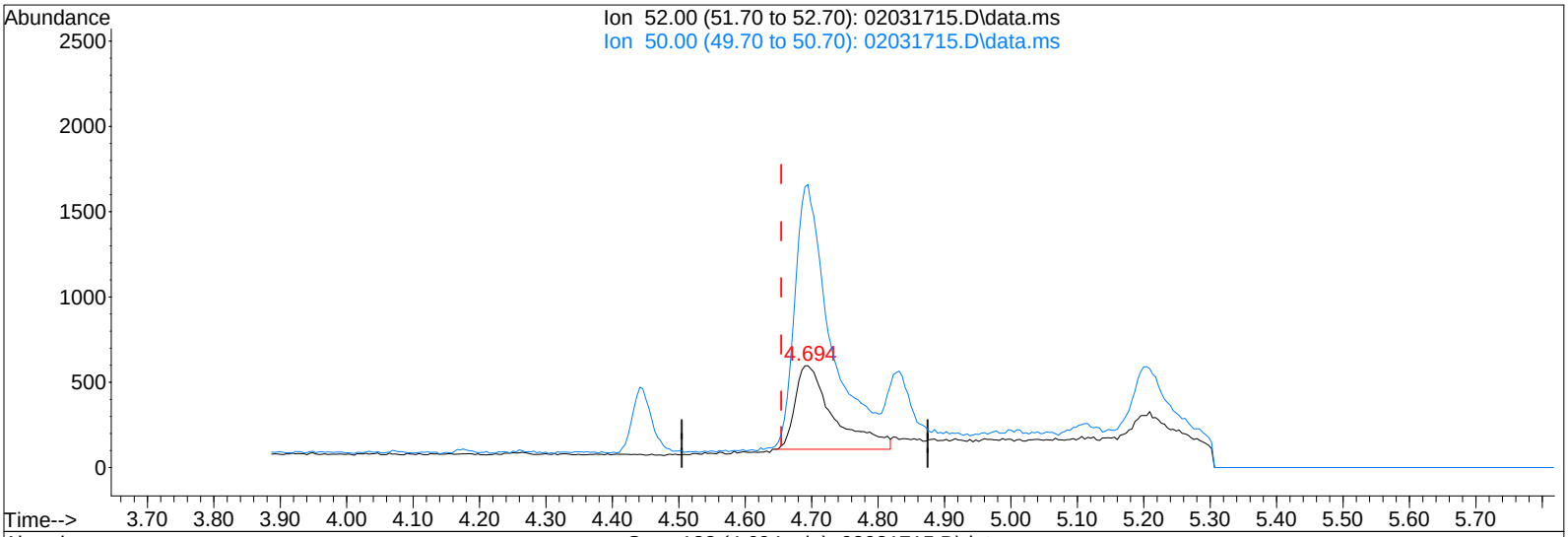
Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

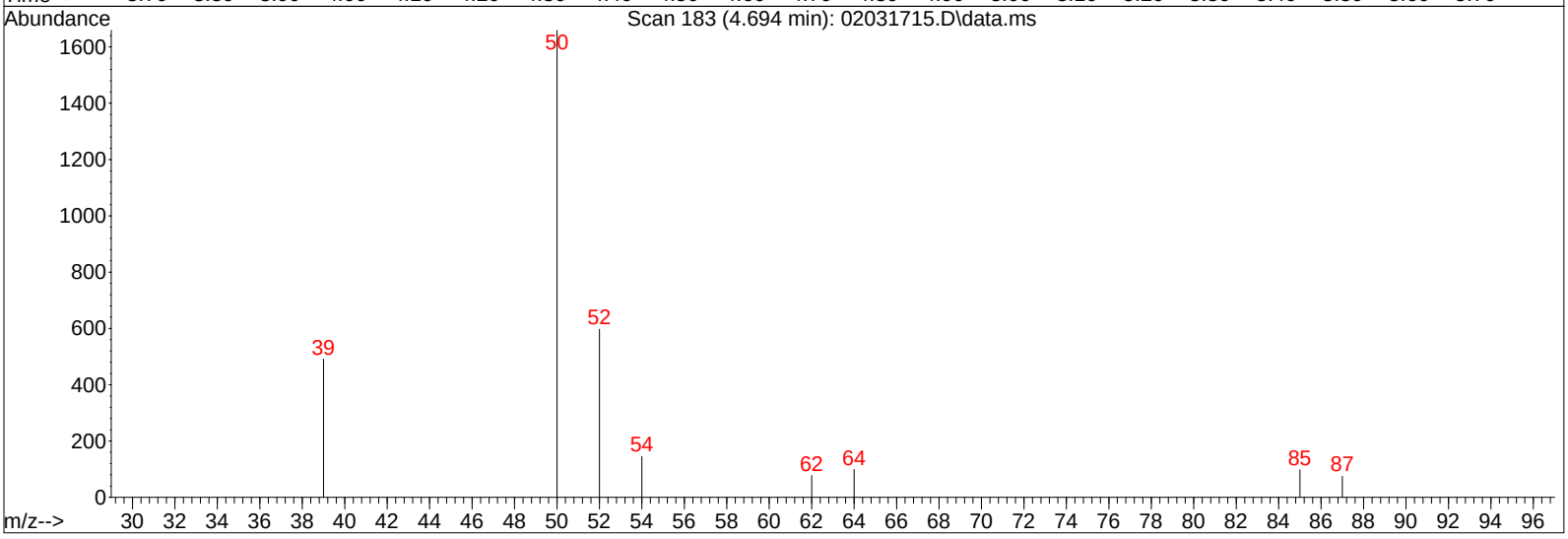


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 80.32pg

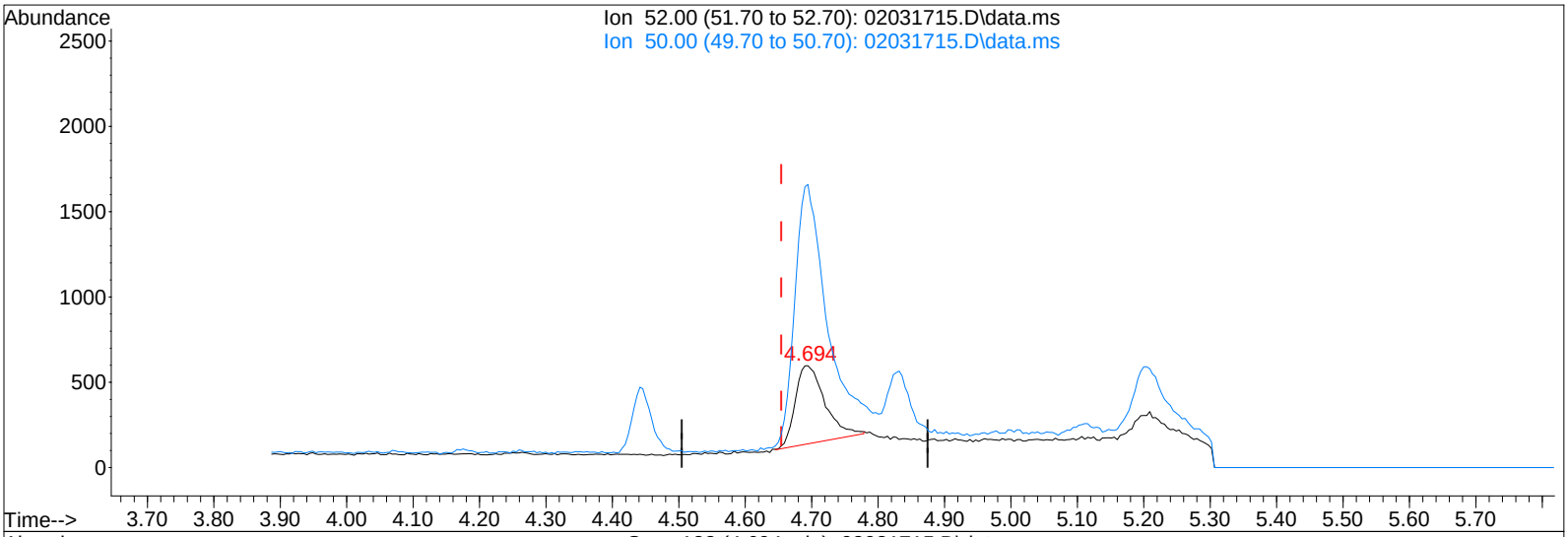
response 1970

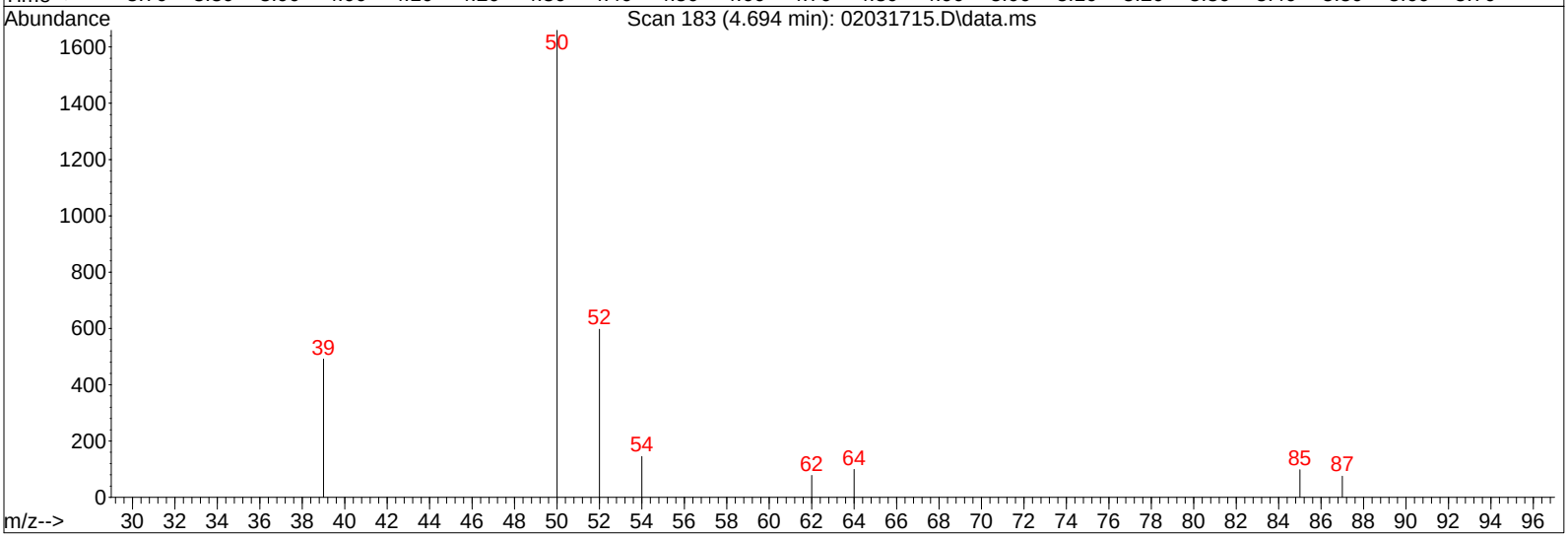
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	295.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 58.26pg m

response 1429

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	407.35#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

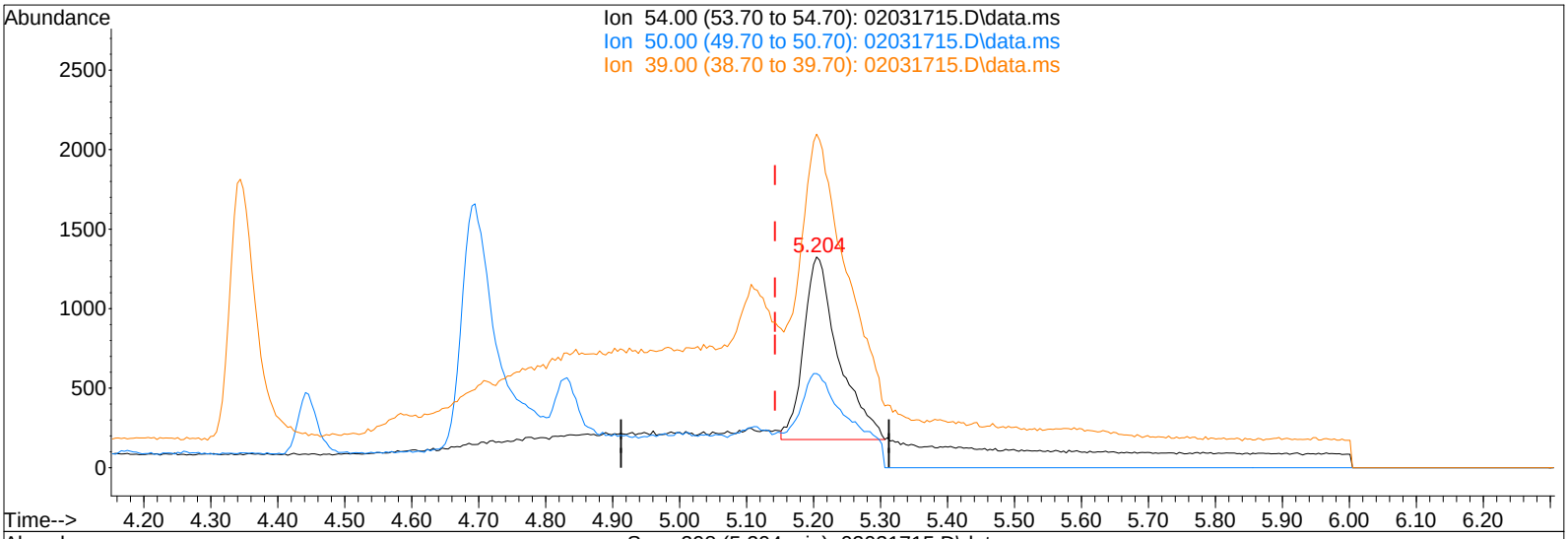
CL 2/4/17

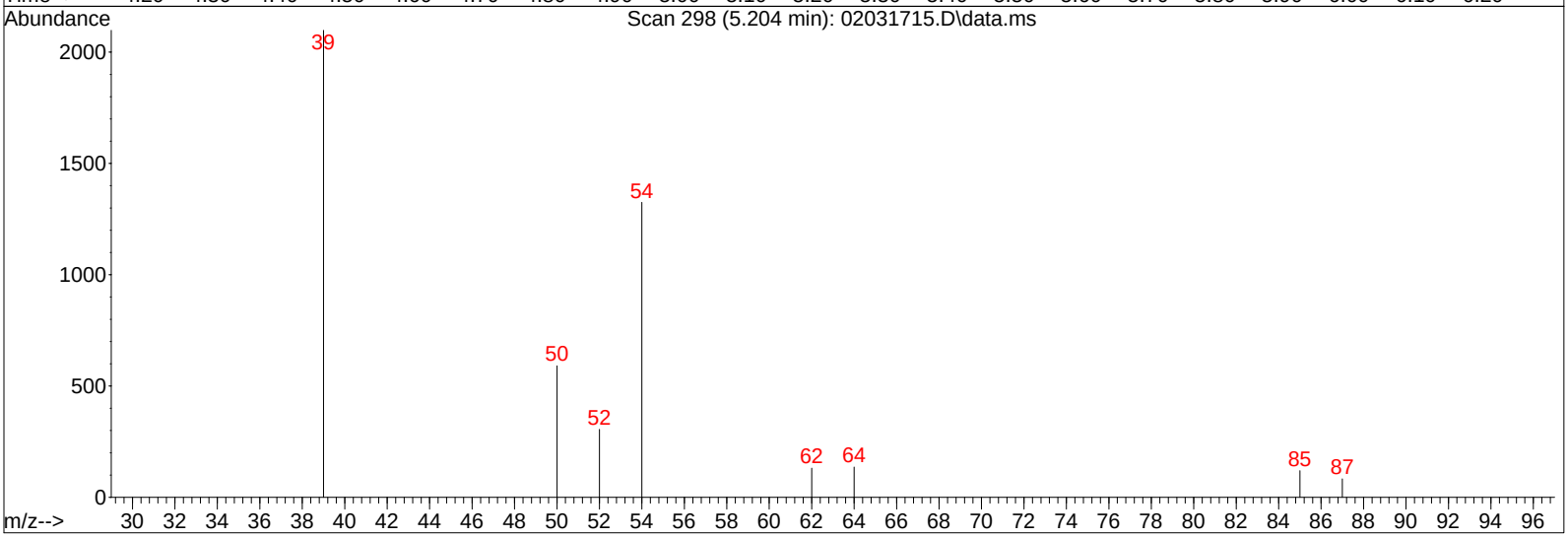
WDA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(6) 1,3-Butadiene (T)

5.204min (+0.062) 70.42pg

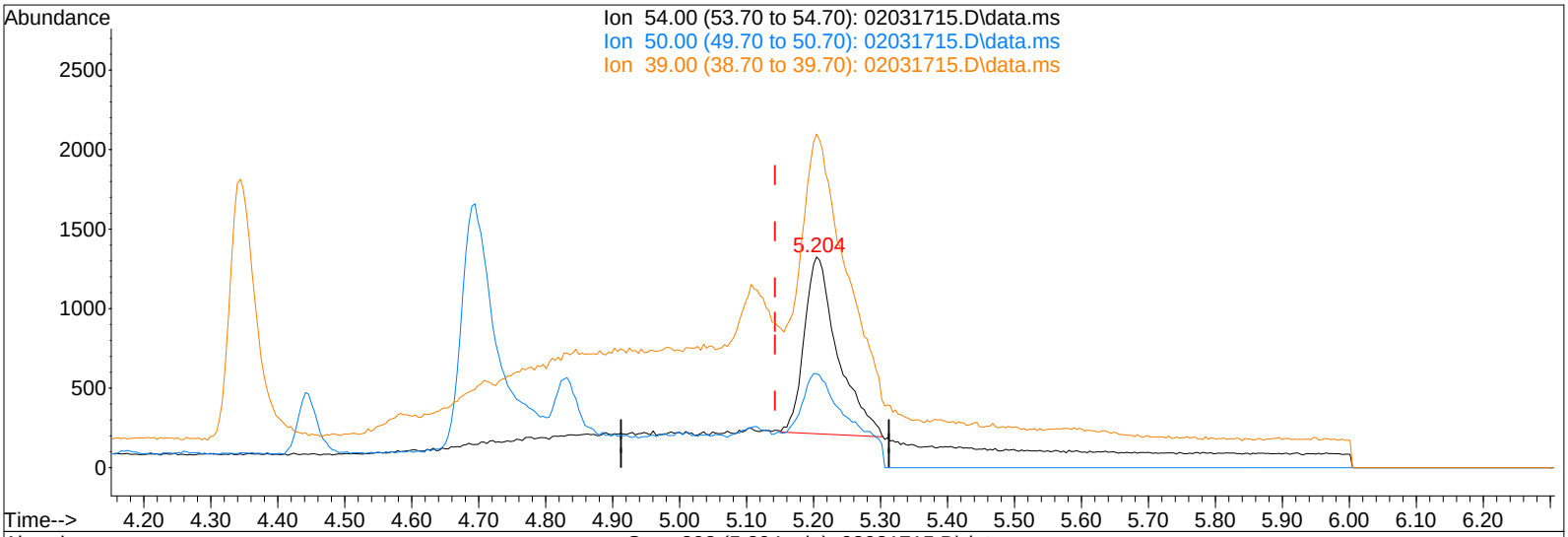
response 4152

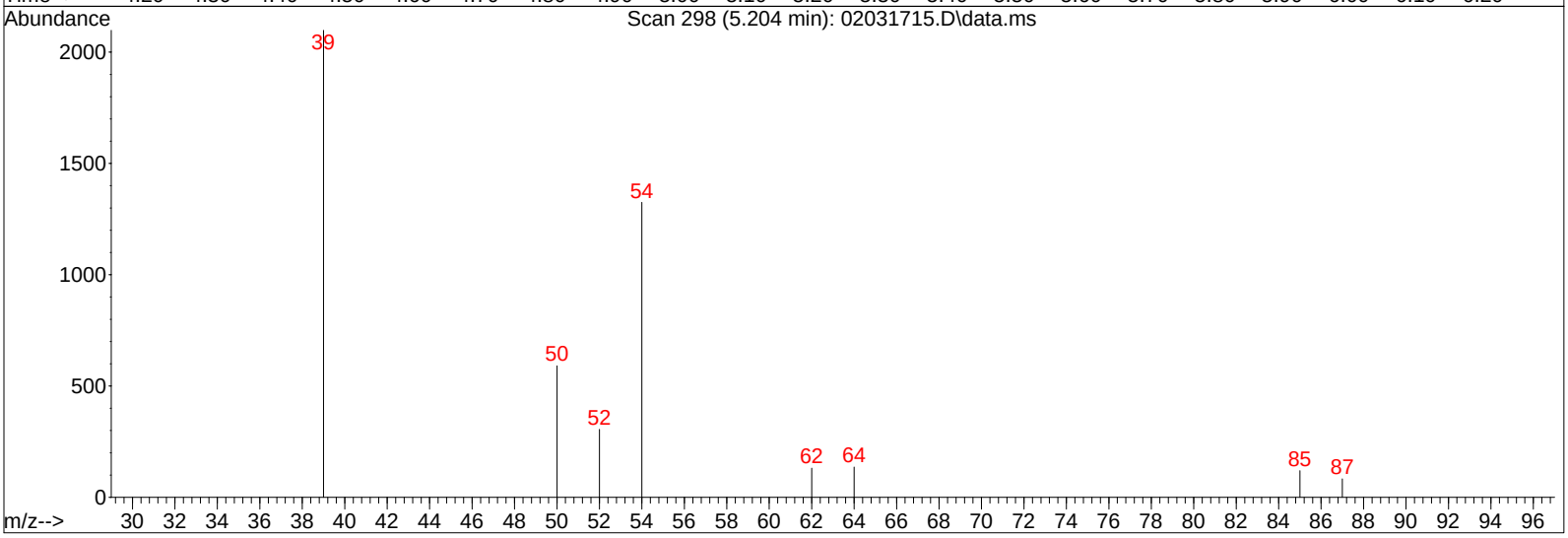
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	74.83#
39.00	111.40	188.49#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(6) 1,3-Butadiene (T)

5.204min (+0.062) 65.50pg m

response 3862

BLC

Ion	Exp%	Act%
54.00	100	100
50.00	33.50	80.45#
39.00	111.40	202.64#
0.00	0.00	0.00

CL 2/4/17 WH 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration CL 2/4/17
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	50327	1000.000	pg		0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	249940	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	45065	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	89496	1134.227	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.42%				
33) Toluene-d8 (SS2)	14.15	98	256212	1019.716	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%				
45) Bromofluorobenzene (SS3)	17.56	174	78831	818.563	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.86%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	13256	111.561	pg		100
3) Chloromethane	4.68	52	2711m	102.004	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11724	104.514	pg		99
5) Vinyl Chloride	4.99	62	11097	105.827	pg		97
6) 1,3-Butadiene	5.18	54	7593	118.858	pg	#	63
7) Bromomethane	5.50	94	4171	100.330	pg		98
8) Chloroethane	5.72	64	3433	103.793	pg		98
9) Acrolein	6.33	56	2946	108.344	pg		87
10) Acetone	6.43	58	29026	860.034	pg	#	86
11) Trichlorofluoromethane	6.63	101	9878	108.022	pg		99
12) 1,1-Dichloroethene	7.37	96	5524	103.006	pg		98
13) Methylene Chloride	7.50	84	6007	108.674	pg		97
14) Trichlorotrifluoroethane	7.81	151	5160	93.704	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4943	91.197	pg		87
16) 1,1-Dichloroethane	8.73	63	9611	102.193	pg		99
17) Methyl tert-Butyl Ether	8.81	73	18180	105.217	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5948	101.865	pg		99
19) Chloroform	9.90	83	11664	114.740	pg		99
21) 1,2-Dichloroethane	10.65	62	8050	107.610	pg		100
22) 1,1,1-Trichloroethane	10.92	97	9962	104.017	pg		99
23) Benzene	11.38	78	24264	109.853	pg		100
24) Carbon Tetrachloride	11.53	117	8653	97.007	pg		99
26) 1,2-Dichloropropane	12.18	63	5472	98.361	pg		99
27) Bromodichloromethane	12.36	83	7955	98.104	pg		100
28) Trichloroethene	12.42	130	6020	94.244	pg		100
29) 1,4-Dioxane	12.40	88	4760	97.727	pg		97
30) cis-1,3-Dichloropropene	13.26	75	8631	95.452	pg		100
31) trans-1,3-Dichloropropene	13.78	75	7170	91.693	pg		96
32) 1,1,2-Trichloroethane	13.95	83	4595	97.559	pg		100
34) Toluene	14.25	91	23657	98.806	pg		99
35) Dibromochloromethane	14.67	129	6126	88.136	pg		100
36) 1,2-Dibromoethane	14.93	107	5723	91.499	pg		98
37) Tetrachloroethene	15.40	166	6061	88.799	pg		100
39) Chlorobenzene	16.11	112	15109	88.783	pg		99
40) Ethylbenzene	16.48	91	25666	90.145	pg		100
41) m,p-Xylene	16.66	91	39301	177.030	pg		100
42) Styrene	17.02	104	13667	80.353	pg		99
43) o-Xylene	17.12	106	9575	86.759	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	9228	87.535	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	20344	84.959	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	20552	85.255	pg		100
48) 1,3-Dichlorobenzene	18.92	146	11187	84.499	pg		100
49) 1,4-Dichlorobenzene	18.98	146	11892	85.113	pg		99
50) 1,2-Dichlorobenzene	19.31	146	11024	82.557	pg		99
51) 1,2-Dibromo-3-chloropr...	19.72	157	3160	65.769	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	6892	72.699	pg		100
53) Naphthalene	21.07	128	24857	81.947	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

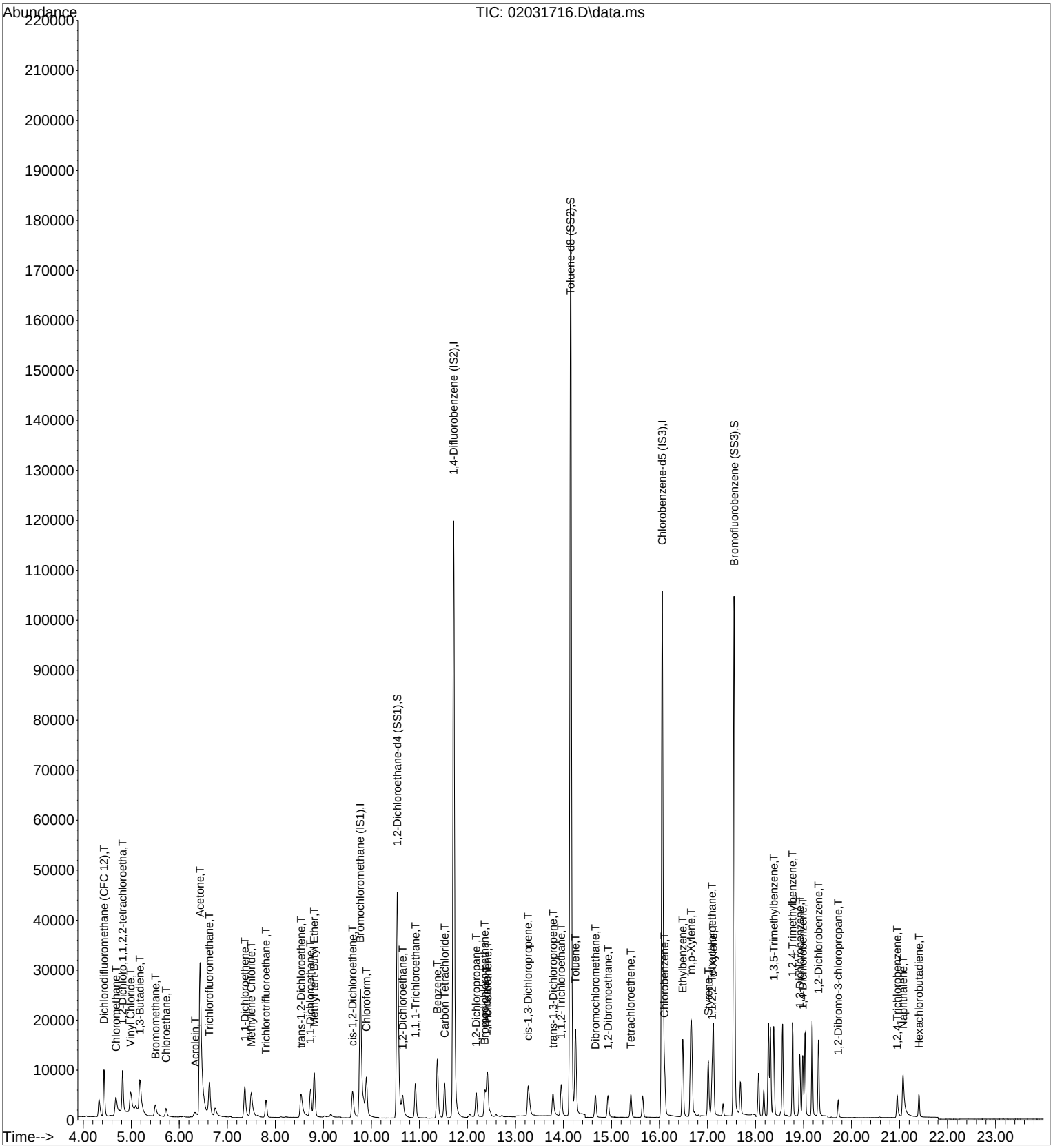
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4534	73.395	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

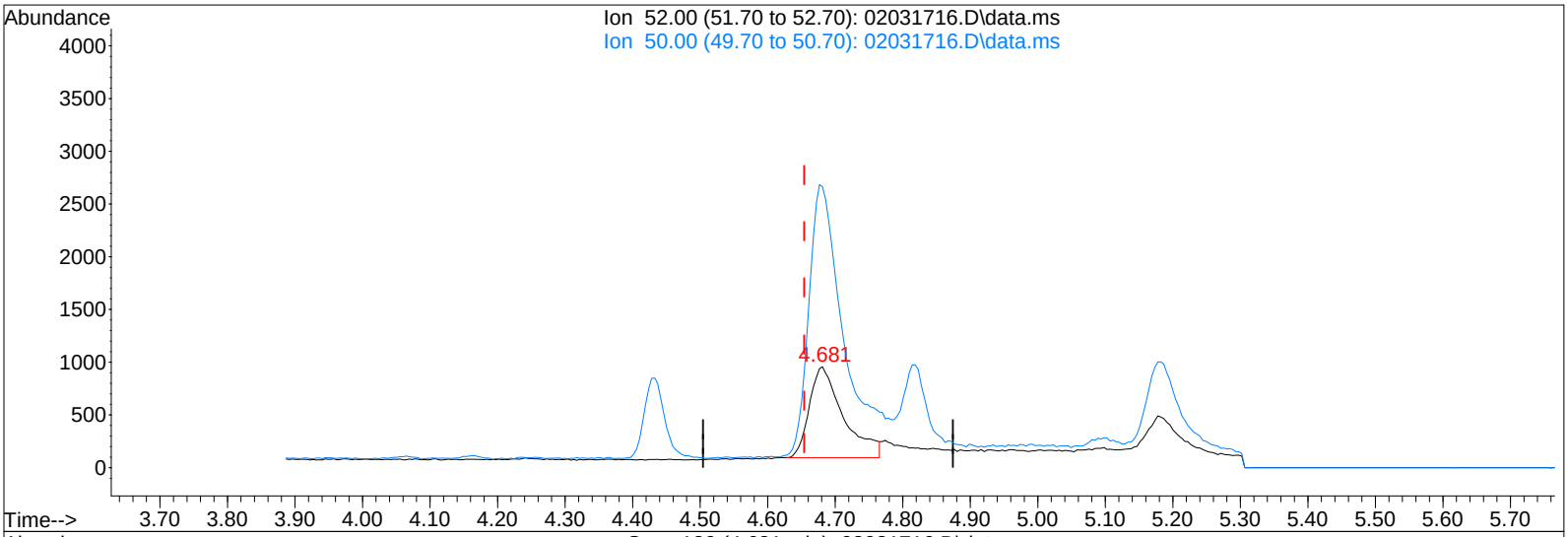
Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

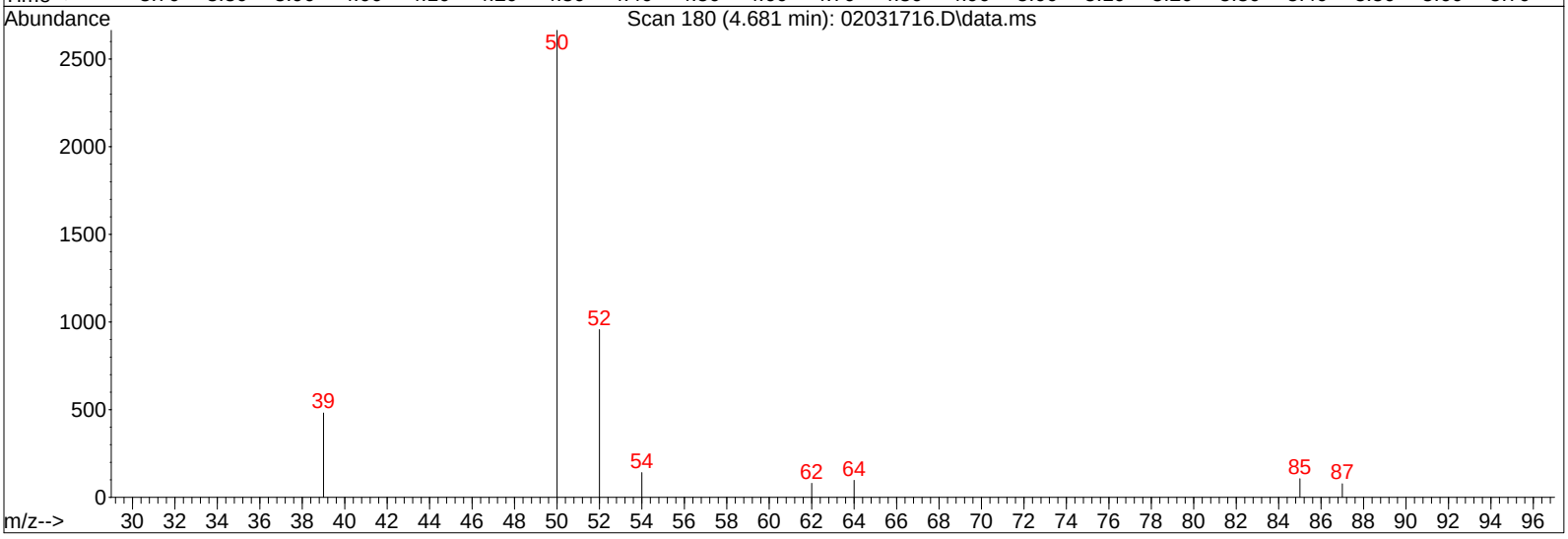


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031716.D\data.ms

(3) Chloromethane (T)

4.681min (+0.027) 113.29pg

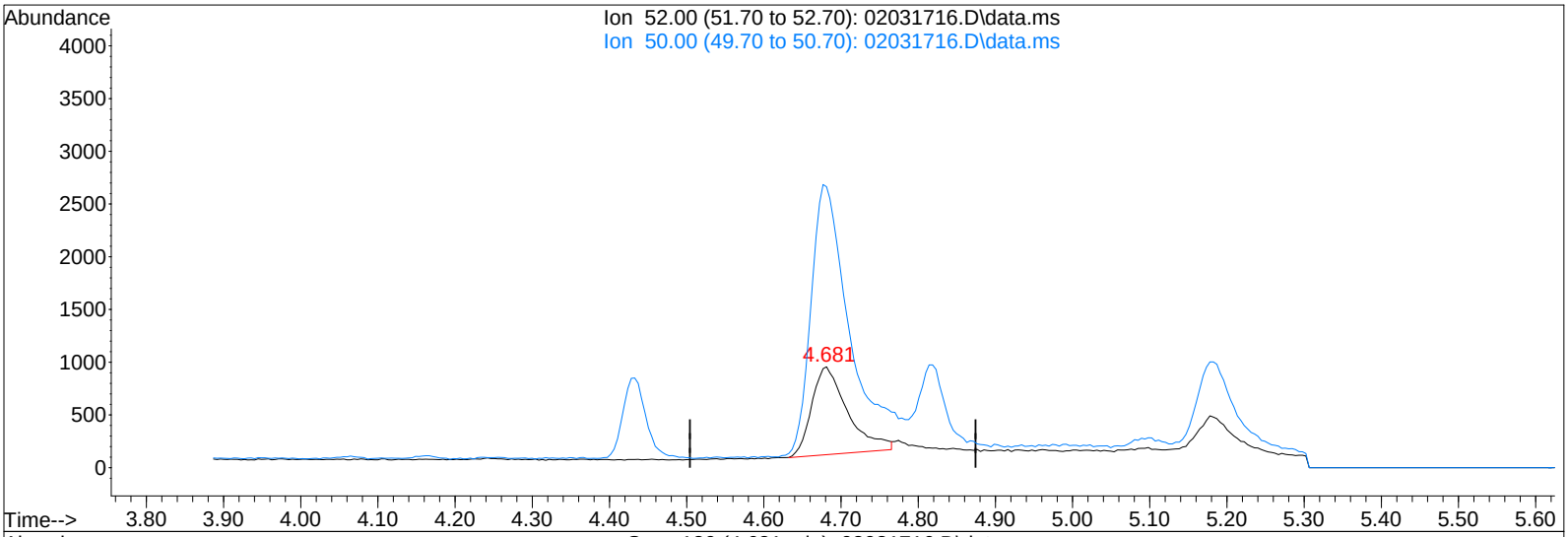
response 3011

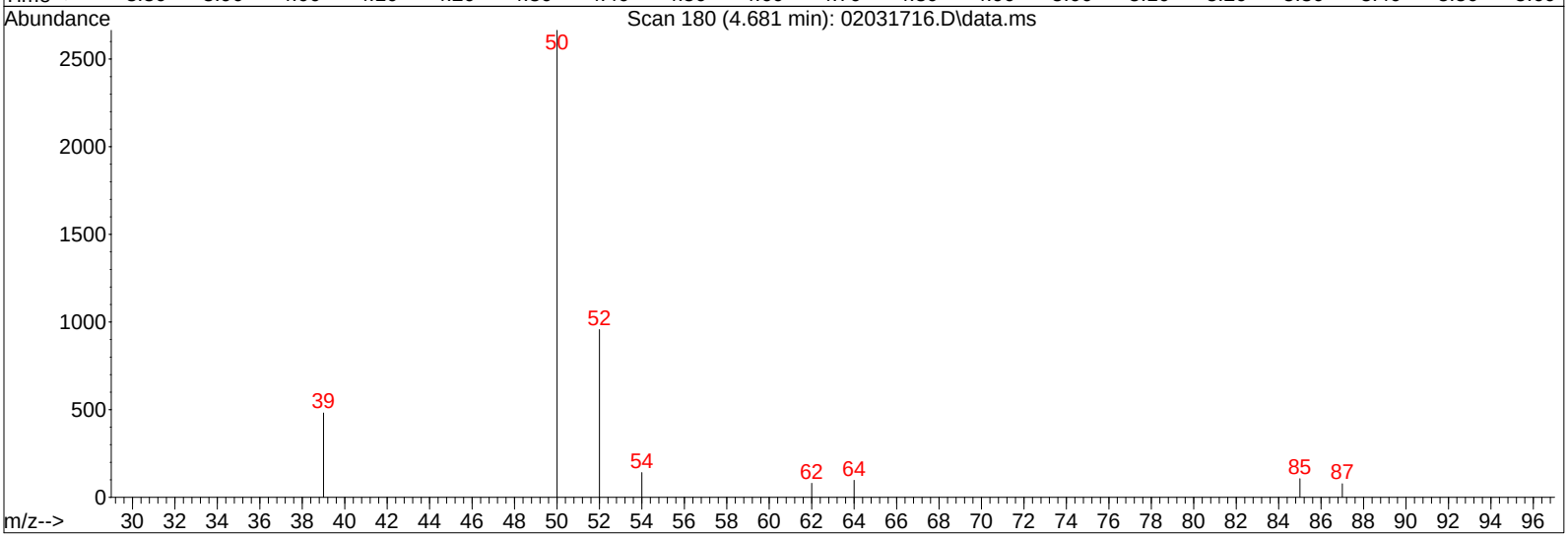
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	316.77#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031716.D\data.ms

(3) Chloromethane (T)

4.681min (+0.027) 102.00pg m

response 2711

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/4/17

WA 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50348	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	251786	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	45586	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88670	1123.290	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.33%			
33) Toluene-d8 (SS2)	14.15	98	259046	1023.436	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.34%			
45) Bromofluorobenzene (SS3)	17.55	174	81767	839.346	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.94%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	65472	550.777	pg	100
3) Chloromethane	4.65	52	15167	570.436	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	58942	525.220	pg	100
5) Vinyl Chloride	4.96	62	55387	527.978	pg	100
6) 1,3-Butadiene	5.14	54	40759	637.759	pg	97
7) Bromomethane	5.48	94	21263	511.251	pg	99
8) Chloroethane	5.70	64	16920	511.346	pg	100
9) Acrolein	6.27	56	12899	474.184	pg	99
10) Acetone	6.40	58	88916	2633.464	pg	100
11) Trichlorofluoromethane	6.61	101	48615	531.413	pg	100
12) 1,1-Dichloroethene	7.35	96	27624	514.891	pg	100
13) Methylene Chloride	7.48	84	28895	522.528	pg	100
14) Trichlorotrifluoroethane	7.80	151	26124	474.203	pg	100
15) trans-1,2-Dichloroethene	8.52	96	29680	547.361	pg	100
16) 1,1-Dichloroethane	8.72	63	50010	531.533	pg	100
17) Methyl tert-Butyl Ether	8.79	73	92370	534.369	pg	100
18) cis-1,2-Dichloroethene	9.59	96	31187	533.882	pg	100
19) Chloroform	9.89	83	53909	530.088	pg	100
21) 1,2-Dichloroethane	10.64	62	41894	559.795	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51096	533.291	pg	100
23) Benzene	11.37	78	115967	524.809	pg	100
24) Carbon Tetrachloride	11.52	117	44175	495.033	pg	100
26) 1,2-Dichloropropane	12.18	63	28496	508.472	pg	100
27) Bromodichloromethane	12.36	83	40701	498.258	pg	100
28) Trichloroethene	12.41	130	30814	478.861	pg	100
29) 1,4-Dioxane	12.38	88	24563	500.604	pg	100
30) cis-1,3-Dichloropropene	13.26	75	46599	511.570	pg	100
31) trans-1,3-Dichloropropene	13.77	75	38634	490.444	pg	100
32) 1,1,2-Trichloroethane	13.95	83	23911	503.944	pg	100
34) Toluene	14.25	91	116685	483.774	pg	100
35) Dibromochloromethane	14.66	129	31100	444.161	pg	100
36) 1,2-Dibromoethane	14.92	107	30296	480.819	pg	100
37) Tetrachloroethene	15.40	166	31258	454.599	pg	100
39) Chlorobenzene	16.10	112	77315	449.124	pg	100
40) Ethylbenzene	16.48	91	133736	464.343	pg	100
41) m,p-Xylene	16.66	91	206142	917.948	pg	100
42) Styrene	17.01	104	74237	431.476	pg	100
43) o-Xylene	17.12	106	49638	444.630	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	48442	454.260	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	109890	453.671	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	110612	453.603	pg	100
48) 1,3-Dichlorobenzene	18.92	146	58838	439.344	pg	100
49) 1,4-Dichlorobenzene	18.98	146	58652	414.985	pg	100
50) 1,2-Dichlorobenzene	19.31	146	57412	425.033	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18164	373.724	pg	100
52) 1,2,4-Trichlorobenzene	20.95	182	34937	364.313	pg	100
53) Naphthalene	21.07	128	123772	403.382	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

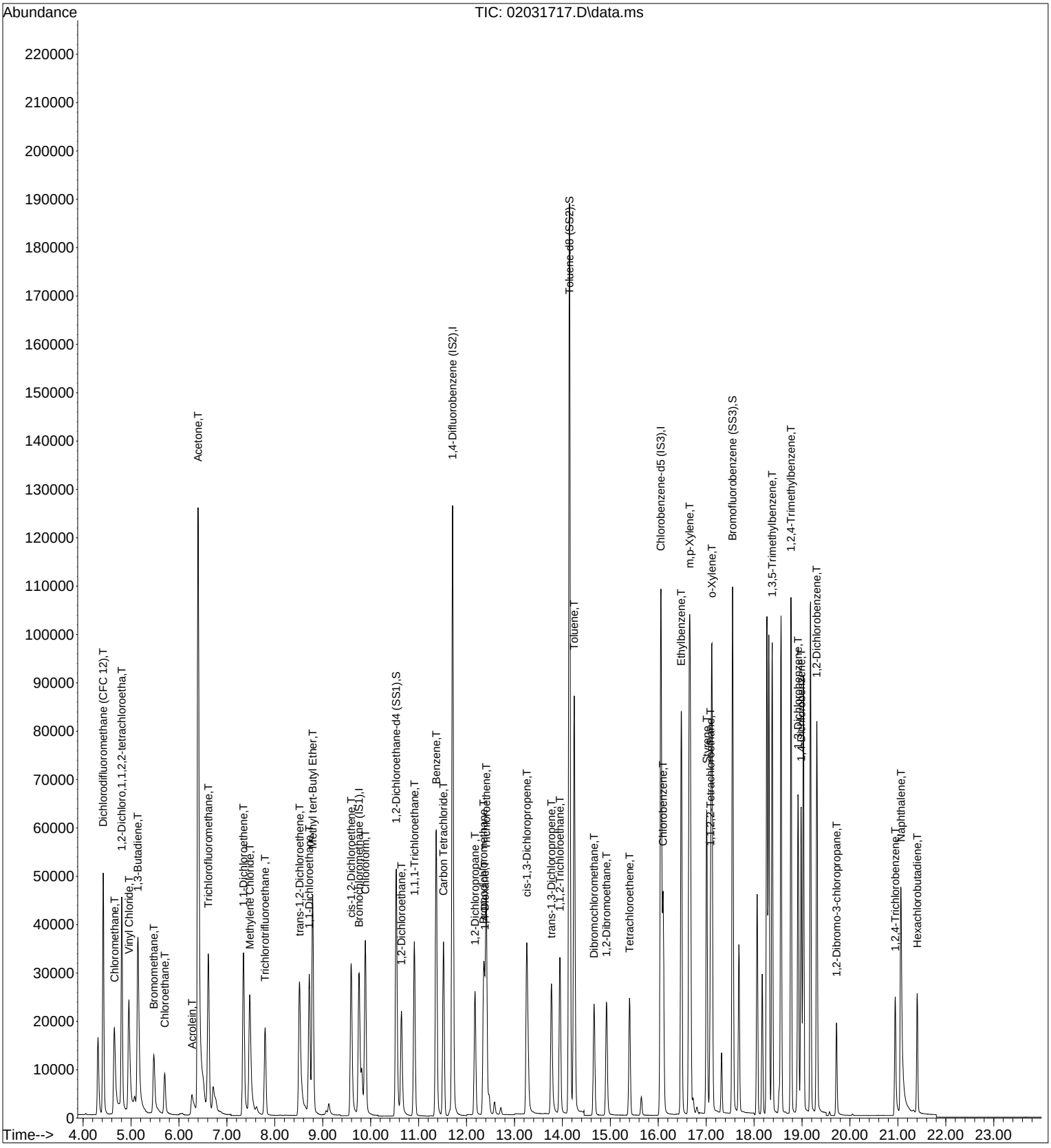
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	24248	388.035	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	46127	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	230585	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	41847	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	81012	1120.189	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.02%			
33) Toluene-d8 (SS2)	14.15	98	237052	1022.653	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.27%			
45) Bromofluorobenzene (SS3)	17.55	174	76263	852.794	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.28%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	138788	1274.380	pg	100
3) Chloromethane	4.64	52	33901	1391.703	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	123094	1197.238	pg	100
5) Vinyl Chloride	4.94	62	116631	1213.526	pg	100
6) 1,3-Butadiene	5.13	54	89727	1532.440	pg	99
7) Bromomethane	5.47	94	44650	1171.812	pg	99
8) Chloroethane	5.70	64	36419	1201.349	pg	99
9) Acrolein	6.26	56	28207	1131.813	pg	88
10) Acetone	6.39	58	182995	5915.802	pg	100
11) Trichlorofluoromethane	6.61	101	102523	1223.235	pg	100
12) 1,1-Dichloroethene	7.34	96	59130	1202.995	pg	100
13) Methylene Chloride	7.47	84	60909	1202.253	pg	99
14) Trichlorotrifluoroethane	7.80	151	56734	1124.075	pg	100
15) trans-1,2-Dichloroethene	8.51	96	63269	1273.585	pg	99
16) 1,1-Dichloroethane	8.72	63	106379	1234.117	pg	99
17) Methyl tert-Butyl Ether	8.79	73	196065	1238.047	pg	100
18) cis-1,2-Dichloroethene	9.59	96	66613	1244.680	pg	99
19) Chloroform	9.89	83	113774	1221.115	pg	100
21) 1,2-Dichloroethane	10.64	62	90515	1320.154	pg	100
22) 1,1,1-Trichloroethane	10.91	97	109441	1246.765	pg	100
23) Benzene	11.37	78	246065	1215.469	pg	100
24) Carbon Tetrachloride	11.52	117	94793	1159.473	pg	100
26) 1,2-Dichloropropane	12.18	63	61527	1198.807	pg	100
27) Bromodichloromethane	12.36	83	89007	1189.799	pg	100
28) Trichloroethene	12.41	130	66384	1126.484	pg	100
29) 1,4-Dioxane	12.38	88	53073	1181.100	pg	100
30) cis-1,3-Dichloropropene	13.25	75	104069	1247.529	pg	100
31) trans-1,3-Dichloropropene	13.77	75	87787	1216.888	pg	100
32) 1,1,2-Trichloroethane	13.95	83	51922	1194.913	pg	100
34) Toluene	14.25	91	252283	1142.130	pg	100
35) Dibromochloromethane	14.66	129	69437	1082.857	pg	100
36) 1,2-Dibromoethane	14.92	107	66833	1158.212	pg	99
37) Tetrachloroethene	15.40	166	68053	1080.726	pg	100
39) Chlorobenzene	16.10	112	170321	1077.800	pg	100
40) Ethylbenzene	16.48	91	294223	1112.845	pg	100
41) m,p-Xylene	16.66	91	453535	2200.036	pg	100
42) Styrene	17.01	104	172756	1093.798	pg	100
43) o-Xylene	17.12	106	109339	1066.908	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	106874	1091.746	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	244198	1098.228	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	250812	1120.441	pg	100
48) 1,3-Dichlorobenzene	18.92	146	135518	1102.327	pg	100
49) 1,4-Dichlorobenzene	18.98	146	135953	1047.866	pg	100
50) 1,2-Dichlorobenzene	19.31	146	132484	1068.441	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	44607	999.793	pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	86260	979.863	pg	100
53) Naphthalene	21.06	128	309990	1100.549	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

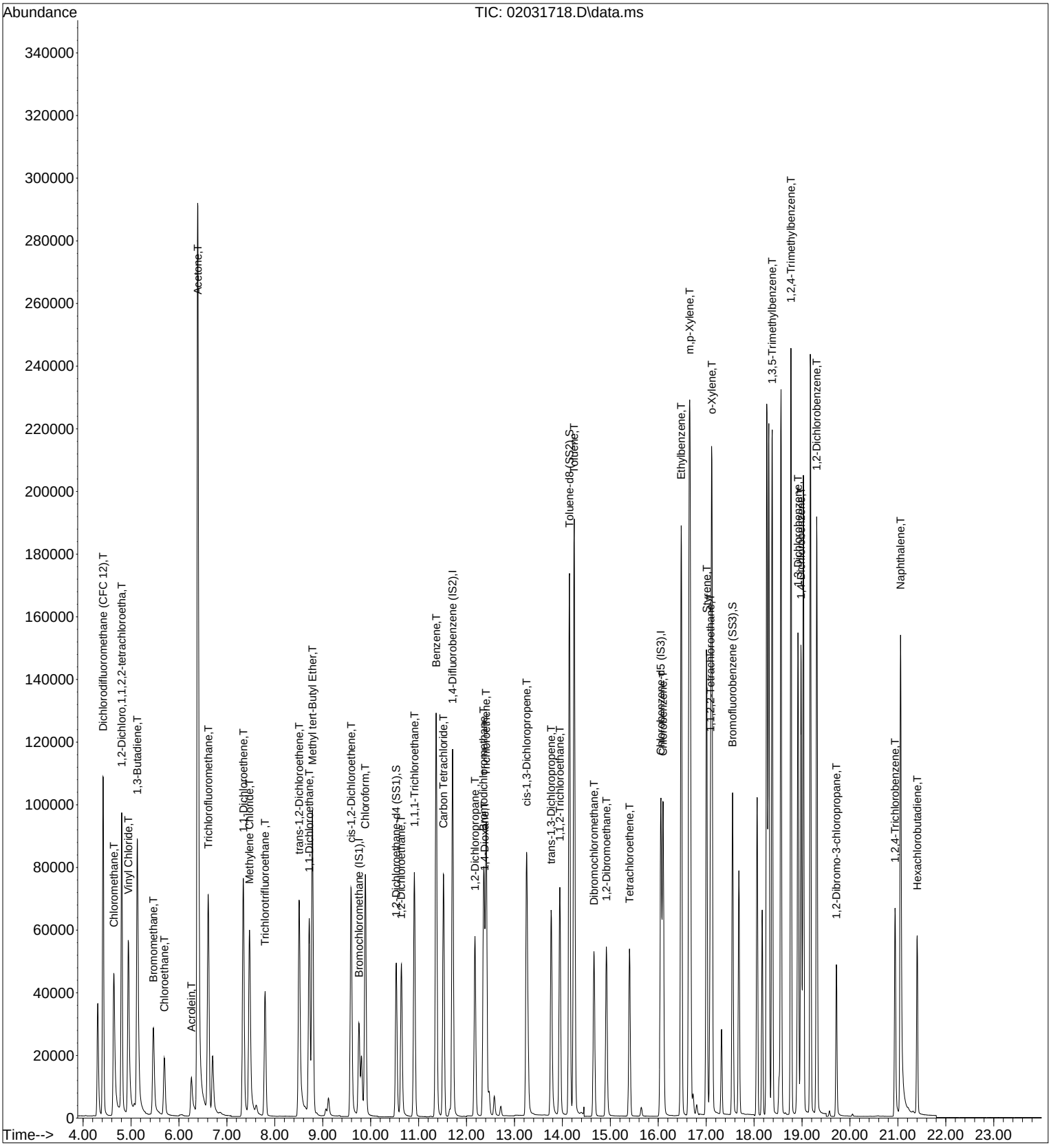
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	55196	962.211	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	47524	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	238738	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43162	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	83367	1118.867	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.89%			
33) Toluene-d8 (SS2)	14.15	98	243978	1016.587	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.66%			
45) Bromofluorobenzene (SS3)	17.55	174	82236	891.569	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	262900	2343.041	pg	100
3) Chloromethane	4.63	52	60567	2413.305	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	228680	2158.808	pg	100
5) Vinyl Chloride	4.93	62	220662	2228.460	pg	99
6) 1,3-Butadiene	5.12	54	172462	2858.880	pg	99
7) Bromomethane	5.46	94	84847	2161.301	pg	99
8) Chloroethane	5.68	64	69331	2219.785	pg	99
9) Acrolein	6.25	56	56233	2190.036	pg	91
10) Acetone	6.39	58	344291	10802.949	pg	99
11) Trichlorofluoromethane	6.61	101	192848	2233.295	pg	100
12) 1,1-Dichloroethene	7.34	96	113296	2237.240	pg	99
13) Methylene Chloride	7.47	84	116385	2229.736	pg	98
14) Trichlorotrifluoroethane	7.80	151	109229	2100.546	pg	100
15) trans-1,2-Dichloroethene	8.50	96	122707	2397.445	pg	99
16) 1,1-Dichloroethane	8.72	63	202053	2275.138	pg	99
17) Methyl tert-Butyl Ether	8.78	73	373032	2286.258	pg	100
18) cis-1,2-Dichloroethene	9.59	96	130250	2362.211	pg	100
19) Chloroform	9.89	83	217545	2266.234	pg	100
21) 1,2-Dichloroethane	10.64	62	175076	2478.408	pg	100
22) 1,1,1-Trichloroethane	10.91	97	211082	2333.984	pg	100
23) Benzene	11.36	78	469839	2252.607	pg	100
24) Carbon Tetrachloride	11.52	117	183822	2182.348	pg	100
26) 1,2-Dichloropropane	12.18	63	119606	2250.846	pg	100
27) Bromodichloromethane	12.36	83	174545	2253.546	pg	100
28) Trichloroethene	12.41	130	128553	2106.946	pg	99
29) 1,4-Dioxane	12.37	88	103515	2224.979	pg	100
30) cis-1,3-Dichloropropene	13.25	75	207840	2406.400	pg	100
31) trans-1,3-Dichloropropene	13.77	75	178914	2395.379	pg	100
32) 1,1,2-Trichloroethane	13.95	83	100733	2239.062	pg	99
34) Toluene	14.25	91	490232	2143.576	pg	99
35) Dibromochloromethane	14.66	129	139504	2101.244	pg	100
36) 1,2-Dibromoethane	14.92	107	133212	2229.719	pg	99
37) Tetrachloroethene	15.40	166	134391	2061.332	pg	99
39) Chlorobenzene	16.10	112	333959	2048.925	pg	100
40) Ethylbenzene	16.48	91	573628	2103.541	pg	99
41) m,p-Xylene	16.66	91	882068	4148.430	pg	99
42) Styrene	17.01	104	352391	2163.174	pg	100
43) o-Xylene	17.12	106	214590	2030.132	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	211167	2091.406	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	485519	2116.993	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	502124	2174.775	pg	99
48) 1,3-Dichlorobenzene	18.92	146	277340	2187.202	pg	100
49) 1,4-Dichlorobenzene	18.98	146	277005	2069.985	pg	99
50) 1,2-Dichlorobenzene	19.31	146	269435	2106.706	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	96771	2102.883	pg	92
52) 1,2,4-Trichlorobenzene	20.94	182	181384	1997.642	pg	99
53) Naphthalene	21.06	128	647832	2229.908	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

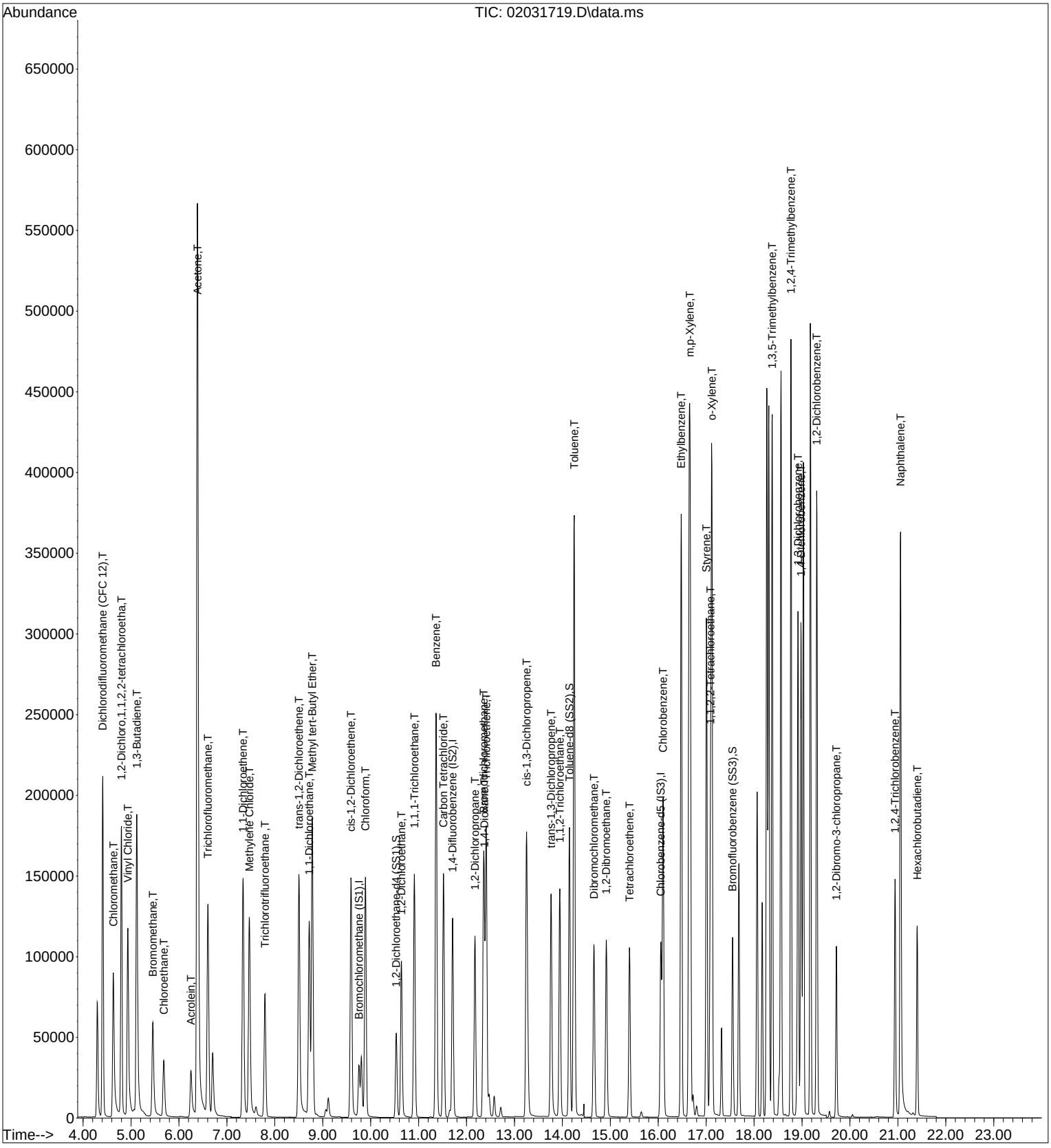
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	113538	1918.963	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	49244	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	250982	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	45061	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	85715	1110.199 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.02%		
33) Toluene-d8 (SS2)	14.15	98	254643	1009.264 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.93%		
45) Bromofluorobenzene (SS3)	17.55	174	89728	931.798 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.18%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	621163	5342.623 pg	100
3) Chloromethane	4.62	52	122419	4707.439 pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	550802	5018.121 pg	100
5) Vinyl Chloride	4.92	62	532611	5190.953 pg	100
6) 1,3-Butadiene	5.11	54	425148	6801.464 pg	99
7) Bromomethane	5.44	94	217640	5350.289 pg	99
8) Chloroethane	5.67	64	170280	5261.465 pg	100
9) Acrolein	6.24	56	145386	5464.396 pg	92
10) Acetone	6.39	58	840600	25454.566 pg	97
11) Trichlorofluoromethane	6.60	101	477020	5331.228 pg	100
12) 1,1-Dichloroethene	7.33	96	283032	5393.781 pg	98
13) Methylene Chloride	7.47	84	288520	5334.480 pg	97
14) Trichlorotrifluoroethane	7.79	151	272815	5063.165 pg	100
15) trans-1,2-Dichloroethene	8.50	96	303790	5728.124 pg	98
16) 1,1-Dichloroethane	8.72	63	493636	5364.250 pg	99
17) Methyl tert-Butyl Ether	8.78	73	915773	5416.599 pg	100
18) cis-1,2-Dichloroethene	9.59	96	324720	5683.420 pg	100
19) Chloroform	9.89	83	531905	5347.484 pg	100
21) 1,2-Dichloroethane	10.64	62	431962	5901.351 pg	99
22) 1,1,1-Trichloroethane	10.91	97	517958	5527.146 pg	100
23) Benzene	11.37	78	1155650	5347.150 pg	100
24) Carbon Tetrachloride	11.52	117	460160	5272.240 pg	100
26) 1,2-Dichloropropane	12.17	63	300328	5376.105 pg	100
27) Bromodichloromethane	12.35	83	439298	5395.073 pg	100
28) Trichloroethene	12.41	130	320311	4993.696 pg	99
29) 1,4-Dioxane	12.37	88	258974	5294.899 pg	100
30) cis-1,3-Dichloropropene	13.25	75	535242	5894.783 pg	100
31) trans-1,3-Dichloropropene	13.76	75	470941	5997.572 pg	100
32) 1,1,2-Trichloroethane	13.95	83	252644	5341.734 pg	98
34) Toluene	14.25	91	1225067	5095.373 pg	99
35) Dibromochloromethane	14.66	129	365510	5236.825 pg	100
36) 1,2-Dibromoethane	14.91	107	342139	5447.388 pg	99
37) Tetrachloroethene	15.40	166	346260	5051.950 pg	98
39) Chlorobenzene	16.10	112	845751	4970.225 pg	100
40) Ethylbenzene	16.48	91	1432672	5032.320 pg	98
41) m,p-Xylene	16.66	91	2223117	10014.856 pg	98
42) Styrene	17.01	104	932447	5482.662 pg	100
43) o-Xylene	17.12	106	550003	4984.028 pg	96
44) 1,1,2,2-Tetrachloroethane	17.09	83	538560	5109.132 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1251479	5226.819 pg	97
47) 1,2,4-Trimethylbenzene	18.77	105	1304220	5410.720 pg	98
48) 1,3-Dichlorobenzene	18.92	146	737200	5568.809 pg	99
49) 1,4-Dichlorobenzene	18.98	146	731197	5233.770 pg	100
50) 1,2-Dichlorobenzene	19.31	146	713040	5340.287 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	267867	5575.578 pg	88
52) 1,2,4-Trichlorobenzene	20.94	182	480019	5063.815 pg	99
53) Naphthalene	21.06	128	1681801	5544.978 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

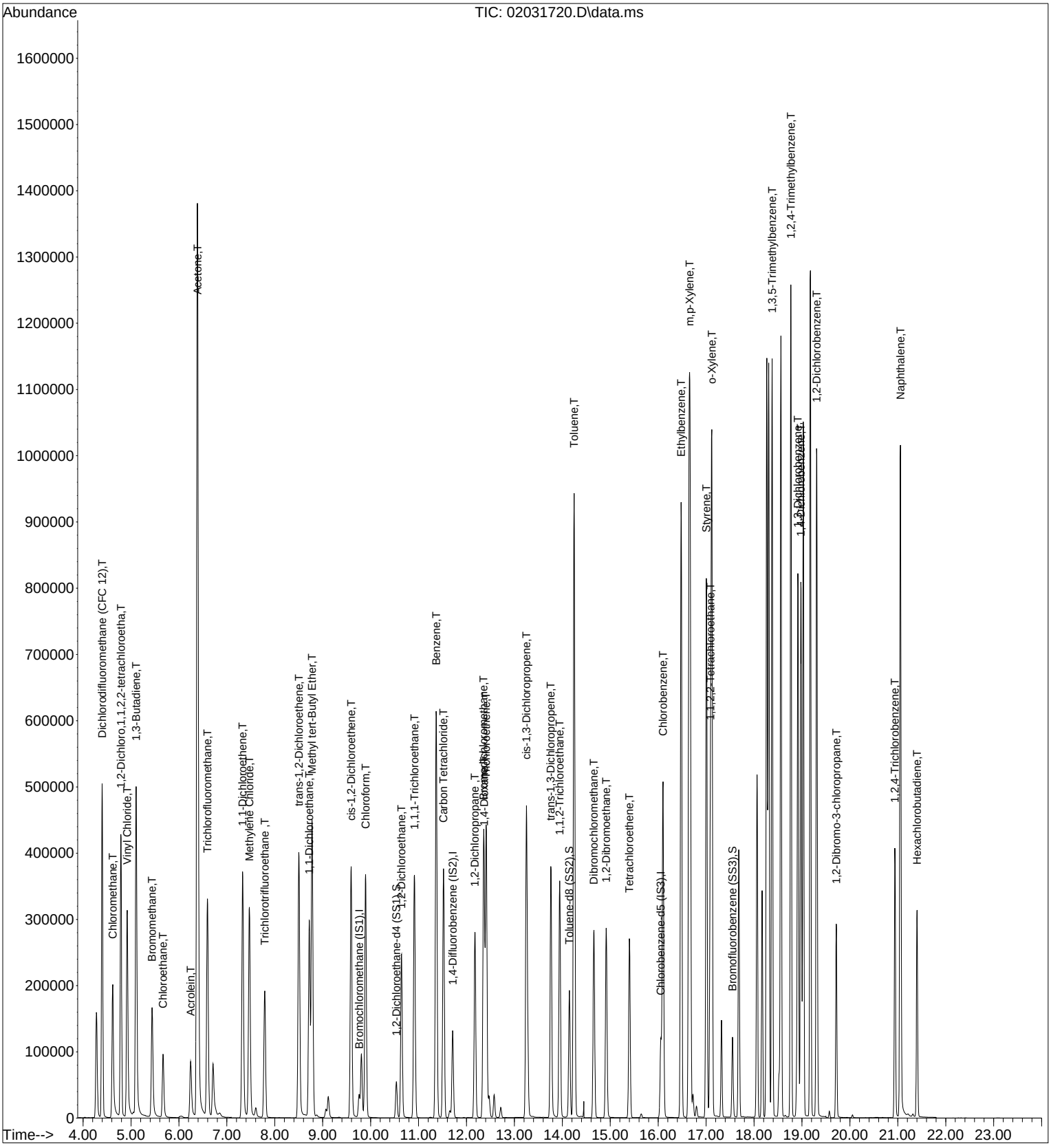
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	297468	4815.777	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	51177	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	262540	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	47306	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	88470	1102.601	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.26%			
33) Toluene-d8 (SS2)	14.15	98	264917	1003.760	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.38%			
45) Bromofluorobenzene (SS3)	17.55	174	95400	943.684	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.37%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.39	85	1215961	10063.455	pg	99
3) Chloromethane	4.61	52	154773	5726.767	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1102638	9666.228	pg	99
5) Vinyl Chloride	4.92	62	1077522	10105.123	pg	100
6) 1,3-Butadiene	5.10	54	855209	13164.762	pg	99
7) Bromomethane	5.44	94	533640	12623.081	pg	98
8) Chloroethane	5.67	64	350713	10427.337	pg	100
9) Acrolein	6.25	56	302274	10931.982	pg	93
10) Acetone	6.39	58	1707166	49742.837	pg	93
11) Trichlorofluoromethane	6.59	101	966069	10389.084	pg	99
12) 1,1-Dichloroethene	7.33	96	574134	10528.088	pg	98
13) Methylene Chloride	7.48	84	585588	10418.060	pg	97
14) Trichlorotrifluoroethane	7.79	151	542590	9689.562	pg	99
15) trans-1,2-Dichloroethene	8.51	96	610288	11072.667	pg	97
16) 1,1-Dichloroethane	8.73	63	992285	10375.692	pg	99
17) Methyl tert-Butyl Ether	8.78	73	1858590	10577.936	pg	100
18) cis-1,2-Dichloroethene	9.60	96	655601	11041.264	pg	99
19) Chloroform	9.90	83	1066895	10320.853	pg	100
21) 1,2-Dichloroethane	10.64	62	867186	11399.786	pg	99
22) 1,1,1-Trichloroethane	10.92	97	1039690	10675.512	pg	99
23) Benzene	11.37	78	2330466	10375.697	pg	100
24) Carbon Tetrachloride	11.52	117	932913	10285.039	pg	99
26) 1,2-Dichloropropane	12.18	63	610391	10445.449	pg	100
27) Bromodichloromethane	12.35	83	891064	10461.502	pg	100
28) Trichloroethene	12.42	130	648523	9665.465	pg	99
29) 1,4-Dioxane	12.37	88	525504	10271.282	pg	99
30) cis-1,3-Dichloropropene	13.25	75	1100154	11582.924	pg	99
31) trans-1,3-Dichloropropene	13.76	75	978461	11912.409	pg	99
32) 1,1,2-Trichloroethane	13.95	83	512329	10355.457	pg	98
34) Toluene	14.25	91	2489082	9896.974	pg	98
35) Dibromochloromethane	14.66	129	763245	10453.937	pg	99
36) 1,2-Dibromoethane	14.92	107	702683	10695.284	pg	98
37) Tetrachloroethene	15.40	166	716553	9994.295	pg	97
39) Chlorobenzene	16.10	112	1726053	9662.117	pg	99
40) Ethylbenzene	16.48	91	2900180	9703.558	pg	97
41) m,p-Xylene	16.66	91	4569420	19607.765	pg	96
42) Styrene	17.01	104	1956671	10958.970	pg	99
43) o-Xylene	17.12	106	1145204	9885.142	pg	94
44) 1,1,2,2-Tetrachloroethane	17.09	83	1109802	10028.666	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2625354	10444.468	pg	95
47) 1,2,4-Trimethylbenzene	18.77	105	2748808	10862.585	pg	96
48) 1,3-Dichlorobenzene	18.92	146	1560654	11229.703	pg	99
49) 1,4-Dichlorobenzene	18.98	146	1533759	10457.358	pg	99
50) 1,2-Dichlorobenzene	19.31	146	1496849	10678.574	pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	578263	11465.174	pg	85
52) 1,2,4-Trichlorobenzene	20.94	182	1006015	10109.006	pg	98
53) Naphthalene	21.06	128	3553258	11159.291	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

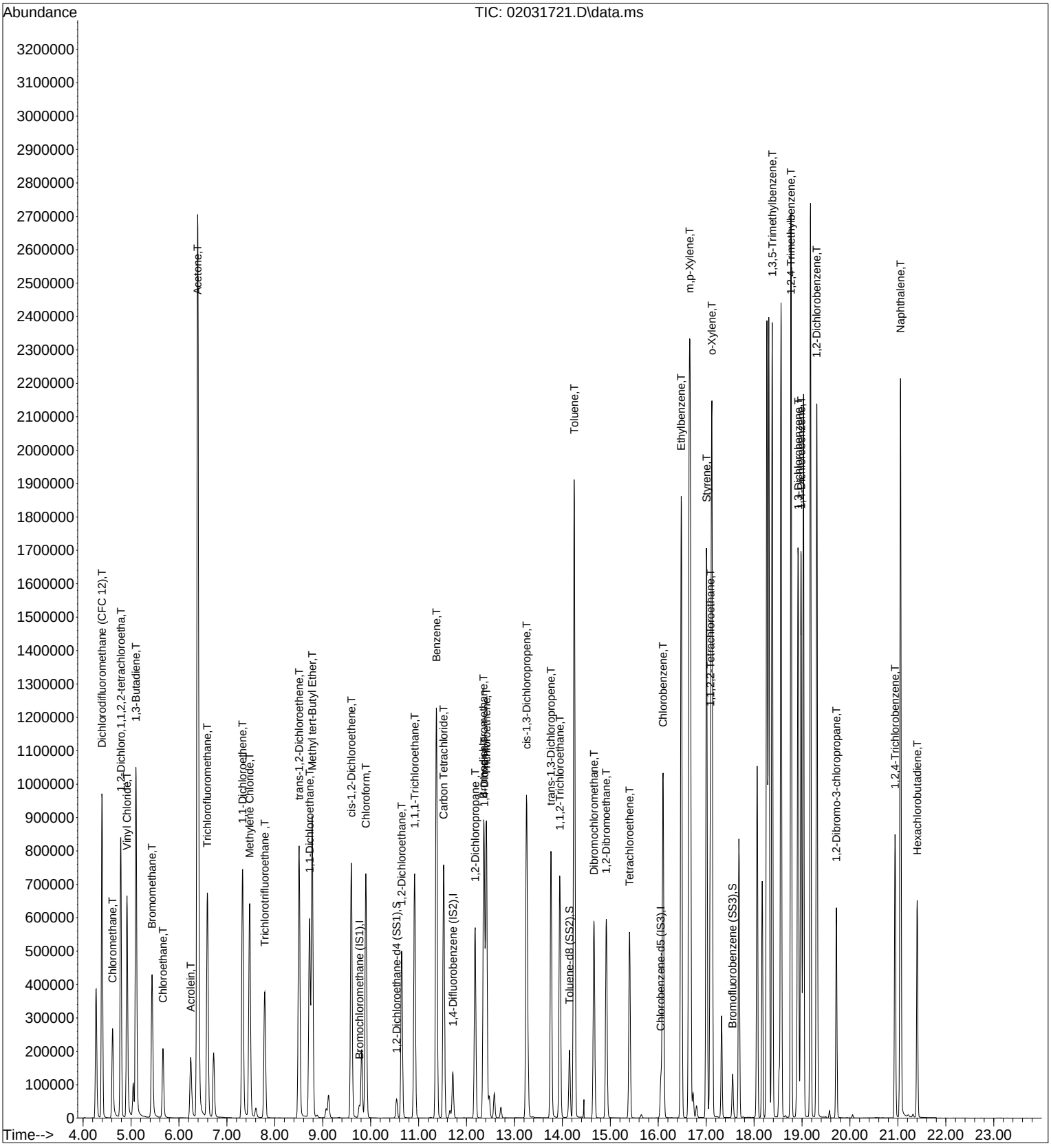
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	620599	9570.217	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	57143	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	287880	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	59542	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	95188	1062.470	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.25%				
33) Toluene-d8 (SS2)	14.15	98	291193	1006.202	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%				
45) Bromofluorobenzene (SS3)	17.55	174	105472	828.912	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.89%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	5785852	42885.113	pg		97
3) Chloromethane	4.62	52	1398966	46358.918	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5739405	45061.199	pg		97
5) Vinyl Chloride	4.92	62	5611305	47129.314	pg		98
6) 1,3-Butadiene	5.11	54	4972791	68557.146	pg		97
7) Bromomethane	5.45	94	2242432	47505.956	pg		98
8) Chloroethane	5.68	64	1823357	48551.766	pg		99
9) Acrolein	6.26	56	1584820	51332.195	pg		95
10) Acetone	6.42	58	11074045	288983.384	pg	#	68
11) Trichlorofluoromethane	6.60	101	5154084	49640.073	pg		98
12) 1,1-Dichloroethene	7.33	96	3100490	50918.824	pg		96
13) Methylene Chloride	7.49	84	3197690	50949.839	pg		94
14) Trichlorotrifluoroethane	7.80	151	3143237	50271.434	pg		98
15) trans-1,2-Dichloroethene	8.52	96	3284229	53365.751	pg		96
16) 1,1-Dichloroethane	8.74	63	5286862	49509.714	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10215229	52068.761	pg		98
18) cis-1,2-Dichloroethene	9.61	96	3530359	53248.804	pg		98
19) Chloroform	9.92	83	5755905	49867.696	pg		98
21) 1,2-Dichloroethane	10.66	62	4591713	54059.366	pg		98
22) 1,1,1-Trichloroethane	10.93	97	5614278	51628.624	pg		98
23) Benzene	11.38	78	12742886	50810.575	pg		99
24) Carbon Tetrachloride	11.53	117	5114307	50496.742	pg		98
26) 1,2-Dichloropropane	12.19	63	3317899	51780.486	pg		99
27) Bromodichloromethane	12.37	83	5066866	54251.102	pg		98
28) Trichloroethene	12.42	130	3706139	50373.607	pg		98
29) 1,4-Dioxane	12.38	88	3023747	53898.669	pg		100
30) cis-1,3-Dichloropropene	13.26	75	6387384	61329.827	pg		97
31) trans-1,3-Dichloropropene	13.77	75	5429946	60288.651	pg		98
32) 1,1,2-Trichloroethane	13.95	83	2864504	52802.413	pg		98
34) Toluene	14.25	91	13484447	48896.791	pg		91
35) Dibromochloromethane	14.66	129	4334489	54142.439	pg		98
36) 1,2-Dibromoethane	14.92	107	3863171	53624.195	pg		97
37) Tetrachloroethene	15.41	166	4118777	52390.929	pg		95
39) Chlorobenzene	16.10	112	9535266	42407.607	pg		95
40) Ethylbenzene	16.49	91	15733577	41824.074	pg		89
41) m,p-Xylene	16.66	91	25730893	87723.242	pg		86
42) Styrene	17.02	104	10905490	48527.726	pg		100
43) o-Xylene	17.12	106	7113888	48786.525	pg	#	85
44) 1,1,2,2-Tetrachloroethane	17.09	83	6555121	47062.087	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	14355154	45373.172	pg		86
47) 1,2,4-Trimethylbenzene	18.77	105	15836347	49720.625	pg	#	83
48) 1,3-Dichlorobenzene	18.92	146	9217533	52694.967	pg		96
49) 1,4-Dichlorobenzene	18.99	146	8766449	47487.726	pg		96
50) 1,2-Dichlorobenzene	19.31	146	9516818	53941.107	pg		96
51) 1,2-Dibromo-3-chloropr...	19.72	157	3123646	49205.071	pg		87
52) 1,2,4-Trichlorobenzene	20.94	182	5596696	44681.578	pg		98
53) Naphthalene	21.05	128	17298313	43162.481	pg		87

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

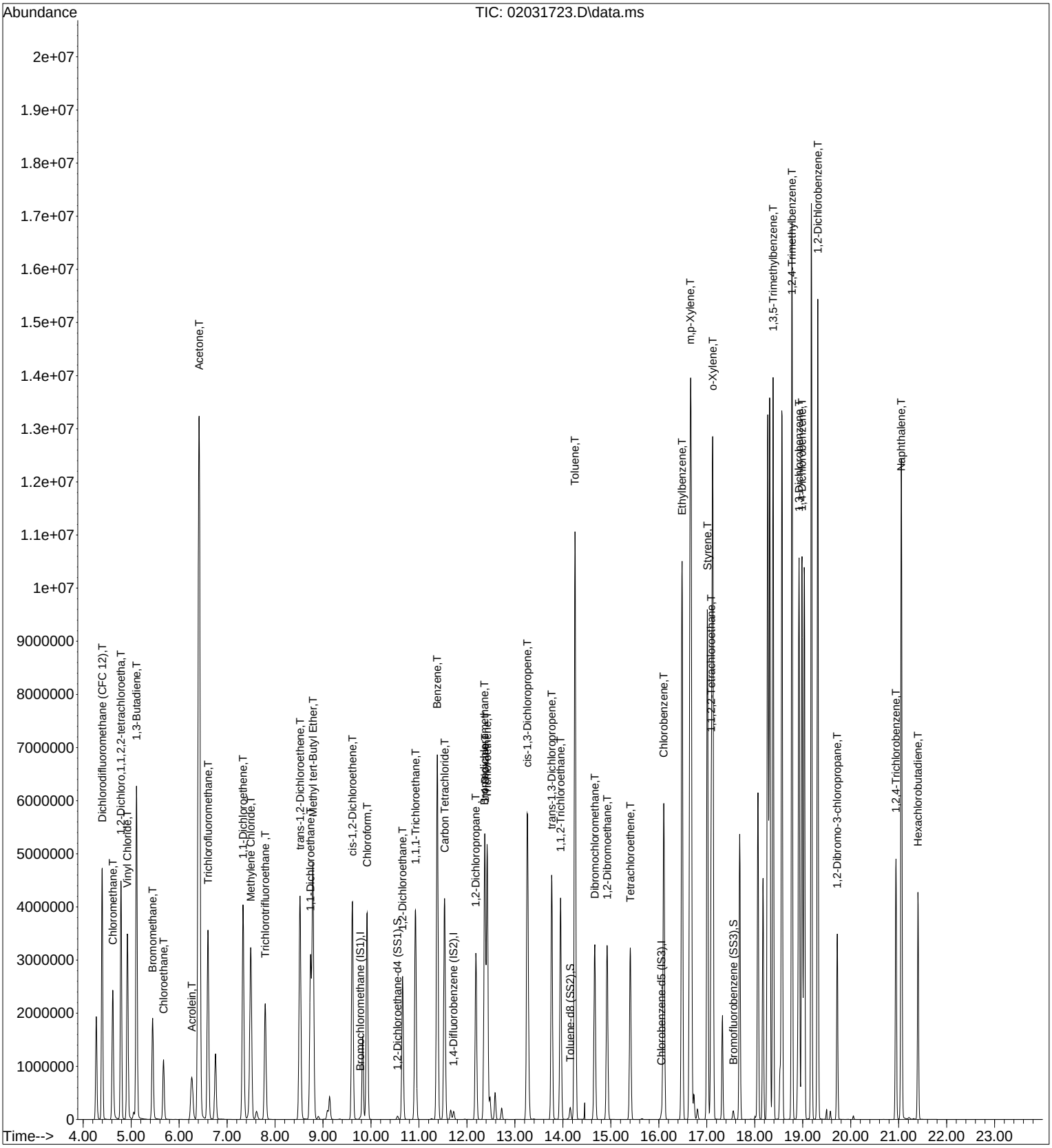
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3759798	46064.678	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	48649	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	243981	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	43674	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	85172	1002.745	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.27%			
33) Toluene-d8 (SS2)	14.15	98	249815	1004.516	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.45%			
45) Bromofluorobenzene (SS3)	17.55	174	79948	1001.382	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.14%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	74191	608.866	pg	100
3) Chloromethane	4.65	52	18992	672.459	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	65609	564.993	pg	100
5) Vinyl Chloride	4.95	62	64487	608.290	pg	100
6) 1,3-Butadiene	5.14	54	47807	632.471	pg	96
7) Bromomethane	5.47	94	25386	588.321	pg	99
8) Chloroethane	5.69	64	20334	604.378	pg	98
9) Acrolein	6.26	56	14183	514.149	pg	89
10) Acetone	6.39	58	132546	3674.155	pg	95
11) Trichlorofluoromethane	6.61	101	55317	595.753	pg	100
12) 1,1-Dichloroethene	7.34	96	31319	602.580	pg	100
13) Methylene Chloride	7.47	84	32790	578.656	pg	100
14) Trichlorotrifluoroethane	7.79	151	30453	591.818	pg	99
15) trans-1,2-Dichloroethene	8.51	96	33770	625.703	pg	100
16) 1,1-Dichloroethane	8.71	63	58745	608.625	pg	99
17) Methyl tert-Butyl Ether	8.79	73	105598	612.528	pg	99
18) cis-1,2-Dichloroethene	9.59	96	35529	614.797	pg	99
19) Chloroform	9.89	83	60519	579.070	pg	100
21) 1,2-Dichloroethane	10.64	62	47917	610.409	pg	99
22) 1,1,1-Trichloroethane	10.91	97	56941	598.022	pg	100
23) Benzene	11.36	78	140166	622.726	pg	100
24) Carbon Tetrachloride	11.52	117	49812	578.829	pg	100
26) 1,2-Dichloropropane	12.18	63	32322	594.001	pg	100
27) Bromodichloromethane	12.36	83	46329	589.802	pg	100
28) Trichloroethene	12.41	130	35149	596.086	pg	100
29) 1,4-Dioxane	12.38	88	27518	588.664	pg	99
30) cis-1,3-Dichloropropene	13.25	75	50858	589.870	pg	99
31) trans-1,3-Dichloropropene	13.77	75	45180	599.600	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27109	598.192	pg	100
34) Toluene	14.25	91	134232	571.789	pg	100
35) Dibromochloromethane	14.66	129	35101	564.417	pg	100
36) 1,2-Dibromoethane	14.92	107	34779	593.252	pg	99
37) Tetrachloroethene	15.40	166	35907	583.652	pg	99
39) Chlorobenzene	16.10	112	89152	594.856	pg	100
40) Ethylbenzene	16.48	91	153915	607.214	pg	100
41) m,p-Xylene	16.66	91	237278	1203.145	pg	100
42) Styrene	17.01	104	85349	589.297	pg	99
43) o-Xylene	17.12	106	56834	585.325	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	53922	573.055	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	124481	579.543	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	125829	588.525	pg	100
48) 1,3-Dichlorobenzene	18.92	146	68341	590.369	pg	100
49) 1,4-Dichlorobenzene	18.98	146	69385	577.791	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66540	573.135	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20455	546.093	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	39982	525.010	pg	100
53) Naphthalene	21.06	128	144250	569.655	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

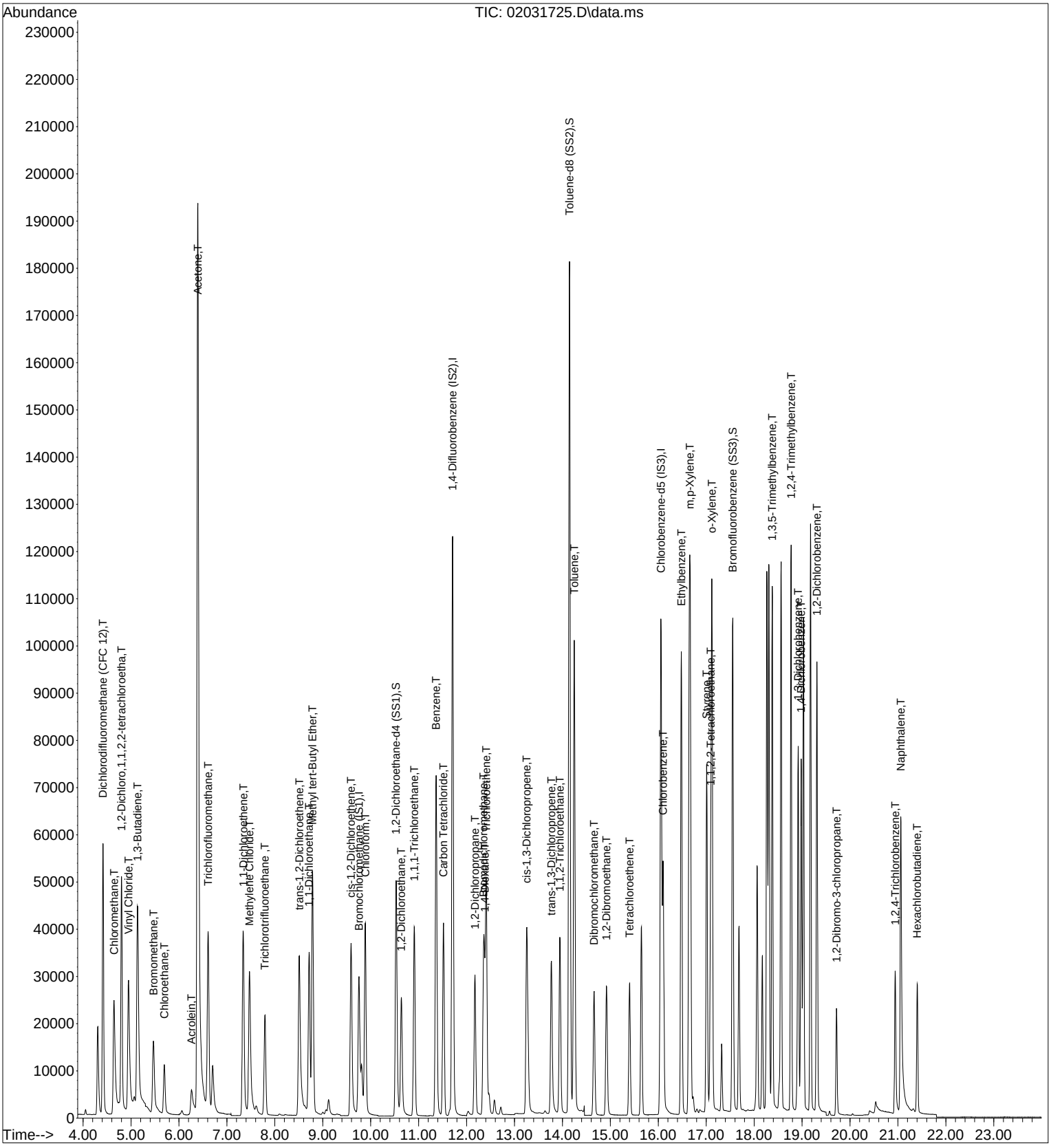
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	27038	556.826	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 02031725.D
Data File Path: I:\MS19\DATA\2017_02\03\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-01241701/S29-01271703 (2/25)
Date Acquired: 2/3/17 21:06
Acq. Method File: TO15SIM.M

CL 2/13/17

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.41	525	608.9	116.0	70	130	*
3)	Chloromethane	4.65	524.5	672.5	128.2	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.80	527.5	565.0	107.1	70	130	*
5)	Vinyl Chloride	4.95	525	608.3	115.9	70	130	*
6)	*1,3-Butadiene*	5.14	525	632.5	120.5	70	130	*
7)	Bromomethane	5.47	525	588.3	112.1	70	130	*
8)	Chloroethane	5.69	524.5	604.4	115.2	70	130	*
9)	*Acrolein*	6.26	530.5	514.1	96.9	70	130	*
10)	Acetone	6.39	2661	3674.2	138.1	70	130	Fail
11)	Trichlorofluoromethane	6.61	525.5	595.8	113.4	70	130	*
12)	1,1-Dichloroethene	7.34	531.5	602.6	113.4	70	130	*
13)	Methylene Chloride	7.47	531	578.7	109.0	70	130	*
14)	Trichlorotrifluoroethane	7.79	529	591.8	111.9	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	625.7	117.3	70	130	*
16)	1,1-Dichloroethane	8.71	531	608.6	114.6	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	612.5	115.1	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	614.8	116.1	70	130	*
19)	Chloroform	9.89	529.5	579.1	109.4	70	130	*
21)	1,2-Dichloroethane	10.64	530	610.4	115.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	598.0	112.9	70	130	*
25)	Benzene	11.36	530.5	622.7	117.4	70	130	*
24)	Carbon Tetrachloride	11.52	532	578.8	108.8	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	594.0	112.0	70	130	*
27)	Bromodichloromethane	12.36	534	589.8	110.4	70	130	*
28)	Trichloroethene	12.41	531	596.1	112.3	70	130	*
29)	1,4-Dioxane	12.38	532	588.7	110.7	70	130	*
30)	cis-1,3-Dichloropropene	13.25	525.5	589.9	112.2	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	599.6	112.4	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	598.2	112.8	70	130	*
34)	Toluene	14.15	529	571.8	108.1	70	130	*
35)	*Dibromochloromethane*	14.66	532	564.4	106.1	70	130	*
36)	1,2-Dibromoethane	14.92	529	593.3	112.1	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	594.9	112.2	70	130	*
40)	Ethylbenzene	16.48	529	607.2	114.8	70	130	*
41)	m,p-Xylene	16.66	1060.5	1203.1	113.5	70	130	*
42)	*Styrene*	17.01	529.5	589.3	111.3	70	130	*
43)	o-Xylene	17.12	529	585.3	110.6	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	573.1	108.1	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	579.5	109.2	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	588.5	110.9	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	590.4	111.5	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	577.8	108.4	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	573.1	107.9	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	546.1	103.1	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	525.0	99.1	70	130	*
53)	Naphthalene	19.31	534	569.7	106.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	556.8	104.8	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	95	-0.02
2	T	Dichlorodifluoromethane (CF	2.361	2.318	1.8	94	0.03
3	T	Chloromethane	0.528	0.546	-3.4	104	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.229	2.172	2.6	93	0.02
5	T	Vinyl Chloride	2.084	1.982	4.9	93	0.04
6	T	1,3-Butadiene	1.269	1.269	0.0	105	0.03
7	T	Bromomethane	0.826	0.804	2.7	93	0.03
8	T	Chloroethane	0.657	0.631	4.0	92	0.03
9	T	Acrolein	0.540	0.445	17.6	87	0.00
10	T	Acetone	0.671	0.613	8.6	90	-0.02
11	T	Trichlorofluoromethane	1.817	1.747	3.9	93	0.01
12	T	1,1-Dichloroethene	1.066	0.994	6.8	90	0.00
13	T	Methylene Chloride	1.098	1.030	6.2	92	-0.02
14	T	Trichlorotrifluoroethane	1.094	1.002	8.4	89	0.00
15	T	trans-1,2-Dichloroethene	1.077	1.072	0.5	93	0.00
16	T	1,1-Dichloroethane	1.869	1.810	3.2	91	-0.02
17	T	Methyl tert-Butyl Ether	3.433	3.258	5.1	90	0.00
18	T	cis-1,2-Dichloroethene	1.160	1.122	3.3	90	-0.02
19	T	Chloroform	2.020	1.940	4.0	93	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.568	1.575	-0.4	93	-0.02
21	T	1,2-Dichloroethane	1.486	1.444	2.8	94	-0.02
22	T	1,1,1-Trichloroethane	1.903	1.832	3.7	92	-0.02
23	T	Benzene	4.389	4.079	7.1	90	-0.01
24	T	Carbon Tetrachloride	1.772	1.677	5.4	93	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	92	-0.01
26	T	1,2-Dichloropropane	0.223	0.208	6.7	90	-0.01
27	T	Bromodichloromethane	0.324	0.306	5.6	91	-0.01
28	T	Trichloroethene	0.256	0.245	4.3	91	-0.01
29	T	1,4-Dioxane	0.195	0.185	5.1	90	0.00
30	T	cis-1,3-Dichloropropene	0.362	0.336	7.2	89	0.00
31	T	trans-1,3-Dichloropropene	0.313	0.294	6.1	89	0.00
32	T	1,1,2-Trichloroethane	0.188	0.179	4.8	91	0.00
33	S	Toluene-d8 (SS2)	1.005	1.012	-0.7	92	-0.01
34	T	Toluene	0.958	0.879	8.2	90	0.00
35	T	Dibromochloromethane	0.278	0.255	8.3	89	0.00
36	T	1,2-Dibromoethane	0.250	0.238	4.8	90	0.00
37	T	Tetrachloroethene	0.273	0.256	6.2	90	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	94	0.00
39	T	Chlorobenzene	3.776	3.570	5.5	90	0.00
40	T	Ethylbenzene	6.318	6.075	3.8	89	0.00
41	T	m,p-Xylene	4.926	4.650	5.6	90	0.00
42	T	Styrene	3.774	3.481	7.8	87	0.00
43	T	o-Xylene	2.449	2.288	6.6	89	0.00
44	T	1,1,2,2-Tetrachloroethane	2.339	2.182	6.7	90	0.00
45	S	Bromofluorobenzene (SS3)	2.137	2.044	4.4	89	0.00
46	T	1,3,5-Trimethylbenzene	5.314	5.088	4.3	90	0.00
47	T	1,2,4-Trimethylbenzene	5.349	5.096	4.7	89	0.00
48	T	1,3-Dichlorobenzene	2.938	2.834	3.5	90	0.00
49	T	1,4-Dichlorobenzene	3.100	2.825	8.9	88	0.00
50	T	1,2-Dichlorobenzene	2.963	2.754	7.1	89	0.00
51	T	1,2-Dibromo-3-chloropropane	1.066	0.938	12.0	85	0.00
52	T	1,2,4-Trichlorobenzene	2.104	1.811	13.9	87	0.00
53	T	Naphthalene	6.731	5.928	11.9	87	0.00
54	T	Hexachlorobutadiene	1.371	1.230	10.3	87	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/2/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	42362	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	202980	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	33966	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	66734	1004.773	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.48%			
33) Toluene-d8 (SS2)	14.14	98	205455	1006.883	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.69%			
45) Bromofluorobenzene (SS3)	17.55	174	69411	956.266	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.63%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.43	85	51398	513.892	pg	100
3) Chloromethane	4.66	52	11628	519.778	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	46229	489.595	pg	100
5) Vinyl Chloride	4.96	62	42952	486.628	pg	100
6) 1,3-Butadiene	5.15	54	28414	528.411	pg	98
7) Bromomethane	5.48	94	16920	483.521	pg	99
8) Chloroethane	5.71	64	13496	484.758	pg	99
9) Acrolein	6.28	56	9818	428.963	pg	89
10) Acetone	6.40	58	68965	2427.627	pg	97
11) Trichlorofluoromethane	6.62	101	38812	504.236	pg	100
12) 1,1-Dichloroethene	7.35	96	22286	493.704	pg	100
13) Methylene Chloride	7.48	84	23066	495.753	pg	99
14) Trichlorotrifluoroethane	7.80	151	22267	480.388	pg	100
15) trans-1,2-Dichloroethene	8.52	96	24226	531.004	pg	99
16) 1,1-Dichloroethane	8.72	63	39102	493.944	pg	100
17) Methyl tert-Butyl Ether	8.79	73	73571	505.851	pg	100
18) cis-1,2-Dichloroethene	9.59	96	25288	514.508	pg	100
19) Chloroform	9.89	83	43477	508.103	pg	100
21) 1,2-Dichloroethane	10.64	62	32186	511.152	pg	100
22) 1,1,1-Trichloroethane	10.91	97	41686	517.099	pg	100
23) Benzene	11.37	78	90879	488.806	pg	100
24) Carbon Tetrachloride	11.52	117	37464	498.973	pg	100
26) 1,2-Dichloropropane	12.18	63	22400	495.803	pg	99
27) Bromodichloromethane	12.36	83	33119	502.927	pg	100
28) Trichloroethene	12.41	130	26386	508.643	pg	100
29) 1,4-Dioxane	12.38	88	19990	505.363	pg	99
30) cis-1,3-Dichloropropene	13.25	75	38100	518.838	pg	99
31) trans-1,3-Dichloropropene	13.77	75	31767	500.235	pg	100
32) 1,1,2-Trichloroethane	13.95	83	19308	504.777	pg	99
34) Toluene	14.25	91	93900	482.915	pg	100
35) Dibromochloromethane	14.66	129	27439	486.101	pg	100
36) 1,2-Dibromoethane	14.92	107	25541	502.821	pg	99
37) Tetrachloroethene	15.40	166	27578	497.518	pg	99
39) Chlorobenzene	16.10	112	64320	501.460	pg	100
40) Ethylbenzene	16.48	91	108852	507.241	pg	99
41) m,p-Xylene	16.66	91	167666	1002.037	pg	99
42) Styrene	17.01	104	62719	489.241	pg	100
43) o-Xylene	17.12	106	40951	492.307	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	39138	492.570	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	90648	502.260	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	91052	501.130	pg	99
48) 1,3-Dichlorobenzene	18.92	146	50927	510.366	pg	100
49) 1,4-Dichlorobenzene	18.98	146	50752	481.937	pg	100
50) 1,2-Dichlorobenzene	19.31	146	49486	491.688	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	16774	463.195	pg	95
52) 1,2,4-Trichlorobenzene	20.95	182	32073	448.865	pg	99
53) Naphthalene	21.06	128	109025	476.879	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

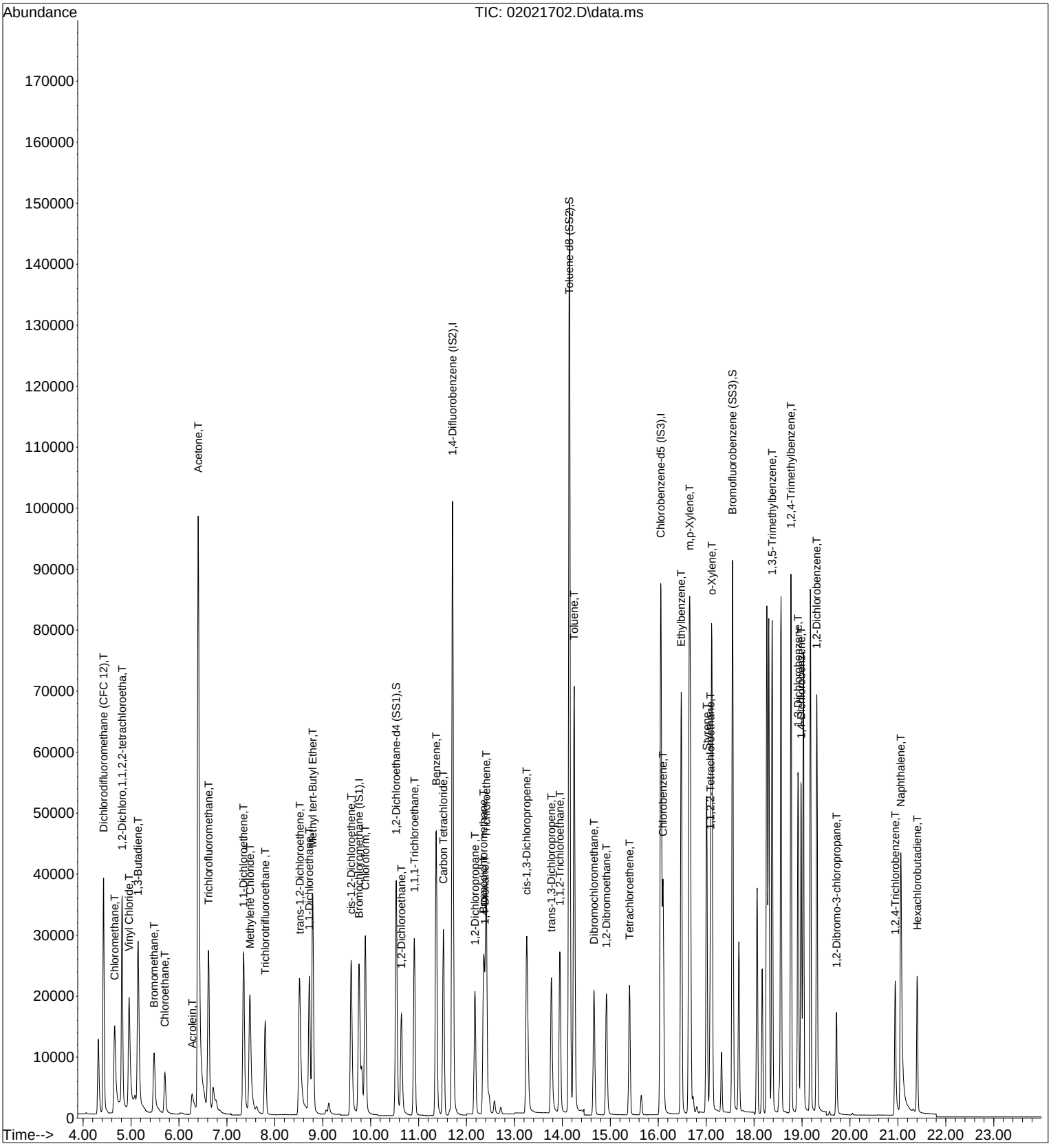
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	22126	475.210	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\01\02021702.D Vial: 13
Acq On : 2 Feb 2017 2:54 Operator: CL
Sample : CCV S19020217 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 02 07:12:25 2017
Quant Method : I:\MS19\METHODS\S19013117.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Feb 01 07:44:10 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	108	-0.02
2	T	Dichlorodifluoromethane (CF	2.505	2.381	5.0	104	0.03
3	T	Chloromethane	0.581	0.521	10.3	94	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.387	2.250	5.7	104	0.03
5	T	Vinyl Chloride	2.179	2.004	8.0	101	0.04
6	T	1,3-Butadiene	1.554	1.470	5.4	104	0.04
7	T	Bromomethane	0.887	0.804	9.4	102	0.03
8	T	Chloroethane	0.692	0.626	9.5	102	0.03
9	T	Acrolein	0.567	0.449	20.8	99	0.01
10	T	Acetone	0.742	0.625	15.8	102	-0.01
11	T	Trichlorofluoromethane	1.909	1.780	6.8	105	0.01
12	T	1,1-Dichloroethene	1.068	0.991	7.2	103	0.02
13	T	Methylene Chloride	1.165	1.033	11.3	103	-0.01
14	T	Trichlorotrifluoroethane	1.058	0.966	8.7	106	0.00
15	T	trans-1,2-Dichloroethene	1.109	1.061	4.3	104	0.00
16	T	1,1-Dichloroethane	1.984	1.830	7.8	102	-0.02
17	T	Methyl tert-Butyl Ether	3.544	3.300	6.9	104	0.00
18	T	cis-1,2-Dichloroethene	1.188	1.132	4.7	105	-0.02
19	T	Chloroform	2.148	1.977	8.0	106	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.746	1.735	0.6	107	-0.02
21	T	1,2-Dichloroethane	1.614	1.477	8.5	101	-0.02
22	T	1,1,1-Trichloroethane	1.957	1.830	6.5	105	-0.02
23	T	Benzene	4.627	4.147	10.4	102	-0.01
24	T	Carbon Tetrachloride	1.769	1.633	7.7	106	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	105	-0.01
26	T	1,2-Dichloropropane	0.223	0.205	8.1	101	-0.01
27	T	Bromodichloromethane	0.322	0.301	6.5	104	-0.01
28	T	Trichloroethene	0.242	0.232	4.1	106	-0.01
29	T	1,4-Dioxane	0.192	0.181	5.7	104	0.00
30	T	cis-1,3-Dichloropropene	0.353	0.327	7.4	104	0.00
31	T	trans-1,3-Dichloropropene	0.309	0.286	7.4	104	0.00
32	T	1,1,2-Trichloroethane	0.186	0.177	4.8	104	0.00
33	S	Toluene-d8 (SS2)	1.019	1.021	-0.2	104	0.00
34	T	Toluene	0.962	0.865	10.1	103	0.00
35	T	Dibromochloromethane	0.255	0.236	7.5	106	0.00
36	T	1,2-Dibromoethane	0.240	0.228	5.0	105	0.00
37	T	Tetrachloroethene	0.252	0.236	6.3	106	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	100	0.00
39	T	Chlorobenzene	3.432	3.317	3.4	104	0.00
40	T	Ethylbenzene	5.804	5.732	1.2	104	0.00
41	T	m,p-Xylene	4.516	4.383	2.9	103	0.00
42	T	Styrene	3.316	3.159	4.7	103	0.00
43	T	o-Xylene	2.223	2.136	3.9	104	0.00
44	T	1,1,2,2-Tetrachloroethane	2.155	2.070	3.9	103	0.00
45	S	Bromofluorobenzene (SS3)	1.828	1.870	-2.3	105	0.00
46	T	1,3,5-Trimethylbenzene	4.918	4.725	3.9	103	0.00
47	T	1,2,4-Trimethylbenzene	4.895	4.757	2.8	104	0.00
48	T	1,3-Dichlorobenzene	2.651	2.517	5.1	104	0.00
49	T	1,4-Dichlorobenzene	2.750	2.498	9.2	103	0.00
50	T	1,2-Dichlorobenzene	2.658	2.471	7.0	104	0.00
51	T	1,2-Dibromo-3-chloropropane	0.858	0.812	5.4	108	0.00
52	T	1,2,4-Trichlorobenzene	1.744	1.523	12.7	104	0.00
53	T	Naphthalene	5.798	4.996	13.8	100	0.01
54	T	Hexachlorobutadiene	1.112	1.065	4.2	106	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	54422	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	264473	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	45785	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	94439	993.904	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.39%			
33) Toluene-d8 (SS2)	14.15	98	269916	1001.248	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.13%			
45) Bromofluorobenzene (SS3)	17.55	174	85620	1022.980	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	67839	497.679	pg	100
3) Chloromethane	4.66	52	14248	450.971	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	61541	473.744	pg	100
5) Vinyl Chloride	4.96	62	55786	470.395	pg	100
6) 1,3-Butadiene	5.15	54	42266	499.850	pg	93
7) Bromomethane	5.48	94	21730	450.173	pg	98
8) Chloroethane	5.71	64	17195	456.864	pg	100
9) Acrolein	6.27	56	12730	412.524	pg	91
10) Acetone	6.40	58	90420	2240.550	pg	98
11) Trichlorofluoromethane	6.62	101	50821	489.272	pg	100
12) 1,1-Dichloroethene	7.35	96	28549	491.018	pg	97
13) Methylene Chloride	7.48	84	29704	468.590	pg	96
14) Trichlorotrifluoroethane	7.80	151	27563	478.833	pg	99
15) trans-1,2-Dichloroethene	8.52	96	30814	510.369	pg	100
16) 1,1-Dichloroethane	8.72	63	50790	470.388	pg	100
17) Methyl tert-Butyl Ether	8.79	73	95734	496.405	pg	99
18) cis-1,2-Dichloroethene	9.59	96	32762	506.779	pg	99
19) Chloroform	9.89	83	56903	486.714	pg	100
21) 1,2-Dichloroethane	10.64	62	42280	481.466	pg	100
22) 1,1,1-Trichloroethane	10.91	97	53485	502.138	pg	100
23) Benzene	11.37	78	118718	471.488	pg	100
24) Carbon Tetrachloride	11.52	117	46879	486.961	pg	100
26) 1,2-Dichloropropane	12.18	63	28763	487.639	pg	99
27) Bromodichloromethane	12.36	83	42377	497.689	pg	100
28) Trichloroethene	12.41	130	32541	509.098	pg	99
29) 1,4-Dioxane	12.38	88	25484	502.913	pg	97
30) cis-1,3-Dichloropropene	13.26	75	48313	516.935	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40232	492.563	pg	100
32) 1,1,2-Trichloroethane	13.95	83	24777	504.372	pg	99
34) Toluene	14.25	91	120409	473.166	pg	100
35) Dibromochloromethane	14.66	129	33102	491.032	pg	100
36) 1,2-Dibromoethane	14.92	107	31777	500.046	pg	99
37) Tetrachloroethene	15.40	166	33146	497.028	pg	100
39) Chlorobenzene	16.10	112	80571	512.813	pg	100
40) Ethylbenzene	16.48	91	138432	520.952	pg	100
41) m,p-Xylene	16.66	91	212998	1030.234	pg	99
42) Styrene	17.01	104	76738	505.412	pg	99
43) o-Xylene	17.12	106	51530	506.231	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	50051	507.391	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	113465	503.900	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	114562	511.122	pg	100
48) 1,3-Dichlorobenzene	18.92	146	60971	502.418	pg	100
49) 1,4-Dichlorobenzene	18.98	146	60513	480.677	pg	100
50) 1,2-Dichlorobenzene	19.31	146	59838	491.645	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19563	498.198	pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	36358	455.411	pg	99
53) Naphthalene	21.06	128	123870	466.619	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

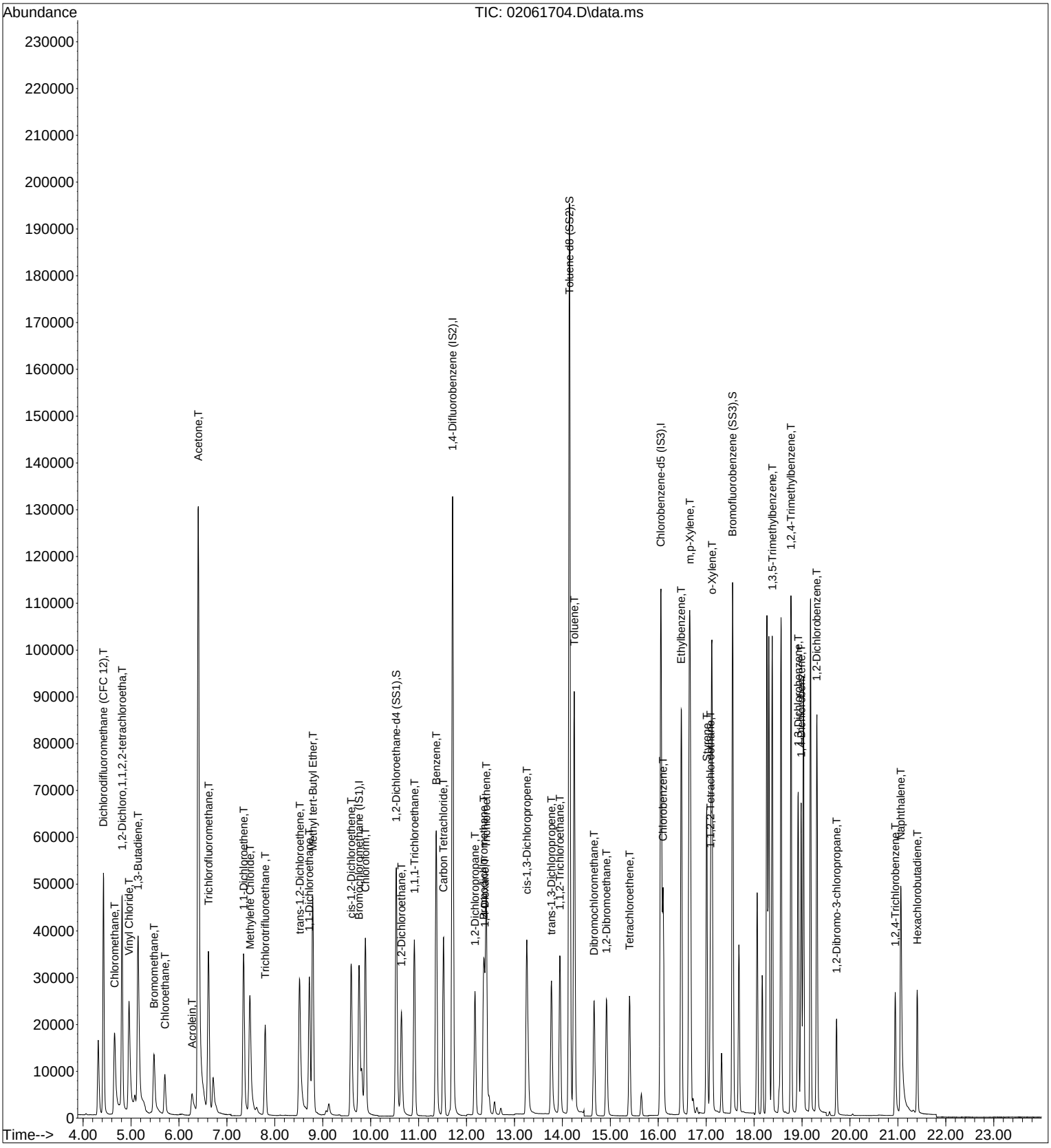
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	25824	507.304	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	109	-0.02
2	T	Dichlorodifluoromethane (CF	2.505	2.192	12.5	96	0.02
3	T	Chloromethane	0.581	0.479	17.6	87	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.387	2.144	10.2	100	0.02
5	T	Vinyl Chloride	2.179	1.909	12.4	96	0.03
6	T	1,3-Butadiene	1.554	1.348	13.3	96	0.03
7	T	Bromomethane	0.887	0.807	9.0	103	0.03
8	T	Chloroethane	0.692	0.602	13.0	98	0.02
9	T	Acrolein	0.567	0.424	25.2	93	0.00
10	T	Acetone	0.742	0.592	20.2	97	-0.02
11	T	Trichlorofluoromethane	1.909	1.711	10.4	101	0.01
12	T	1,1-Dichloroethene	1.068	0.957	10.4	100	0.01
13	T	Methylene Chloride	1.165	0.984	15.5	98	-0.02
14	T	Trichlorotrifluoroethane	1.058	0.964	8.9	106	0.00
15	T	trans-1,2-Dichloroethene	1.109	1.018	8.2	100	0.00
16	T	1,1-Dichloroethane	1.984	1.703	14.2	95	-0.02
17	T	Methyl tert-Butyl Ether	3.544	3.088	12.9	97	0.00
18	T	cis-1,2-Dichloroethene	1.188	1.082	8.9	101	-0.02
19	T	Chloroform	2.148	1.823	15.1	98	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.746	1.583	9.3	98	-0.02
21	T	1,2-Dichloroethane	1.614	1.362	15.6	93	-0.02
22	T	1,1,1-Trichloroethane	1.957	1.710	12.6	98	-0.02
23	T	Benzene	4.627	3.916	15.4	97	-0.02
24	T	Carbon Tetrachloride	1.769	1.542	12.8	101	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	107	-0.01
26	T	1,2-Dichloropropane	0.223	0.190	14.8	95	-0.01
27	T	Bromodichloromethane	0.322	0.271	15.8	95	-0.01
28	T	Trichloroethene	0.242	0.227	6.2	105	-0.01
29	T	1,4-Dioxane	0.192	0.171	10.9	100	0.00
30	T	cis-1,3-Dichloropropene	0.353	0.300	15.0	97	0.00
31	T	trans-1,3-Dichloropropene	0.309	0.261	15.5	97	0.00
32	T	1,1,2-Trichloroethane	0.186	0.163	12.4	97	0.00
33	S	Toluene-d8 (SS2)	1.019	1.002	1.7	104	0.00
34	T	Toluene	0.962	0.819	14.9	99	0.00
35	T	Dibromochloromethane	0.255	0.219	14.1	101	0.00
36	T	1,2-Dibromoethane	0.240	0.214	10.8	100	0.00
37	T	Tetrachloroethene	0.252	0.239	5.2	109	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	3.432	3.362	2.0	102	0.00
40	T	Ethylbenzene	5.804	5.654	2.6	98	0.00
41	T	m,p-Xylene	4.516	4.343	3.8	99	0.00
42	T	Styrene	3.316	3.159	4.7	100	0.00
43	T	o-Xylene	2.223	2.164	2.7	101	0.00
44	T	1,1,2,2-Tetrachloroethane	2.155	1.982	8.0	95	0.00
45	S	Bromofluorobenzene (SS3)	1.828	2.087	-14.2	113	0.00
46	T	1,3,5-Trimethylbenzene	4.918	4.748	3.5	100	0.00
47	T	1,2,4-Trimethylbenzene	4.895	4.763	2.7	100	0.00
48	T	1,3-Dichlorobenzene	2.651	2.617	1.3	104	0.00
49	T	1,4-Dichlorobenzene	2.750	2.590	5.8	103	0.00
50	T	1,2-Dichlorobenzene	2.658	2.553	4.0	104	0.00
51	T	1,2-Dibromo-3-chloropropane	0.858	0.805	6.2	103	0.00
52	T	1,2,4-Trichlorobenzene	1.744	1.569	10.0	103	0.00
53	T	Naphthalene	5.798	5.093	12.2	98	0.02
54	T	Hexachlorobutadiene	1.112	1.118	-0.5	108	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	54654	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	268758	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	44086	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	86520	906.697	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.67%			
33) Toluene-d8 (SS2)	14.15	98	269390	983.364	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.34%			
45) Bromofluorobenzene (SS3)	17.55	174	92007	1141.656	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.17%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	62711	458.107	pg	100
3) Chloromethane	4.65	52	13148	414.388	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	58891	451.420	pg	100
5) Vinyl Chloride	4.95	62	53357	448.004	pg	100
6) 1,3-Butadiene	5.14	54	38938	458.537	pg	99
7) Bromomethane	5.48	94	21888	451.521	pg	98
8) Chloroethane	5.70	64	16604	439.289	pg	100
9) Acrolein	6.27	56	12048	388.766	pg	99
10) Acetone	6.40	58	86014	2122.325	pg	95
11) Trichlorofluoromethane	6.61	101	49034	470.064	pg	100
12) 1,1-Dichloroethene	7.35	96	27689	474.205	pg	94
13) Methylene Chloride	7.48	84	28411	446.290	pg	95
14) Trichlorotrifluoroethane	7.80	151	27633	478.011	pg	99
15) trans-1,2-Dichloroethene	8.52	96	29695	489.748	pg	100
16) 1,1-Dichloroethane	8.72	63	47474	437.811	pg	100
17) Methyl tert-Butyl Ether	8.79	73	89961	464.490	pg	99
18) cis-1,2-Dichloroethene	9.59	96	31450	484.419	pg	100
19) Chloroform	9.89	83	52720	449.021	pg	100
21) 1,2-Dichloroethane	10.64	62	39159	444.033	pg	100
22) 1,1,1-Trichloroethane	10.91	97	50177	469.082	pg	100
23) Benzene	11.36	78	112580	445.213	pg	100
24) Carbon Tetrachloride	11.52	117	44450	459.769	pg	100
26) 1,2-Dichloropropane	12.18	63	27060	451.452	pg	100
27) Bromodichloromethane	12.36	83	38806	448.484	pg	100
28) Trichloroethene	12.41	130	32331	497.748	pg	99
29) 1,4-Dioxane	12.38	88	24458	474.970	pg	96
30) cis-1,3-Dichloropropene	13.25	75	45035	474.179	pg	100
31) trans-1,3-Dichloropropene	13.77	75	37345	449.927	pg	99
32) 1,1,2-Trichloroethane	13.95	83	23258	465.902	pg	98
34) Toluene	14.25	91	115868	448.062	pg	99
35) Dibromochloromethane	14.66	129	31323	457.234	pg	100
36) 1,2-Dibromoethane	14.92	107	30431	471.230	pg	100
37) Tetrachloroethene	15.40	166	34072	502.768	pg	97
39) Chlorobenzene	16.10	112	78618	519.667	pg	100
40) Ethylbenzene	16.48	91	131497	513.924	pg	98
41) m,p-Xylene	16.66	91	203241	1020.926	pg	98
42) Styrene	17.01	104	73880	505.341	pg	100
43) o-Xylene	17.12	106	50281	512.997	pg	96
44) 1,1,2,2-Tetrachloroethane	17.09	83	46145	485.822	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	109790	506.370	pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	110450	511.766	pg	98
48) 1,3-Dichlorobenzene	18.92	146	61039	522.363	pg	100
49) 1,4-Dichlorobenzene	18.98	146	60408	498.335	pg	100
50) 1,2-Dichlorobenzene	19.31	146	59533	507.989	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18690	494.309	pg	89
52) 1,2,4-Trichlorobenzene	20.95	182	36067	469.176	pg	98
53) Naphthalene	21.07	128	121585	475.662	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

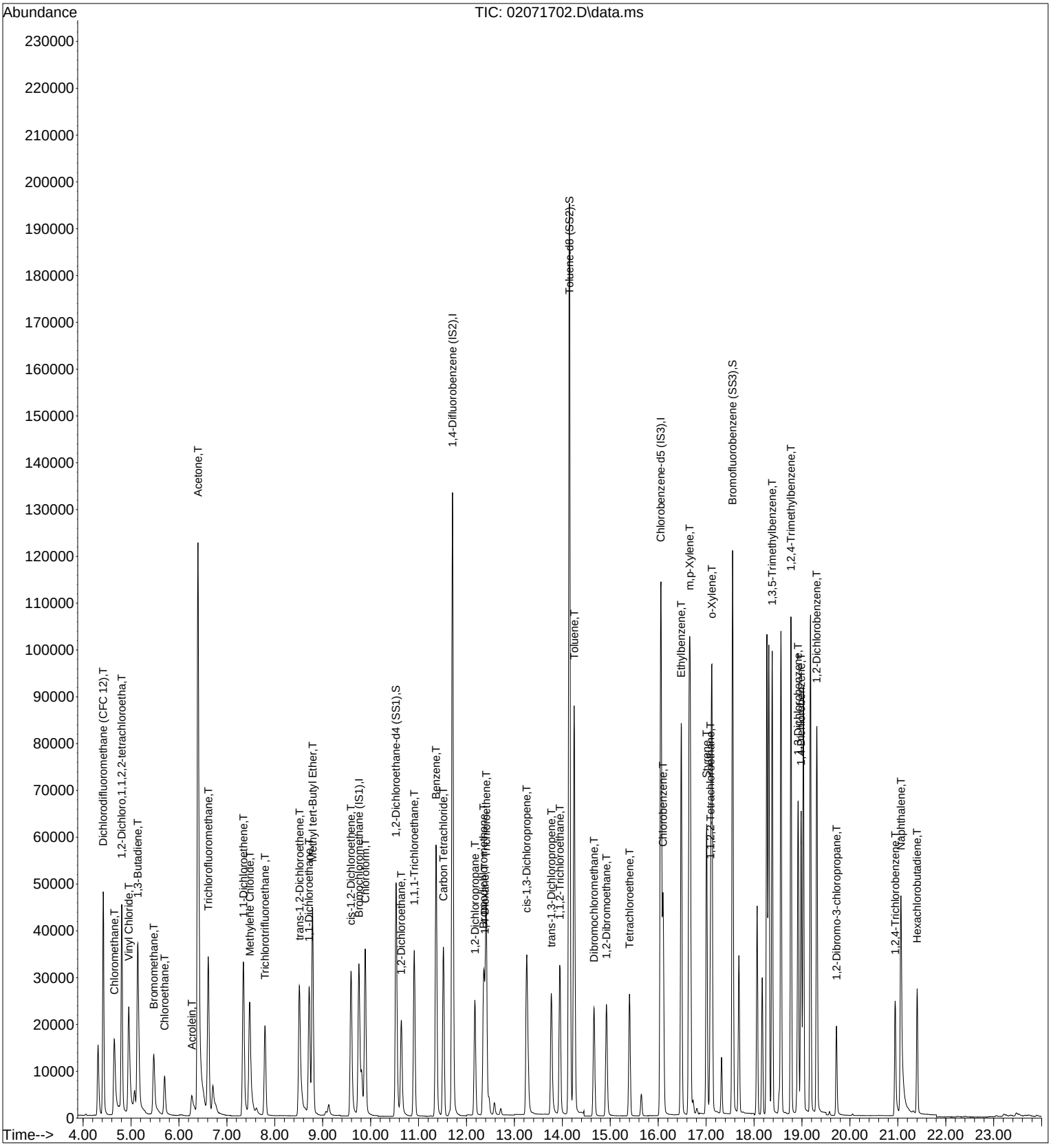
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26094	532.363	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



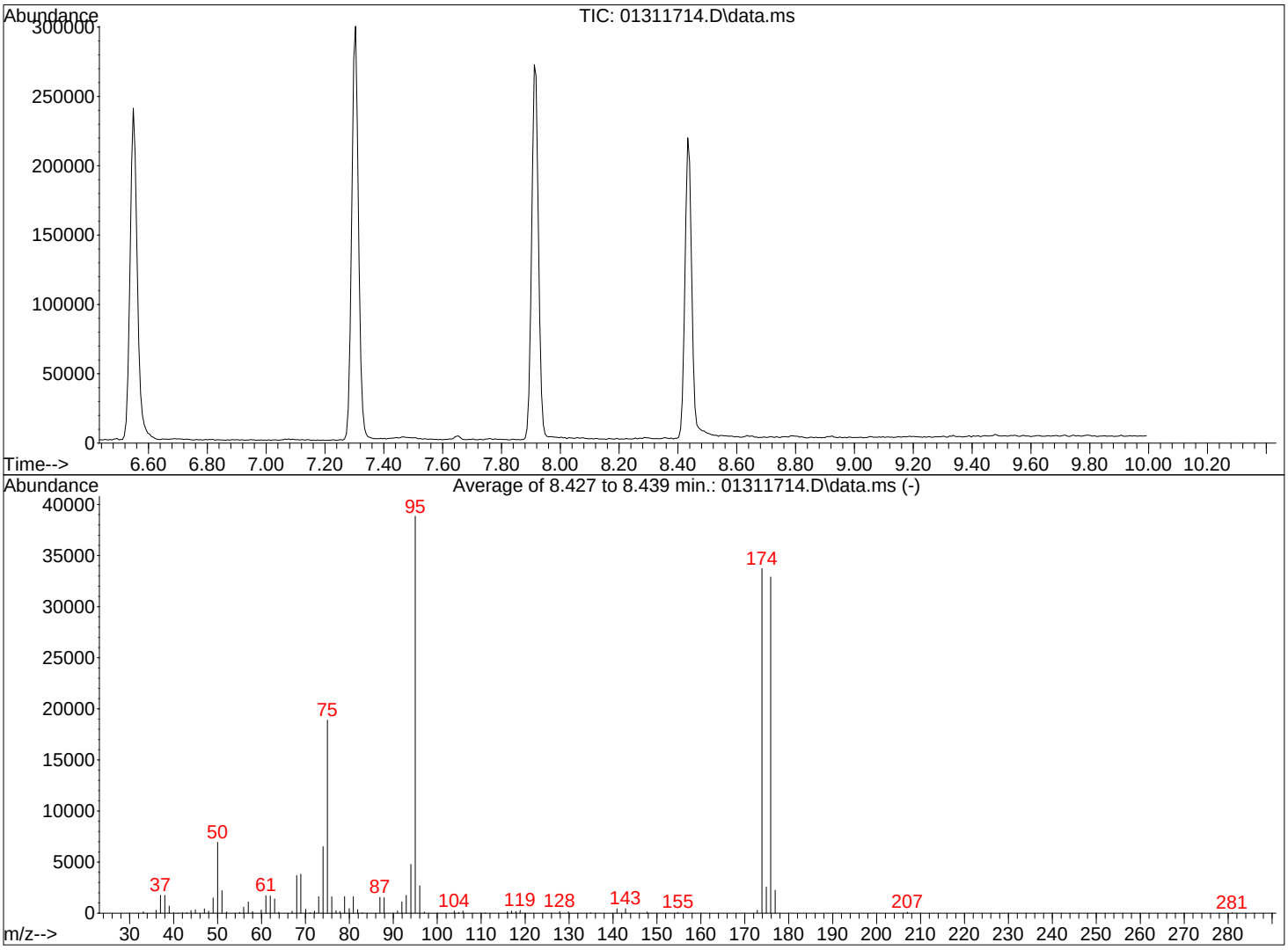
BFB

Data Path : I:\MS19\DATA\2017 01\31\
Data File : 01311714.D
Acq On : 31 Jan 2017 14:53
Operator : CL
Sample : BFB S19013117
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/1/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

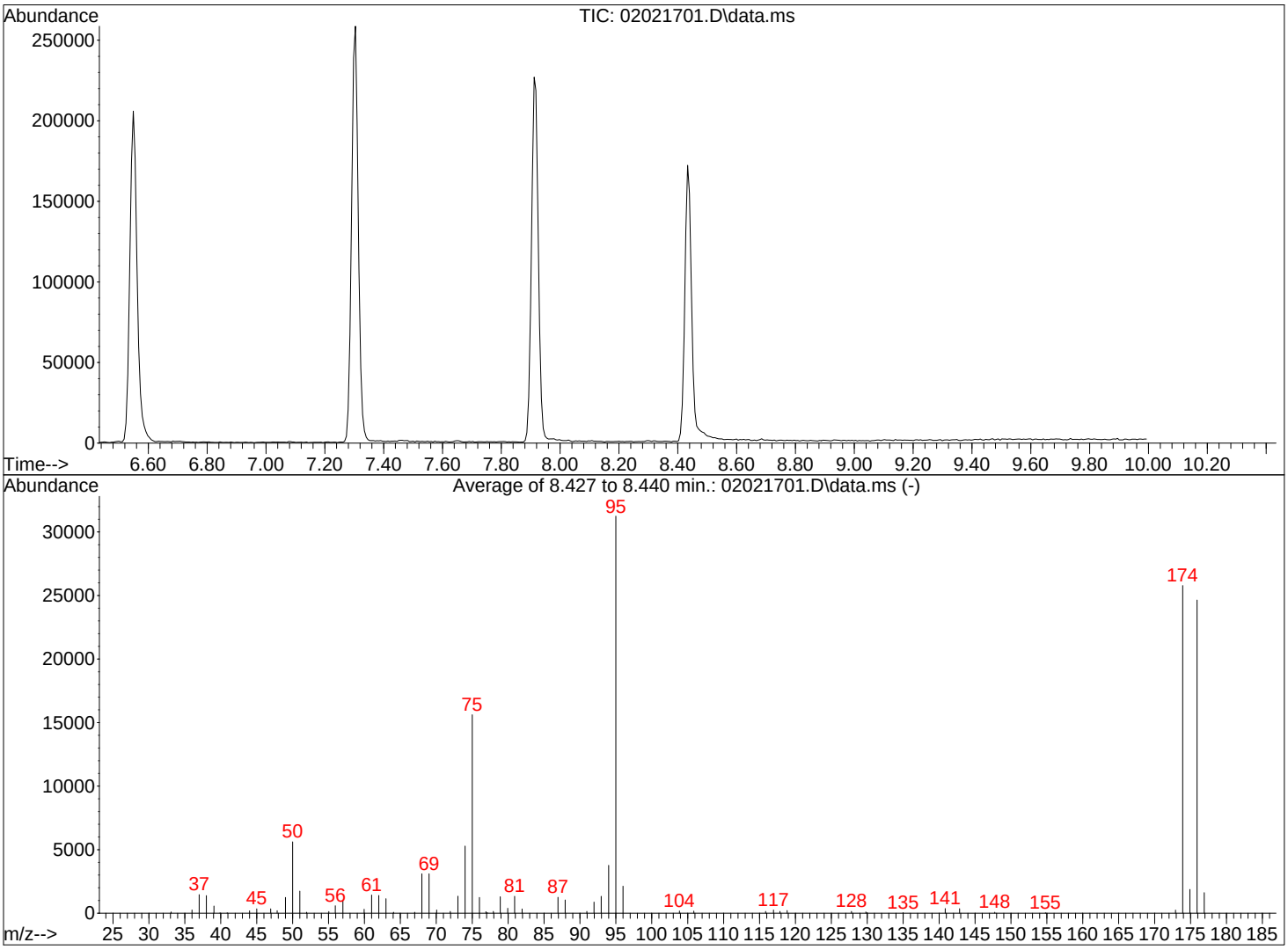
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.9	6941	PASS
75	95	30	66	48.6	18896	PASS
95	95	100	100	100.0	38853	PASS
96	95	5	9	6.9	2691	PASS
173	174	0.00	2	0.8	286	PASS
174	95	50	120	86.8	33728	PASS
175	174	4	9	7.6	2564	PASS
176	174	93	101	97.5	32901	PASS
177	176	5	9	6.8	2241	PASS

Data Path : I:\MS19\DATA\2017 02\01\
Data File : 02021701.D
Acq On : 2 Feb 2017 2:36
Operator : CL
Sample : BFB S19020217
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/2/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

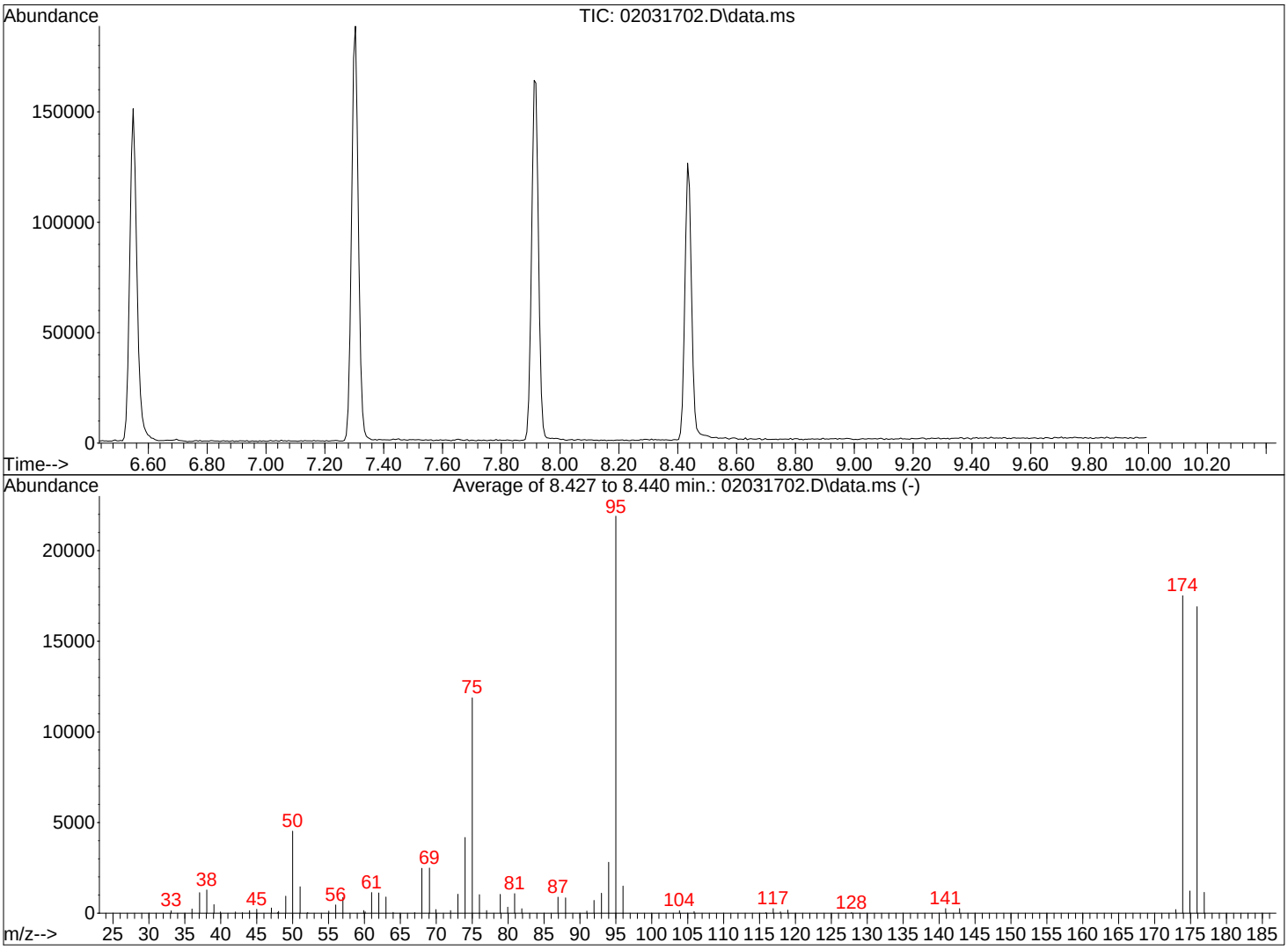
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.0	5618	PASS
75	95	30	66	50.0	15620	PASS
95	95	100	100	100.0	31245	PASS
96	95	5	9	6.8	2123	PASS
173	174	0.00	2	0.9	243	PASS
174	95	50	120	82.5	25789	PASS
175	174	4	9	7.3	1875	PASS
176	174	93	101	95.6	24643	PASS
177	176	5	9	6.6	1621	PASS

Data Path : I:\MS19\DATA\2017 02\03\
Data File : 02031702.D
Acq On : 3 Feb 2017 7:59
Operator : CL
Sample : BFB S19020317
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/3/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.7	4524	PASS
75	95	30	66	54.3	11881	PASS
95	95	100	100	100.0	21899	PASS
96	95	5	9	6.8	1500	PASS
173	174	0.00	2	1.1	201	PASS
174	95	50	120	80.0	17513	PASS
175	174	4	9	7.0	1228	PASS
176	174	93	101	96.5	16905	PASS
177	176	5	9	6.8	1146	PASS

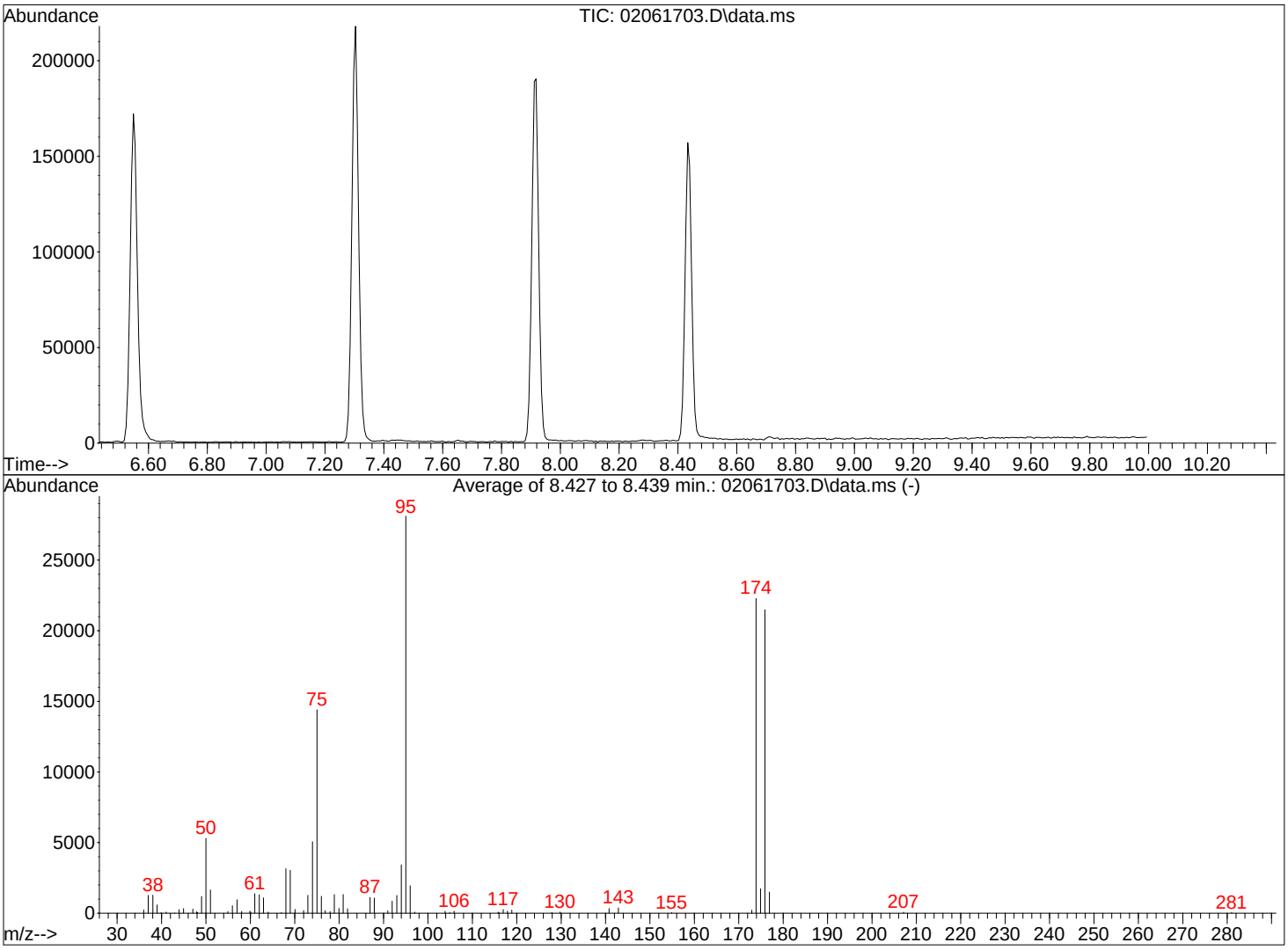
BFB

Data Path : I:\MS19\DATA\2017 02\06\
Data File : 02061703.D
Acq On : 6 Feb 2017 8:10
Operator : CL
Sample : BFB S19020617
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017

CL 2/6/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.9	5302	PASS
75	95	30	66	51.2	14405	PASS
95	95	100	100	100.0	28112	PASS
96	95	5	9	6.9	1948	PASS
173	174	0.00	2	1.0	216	PASS
174	95	50	120	79.3	22285	PASS
175	174	4	9	7.7	1727	PASS
176	174	93	101	96.4	21487	PASS
177	176	5	9	7.0	1496	PASS

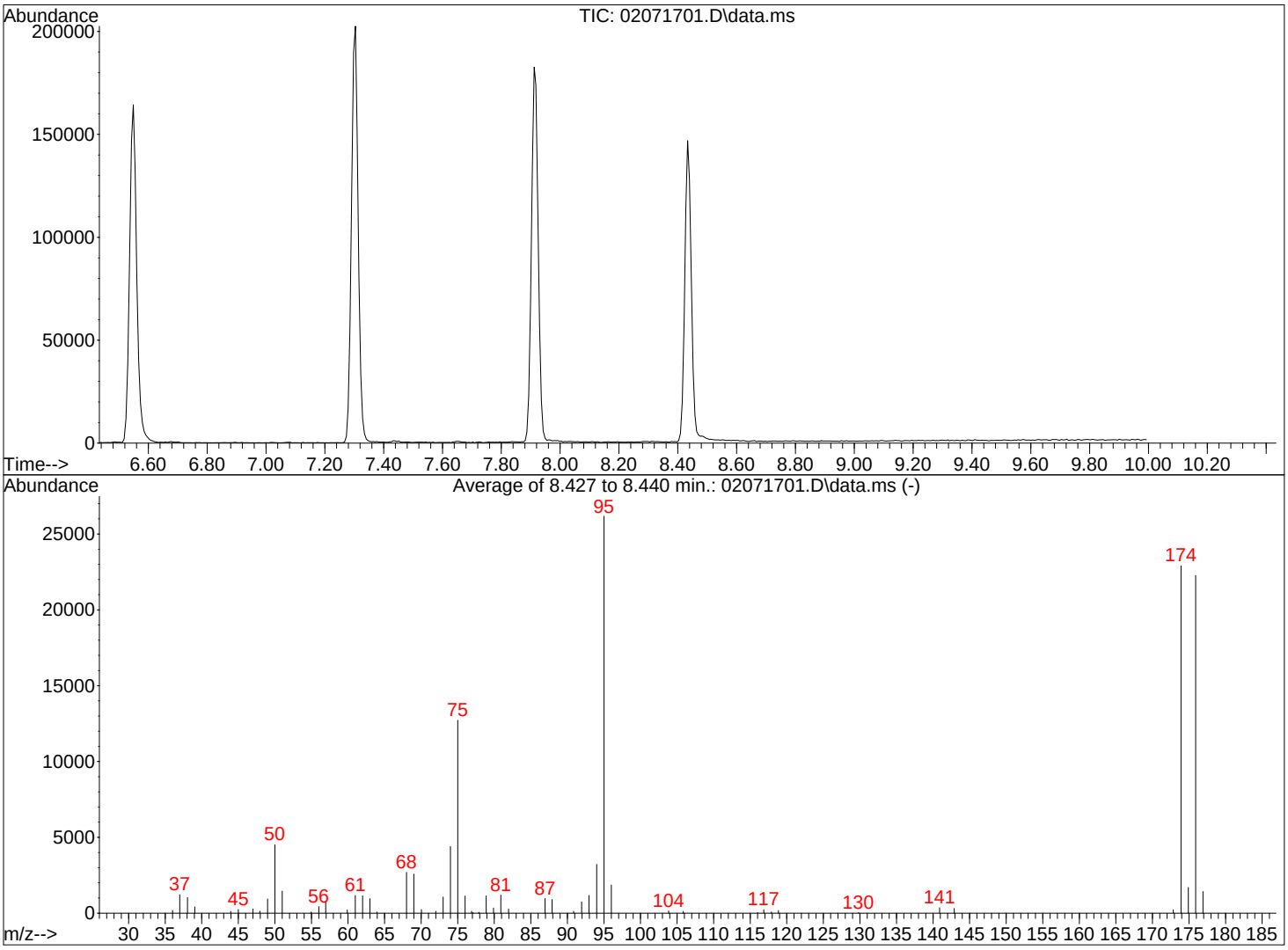
BFB

Data Path : I:\MS19\DATA\2017 02\07\
Data File : 02071701.D
Acq On : 7 Feb 2017 2:36
Operator : CL
Sample : BFB S19020717
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017

CL 2/7/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.2	4513	PASS
75	95	30	66	48.6	12726	PASS
95	95	100	100	100.0	26176	PASS
96	95	5	9	7.1	1858	PASS
173	174	0.00	2	1.0	223	PASS
174	95	50	120	87.5	22904	PASS
175	174	4	9	7.4	1702	PASS
176	174	93	101	97.3	22275	PASS
177	176	5	9	6.4	1431	PASS

Injection Log

Directory: I:\MS19\DATA\2017_01\31\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	1/31/17 14:53	01311714.D	BFB S19013117	S29-01241701	CL	2	Pass
2	1/31/17 15:23	01311715.D	10pg TO15SIM ICAL STD	S29-01241701/S29-01171712 (2/15)	CL	11	
3	1/31/17 15:54	01311716.D	20pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
4	1/31/17 16:25	01311717.D	50pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
5	1/31/17 16:57	01311718.D	100pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	12	
6	1/31/17 17:28	01311719.D	500pg TO15SIM ICAL STD	S29-01241701/S29-01301704 (2/28)	CL	13	
7	1/31/17 18:00	01311720.D	1000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
8	1/31/17 18:31	01311721.D	2000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
9	1/31/17 19:02	01311722.D	5000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
10	1/31/17 19:34	01311723.D	10000pg TO15SIM ICAL STD	S29-01241701/S29-01301703 (2/28)	CL	14	
11	1/31/17 20:05	01311724.D	blank	S29-01241701	CL	2	
12	1/31/17 20:37	01311725.D	50000pg TO15SIM ICAL STD	S29-01241701/S29-01301701 (2/28)	CL	15	
13	1/31/17 21:08	01311726.D	blank	S29-01241701	CL	2	
14	1/31/17 21:39	01311727.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	Pass

CL 2/1/17

Injection Log

Directory: I:\MS19\DATA\2017_02\02\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/2/17 2:36	02021701.D	BFB S19020217	S29-01241701	CL	2	Pass
2	2/2/17 2:54	02021702.D	CCV S19020217_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
3	2/2/17 3:26	02021703.D	MB S19020217_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/2/17 3:57	02021704.D	LCS S19020217_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/2/17 4:29	02021705.D	LCSD S19020217_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/2/17 5:00	02021706.D	P1700262-012 (1000mL)	S29-01241701	CL	7	
7	2/2/17 5:32	02021707.D	P1700262-013 (1000mL)	S29-01241701	CL	8	
8	2/2/17 6:03	02021708.D	P1700262-014 (1000mL)	S29-01241701	CL	9	
9	2/2/17 6:35	02021709.D	P1700262-015 (1000mL)	S29-01241701	CL	10	
10	2/2/17 8:09	02021710.D	P1700262-016 (1000mL)	S29-01241701	CL	1	
11	2/2/17 8:40	02021711.D	P1700262-016dup (1000mL)	S29-01241701	CL	1	Fail
12	2/2/17 9:11	02021712.D	blank	S29-01241701	CL	2	
13	2/2/17 9:42	02021713.D	P1700262-017 (1000mL)	S29-01241701	CL	3	
14	2/2/17 10:14	02021714.D	P1700262-018 (1000mL)	S29-01241701	CL	4	
15	2/2/17 10:45	02021715.D	P1700262-019 (1000mL)	S29-01241701	CL	5	
16	2/2/17 11:16	02021716.D	P1700262-020 (1000mL)	S29-01241701	CL	6	
17	2/2/17 11:47	02021717.D	P1700262-021 (1000mL)	S29-01241701	CL	7	
18	2/2/17 12:19	02021718.D	P1700262-022 (1000mL)	S29-01241701	CL	8	
19	2/2/17 12:50	02021719.D	blank	S29-01241701	CL	2	
20	2/2/17 13:21	02021720.D	P1700262-023 (1000mL)	S29-01241701	CL	9	
21	2/2/17 13:52	02021721.D	P1700262-024 (1000mL)	S29-01241701	CL	10	
22	2/2/17 14:28	02021722.D	P1700288-001 (1000mL)	S29-01241701	CL	1	
23	2/2/17 14:59	02021723.D	P1700262-006dil PF2 (100mL)	S29-01241701	CL	7	
24	2/2/17 15:31	02021724.D	P1700288-002 (1000mL)	S29-01241701	CL	3	
25	2/2/17 16:02	02021725.D	P1700288-003 (1000mL)	S29-01241701	CL	4	
26	2/2/17 16:34	02021726.D	P1700288-004 (1000mL)	S29-01241701	CL	5	
27	2/2/17 17:05	02021727.D	CCV S19020217_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass

CL 2/3/17

Injection Log

Directory: I:\MS19\DATA\2017_02\04\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/3/17 7:59	02031701.D	BFB S19020317	S29-01241701	CL	2	Pass
2	2/3/17 14:51	02031713.D	10pg TO15SIM ICAL STD	S29-01241701/S29-01171712 (2/15)	CL	12	
3	2/3/17 15:22	02031714.D	20pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
4	2/3/17 15:54	02031715.D	50pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
5	2/3/17 16:25	02031716.D	100pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
6	2/3/17 16:57	02031717.D	500pg TO15SIM ICAL STD	S29-01241701/S29-01301704 (2/28)	CL	16	
7	2/3/17 17:28	02031718.D	1000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
8	2/3/17 17:59	02031719.D	2000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
9	2/3/17 18:30	02031720.D	5000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
10	2/3/17 19:01	02031721.D	10000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
11	2/3/17 19:33	02031722.D	blank	S29-01241701	CL	2	
12	2/3/17 20:04	02031723.D	50000pg TO15SIM ICAL STD	S29-01241701/S29-01241705 (2/22)	CL	15	
13	2/3/17 20:35	02031724.D	blank	S29-01241701	CL	2	
14	2/3/17 21:06	02031725.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
15	2/3/17 21:38	02031726.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	

CL 2/4/17

Injection Log

Directory: I:\MS19\DATA\2017_02\06\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
2	2/6/17 8:10	02061701.D	xxBFB S19020617xx	S29-01241701	CL	2	Autocan Failure
1	2/6/17 7:39	02061702.D	CCV Test	S29-01241701/S29-01301704 (2/28)	CL	16	
2	2/6/17 8:10	02061703.D	BFB S19020617	S29-01241701	CL	2	Pass
3	2/6/17 8:28	02061704.D	CCV S19020617_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
4	2/6/17 8:59	02061705.D	MB S19020617_1000mL	S29-01241701/AC01205	CL	2	Pass
5	2/6/17 9:31	02061706.D	LCS S19020617_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/6/17 10:02	02061707.D	LCSD S19020617_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
7	2/6/17 10:39	02061708.D	P1700288-005 (1000mL)	S29-01241701	CL	1	
8	2/6/17 11:10	02061709.D	P1700288-006 (1000mL)	S29-01241701	CL	3	
9	2/6/17 11:41	02061710.D	P1700288-007 (1000mL)	S29-01241701	CL	4	
10	2/6/17 12:12	02061711.D	P1700288-008 (1000mL)	S29-01241701	CL	5	
11	2/6/17 12:44	02061712.D	P1700288-009 (1000mL)	S29-01241701	CL	6	
12	2/6/17 13:15	02061713.D	P1700288-010 (1000mL)	S29-01241701	CL	7	
13	2/6/17 13:46	02061714.D	blank	S29-01241701	CL	2	
14	2/6/17 14:17	02061715.D	P1700288-011 PF2 (1000mL)	S29-01241701	CL	8	
15	2/6/17 14:48	02061716.D	P1700288-012 (1000mL)	S29-01241701	CL	9	
16	2/6/17 15:31	02061717.D	CCV2 S19020617_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	
17	2/6/17 16:02	02061718.D	P1700288-013 (1000mL)	S29-01241701	CL	10	
18	2/6/17 16:33	02061719.D	P1700288-014 (1000mL)	S29-01241701	CL	11	
19	2/6/17 17:05	02061720.D	P1700288-015 (1000mL)	S29-01241701	CL	12	
20	2/6/17 17:36	02061721.D	P1700288-015dup (1000mL)	S29-01241701	CL	12	Dup Fail, use LCS/LCSD
21	2/6/17 18:07	02061722.D	P1700288-016 (1000mL)	S29-01241701	CL	13	Re-run
22	2/6/17 18:39	02061723.D	P1700288-017 (1000mL)	S29-01241701	CL	14	
23	2/6/17 19:10	02061724.D	blank	S29-01241701	CL	2	
24	2/6/17 19:41	02061725.D	P1700288-018 (1000mL)	S29-01241701	CL	15	
25	2/6/17 20:13	02061726.D	P1700288-019 (1000mL)	S29-01241701	CL	1	
26	2/6/17 20:44	02061727.D	P1700288-020 (1000mL)	S29-01241701	CL	3	
27	2/6/17 21:15	02061728.D	P1700289-001 (1000mL)	S29-01241701	CL	4	
28	2/6/17 21:46	02061729.D	P1700289-002 (1000mL)	S29-01241701	CL	5	
29	2/6/17 22:17	02061730.D	P1700289-003 (1000mL)	S29-01241701	CL	6	
30	2/6/17 22:48	02061731.D	CCV S19020617_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
31	2/6/17 23:19	02061732.D	blank	S29-01241701	CL	2	
32	2/7/17 2:04	02061733.D	blank	S29-01241701	CL	2	

CL 2/7/17

Injection Log

Directory: I:\MS19\DATA\2017_02\07\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/7/17 2:36	02071701.D	BFB S19020717	S29-012417	CL	2	Pass
2	2/7/17 2:54	02071702.D	CCV S19020717_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
3	2/7/17 3:25	02071703.D	MB S19020717_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/7/17 3:57	02071704.D	LCS S19020717_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/7/17 4:28	02071705.D	LCSD S19020717_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/7/17 5:00	02071706.D	P1700289-004 (1000mL)	S29-01241701	CL	7	
7	2/7/17 5:31	02071707.D	P1700289-005 (1000mL)	S29-01241701	CL	8	
8	2/7/17 8:42	02071708.D	xxP1700288-016 (1000mL)xx	S29-01241701	CL	1	Carry over
9	2/7/17 9:13	02071709.D	P1700289-006 PF2 (1000mL)	S29-01241701	CL	3	
10	2/7/17 9:45	02071710.D	P1700288-016 PF2 (1000mL)	S29-01241701	CL	1	
11	2/7/17 10:16	02071711.D	P1700289-007 (1000mL)	S29-01241701	CL	4	
12	2/7/17 10:48	02071712.D	P1700289-007dup (1000mL)	S29-01241701	CL	4	Pass for Dup
13	2/7/17 11:19	02071713.D	P1700289-008 (1000mL)	S29-01241701	CL	5	
14	2/7/17 11:50	02071714.D	blank	S29-01241701	CL	2	
15	2/7/17 12:22	02071715.D	P1700289-009 (1000mL)	S29-01241701	CL	6	
16	2/7/17 12:54	02071716.D	P1700289-010 (1000mL)	S29-01241701	CL	7	
17	2/7/17 13:25	02071717.D	P1700289-011 (1000mL)	S29-01241701	CL	8	
18	2/7/17 13:56	02071718.D	P1700289-012 (1000mL)	S29-01241701	CL	9	
19	2/7/17 14:27	02071719.D	P1700289-013 (1000mL)	S29-01241701	CL	10	
20	2/7/17 14:59	02071720.D	P1700289-014 (1000mL)	S29-01241701	CL	11	
21	2/7/17 15:30	02071721.D	P1700289-015 (1000mL)	S29-01241701	CL	12	
22	2/7/17 16:10	02071722.D	CCV2 S19020717_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Not needed
23	2/7/17 16:41	02071723.D	blank	S29-01241701	CL	2	
24	2/7/17 17:12	02071724.D	P1700324-001 (1000mL)	S29-01241701	CL	1	Surr3 Fail
25	2/7/17 17:43	02071725.D	P1700324-002 PF2 (1000mL)	S29-01241701	CL	3	
26	2/7/17 18:15	02071726.D	P1700324-003 (1000mL)	S29-01241701	CL	4	
27	2/7/17 18:46	02071727.D	P1700324-004 (1000mL)	S29-01241701	CL	5	
28	2/7/17 19:17	02071728.D	blank	S29-01241701	CL	2	
29	2/7/17 19:49	02071729.D	P1700289-016 (1000mL)	S29-01241701	CL	13	
30	2/7/17 20:20	02071730.D	P1700289-017 (1000mL)	S29-01241701	CL	14	
31	2/7/17 20:51	02071731.D	CCV S19020717_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
32	2/7/17 21:23	02071732.D	blank	S29-01241701	CL	2	
33	2/8/17 0:04	02071733.D	blank	S29-01241701	CL	2	

CL 2/8/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111706.D Vial: 11
Acq On : 11 Jan 2017 9:42 Operator: CL
Sample : AC02094-FCA00781 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:13 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

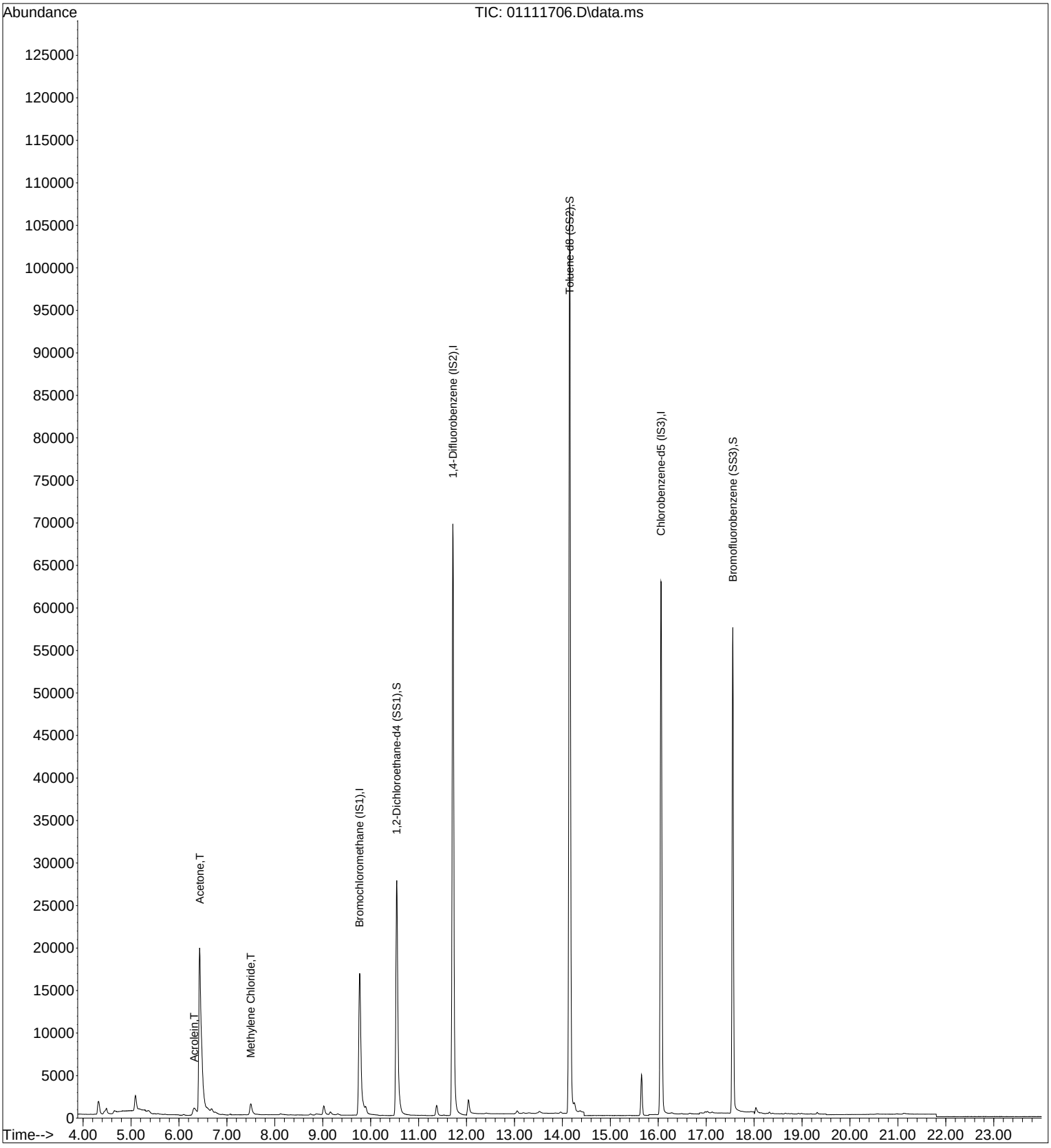
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	32160	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	146483	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	24549	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	54202	1056.729	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.67%			
33) Toluene-d8 (SS2)	14.15	98	150181	1086.606	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.66%			
45) Bromofluorobenzene (SS3)	17.56	174	45047	958.231	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.82%			
Target Compounds						Qvalue
9) Acrolein	6.32	56	2733	186.139	pg	93
10) Acetone	6.43	58	26060	1283.545	pg	# 54
13) Methylene Chloride	7.50	84	1557	40.929	pg	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111706.D Vial: 11
Acq On : 11 Jan 2017 9:42 Operator: CL
Sample : AC02094-FCA00781 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:13 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111709.D Vial: 14
Acq On : 11 Jan 2017 11:17 Operator: CL
Sample : AS00668-FCA00486 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

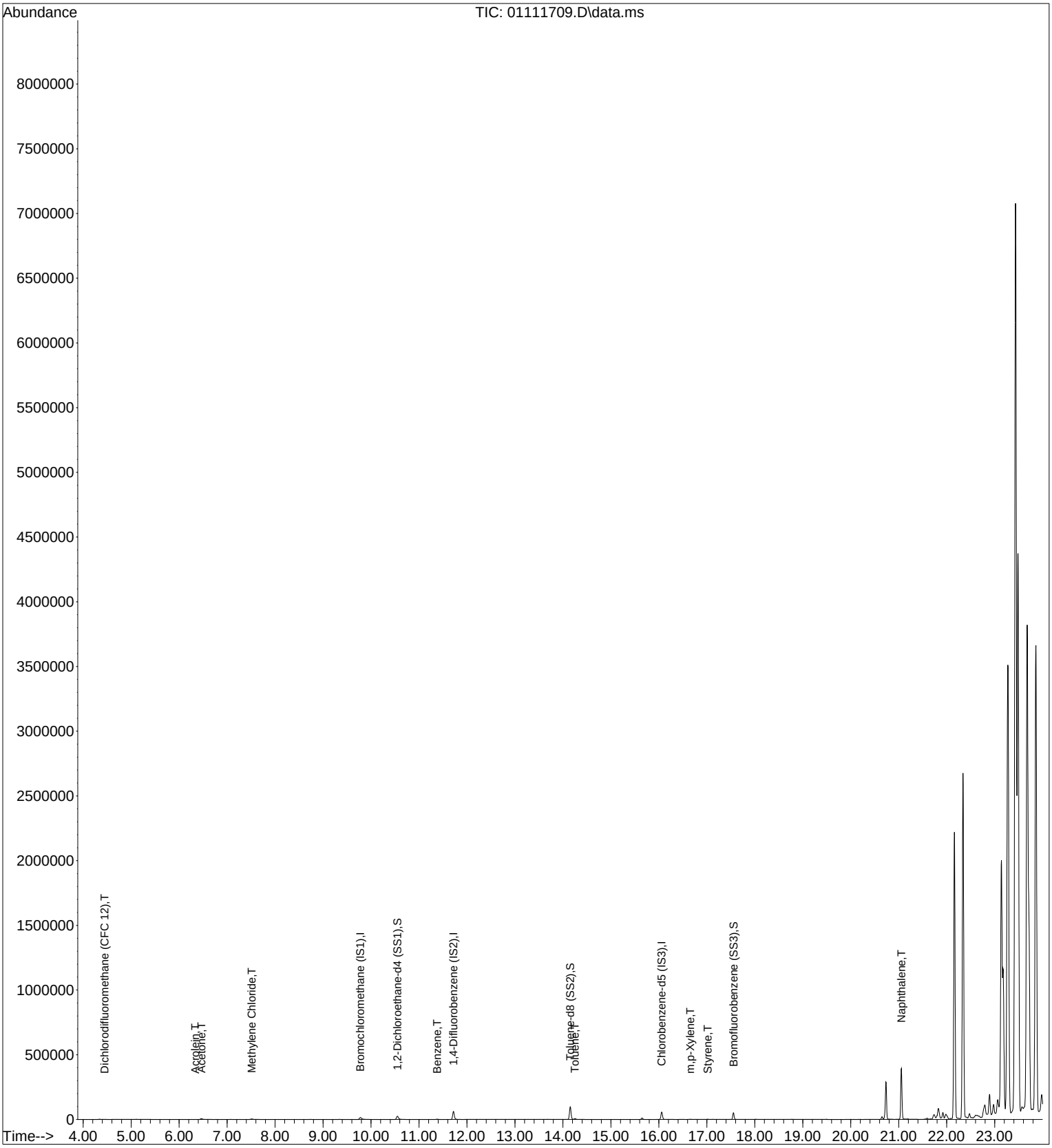
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	29977	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	132132	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	22400	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	50416	1054.495	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.45%			
33) Toluene-d8 (SS2)	14.15	98	137365	1101.824	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.18%			
45) Bromofluorobenzene (SS3)	17.56	174	40946	954.556	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.46%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	1376	18.737	pg	99
9) Acrolein	6.34	56	437	31.931	pg	92
10) Acetone	6.47	58	5068	267.794	pg	93
13) Methylene Chloride	7.51	84	5157	145.435	pg	82
23) Benzene	11.38	78	5117	34.130	pg	100
34) Toluene	14.25	91	9519	76.833	pg	99
41) m,p-Xylene	16.65	91	3494	29.186	pg	99
42) Styrene	17.02	104	2826	32.139	pg	98
53) Naphthalene	21.06	128	613027	4352.744	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111709.D Vial: 14
Acq On : 11 Jan 2017 11:17 Operator: CL
Sample : AS00668-FCA00486 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111722.D
Acq On : 11 Jan 2017 23:37
Operator : JM
Sample : AC01837 FCA00929
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 12 08:22:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	41135	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	112123	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	93113	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	63472	783.481	pg		0.00
Spiked Amount 1000.000			Recovery = 78.35%				
57) Toluene-d8 (SS2)	12.63	98	138393	1216.316	pg		0.00
Spiked Amount 1000.000			Recovery = 121.63%				
74) Bromofluorobenzene (SS3)	16.14	174	29682	792.083	pg		0.00
Spiked Amount 1000.000			Recovery = 79.21%				
Target Compounds							Qvalue
2) * Propene	3.53	42	9365	113.429	pg		90
3) * Dichlorodifluoromethane	3.59	85	1695	9.638	pg		99
4) * Chloromethane	3.72	50	2015	15.326	pg		94
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	65	0.498	pg	#	42
7) * 1,3-Butadiene	4.02	54	40	0.428	pg	#	1
8) * Bromomethane	4.22	94	301	3.768	pg		94
10) * Ethanol	4.44	45	3343	59.367	pg		92
11) * Acetonitrile	4.61	41	3543	25.094	pg		85
12) * Acrolein	4.72	56	884	18.738	pg		83
13) * Acetone	4.84	58	10649	200.217	pg	#	57
14) * Trichlorofluoromethane	4.97	101	643	5.473	pg		92
15) * 2-Propanol (Isopropa...	5.04	45	2744	19.041	pg	#	81
16) * Acrylonitrile	5.19	53	599	7.151	pg		98
18) tert-Butanol	5.57	59	561	6.459	pg	#	33
19) * Methylene Chloride	5.58	84	3012	50.839	pg		96
21) * Trichlorotrifluoroet...	5.83	151	174	3.779	pg	#	59
22) * Carbon Disulfide	5.85	76	4738	21.815	pg		99
26) * Vinyl Acetate	6.71	86	267	23.937	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	551	17.260	pg		79
29) DIPE	7.65	45	1118	6.009	pg	#	53
30) * Ethyl Acetate	7.65	61	1239	75.916	pg		91
31) * n-Hexane	7.65	57	398	4.742	pg		93
32) * Chloroform	7.69	83	55	0.530	pg	#	16
39) * Benzene	9.36	78	1322	10.224	pg		91
41) 1-Butanol	9.32	56	3005	123.974	pg	#	49
42) * Carbon Tetrachloride	9.55	117	92	1.829	pg	#	63
48) * 1,4-Dioxane	10.65	88	53	1.965	pg	#	9
50) * Methyl Methacrylate	10.92	69	62	1.912	pg	#	42
51) * n-Heptane	11.04	71	189	2.847	pg	#	43
53) * 4-Methyl-2-pentanone	11.74	58	160	6.849	pg	#	60
58) * Toluene	12.74	91	2851	21.664	pg		96
59) * 2-Hexanone	13.09	58	81	3.598	pg	#	68
63) * n-Octane	13.91	85	52	2.533	pg	#	1
66) * Ethylbenzene	15.12	91	239	2.153	pg		90
67) * m- & p-Xylenes	15.30	91	443	5.137	pg		97
70) * Styrene	15.63	104	111	2.418	pg		97
71) * o-Xylene	15.73	91	156	1.849	pg		98
72) * n-Nonane	15.98	57	103	2.710	pg	#	70
75) * Cumene	16.27	105	55	0.457	pg	#	49
76) * alpha-Pinene	16.62	93	81	1.482	pg	#	18
77) * n-Propylbenzene	16.72	91	53	0.478	pg	#	56
78) 3-Ethyltoluene	16.80	105	50	0.648	pg	#	45
79) * 4-Ethyltoluene	16.80	105	50	0.739	pg	#	46
83) tert-Butylbenzene	17.28	134	123	7.214	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	223	3.251	pg	#	24

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111722.D
Acq On : 11 Jan 2017 23:37
Operator : JM
Sample : AC01837 FCA00929
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

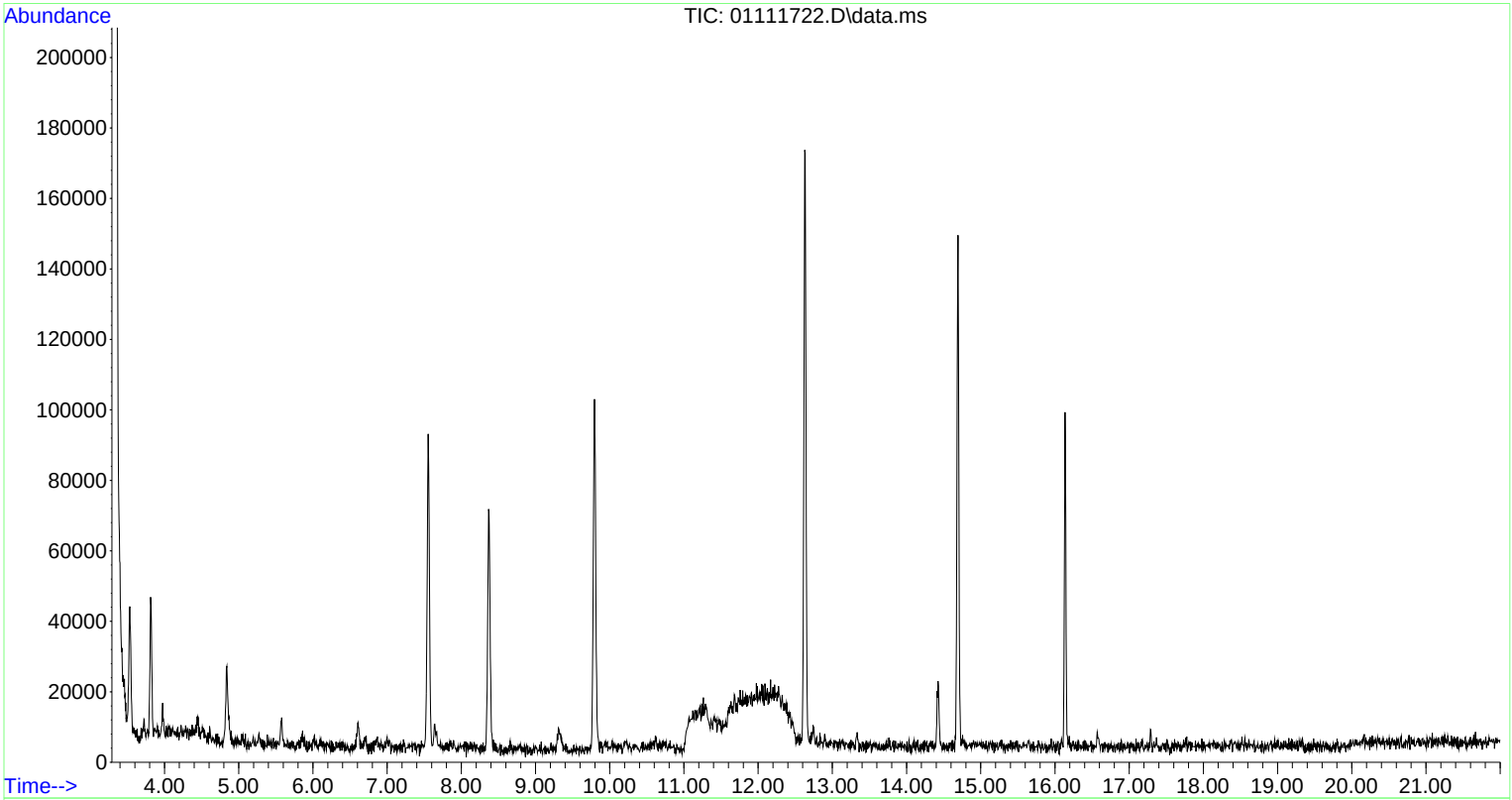
Quant Time: Jan 12 08:22:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

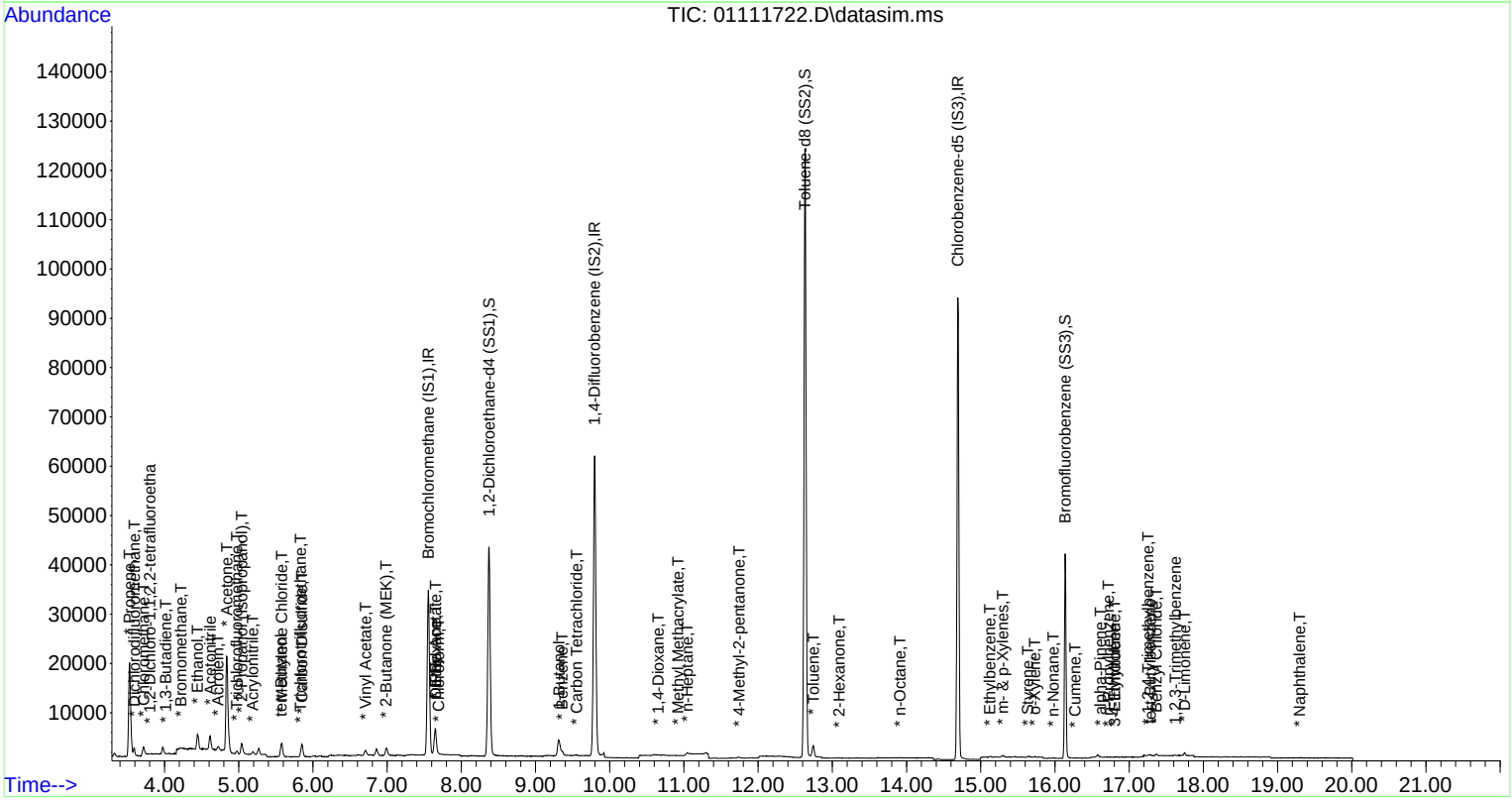
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
85) * Benzyl Chloride	17.36	126	75	10.846	pg		64
90) 1,2,3-Trimethylbenzene	17.62	105	74	1.029	pg	#	27
93) * D-Limonene	17.75	68	296	9.800	pg		84
98) * Naphthalene	19.30	128	82	2.801	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111722.D
Acq On : 11 Jan 2017 23:37
Operator : JM
Sample : AC01837 FCA00929
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 12 08:22:38 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091726.D
Acq On : 10 Jan 2017 3:25
Operator : JM
Sample : AC02161 FCA00919
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

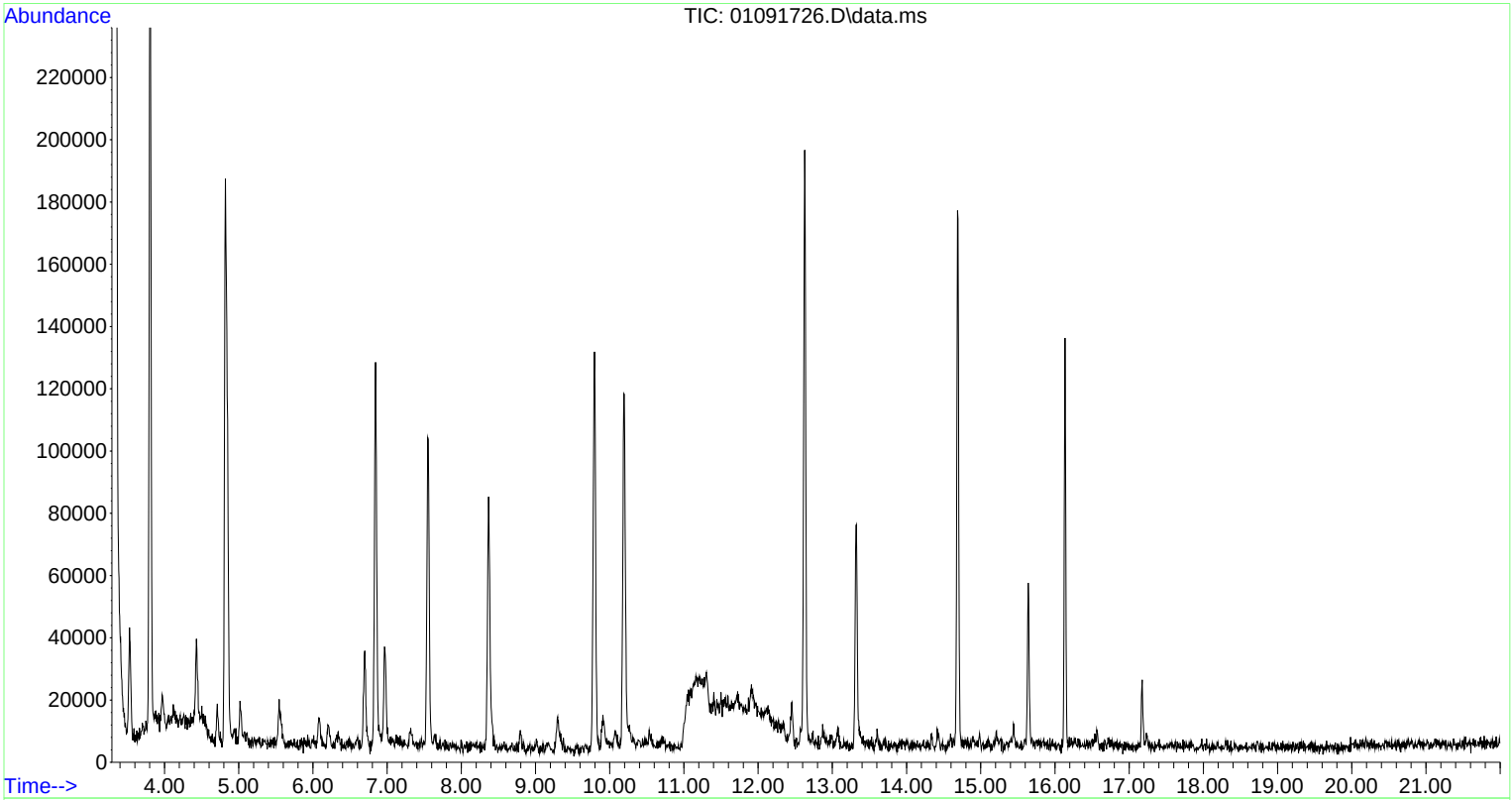
Quant Time: Jan 10 07:51:23 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

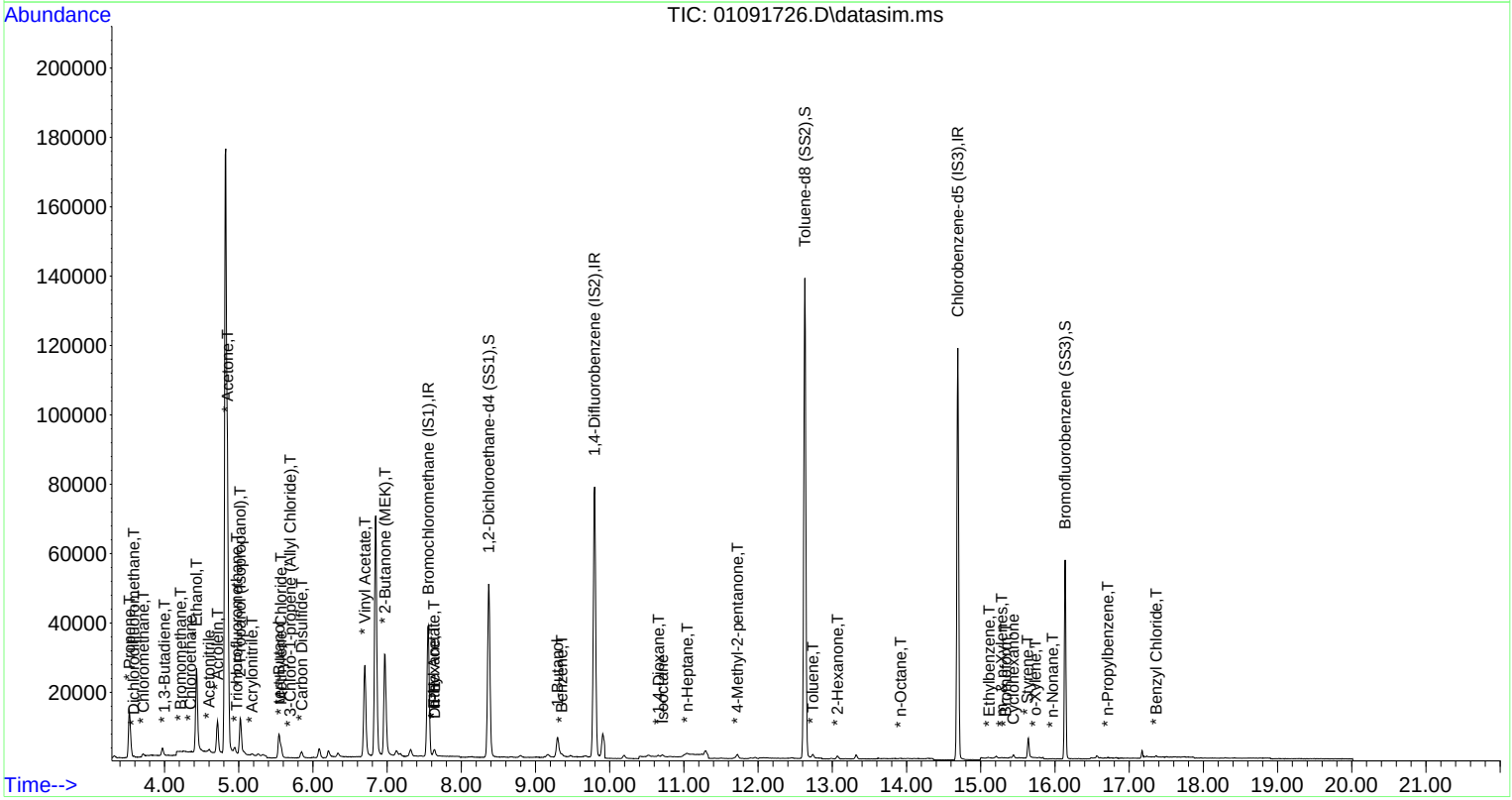
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46499	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	143594	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	113873	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	75133	820.437 pg		0.00
Spiked Amount 1000.000			Recovery = 82.04%			
57) Toluene-d8 (SS2)	12.63	98	151634	1089.729 pg		0.00
Spiked Amount 1000.000			Recovery = 108.97%			
74) Bromofluorobenzene (SS3)	16.14	174	40450	882.644 pg		0.00
Spiked Amount 1000.000			Recovery = 88.26%			
Target Compounds						Qvalue
2) * Propene	3.53	42	6561	70.300 pg		81
3) * Dichlorodifluoromethane	3.59	85	397	1.997 pg		93
4) * Chloromethane	3.71	50	595	4.004 pg	#	71
7) * 1,3-Butadiene	4.00	54	64	0.606 pg	#	1
8) * Bromomethane	4.22	94	167	1.849 pg	#	54
9) * Chloroethane	4.35	64	66	1.023 pg	#	41
10) * Ethanol	4.43	45	29530	463.917 pg		100
11) * Acetonitrile	4.60	41	1039	6.510 pg	#	1
12) * Acrolein	4.71	56	9884	185.344 pg		97
13) * Acetone	4.85	58	173420	2884.429 pg	#	1
14) * Trichlorofluoromethane	4.97	101	158	1.190 pg		98
15) * 2-Propanol (Isopropa...	5.02	45	14052	86.261 pg		99
16) * Acrylonitrile	5.18	53	314	3.316 pg		83
18) tert-Butanol	5.54	59	9381	95.544 pg	#	81
19) * Methylene Chloride	5.57	84	2438	36.404 pg		100
20) * 3-Chloro-1-propene (...	5.69	41	54	0.604 pg	#	43
22) * Carbon Disulfide	5.85	76	3319	13.518 pg	#	94
26) * Vinyl Acetate	6.70	86	7544	598.302 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	10918	302.549 pg		74
29) DIPE	7.64	45	463	2.201 pg	#	53
30) * Ethyl Acetate	7.63	61	412	22.332 pg	#	68
31) * n-Hexane	7.63	57	194	2.045 pg	#	60
39) * Benzene	9.35	78	966	5.833 pg	#	85
41) 1-Butanol	9.30	56	5489	176.822 pg	#	44
48) * 1,4-Dioxane	10.66	88	129	3.735 pg	#	75
49) Isooctane	10.71	56	332	4.194 pg		73
51) * n-Heptane	11.04	71	350	4.116 pg	#	68
53) * 4-Methyl-2-pentanone	11.72	58	723	24.166 pg	#	73
58) * Toluene	12.74	91	1200	7.456 pg		100
59) * 2-Hexanone	13.07	58	1479	53.721 pg	#	89
63) * n-Octane	13.92	85	85	3.386 pg		84
66) * Ethylbenzene	15.11	91	64	0.472 pg	#	45
67) * m- & p-Xylenes	15.28	91	117	1.109 pg	#	40
68) * Bromoform	15.34	173	61	1.810 pg	#	26
69) Cyclohexanone	15.44	98	396	33.622 pg		95
70) * Styrene	15.63	104	50	0.891 pg	#	28
71) * o-Xylene	15.73	91	77	0.746 pg	#	32
72) * n-Nonane	15.97	57	66	1.420 pg	#	42
77) * n-Propylbenzene	16.71	91	57	0.421 pg	#	56
85) * Benzyl Chloride	17.36	126	122	14.426 pg	#	27

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091726.D
Acq On : 10 Jan 2017 3:25
Operator : JM
Sample : AC02161 FCA00919
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 202 Sample Multiplier: 1

Quant Time: Jan 10 07:51:23 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081706.D
Acq On : 8 Jan 2017 1:22 pm
Operator : JM
Sample : AC01606 FCR00181
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 09 10:25:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	47304	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	150434	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	126119	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78553	843.185	pg		0.00
Spiked Amount 1000.000			Recovery = 84.32%				
57) Toluene-d8 (SS2)	12.63	98	131974	856.348	pg		0.00
Spiked Amount 1000.000			Recovery = 85.64%				
74) Bromofluorobenzene (SS3)	16.14	174	41604	819.676	pg		0.00
Spiked Amount 1000.000			Recovery = 81.97%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6225	65.565	pg	#	74
3) * Dichlorodifluoromethane	3.59	85	1018	5.033	pg		95
4) * Chloromethane	3.71	50	970	6.416	pg		97
7) * 1,3-Butadiene	4.00	54	42	0.391	pg	#	1
8) * Bromomethane	4.21	94	120	1.306	pg		82
9) * Chloroethane	4.35	64	52	0.793	pg	#	41
10) * Ethanol	4.43	45	9037	139.555	pg		99
11) * Acetonitrile	4.60	41	519	3.197	pg		91
12) * Acrolein	4.72	56	3152	58.100	pg		97
13) * Acetone	4.83	58	47439	775.607	pg	#	28
14) * Trichlorofluoromethane	4.97	101	409	3.027	pg		97
15) * 2-Propanol (Isopropa...	5.03	45	11408	68.839	pg	#	88
16) * Acrylonitrile	5.19	53	298	3.094	pg	#	80
18) tert-Butanol	5.55	59	2408	24.108	pg		85
19) * Methylene Chloride	5.58	84	1137	16.689	pg		92
21) * Trichlorotrifluoroet...	5.82	151	51	0.963	pg	#	19
22) * Carbon Disulfide	5.84	76	3195	12.792	pg		97
26) * Vinyl Acetate	6.71	86	2090	162.934	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	4230	115.223	pg		82
29) DIPE	7.64	45	426	1.991	pg	#	53
30) * Ethyl Acetate	7.64	61	437	23.284	pg		84
31) * n-Hexane	7.65	57	301	3.119	pg	#	60
36) * 1,2-Dichloroethane	8.50	62	51	0.505	pg	#	42
39) * Benzene	9.36	78	1070	6.168	pg		95
41) 1-Butanol	9.30	56	3073	94.492	pg	#	45
42) * Carbon Tetrachloride	9.54	117	60	0.889	pg	#	31
49) Isooctane	10.71	56	243	2.930	pg		100
51) * n-Heptane	11.04	71	366	4.109	pg	#	85
53) * 4-Methyl-2-pentanone	11.73	58	270	8.614	pg	#	85
58) * Toluene	12.74	91	1314	7.372	pg		96
59) * 2-Hexanone	13.07	58	827	27.122	pg	#	87
63) * n-Octane	13.91	85	101	3.632	pg	#	56
66) * Ethylbenzene	15.12	91	207	1.377	pg	#	45
67) * m- & p-Xylenes	15.29	91	435	3.724	pg	#	79
69) Cyclohexanone	15.44	98	182	13.952	pg		88
70) * Styrene	15.63	104	143	2.300	pg	#	33
71) * o-Xylene	15.73	91	183	1.602	pg		96
72) * n-Nonane	15.98	57	130	2.525	pg	#	62
77) * n-Propylbenzene	16.72	91	54	0.360	pg	#	56
78) 3-Ethyltoluene	16.82	105	86	0.823	pg	#	45
79) * 4-Ethyltoluene	16.84	105	66	0.720	pg	#	1
83) tert-Butylbenzene	17.28	134	335	14.507	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	148	1.593	pg	#	76
85) * Benzyl Chloride	17.36	126	56	5.979	pg		93
90) 1,2,3-Trimethylbenzene	17.62	105	62	0.636	pg	#	27

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081706.D
Acq On : 8 Jan 2017 1:22 pm
Operator : JM
Sample : AC01606 FCR00181
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

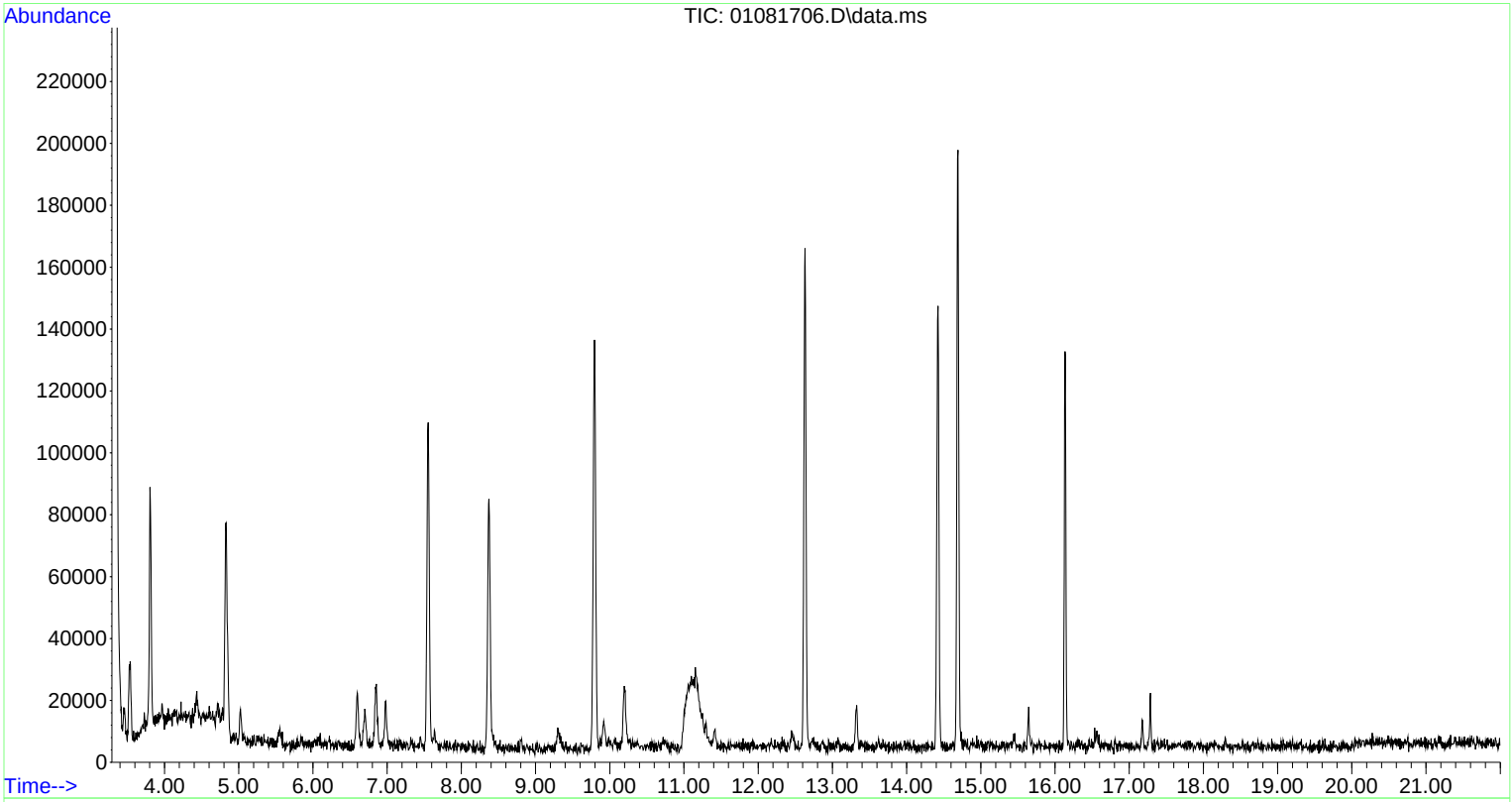
Quant Time: Jan 09 10:25:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

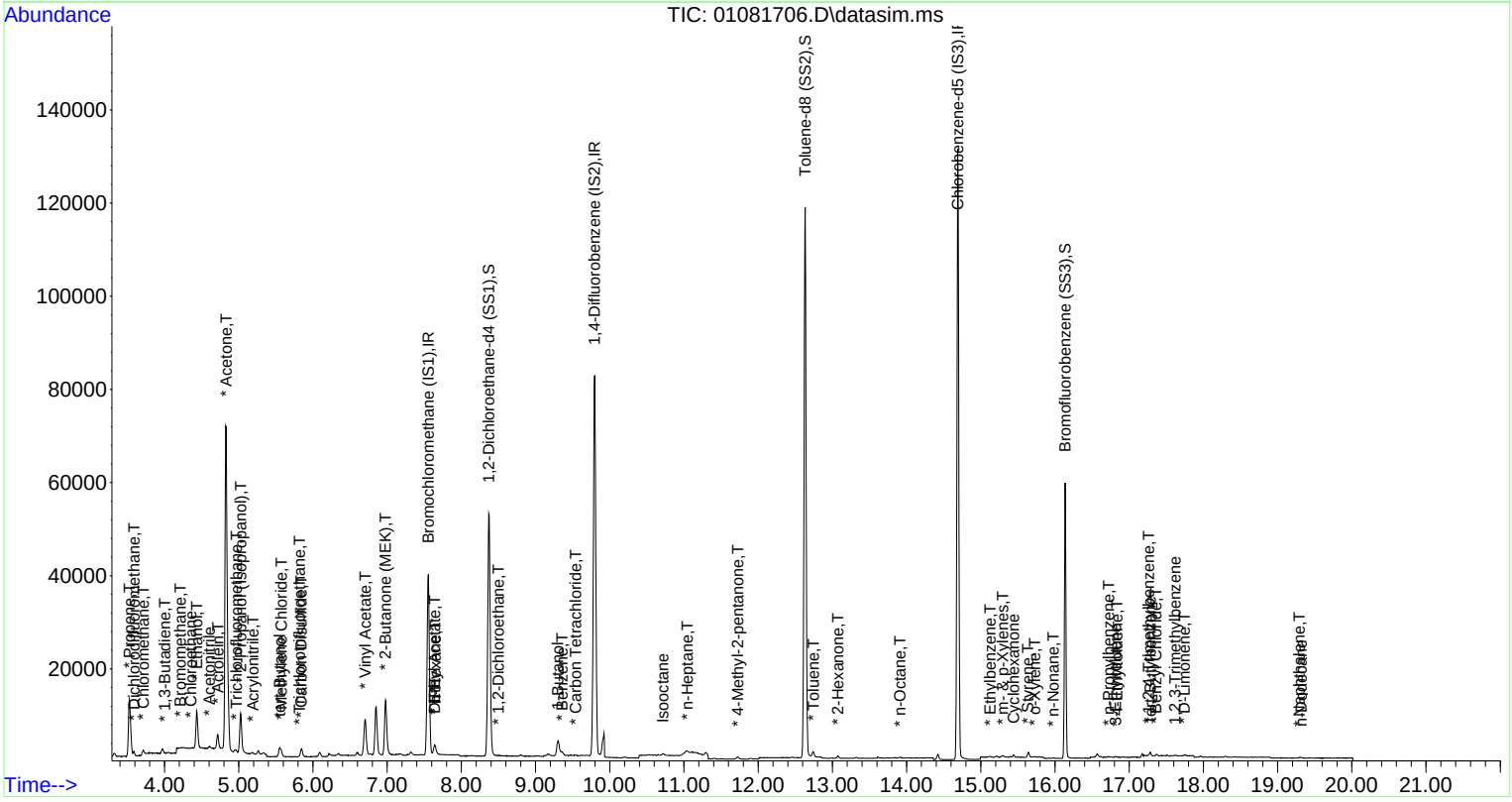
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) * D-Limonene	17.74	68	95	2.322	pg		95
98) * Naphthalene	19.29	128	197	4.968	pg	#	66
99) n-Dodecane	19.32	85	79	12.383	pg	#	30

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\08\
Data File : 01081706.D
Acq On : 8 Jan 2017 1:22 pm
Operator : JM
Sample : AC01606 FCR00181
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 09 10:25:30 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111705.D Vial: 10
Acq On : 11 Jan 2017 9:11 Operator: CL
Sample : AS00778-FCA00452 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:12 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

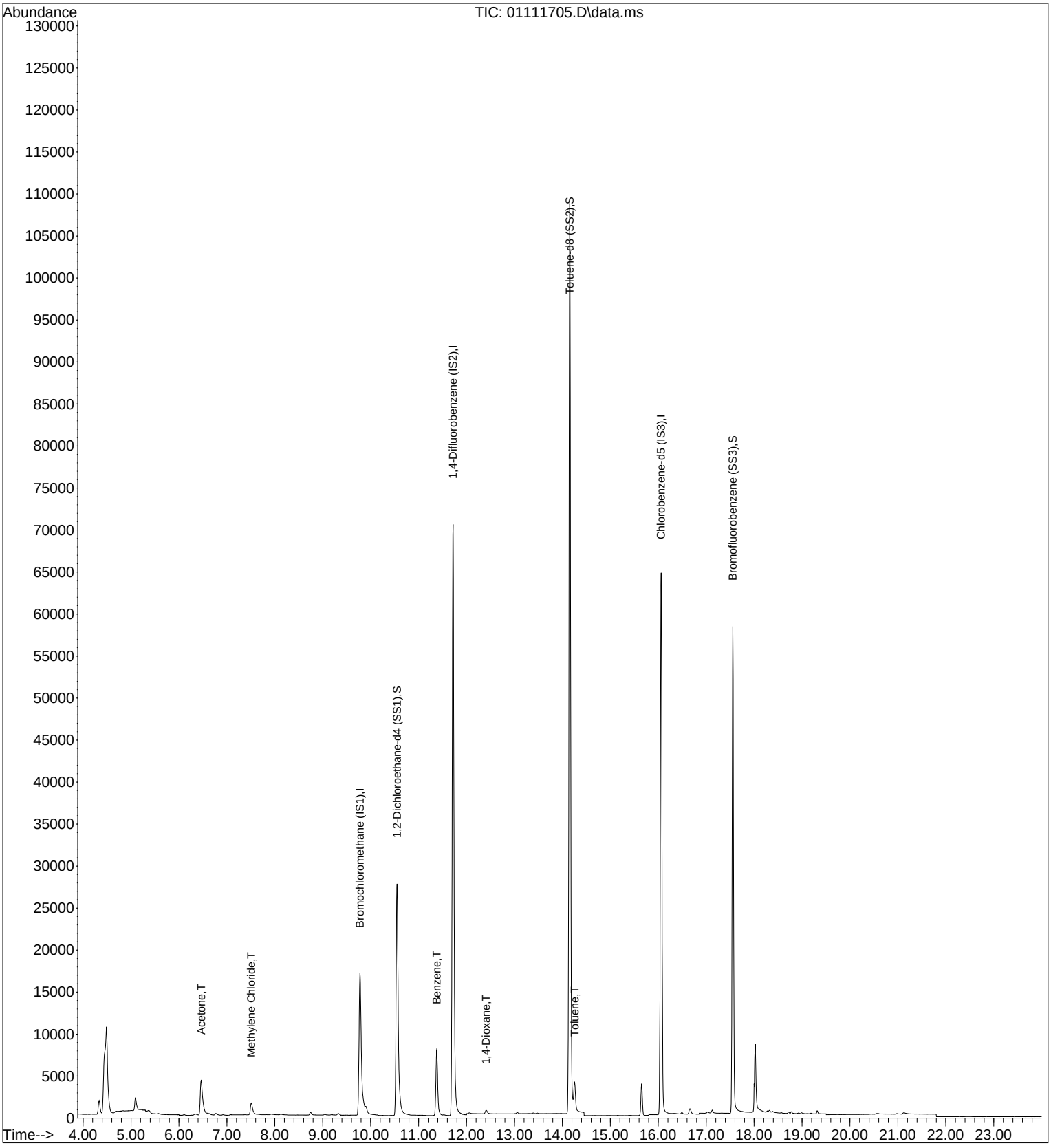
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	33072	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	150841	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	25061	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	55659	1055.211	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.52%			
33) Toluene-d8 (SS2)	14.15	98	152397	1070.783	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.08%			
45) Bromofluorobenzene (SS3)	17.56	174	45606	950.302	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.03%			
Target Compounds						Qvalue
10) Acetone	6.47	58	4285	205.231	pg	95
13) Methylene Chloride	7.51	84	1706	43.609	pg	81
23) Benzene	11.38	78	16474	99.598	pg	100
29) 1,4-Dioxane	12.41	88	692	24.220	pg	93
34) Toluene	14.26	91	4721	33.379	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111705.D Vial: 10
Acq On : 11 Jan 2017 9:11 Operator: CL
Sample : AS00778-FCA00452 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:12 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091733.D
Acq On : 10 Jan 2017 8:12
Operator : JM
Sample : AS01026 FCR00085
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

Quant Time: Jan 10 11:21:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	43879	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	127737	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	100397	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71107	822.836	pg		0.00
Spiked Amount 1000.000			Recovery = 82.28%				
57) Toluene-d8 (SS2)	12.63	98	128223	1045.172	pg		0.00
Spiked Amount 1000.000			Recovery = 104.52%				
74) Bromofluorobenzene (SS3)	16.14	174	33128	819.902	pg		0.00
Spiked Amount 1000.000			Recovery = 81.99%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5361	60.872	pg	#	68
3) * Dichlorodifluoromethane	3.59	85	897	4.781	pg	#	71
4) * Chloromethane	3.72	50	621	4.428	pg	#	85
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	59	0.424	pg	#	42
7) * 1,3-Butadiene	4.01	54	54	0.542	pg	#	1
8) * Bromomethane	4.21	94	81	0.951	pg		90
9) * Chloroethane	4.35	64	61	1.002	pg	#	41
10) * Ethanol	4.44	45	8975	149.416	pg		98
11) * Acetonitrile	4.60	41	744	4.940	pg	#	1
12) * Acrolein	4.71	56	815	16.195	pg		95
13) * Acetone	4.84	58	7494	132.087	pg	#	53
14) * Trichlorofluoromethane	4.97	101	360	2.872	pg		88
15) * 2-Propanol (Isopropa...	5.03	45	2544	16.549	pg		97
16) * Acrylonitrile	5.19	53	262	2.932	pg		92
18) tert-Butanol	5.56	59	399	4.306	pg	#	47
19) * Methylene Chloride	5.57	84	3815	60.366	pg		97
21) * Trichlorotrifluoroet...	5.82	151	76	1.547	pg	#	19
22) * Carbon Disulfide	5.85	76	3315	14.308	pg		96
26) * Vinyl Acetate	6.71	86	283	23.784	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	683	20.057	pg		68
29) DIPE	7.64	45	708	3.567	pg	#	53
30) * Ethyl Acetate	7.64	61	662	38.025	pg		98
31) * n-Hexane	7.64	57	524	5.853	pg		97
39) * Benzene	9.36	78	1081	7.338	pg		98
41) 1-Butanol	9.30	56	1977	71.593	pg	#	37
42) * Carbon Tetrachloride	9.54	117	50	0.872	pg	#	66
43) * Cyclohexane	9.70	84	54	1.152	pg	#	1
49) Isooctane	10.71	56	150	2.130	pg	#	1
50) * Methyl Methacrylate	10.93	69	55	1.489	pg	#	42
51) * n-Heptane	11.04	71	708	9.360	pg		94
53) * 4-Methyl-2-pentanone	11.73	58	140	5.260	pg	#	72
58) * Toluene	12.74	91	2332	16.434	pg		98
59) * 2-Hexanone	13.07	58	60	2.472	pg	#	68
63) * n-Octane	13.92	85	219	9.894	pg	#	74
66) * Ethylbenzene	15.12	91	416	3.476	pg		99
67) * m- & p-Xylenes	15.29	91	886	9.529	pg	#	76
70) * Styrene	15.64	104	62	1.252	pg	#	28
71) * o-Xylene	15.73	91	410	4.508	pg		88
72) * n-Nonane	15.98	57	198	4.831	pg	#	80
77) * n-Propylbenzene	16.71	91	152	1.272	pg	#	52
78) 3-Ethyltoluene	16.81	105	135	1.622	pg	#	45
79) * 4-Ethyltoluene	16.81	105	135	1.850	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	87	1.063	pg	#	29
82) 2-Ethyltoluene	17.07	105	107	1.077	pg	#	45
84) * 1,2,4-Trimethylbenzene	17.26	105	152	2.055	pg		94

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091733.D
Acq On : 10 Jan 2017 8:12
Operator : JM
Sample : AS01026 FCR00085
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

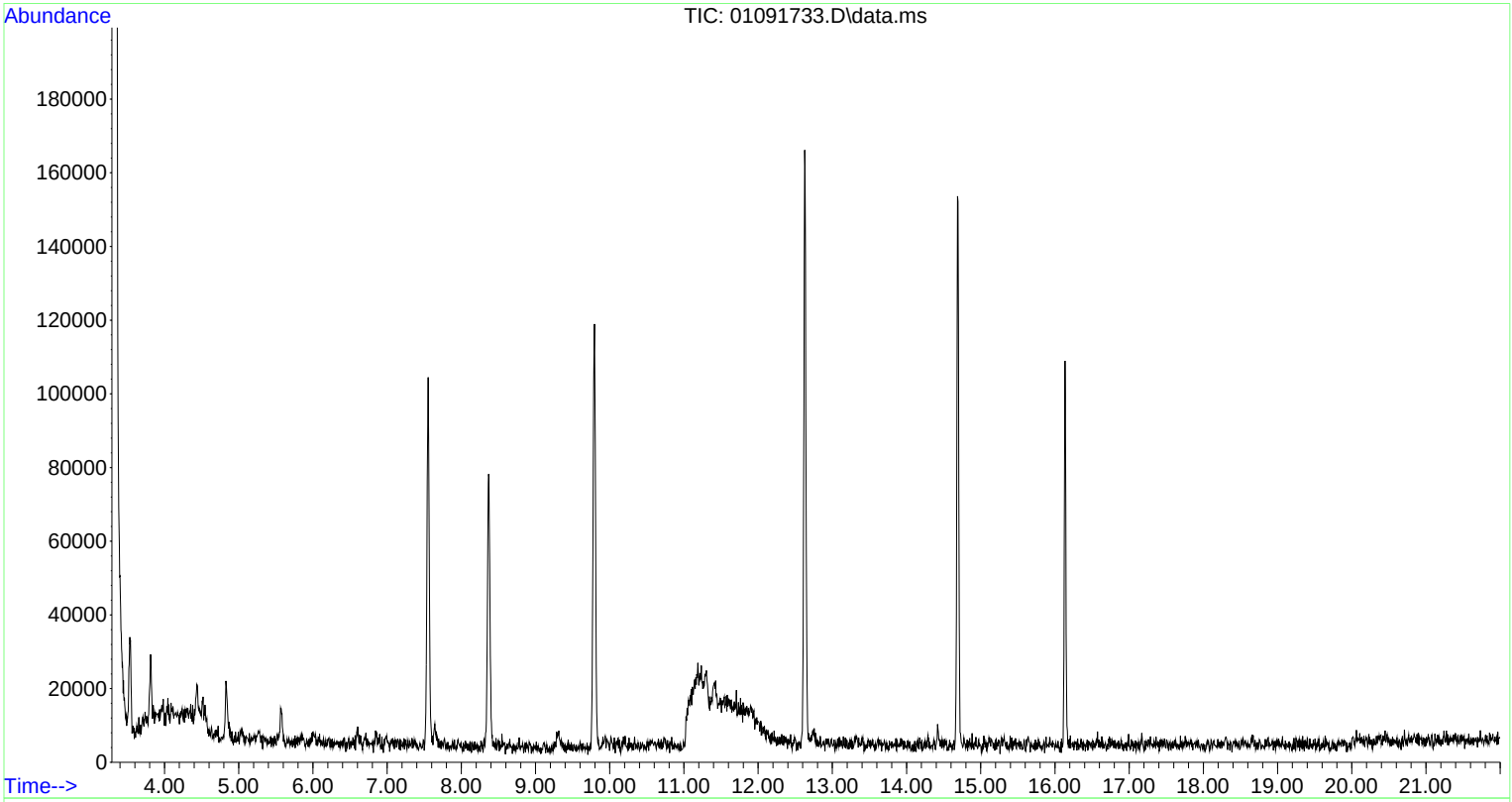
Quant Time: Jan 10 11:21:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

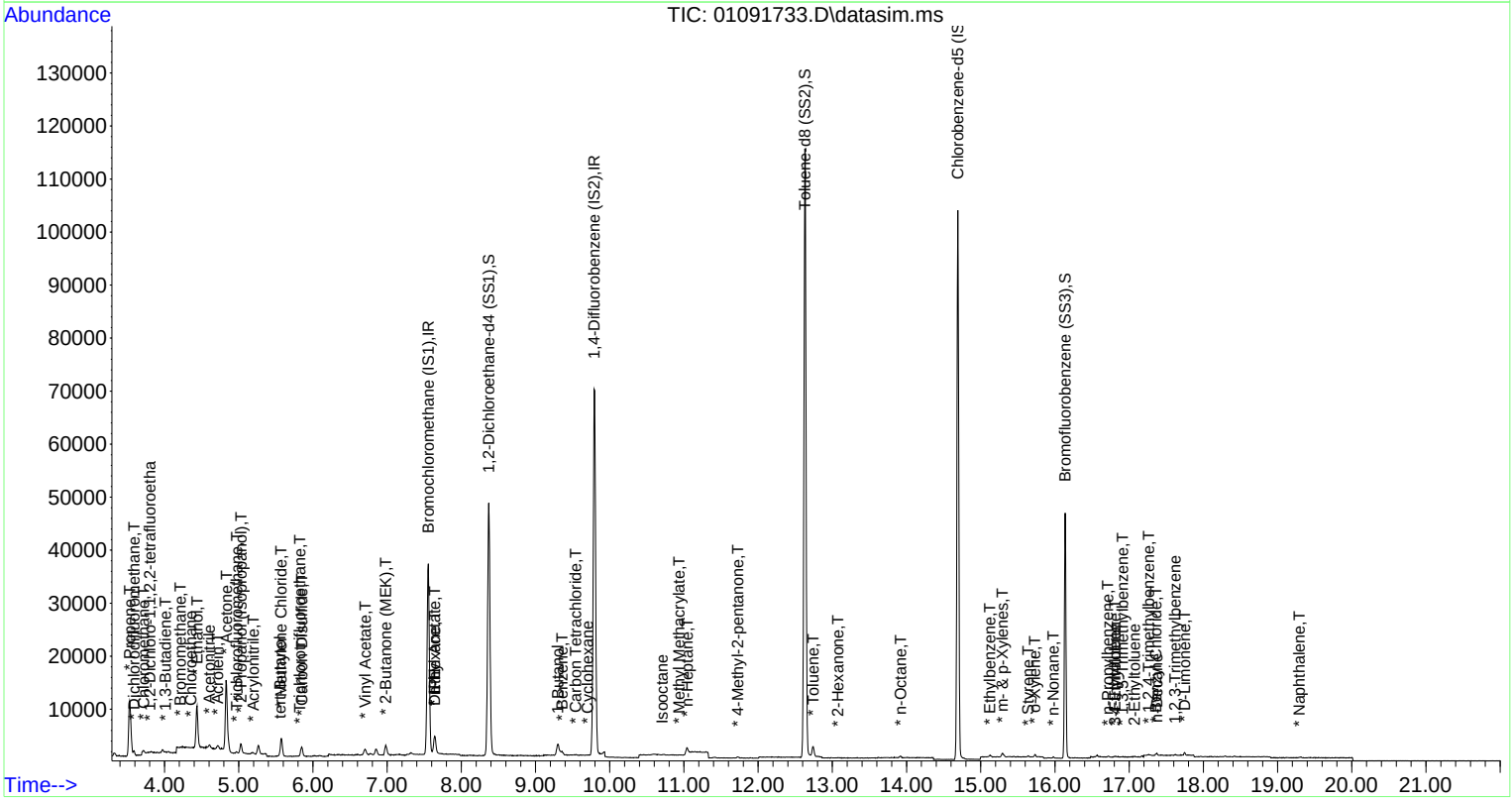
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
85) * Benzyl Chloride	17.36	126	92	12.339	pg	#	31
88) n-Decane	17.38	85	59	4.172	pg		70
90) 1,2,3-Trimethylbenzene	17.62	105	77	0.993	pg	#	27
93) * D-Limonene	17.75	68	281	8.629	pg		85
98) * Naphthalene	19.29	128	57	1.806	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091733.D
Acq On : 10 Jan 2017 8:12
Operator : JM
Sample : AS01026 FCR00085
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 209 Sample Multiplier: 1

Quant Time: Jan 10 11:21:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111726.D
Acq On : 12 Jan 2017 2:22
Operator : JM
Sample : AS01168 FCA01021
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 12 08:23:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39179	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	103524	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	87531	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	60770	787.578	pg		0.00
Spiked Amount 1000.000			Recovery = 78.76%				
57) Toluene-d8 (SS2)	12.63	98	111282	1040.413	pg		0.00
Spiked Amount 1000.000			Recovery = 104.04%				
74) Bromofluorobenzene (SS3)	16.14	174	27723	786.984	pg		0.00
Spiked Amount 1000.000			Recovery = 78.70%				
Target Compounds							Qvalue
2) * Propene	3.53	42	13143	167.135	pg		90
3) * Dichlorodifluoromethane	3.59	85	4587	27.383	pg		99
4) * Chloromethane	3.72	50	1759	14.047	pg	#	85
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	172	1.383	pg	#	42
7) * 1,3-Butadiene	4.01	54	96	1.080	pg	#	1
8) * Bromomethane	4.22	94	104	1.367	pg		89
9) * Chloroethane	4.36	64	58	1.067	pg	#	41
10) * Ethanol	4.43	45	5237	97.645	pg		91
11) * Acetonitrile	4.60	41	1657	12.322	pg	#	45
12) * Acrolein	4.72	56	732	16.291	pg		98
13) * Acetone	4.83	58	9493	187.393	pg	#	62
14) * Trichlorofluoromethane	4.97	101	1769	15.808	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	5235	38.140	pg		91
16) * Acrylonitrile	5.19	53	397	4.976	pg		95
17) * 1,1-Dichloroethene	5.49	96	78	1.722	pg	#	17
18) tert-Butanol	5.56	59	424	5.125	pg		88
19) * Methylene Chloride	5.58	84	5086	90.132	pg		98
21) * Trichlorotrifluoroet...	5.82	151	370	8.436	pg		97
22) * Carbon Disulfide	5.85	76	4702	22.730	pg		99
26) * Vinyl Acetate	6.70	86	191	17.978	pg	#	10
27) * 2-Butanone (MEK)	6.98	72	506	16.642	pg		69
29) DIPE	7.64	45	1717	9.689	pg	#	53
30) * Ethyl Acetate	7.64	61	1511	97.204	pg		95
31) * n-Hexane	7.65	57	486	6.080	pg		97
32) * Chloroform	7.69	83	166	1.680	pg	#	74
36) * 1,2-Dichloroethane	8.49	62	131	1.567	pg	#	78
39) * Benzene	9.36	78	1748	14.641	pg	#	88
41) 1-Butanol	9.30	56	2105	94.057	pg	#	61
42) * Carbon Tetrachloride	9.55	117	406	8.741	pg	#	73
49) Isooctane	10.72	56	342	5.993	pg	#	58
51) * n-Heptane	11.04	71	356	5.807	pg	#	72
53) * 4-Methyl-2-pentanone	11.73	58	95	4.404	pg	#	25
58) * Toluene	12.74	91	4602	37.199	pg		100
59) * 2-Hexanone	13.08	58	118	5.576	pg	#	68
62) * n-Butyl Acetate	13.80	56	119	7.863	pg	#	37
64) * Tetrachloroethene	14.02	166	257	6.247	pg		85
66) * Ethylbenzene	15.13	91	414	3.968	pg	#	86
67) * m- & p-Xylenes	15.29	91	936	11.547	pg	#	84
70) * Styrene	15.63	104	139	3.221	pg	#	49
71) * o-Xylene	15.73	91	298	3.758	pg	#	83
76) * alpha-Pinene	16.61	93	210	4.086	pg	#	73
78) 3-Ethyltoluene	16.81	105	141	1.943	pg	#	82
79) * 4-Ethyltoluene	16.85	105	61	0.959	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	88	1.233	pg	#	29
83) tert-Butylbenzene	17.28	134	165	10.295	pg	#	1

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111726.D
Acq On : 12 Jan 2017 2:22
Operator : JM
Sample : AS01168 FCA01021
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

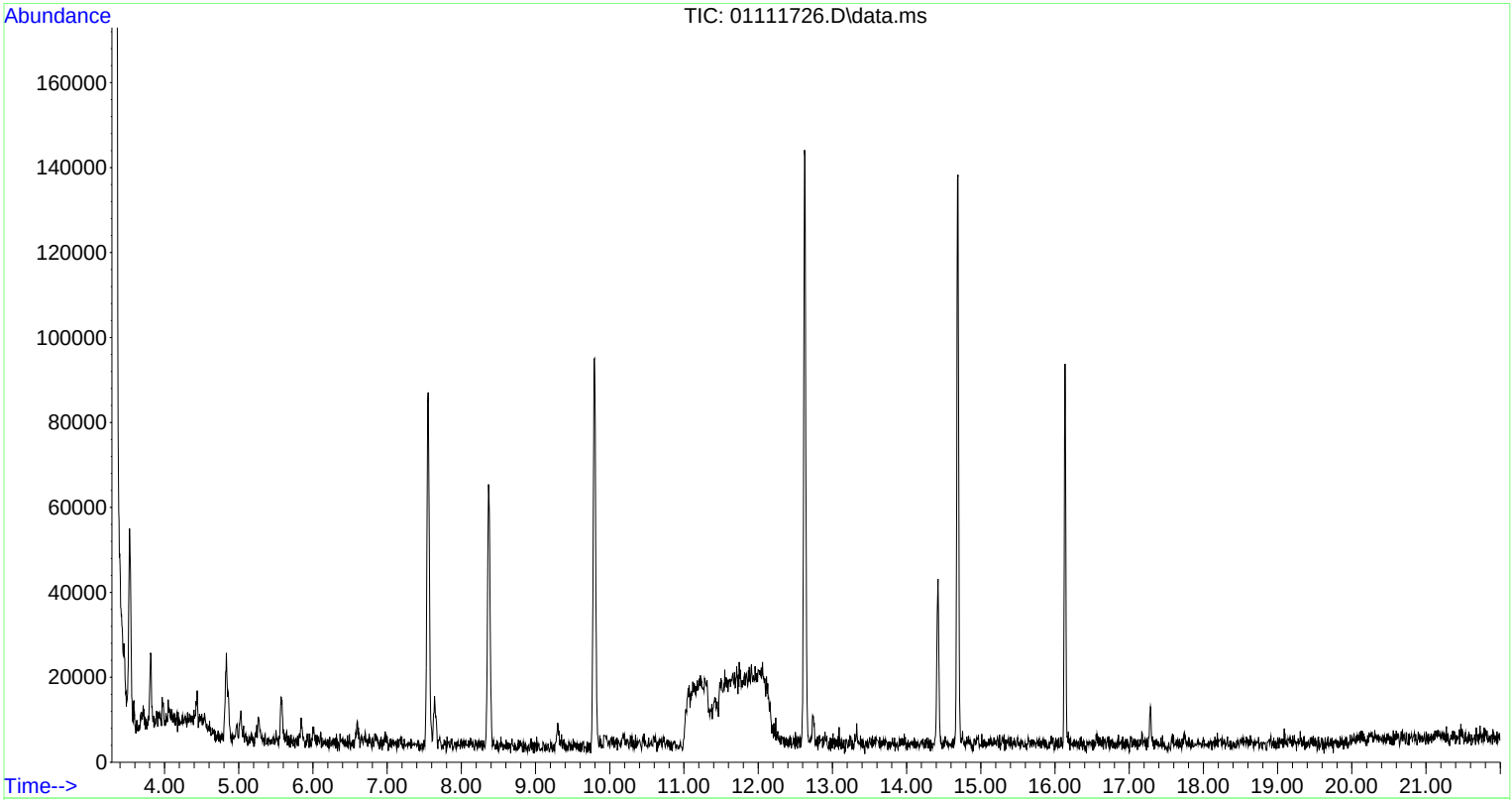
Quant Time: Jan 12 08:23:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

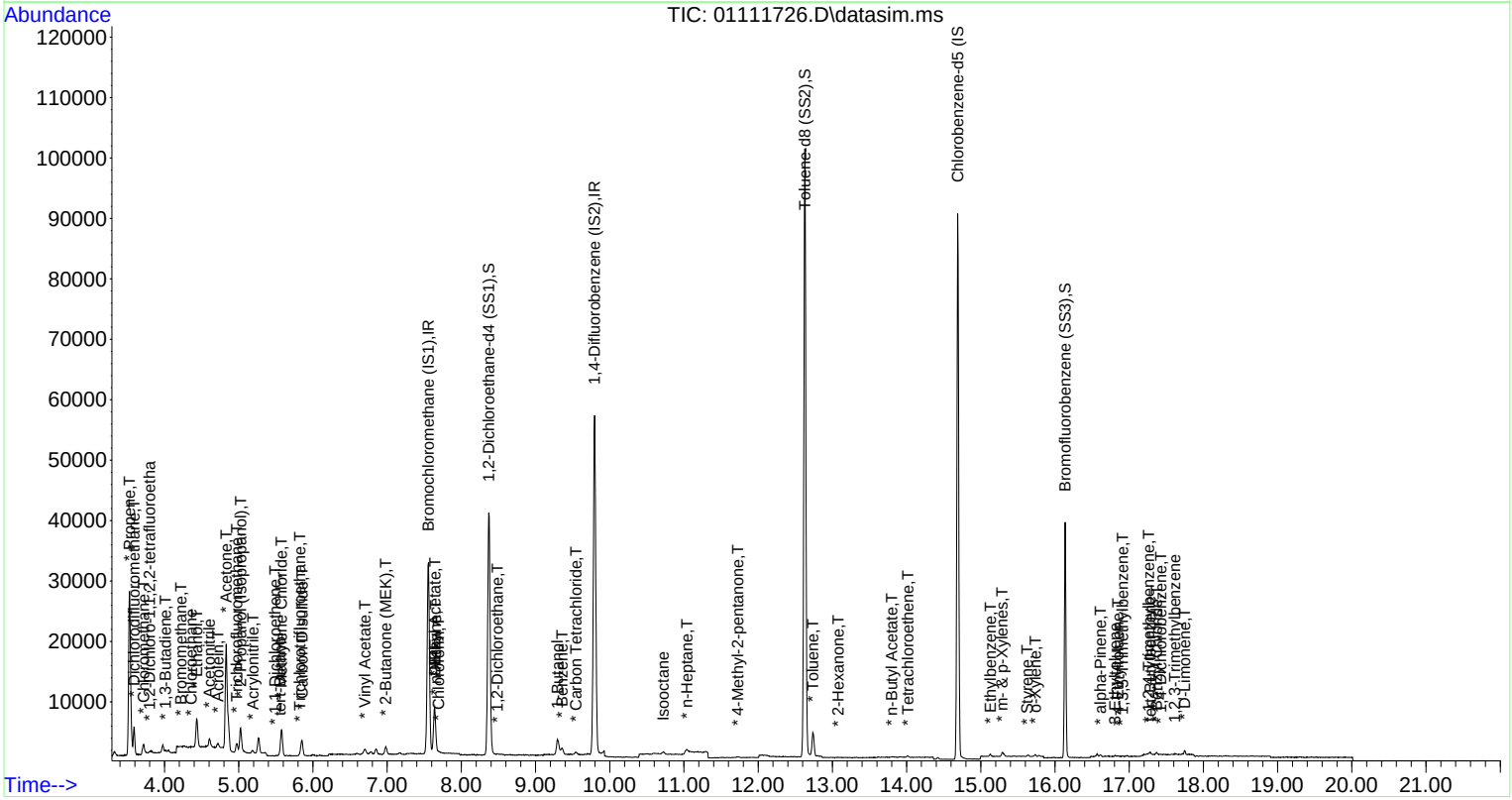
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
84) * 1,2,4-Trimethylbenzene	17.26	105	199	3.086	pg		90
85) * Benzyl Chloride	17.37	126	68	10.461	pg		81
87) * 1,4-Dichlorobenzene	17.43	146	60	2.040	pg	#	17
90) 1,2,3-Trimethylbenzene	17.61	105	63	0.932	pg	#	27
93) * D-Limonene	17.75	68	343	12.081	pg		91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111726.D
Acq On : 12 Jan 2017 2:22
Operator : JM
Sample : AS01168 FCA01021
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 12 08:23:02 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111704.D Vial: 9
Acq On : 11 Jan 2017 8:40 Operator: CL
Sample : AC02087-FCA00895 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

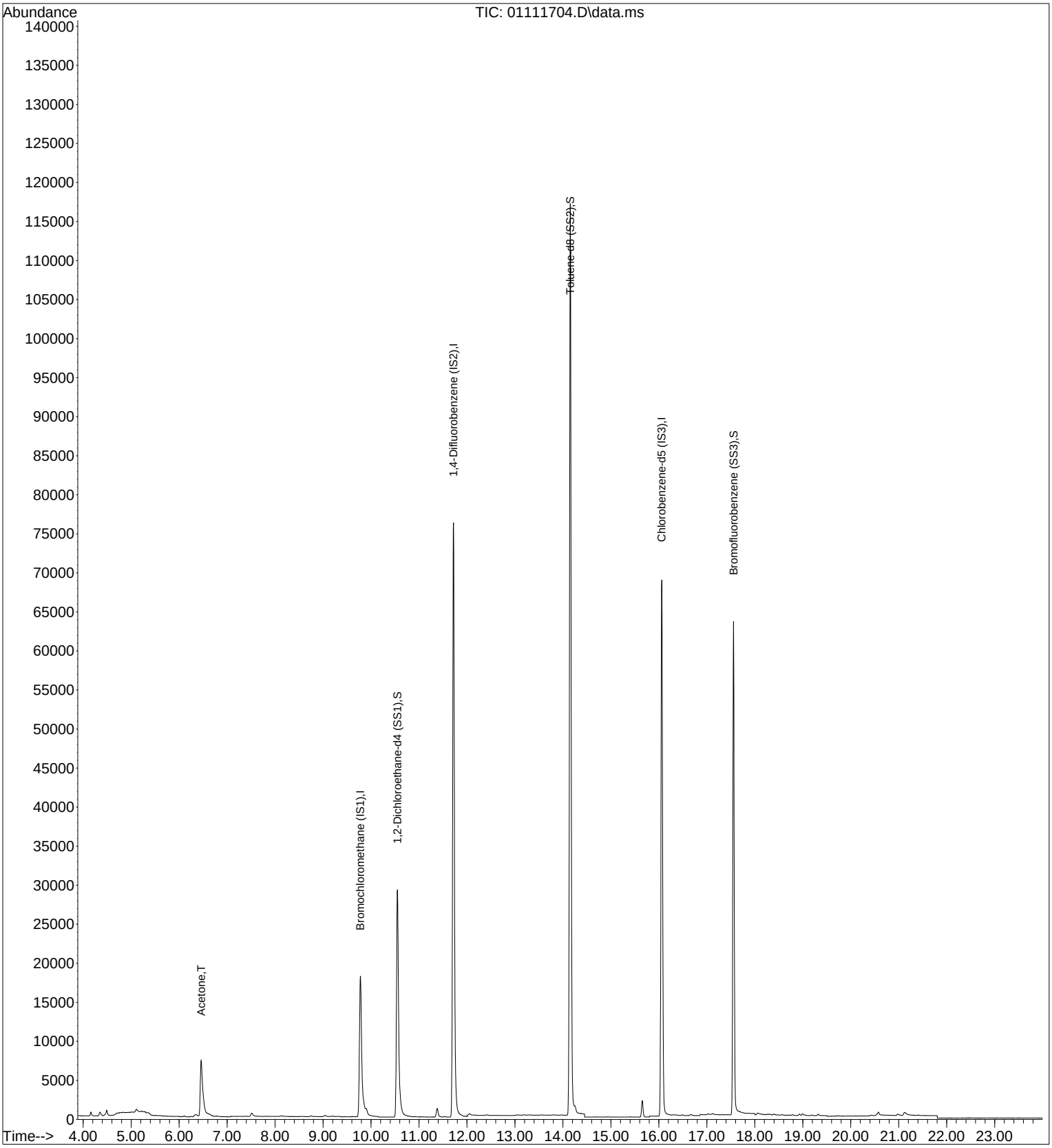
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	35342	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	164143	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	26852	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	59241	1050.983	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.10%			
33) Toluene-d8 (SS2)	14.15	98	164999	1065.377	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.54%			
45) Bromofluorobenzene (SS3)	17.56	174	50235	976.940	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.69%			
Target Compounds						Qvalue
10) Acetone	6.46	58	8332	373.431	pg	# 79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111704.D Vial: 9
Acq On : 11 Jan 2017 8:40 Operator: CL
Sample : AC02087-FCA00895 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101718.D Vial: 6
Acq On : 10 Jan 2017 18:24 Operator: CL
Sample : AS01002-FCA01059 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

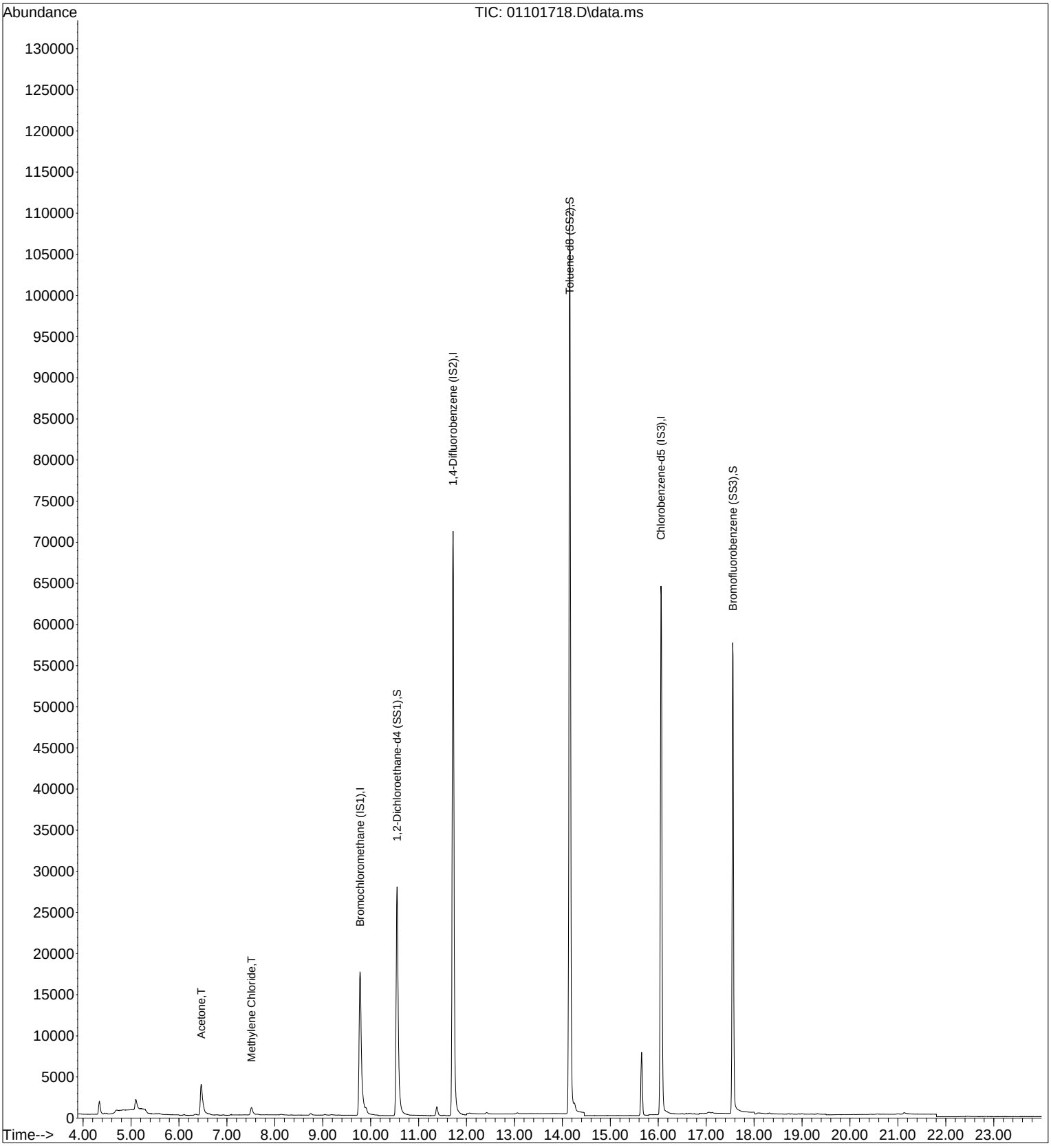
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	33747	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	153888	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	24988	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	56235	1044.807	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.48%				
33) Toluene-d8 (SS2)	14.15	98	155128	1068.390	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.84%				
45) Bromofluorobenzene (SS3)	17.56	174	45946	960.183	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.02%				
Target Compounds							Qvalue
10) Acetone	6.47	58	3767	176.813	pg		98
13) Methylene Chloride	7.52	84	1031	25.828	pg	#	79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101718.D Vial: 6
Acq On : 10 Jan 2017 18:24 Operator: CL
Sample : AS01002-FCA01059 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:11 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101719.D
Acq On : 10 Jan 2017 20:56
Operator : JM
Sample : SC01732 FCR00116
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 11 09:11:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	45001	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133231	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	103208	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	71787	809.993 pg		0.00
Spiked Amount 1000.000			Recovery = 81.00%			
57) Toluene-d8 (SS2)	12.63	98	145046	1150.098 pg		0.00
Spiked Amount 1000.000			Recovery = 115.01%			
74) Bromofluorobenzene (SS3)	16.14	174	34113	821.286 pg		0.00
Spiked Amount 1000.000			Recovery = 82.13%			
Target Compounds						Qvalue
2) * Propene	3.53	42	12958	143.464 pg		91
3) * Dichlorodifluoromethane	3.59	85	860	4.470 pg		98
4) * Chloromethane	3.71	50	735	5.110 pg		98
7) * 1,3-Butadiene	3.98	54	547	5.355 pg	#	1
10) * Ethanol	4.44	45	6799	110.368 pg		99
11) * Acetonitrile	4.60	41	1409	9.122 pg	#	58
12) * Acrolein	4.71	56	2049	39.702 pg		96
13) * Acetone	4.82	58	104234	1791.396 pg	#	58
14) * Trichlorofluoromethane	4.97	101	374	2.910 pg		99
15) * 2-Propanol (Isopropa...	5.03	45	14544	92.253 pg	#	85
16) * Acrylonitrile	5.19	53	407	4.442 pg		97
17) * 1,1-Dichloroethene	5.48	96	64	1.230 pg	#	17
18) tert-Butanol	5.55	59	2242	23.595 pg		92
19) * Methylene Chloride	5.58	84	2770	42.738 pg		100
20) * 3-Chloro-1-propene (...	5.64	41	76	0.878 pg	#	43
22) * Carbon Disulfide	5.85	76	36903	155.311 pg		98
26) * Vinyl Acetate	6.71	86	2595	212.656 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	17010	487.055 pg		81
29) DIPE	7.65	45	892	4.382 pg	#	53
30) * Ethyl Acetate	7.64	61	939	52.592 pg	#	82
31) * n-Hexane	7.65	57	326	3.551 pg	#	76
34) * Tetrahydrofuran	8.15	71	130	4.644 pg	#	5
39) * Benzene	9.36	78	1399	9.105 pg		93
41) 1-Butanol	9.31	56	2638	91.590 pg	#	54
43) * Cyclohexane	9.71	84	52	1.064 pg	#	1
48) * 1,4-Dioxane	10.67	88	232	7.240 pg	#	68
49) Isooctane	10.73	56	135	1.838 pg		86
51) * n-Heptane	11.04	71	263	3.334 pg	#	36
53) * 4-Methyl-2-pentanone	11.73	58	765	27.558 pg	#	60
58) * Toluene	12.74	91	2820	19.332 pg		98
59) * 2-Hexanone	13.07	58	556	22.282 pg		100
63) * n-Octane	13.92	85	58	2.549 pg	#	1
65) * Chlorobenzene	14.74	112	67	0.697 pg	#	42
66) * Ethylbenzene	15.12	91	145	1.179 pg	#	45
67) * m- & p-Xylenes	15.30	91	103	1.078 pg	#	31
69) Cyclohexanone	15.45	98	198	18.548 pg		98
70) * Styrene	15.63	104	75	1.474 pg	#	28
71) * o-Xylene	15.73	91	120	1.284 pg	#	32
72) * n-Nonane	15.98	57	90	2.136 pg	#	43
73) * 1,1,2,2-Tetrachloroe...	15.73	83	56	0.700 pg	#	19
76) * alpha-Pinene	16.61	93	77	1.271 pg		92
77) * n-Propylbenzene	16.72	91	66	0.537 pg	#	56
78) 3-Ethyltoluene	16.84	105	58	0.678 pg	#	45
79) * 4-Ethyltoluene	16.84	105	58	0.773 pg	#	46
84) * 1,2,4-Trimethylbenzene	17.26	105	108	1.420 pg	#	60

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101719.D
Acq On : 10 Jan 2017 20:56
Operator : JM
Sample : SC01732 FCR00116
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

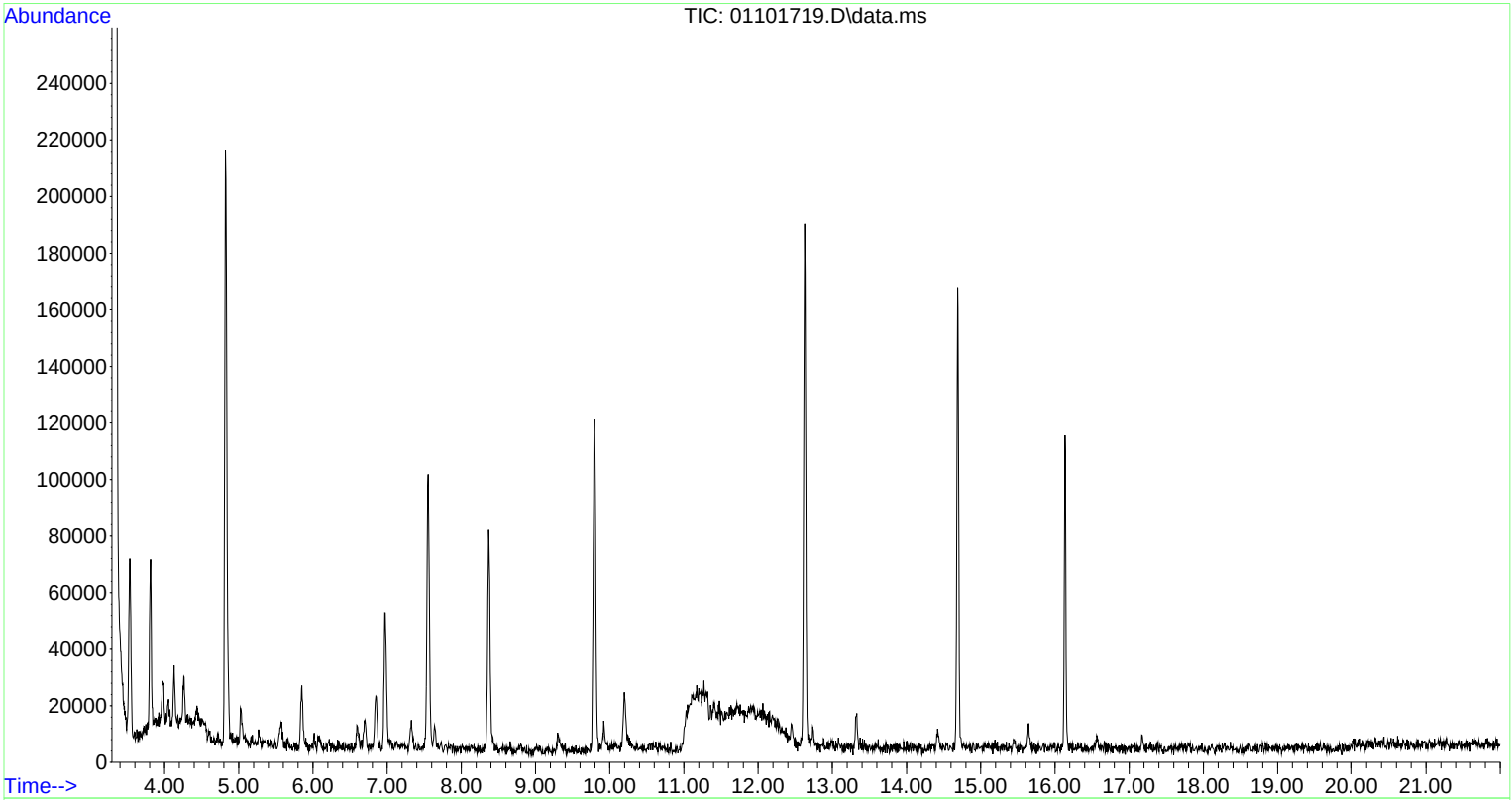
Quant Time: Jan 11 09:11:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

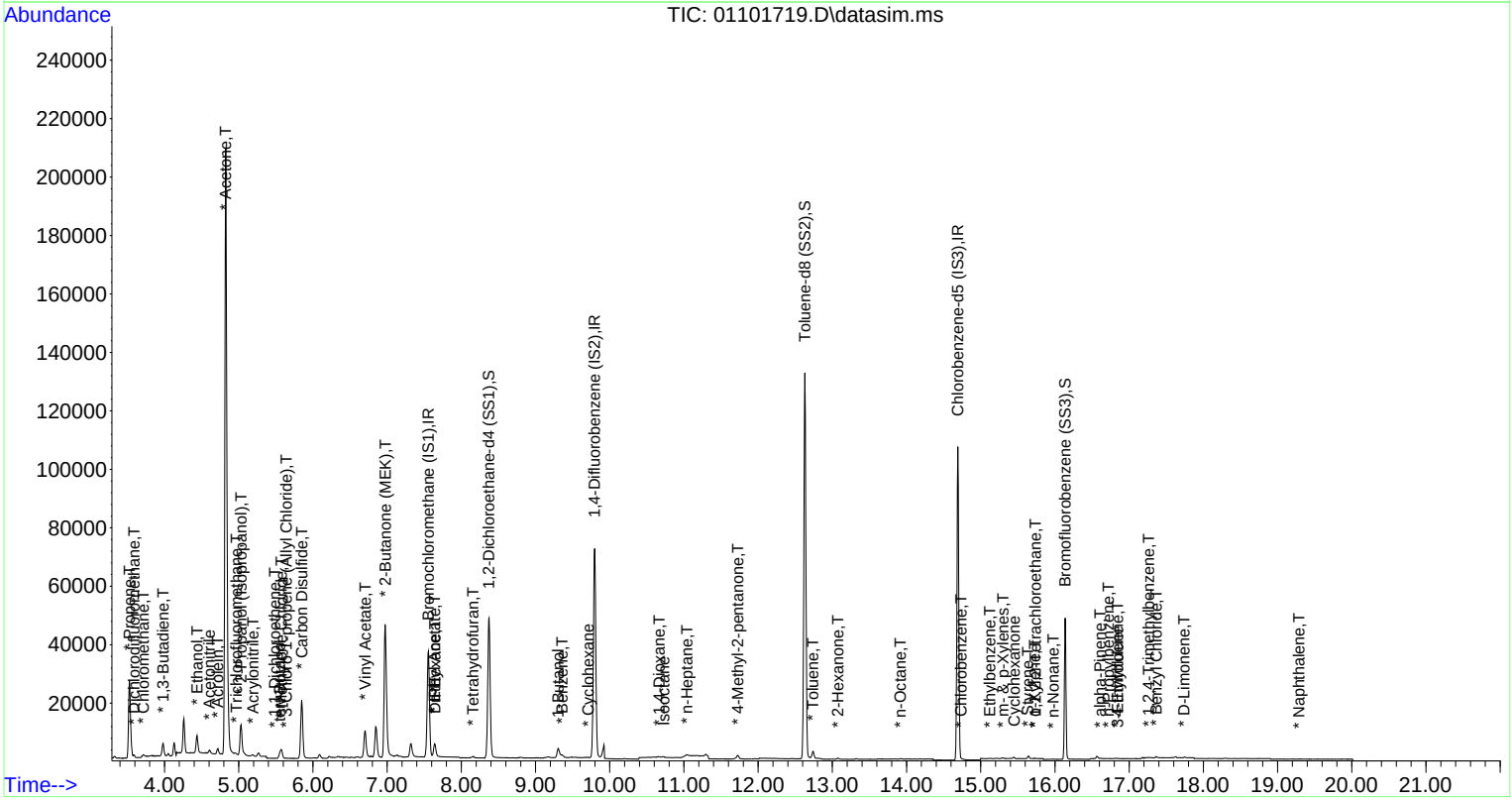
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
85) * Benzyl Chloride	17.36	126	113	14.743	pg	#	58
93) * D-Limonene	17.74	68	199	5.944	pg		99
98) * Naphthalene	19.29	128	68	2.095	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101719.D
Acq On : 10 Jan 2017 20:56
Operator : JM
Sample : SC01732 FCR00116
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 11 09:11:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101717.D
Acq On : 10 Jan 2017 19:10
Operator : JM
Sample : AC02130 FCR00241
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 11 09:10:59 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44018	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	125216	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	100932	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70586	814.228	pg		0.00
Spiked Amount 1000.000			Recovery = 81.42%				
57) Toluene-d8 (SS2)	12.63	98	111998	908.080	pg		0.00
Spiked Amount 1000.000			Recovery = 90.81%				
74) Bromofluorobenzene (SS3)	16.14	174	31939	786.285	pg		0.00
Spiked Amount 1000.000			Recovery = 78.63%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5026	56.888	pg	#	73
3) * Dichlorodifluoromethane	3.59	85	1326	7.046	pg		96
4) * Chloromethane	3.72	50	795	5.651	pg		94
6) * Vinyl Chloride	3.92	62	60	0.446	pg	#	42
7) * 1,3-Butadiene	3.99	54	35	0.350	pg	#	1
8) * Bromomethane	4.21	94	75	0.877	pg		84
10) * Ethanol	4.44	45	5228	86.761	pg		100
11) * Acetonitrile	4.61	41	833	5.513	pg	#	35
12) * Acrolein	4.72	56	972	19.254	pg		98
13) * Acetone	4.84	58	13276	233.260	pg	#	37
14) * Trichlorofluoromethane	4.97	101	570	4.534	pg		92
15) * 2-Propanol (Isopropa...	5.03	45	3378	21.905	pg		89
16) * Acrylonitrile	5.19	53	222	2.477	pg	#	75
18) tert-Butanol	5.56	59	551	5.928	pg		85
19) * Methylene Chloride	5.58	84	3916	61.769	pg		94
21) * Trichlorotrifluoroet...	5.82	151	98	1.989	pg	#	19
22) * Carbon Disulfide	5.85	76	4053	17.438	pg		98
26) * Vinyl Acetate	6.71	86	694	58.142	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1007	29.478	pg		76
29) DIPE	7.64	45	1767	8.875	pg	#	53
30) * Ethyl Acetate	7.64	61	1846	105.700	pg		99
31) * n-Hexane	7.65	57	192	2.138	pg	#	49
39) * Benzene	9.36	78	802	5.554	pg		99
41) 1-Butanol	9.31	56	1028	37.976	pg	#	34
42) * Carbon Tetrachloride	9.55	117	75	1.335	pg	#	67
47) * Trichloroethene	10.63	130	551	11.968	pg		99
51) * n-Heptane	11.04	71	229	3.088	pg	#	43
53) * 4-Methyl-2-pentanone	11.73	58	106	4.063	pg	#	47
58) * Toluene	12.74	91	5980	41.920	pg		99
59) * 2-Hexanone	13.07	58	154	6.311	pg	#	68
63) * n-Octane	13.91	85	62	2.786	pg	#	1
65) * Chlorobenzene	14.73	112	53	0.564	pg	#	42
66) * Ethylbenzene	15.12	91	243	2.020	pg		90
67) * m- & p-Xylenes	15.29	91	578	6.184	pg		98
70) * Styrene	15.63	104	78	1.567	pg	#	28
71) * o-Xylene	15.73	91	174	1.903	pg		100
72) * n-Nonane	15.98	57	82	1.990	pg	#	42
76) * alpha-Pinene	16.61	93	92	1.552	pg	#	18
77) * n-Propylbenzene	16.72	91	71	0.591	pg	#	56
78) 3-Ethyltoluene	16.81	105	94	1.124	pg	#	47
79) * 4-Ethyltoluene	16.81	105	94	1.281	pg	#	43
80) * 1,3,5-Trimethylbenzene	16.91	105	58	0.705	pg	#	29
84) * 1,2,4-Trimethylbenzene	17.26	105	192	2.582	pg	#	67
85) * Benzyl Chloride	17.36	126	103	13.741	pg	#	2
86) * 1,3-Dichlorobenzene	17.43	146	53	1.327	pg	#	17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101717.D
Acq On : 10 Jan 2017 19:10
Operator : JM
Sample : AC02130 FCR00241
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

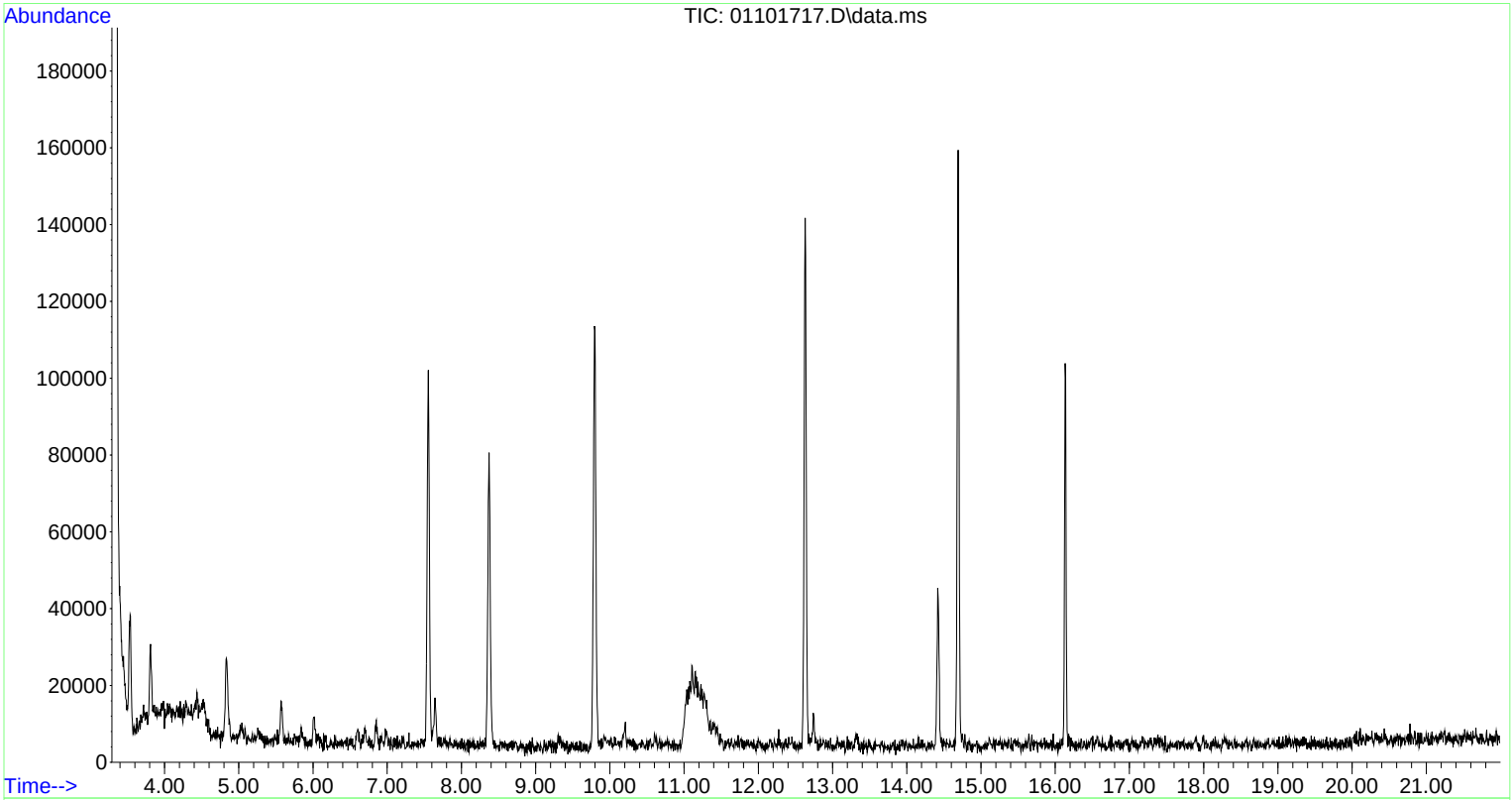
Quant Time: Jan 11 09:10:59 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

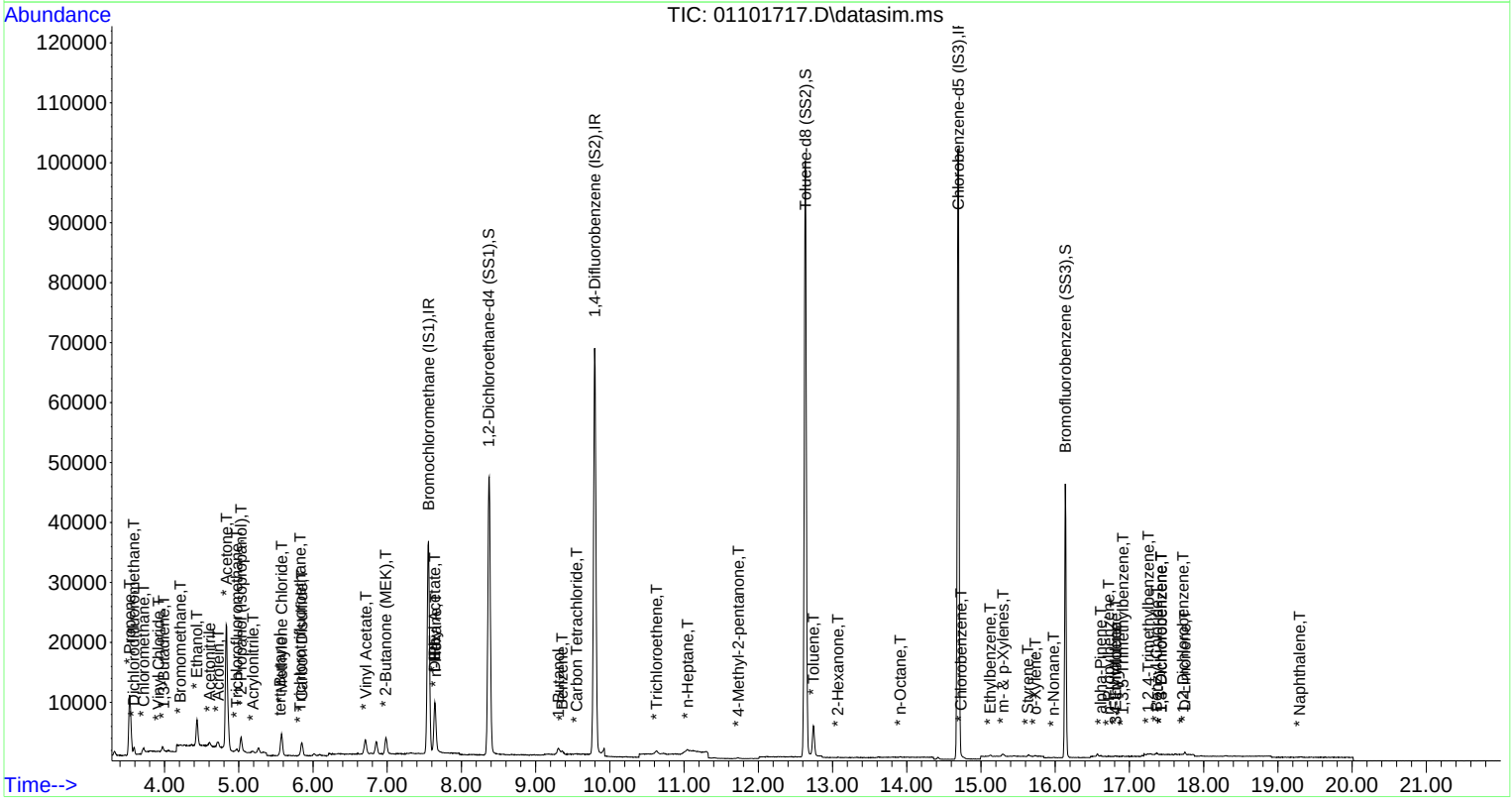
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
87) * 1,4-Dichlorobenzene	17.43	146	62	1.828	pg	#	17
92) * 1,2-Dichlorobenzene	17.72	146	50	1.090	pg	#	18
93) * D-Limonene	17.75	68	262	8.003	pg		91
98) * Naphthalene	19.29	128	95	2.994	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101717.D
Acq On : 10 Jan 2017 19:10
Operator : JM
Sample : AC02130 FCR00241
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 11 09:10:59 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101711.D
Acq On : 10 Jan 2017 15:02
Operator : JM
Sample : AS00036 FCR00142
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 11 09:10:23 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44149	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133938	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102883	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	71563	823.049 pg		0.00
Spiked Amount 1000.000			Recovery = 82.30%			
57) Toluene-d8 (SS2)	12.63	98	143961	1145.101 pg		0.00
Spiked Amount 1000.000			Recovery = 114.51%			
74) Bromofluorobenzene (SS3)	16.14	174	33596	811.394 pg		0.00
Spiked Amount 1000.000			Recovery = 81.14%			
Target Compounds						Qvalue
2) * Propene	3.53	42	5267	59.439 pg	#	72
3) * Dichlorodifluoromethane	3.59	85	663	3.512 pg	#	78
4) * Chloromethane	3.72	50	924	6.548 pg	#	84
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	62	0.442 pg	#	42
7) * 1,3-Butadiene	4.01	54	65	0.649 pg	#	1
8) * Bromomethane	4.21	94	103	1.201 pg	#	68
9) * Chloroethane	4.35	64	75	1.225 pg	#	15
10) * Ethanol	4.44	45	7547	124.874 pg		98
11) * Acetonitrile	4.61	41	1002	6.612 pg	#	12
12) * Acrolein	4.72	56	1008	19.908 pg		97
13) * Acetone	4.84	58	8486	148.657 pg	#	52
14) * Trichlorofluoromethane	4.97	101	276	2.189 pg		92
15) * 2-Propanol (Isopropa...	5.03	45	2673	17.282 pg		97
16) * Acrylonitrile	5.19	53	213	2.369 pg	#	68
17) * 1,1-Dichloroethene	5.52	96	127	2.488 pg	#	17
18) tert-Butanol	5.56	59	482	5.170 pg	#	76
19) * Methylene Chloride	5.58	84	2728	42.902 pg		100
22) * Carbon Disulfide	5.85	76	4910	21.063 pg		97
26) * Vinyl Acetate	6.71	86	279	23.305 pg	#	1
27) * 2-Butanone (MEK)	6.99	72	740	21.598 pg	#	48
29) DIPE	7.64	45	807	4.041 pg	#	53
30) * Ethyl Acetate	7.64	61	790	45.100 pg		89
31) * n-Hexane	7.65	57	98	1.088 pg	#	1
39) * Benzene	9.36	78	1079	6.985 pg	#	90
41) 1-Butanol	9.30	56	8909	307.684 pg	#	50
48) * 1,4-Dioxane	10.66	88	167	5.184 pg		88
51) * n-Heptane	11.04	71	60	0.756 pg	#	1
53) * 4-Methyl-2-pentanone	11.72	58	59	2.114 pg	#	47
58) * Toluene	12.74	91	3160	21.731 pg		98
59) * 2-Hexanone	13.06	58	62	2.493 pg	#	68
63) * n-Octane	13.92	85	59	2.601 pg	#	69
64) * Tetrachloroethene	14.02	166	345	7.135 pg	#	82
66) * Ethylbenzene	15.13	91	263	2.145 pg	#	80
67) * m- & p-Xylenes	15.29	91	534	5.605 pg	#	68
69) Cyclohexanone	15.44	98	95	8.928 pg		81
70) * Styrene	15.64	104	219	4.317 pg		91
71) * o-Xylene	15.73	91	157	1.685 pg	#	85
72) * n-Nonane	15.98	57	58	1.381 pg	#	42
77) * n-Propylbenzene	16.72	91	108	0.882 pg	#	56
78) 3-Ethyltoluene	16.81	105	94	1.102 pg	#	45
79) * 4-Ethyltoluene	16.84	105	66	0.883 pg	#	46
84) * 1,2,4-Trimethylbenzene	17.26	105	217	2.863 pg	#	78
85) * Benzyl Chloride	17.37	126	63	8.245 pg		75
87) * 1,4-Dichlorobenzene	17.43	146	125	3.616 pg		84
90) 1,2,3-Trimethylbenzene	17.62	105	81	1.019 pg	#	27

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101711.D
Acq On : 10 Jan 2017 15:02
Operator : JM
Sample : AS00036 FCR00142
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

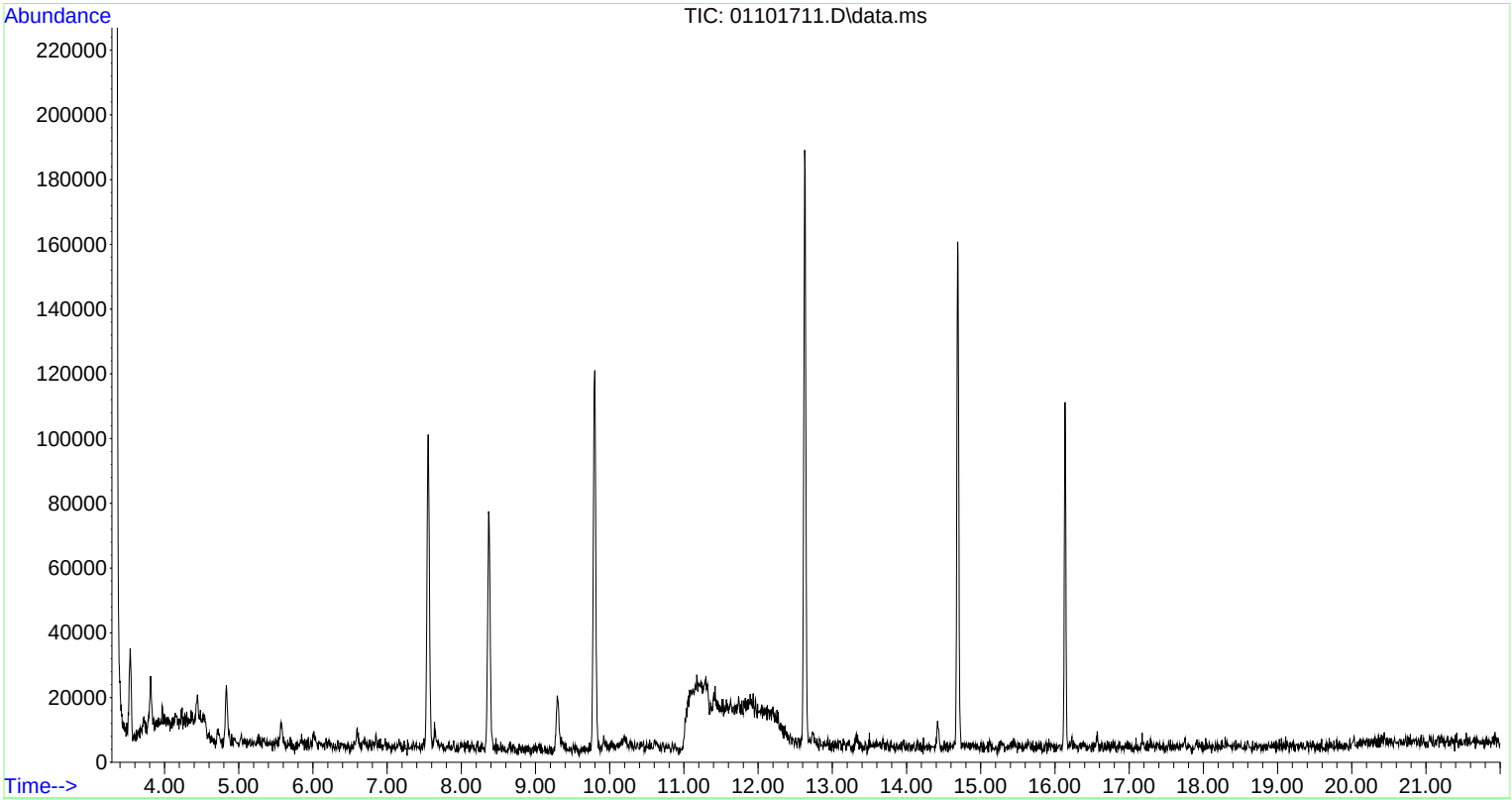
Quant Time: Jan 11 09:10:23 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

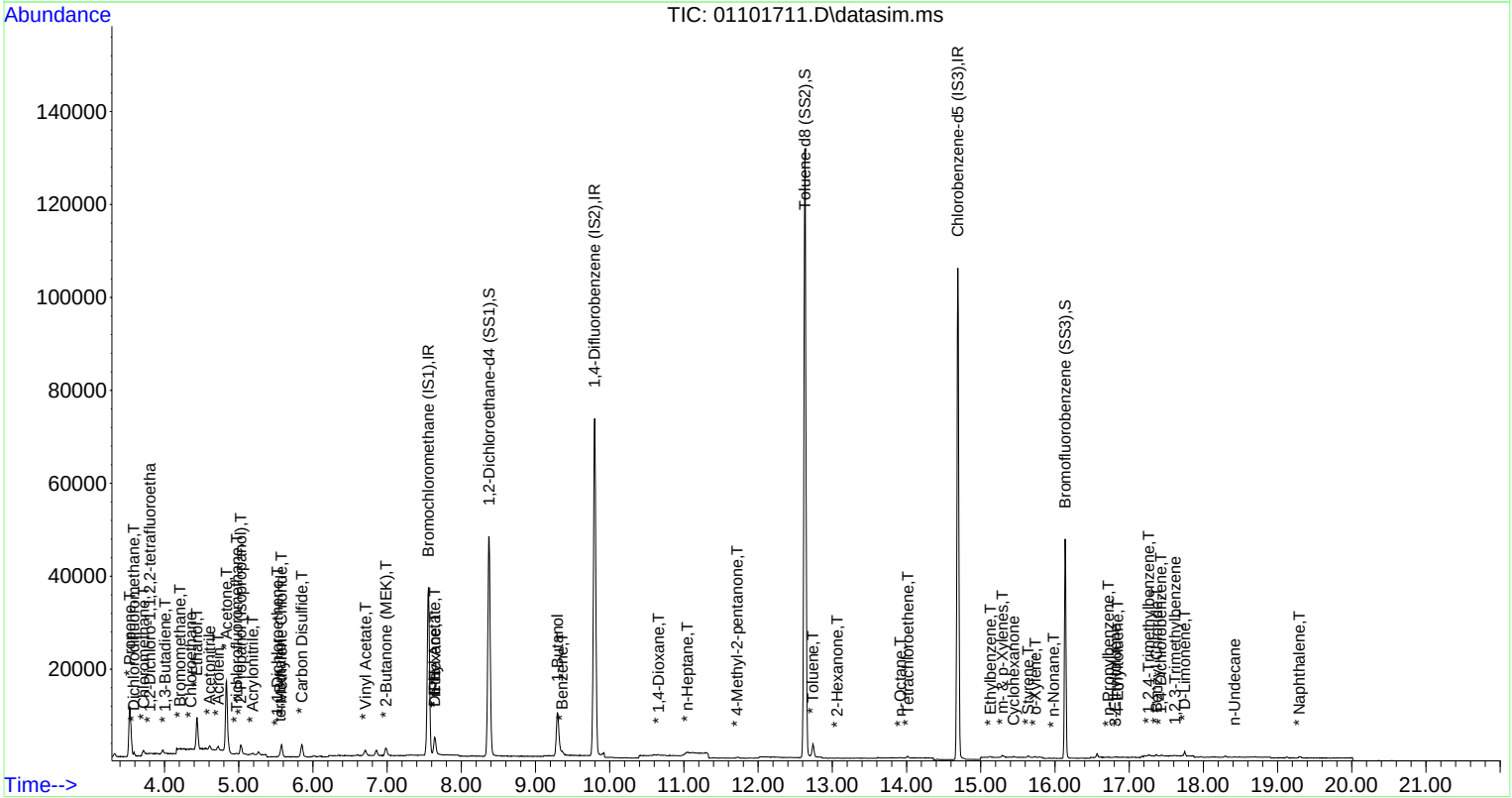
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) * D-Limonene	17.75	68	430	12.885	pg		83
96) n-Undecane	18.42	85	58	7.000	pg	#	1
98) * Naphthalene	19.29	128	445	13.756	pg	#	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101711.D
Acq On : 10 Jan 2017 15:02
Operator : JM
Sample : AS00036 FCR00142
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 11 09:10:23 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101723.D
Acq On : 11 Jan 2017 00:04
Operator : JM
Sample : AS00812 FCR00254
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 11 09:11:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	43389	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	122502	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	98995	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	70157	821.011	pg		0.00
Spiked Amount 1000.000			Recovery = 82.10%				
57) Toluene-d8 (SS2)	12.63	98	121996	1008.498	pg		0.00
Spiked Amount 1000.000			Recovery = 100.85%				
74) Bromofluorobenzene (SS3)	16.14	174	32841	824.310	pg		0.00
Spiked Amount 1000.000			Recovery = 82.43%				
Target Compounds							Qvalue
2) * Propene	3.53	42	4839	55.565	pg	#	71
3) * Dichlorodifluoromethane	3.59	85	935	5.040	pg		99
4) * Chloromethane	3.72	50	646	4.658	pg		90
7) * 1,3-Butadiene	4.00	54	27	0.274	pg	#	1
8) * Bromomethane	4.22	94	63	0.748	pg	#	3
10) * Ethanol	4.43	45	3289	55.374	pg		97
11) * Acetonitrile	4.61	41	862	5.788	pg	#	47
12) * Acrolein	4.72	56	605	12.158	pg	#	82
13) * Acetone	4.83	58	5985	106.681	pg	#	60
14) * Trichlorofluoromethane	4.97	101	348	2.808	pg		84
15) * 2-Propanol (Isopropa...	5.03	45	1401	9.217	pg	#	86
16) * Acrylonitrile	5.19	53	269	3.045	pg		98
17) * 1,1-Dichloroethene	5.48	96	70	1.395	pg		87
18) tert-Butanol	5.56	59	209	2.281	pg		91
19) * Methylene Chloride	5.58	84	3802	60.840	pg		98
20) * 3-Chloro-1-propene (...	5.65	41	119	1.426	pg	#	43
22) * Carbon Disulfide	5.85	76	4794	20.926	pg		96
26) * Vinyl Acetate	6.71	86	204	17.339	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	373	11.077	pg		71
29) DIPE	7.64	45	1171	5.967	pg	#	53
30) * Ethyl Acetate	7.64	61	1147	66.628	pg		100
31) * n-Hexane	7.64	57	357	4.033	pg		92
39) * Benzene	9.36	78	2408	17.045	pg		98
41) 1-Butanol	9.31	56	1035	39.082	pg	#	43
42) * Carbon Tetrachloride	9.54	117	127	2.311	pg	#	1
48) * 1,4-Dioxane	10.67	88	125	4.243	pg	#	68
49) Isooctane	10.72	56	156	2.310	pg	#	35
50) * Methyl Methacrylate	10.89	69	73	2.060	pg	#	42
51) * n-Heptane	11.04	71	492	6.782	pg	#	85
53) * 4-Methyl-2-pentanone	11.73	58	76	2.978	pg	#	47
58) * Toluene	12.74	91	3298	23.571	pg		99
63) * n-Octane	13.92	85	90	4.123	pg	#	72
65) * Chlorobenzene	14.73	112	76	0.824	pg	#	42
66) * Ethylbenzene	15.13	91	233	1.975	pg	#	71
67) * m- & p-Xylenes	15.30	91	482	5.258	pg		90
70) * Styrene	15.64	104	106	2.172	pg	#	28
71) * o-Xylene	15.74	91	189	2.108	pg		94
72) * n-Nonane	15.98	57	160	3.959	pg	#	42
76) * alpha-Pinene	16.61	93	75	1.290	pg		91
77) * n-Propylbenzene	16.72	91	134	1.137	pg	#	56
80) * 1,3,5-Trimethylbenzene	16.91	105	79	0.979	pg	#	29
81) alpha-Methylstyrene	17.04	118	11361	347.711	pg		95
82) 2-Ethyltoluene	17.05	105	156	1.593	pg	#	45
83) tert-Butylbenzene	17.28	134	124	6.841	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	186	2.550	pg		87

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101723.D
Acq On : 11 Jan 2017 00:04
Operator : JM
Sample : AS00812 FCR00254
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

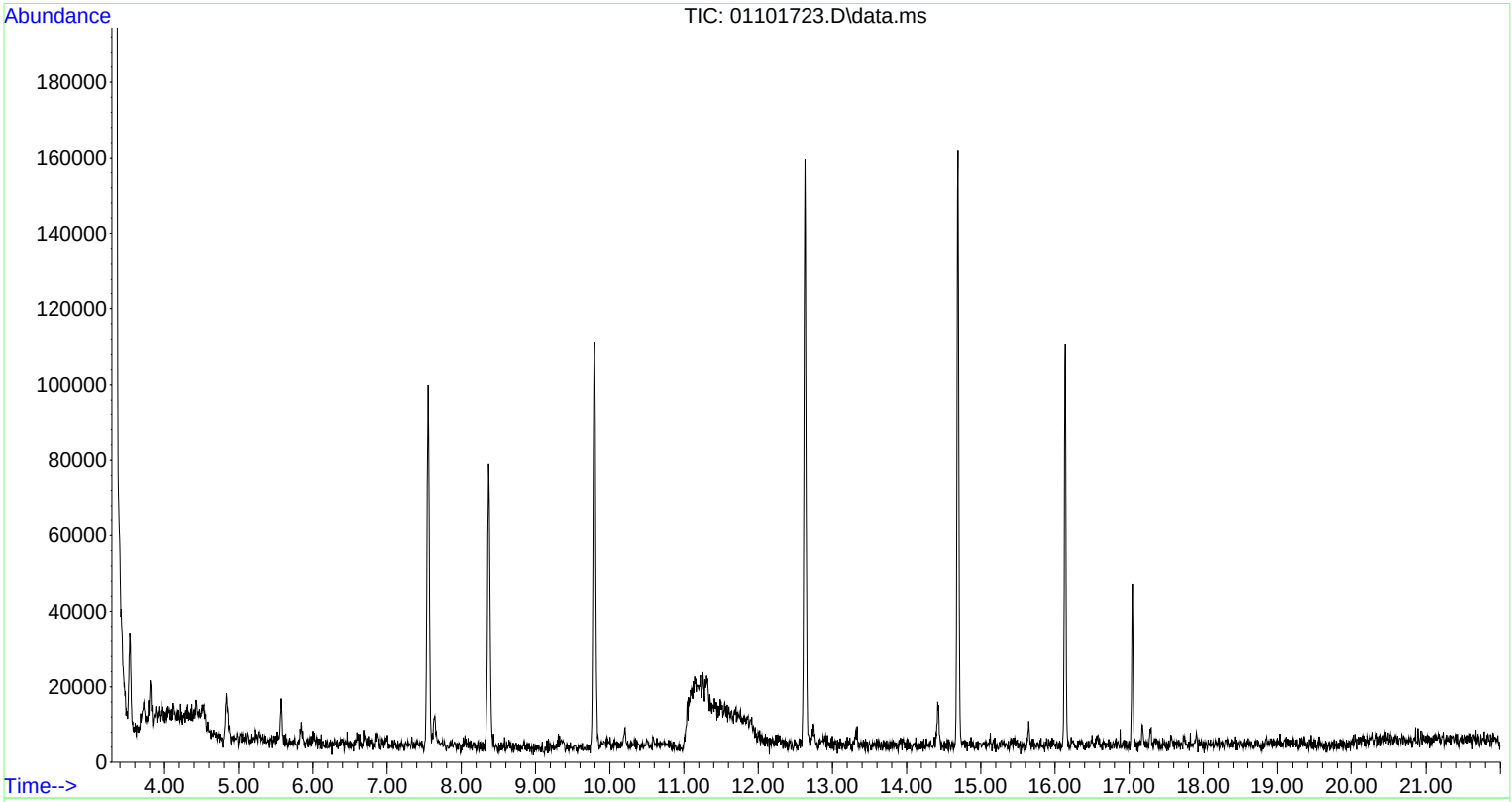
Quant Time: Jan 11 09:11:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

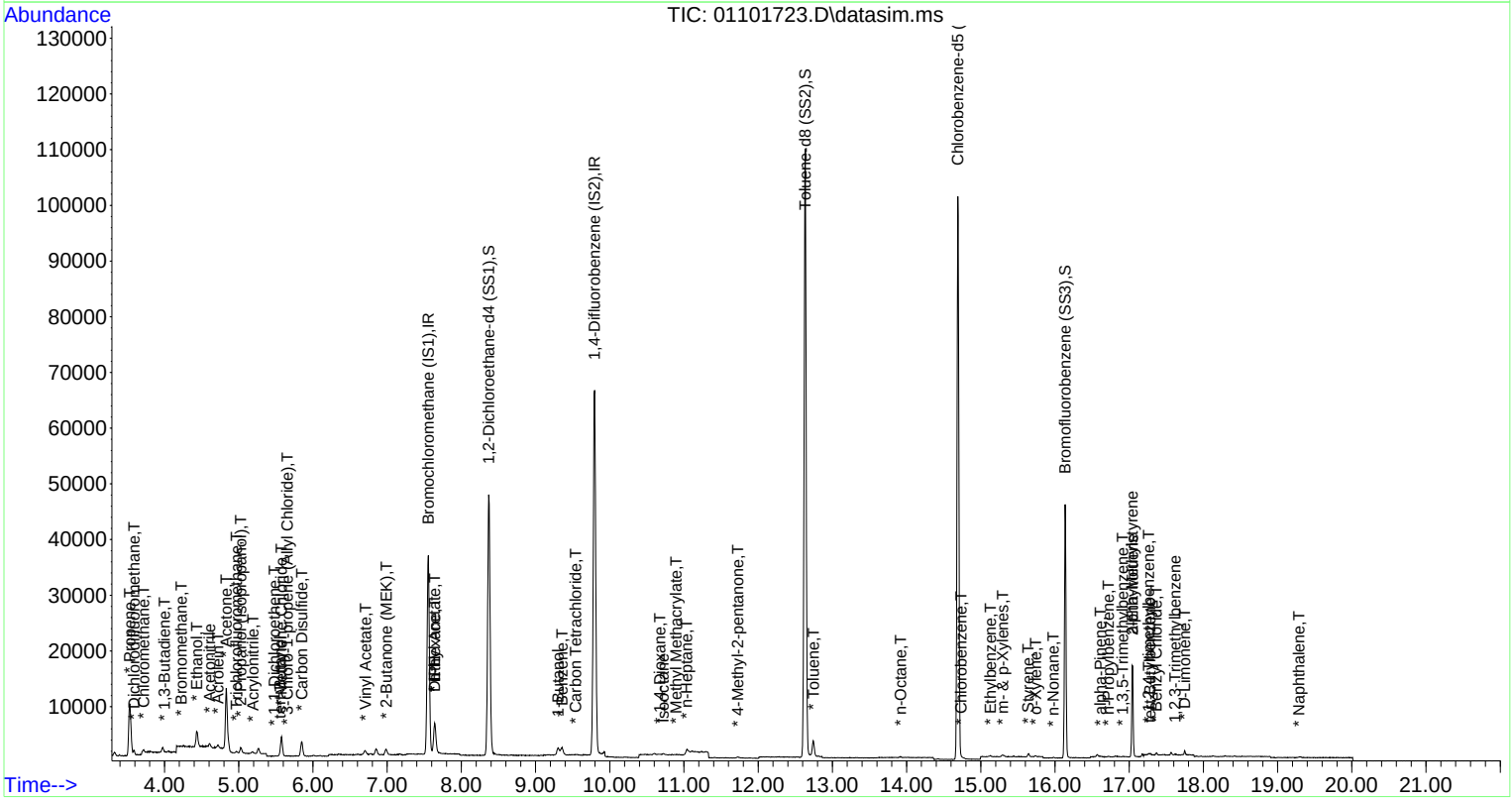
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
85) * Benzyl Chloride	17.36	126	67	9.113	pg		66
90) 1,2,3-Trimethylbenzene	17.62	105	75	0.981	pg	#	27
93) * D-Limonene	17.75	68	365	11.367	pg		100
98) * Naphthalene	19.29	128	127	4.080	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101723.D
Acq On : 11 Jan 2017 00:04
Operator : JM
Sample : AS00812 FCR00254
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jan 11 09:11:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111707.D Vial: 12
Acq On : 11 Jan 2017 10:14 Operator: CL
Sample : AC01936-FCA00012 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:14 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

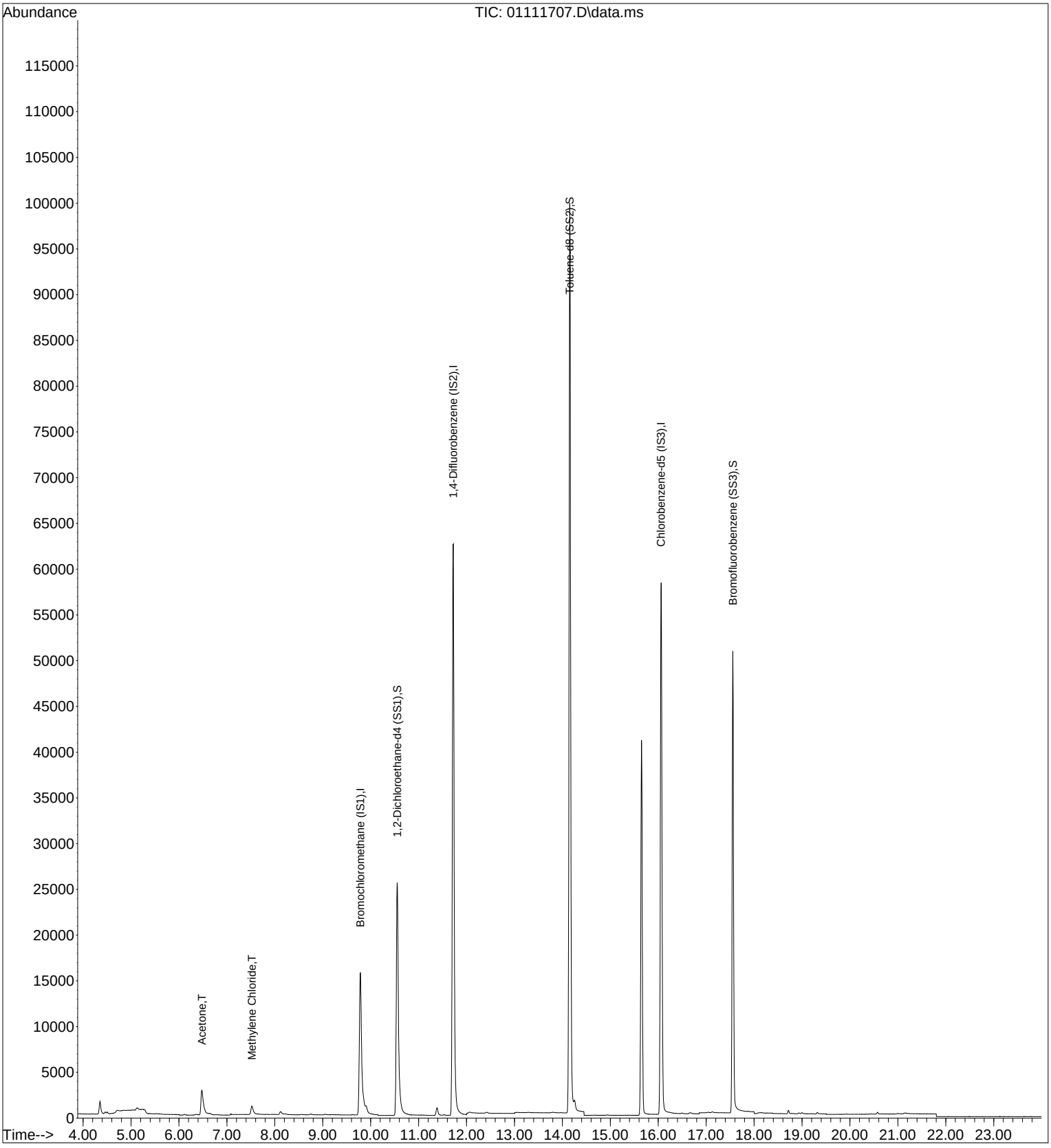
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	30690	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	136689	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	23155	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	52034	1063.052	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.31%			
33) Toluene-d8 (SS2)	14.15	98	139391	1080.800	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.08%			
45) Bromofluorobenzene (SS3)	17.56	174	40139	905.232	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.52%			
Target Compounds						Qvalue
10) Acetone	6.48	58	2888	149.057	pg	93
13) Methylene Chloride	7.52	84	1151	31.706	pg	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111707.D Vial: 12
Acq On : 11 Jan 2017 10:14 Operator: CL
Sample : AC01936-FCA00012 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:14 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051729.D
Acq On : 6 Jan 2017 4:19
Operator : JM
Sample : AC01910 FSC00268
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 06 08:16:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47058	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	156431	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	117259	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	77858	840.094	pg		0.00
Spiked Amount 1000.000			Recovery = 84.01%				
57) Toluene-d8 (SS2)	12.63	98	130651	911.820	pg		0.00
Spiked Amount 1000.000			Recovery = 91.18%				
74) Bromofluorobenzene (SS3)	16.14	174	39172	830.075	pg		0.00
Spiked Amount 1000.000			Recovery = 83.01%				
Target Compounds							Qvalue
2) * Propene	3.53	42	6019	63.726	pg	#	75
3) * Dichlorodifluoromethane	3.59	85	1215	6.039	pg		96
4) * Chloromethane	3.71	50	776	5.159	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	62	0.415	pg	#	42
7) * 1,3-Butadiene	4.00	54	39	0.365	pg	#	1
8) * Bromomethane	4.22	94	88	0.963	pg	#	67
10) * Ethanol	4.44	45	2267	35.192	pg		93
11) * Acetonitrile	4.60	41	810	5.015	pg		85
12) * Acrolein	4.72	56	983	18.214	pg	#	71
13) * Acetone	4.83	58	7032	115.571	pg	#	66
14) * Trichlorofluoromethane	4.97	101	389	2.894	pg		88
15) * 2-Propanol (Isopropa...	5.03	45	2396	14.534	pg	#	86
16) * Acrylonitrile	5.19	53	183	1.910	pg	#	72
18) tert-Butanol	5.54	59	141	1.419	pg	#	18
19) * Methylene Chloride	5.57	84	870	12.836	pg		99
22) * Carbon Disulfide	5.84	76	2076	8.355	pg		99
26) * Vinyl Acetate	6.70	86	263	20.610	pg	#	15
27) * 2-Butanone (MEK)	6.98	72	333	9.118	pg		99
29) DIPE	7.64	45	780	3.665	pg	#	68
30) * Ethyl Acetate	7.65	61	754	40.384	pg	#	70
31) * n-Hexane	7.65	57	429	4.468	pg	#	90
39) * Benzene	9.36	78	1016	5.632	pg		99
41) 1-Butanol	9.29	56	13399	396.214	pg	#	50
42) * Carbon Tetrachloride	9.55	117	107	1.525	pg	#	73
48) * 1,4-Dioxane	10.65	88	55	1.462	pg	#	79
50) * Methyl Methacrylate	10.88	69	78	1.724	pg	#	42
51) * n-Heptane	11.04	71	258	2.785	pg	#	43
58) * Toluene	12.74	91	1629	9.829	pg		98
62) * n-Butyl Acetate	13.80	56	214	10.555	pg	#	83
63) * n-Octane	13.92	85	99	3.829	pg	#	1
66) * Ethylbenzene	15.12	91	272	1.946	pg		98
67) * m- & p-Xylenes	15.29	91	634	5.838	pg		91
69) Cyclohexanone	15.43	98	59	4.865	pg		90
70) * Styrene	15.63	104	1681	29.075	pg		99
71) * o-Xylene	15.73	91	207	1.949	pg	#	74
72) * n-Nonane	15.97	57	91	1.901	pg	#	42
77) * n-Propylbenzene	16.71	91	121	0.867	pg	#	56
78) 3-Ethyltoluene	16.81	105	98	1.008	pg	#	45
79) * 4-Ethyltoluene	16.81	105	98	1.150	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	92	0.962	pg	#	29
82) 2-Ethyltoluene	17.07	105	59	0.509	pg	#	45
83) tert-Butylbenzene	17.28	134	163	7.592	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	218	2.524	pg		92
90) 1,2,3-Trimethylbenzene	17.61	105	95	1.049	pg	#	27
93) * D-Limonene	17.74	68	166	4.364	pg	#	76

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051729.D
Acq On : 6 Jan 2017 4:19
Operator : JM
Sample : AC01910 FSC00268
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

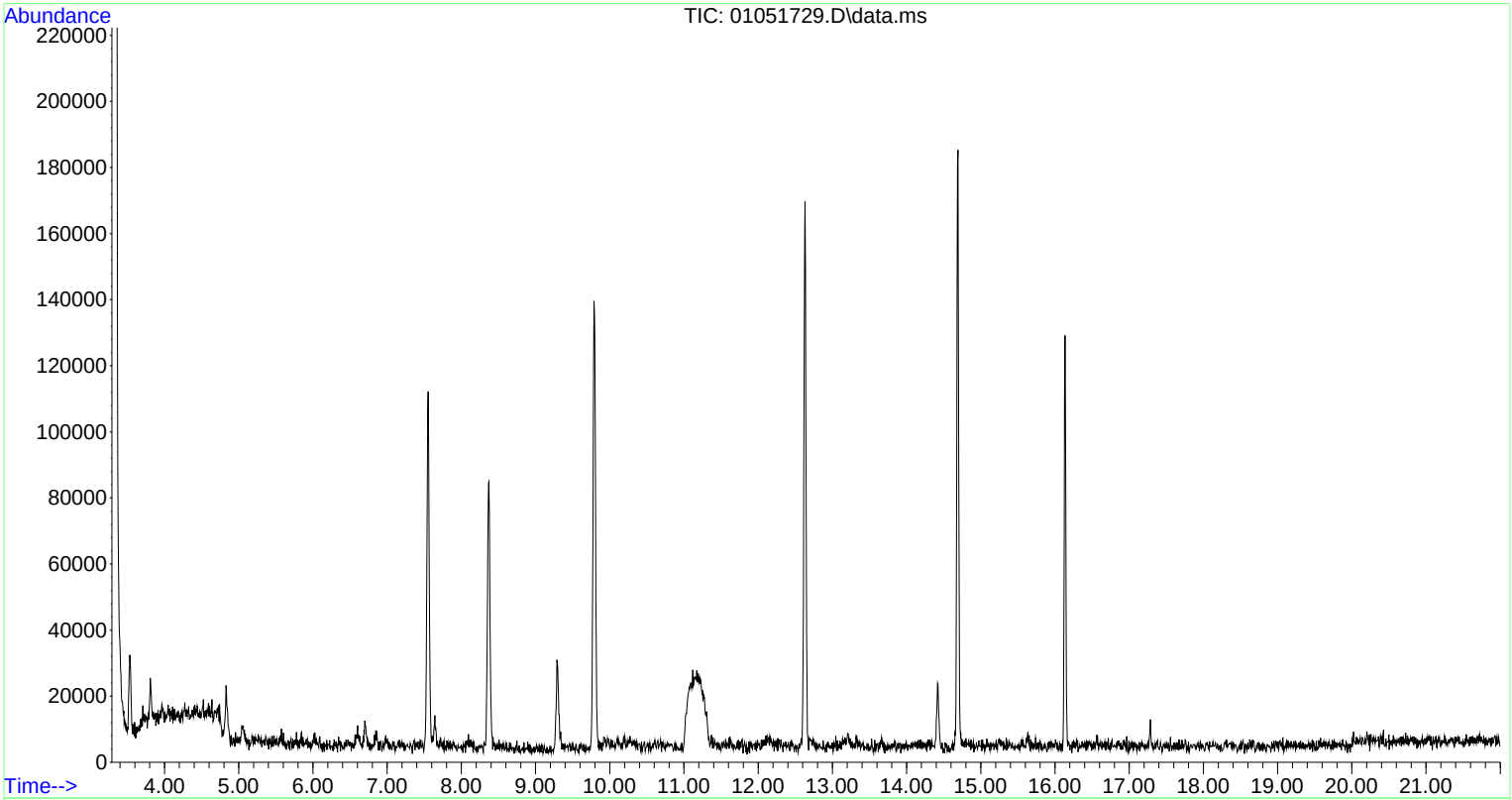
Quant Time: Jan 06 08:16:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

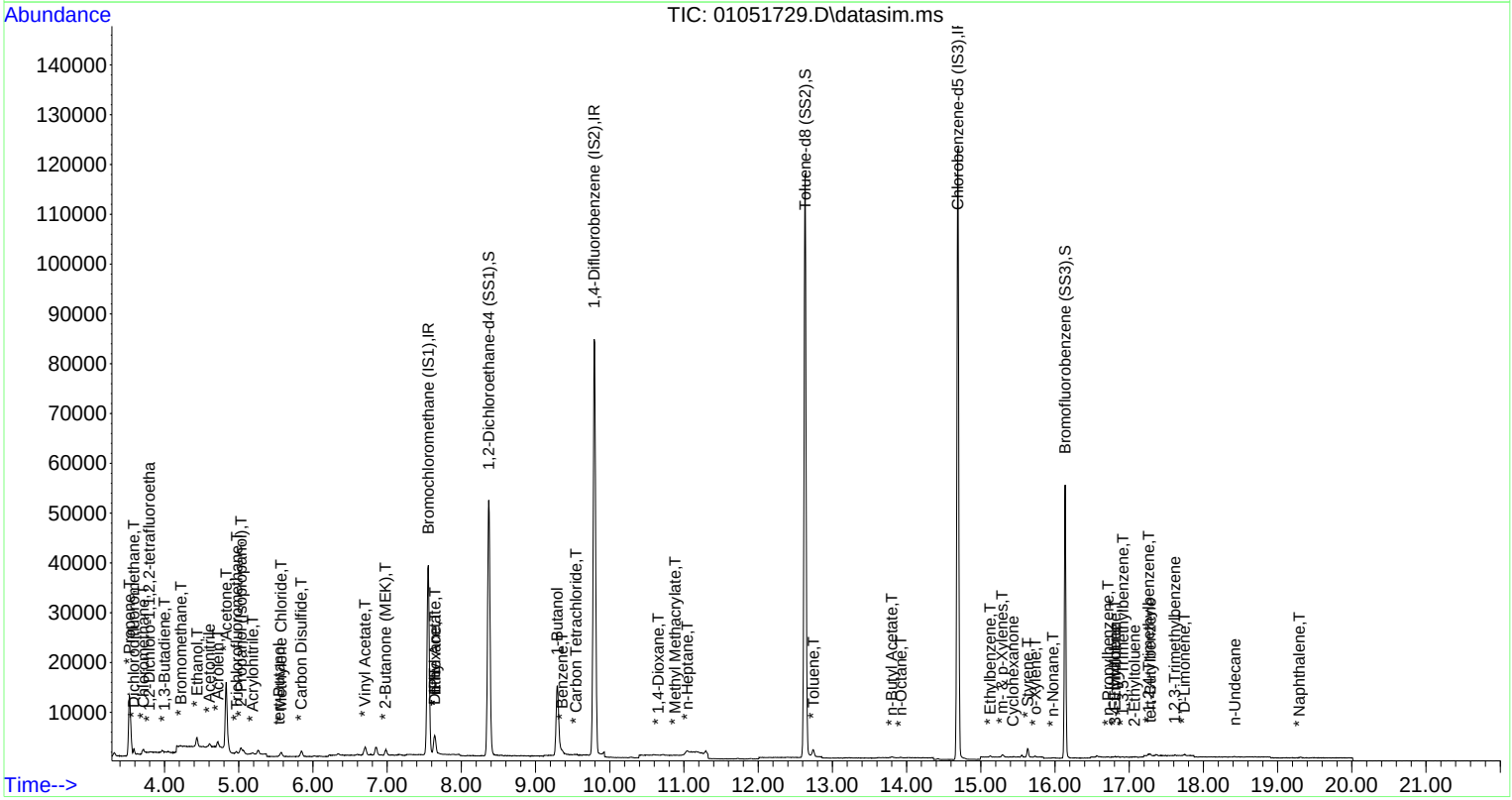
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
96) n-Undecane	18.43	85	53	5.612	pg	#	53
98) * Naphthalene	19.29	128	68	1.844	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051729.D
Acq On : 6 Jan 2017 4:19
Operator : JM
Sample : AC01910 FSC00268
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 06 08:16:42 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111723.D
Acq On : 12 Jan 2017 00:18
Operator : JM
Sample : AC01881 FCA01084
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 12 08:22:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39687	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	108388	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	91698	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	61767	790.253	pg		0.00
Spiked Amount 1000.000			Recovery = 79.03%				
57) Toluene-d8 (SS2)	12.63	98	114714	1023.762	pg		0.00
Spiked Amount 1000.000			Recovery = 102.38%				
74) Bromofluorobenzene (SS3)	16.14	174	29055	787.315	pg		0.00
Spiked Amount 1000.000			Recovery = 78.73%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7024	88.179	pg		81
3) * Dichlorodifluoromethane	3.59	85	1313	7.738	pg		99
4) * Chloromethane	3.71	50	1268	9.997	pg		99
7) * 1,3-Butadiene	4.01	54	33	0.366	pg	#	1
8) * Bromomethane	4.21	94	108	1.401	pg	#	3
9) * Chloroethane	4.36	64	60	1.090	pg	#	1
10) * Ethanol	4.44	45	3648	67.147	pg		100
11) * Acetonitrile	4.60	41	1493	10.960	pg	#	71
12) * Acrolein	4.72	56	1004	22.058	pg		95
13) * Acetone	4.84	58	10967	213.719	pg	#	53
14) * Trichlorofluoromethane	4.97	101	540	4.764	pg		91
15) * 2-Propanol (Isopropa...	5.03	45	2632	18.930	pg	#	79
16) * Acrylonitrile	5.19	53	552	6.831	pg		90
17) * 1,1-Dichloroethene	5.48	96	66	1.438	pg	#	17
18) tert-Butanol	5.55	59	530	6.324	pg	#	43
19) * Methylene Chloride	5.58	84	3377	59.080	pg		99
21) * Trichlorotrifluoroet...	5.83	151	126	2.836	pg		92
22) * Carbon Disulfide	5.85	76	4608	21.990	pg		98
26) * Vinyl Acetate	6.70	86	301	27.969	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	714	23.182	pg		86
29) DIPE	7.65	45	1501	8.362	pg	#	53
30) * Ethyl Acetate	7.64	61	1475	93.673	pg		100
31) * n-Hexane	7.65	57	346	4.273	pg	#	65
34) * Tetrahydrofuran	8.15	71	54	2.187	pg	#	1
36) * 1,2-Dichloroethane	8.49	62	55	0.649	pg	#	42
39) * Benzene	9.36	78	1283	10.264	pg	#	70
41) 1-Butanol	9.30	56	3464	147.835	pg	#	52
42) * Carbon Tetrachloride	9.54	117	102	2.097	pg	#	68
48) * 1,4-Dioxane	10.66	88	183	7.020	pg		89
49) Isooctane	10.70	56	107	1.791	pg		84
51) * n-Heptane	11.04	71	395	6.154	pg		97
53) * 4-Methyl-2-pentanone	11.73	58	182	8.059	pg	#	67
58) * Toluene	12.74	91	2331	17.986	pg		99
59) * 2-Hexanone	13.07	58	154	6.946	pg	#	68
63) * n-Octane	13.91	85	111	5.490	pg	#	41
65) * Chlorobenzene	14.77	112	92	1.077	pg	#	42
66) * Ethylbenzene	15.13	91	283	2.589	pg		95
67) * m- & p-Xylenes	15.29	91	395	4.651	pg		93
71) * o-Xylene	15.73	91	99	1.192	pg	#	69
72) * n-Nonane	15.98	57	75	2.003	pg	#	42
75) * Cumene	16.27	105	82	0.692	pg	#	49
76) * alpha-Pinene	16.61	93	108	2.006	pg	#	18
77) * n-Propylbenzene	16.72	91	165	1.512	pg	#	56
80) * 1,3,5-Trimethylbenzene	16.92	105	153	2.047	pg		86
83) tert-Butylbenzene	17.28	134	233	13.877	pg	#	1

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111723.D
Acq On : 12 Jan 2017 00:18
Operator : JM
Sample : AC01881 FCA01084
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

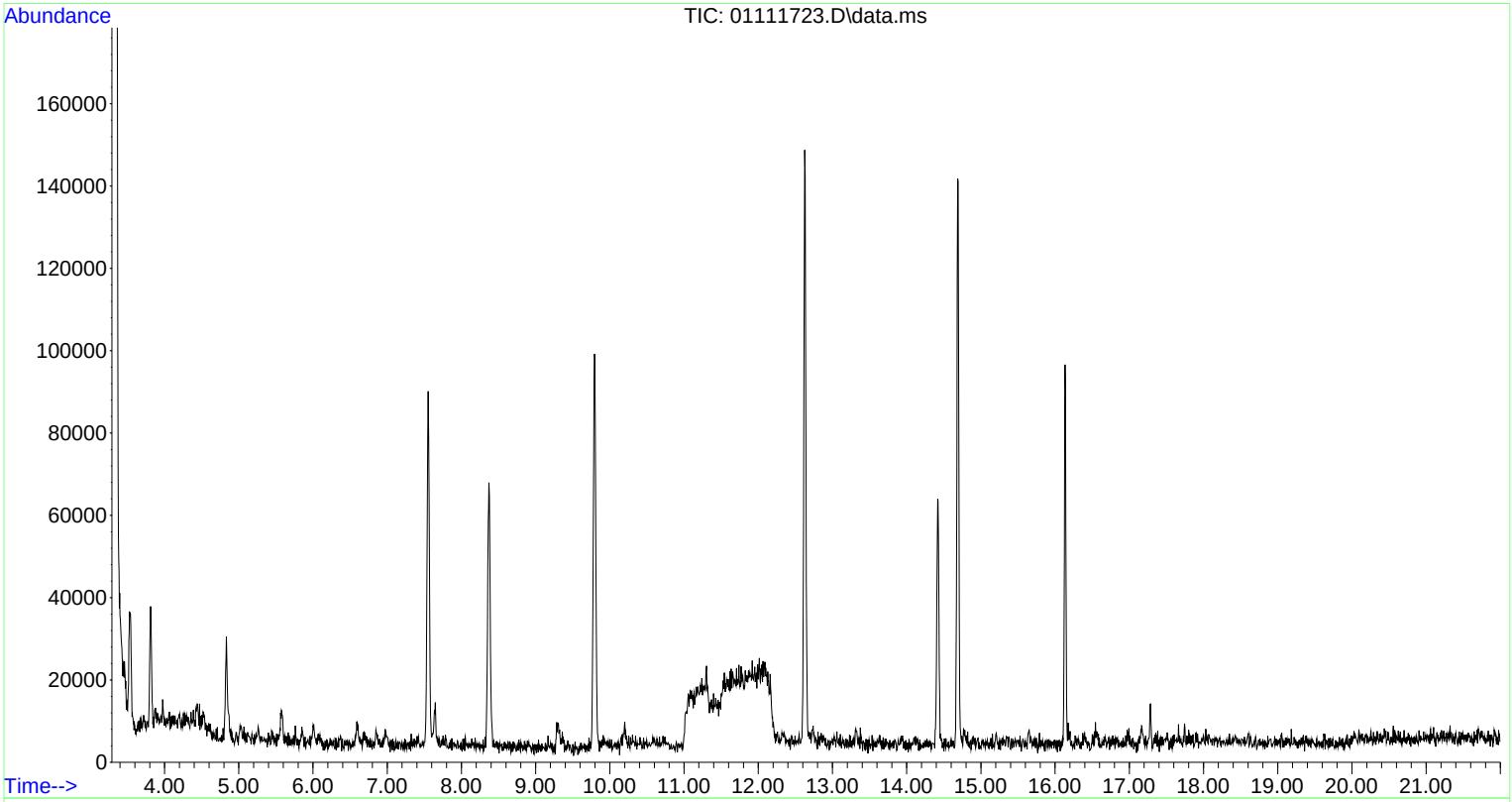
Quant Time: Jan 12 08:22:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

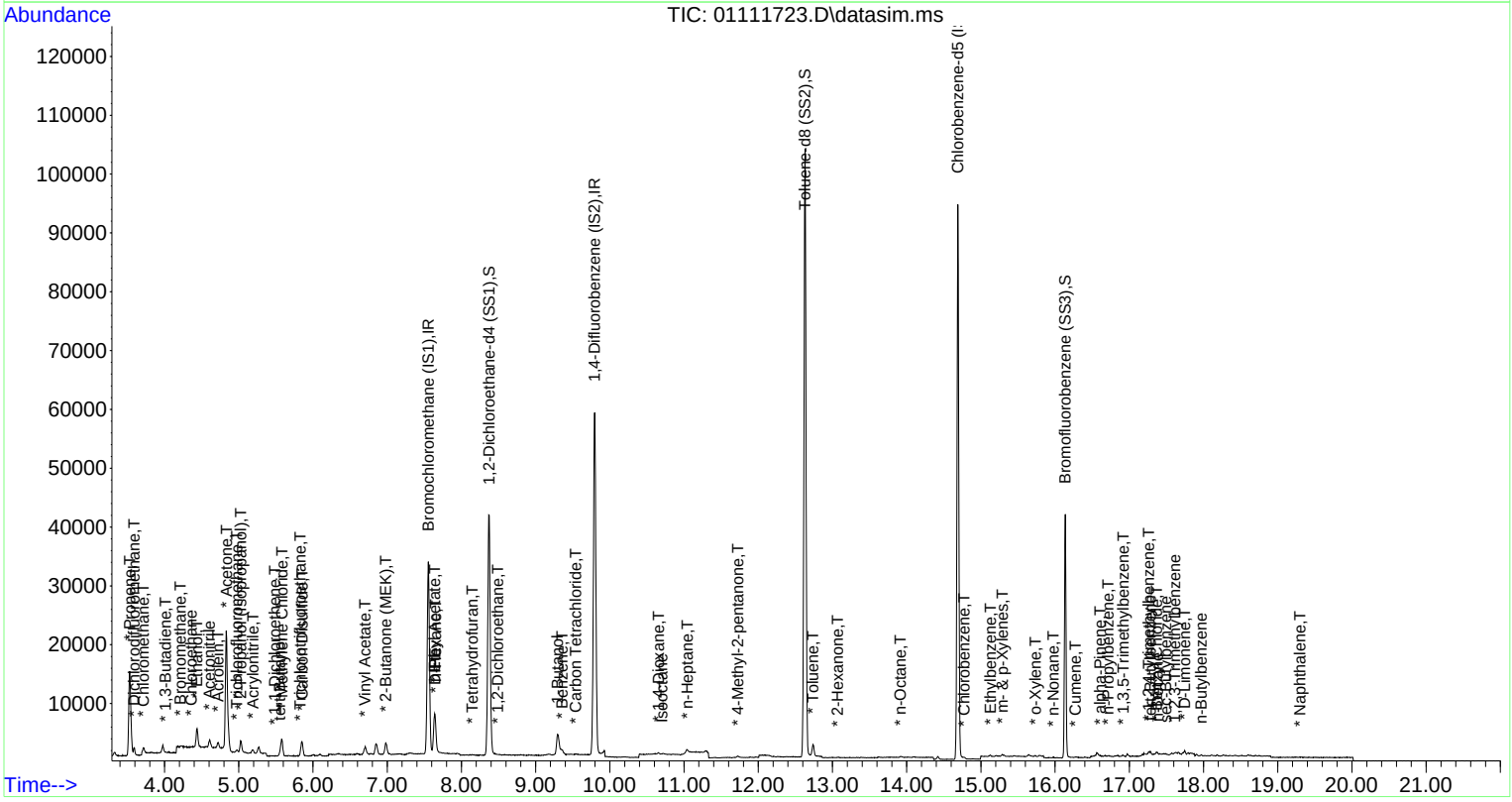
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
84) * 1,2,4-Trimethylbenzene	17.26	105	354	5.240	pg	#	83
85) * Benzyl Chloride	17.37	126	84	12.335	pg		81
88) n-Decane	17.38	85	99	7.665	pg	#	1
89) sec-Butylbenzene	17.49	105	111	1.035	pg	#	59
90) 1,2,3-Trimethylbenzene	17.61	105	104	1.468	pg	#	27
93) * D-Limonene	17.75	68	290	9.750	pg		100
94) n-Butylbenzene	17.97	134	137	10.924	pg	#	1
98) * Naphthalene	19.30	128	55	1.908	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111723.D
Acq On : 12 Jan 2017 00:18
Operator : JM
Sample : AC01881 FCA01084
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 12 08:22:44 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101714.D Vial: 1
Acq On : 10 Jan 2017 16:19 Operator: CL
Sample : AS01028-FCA01015 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:06 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

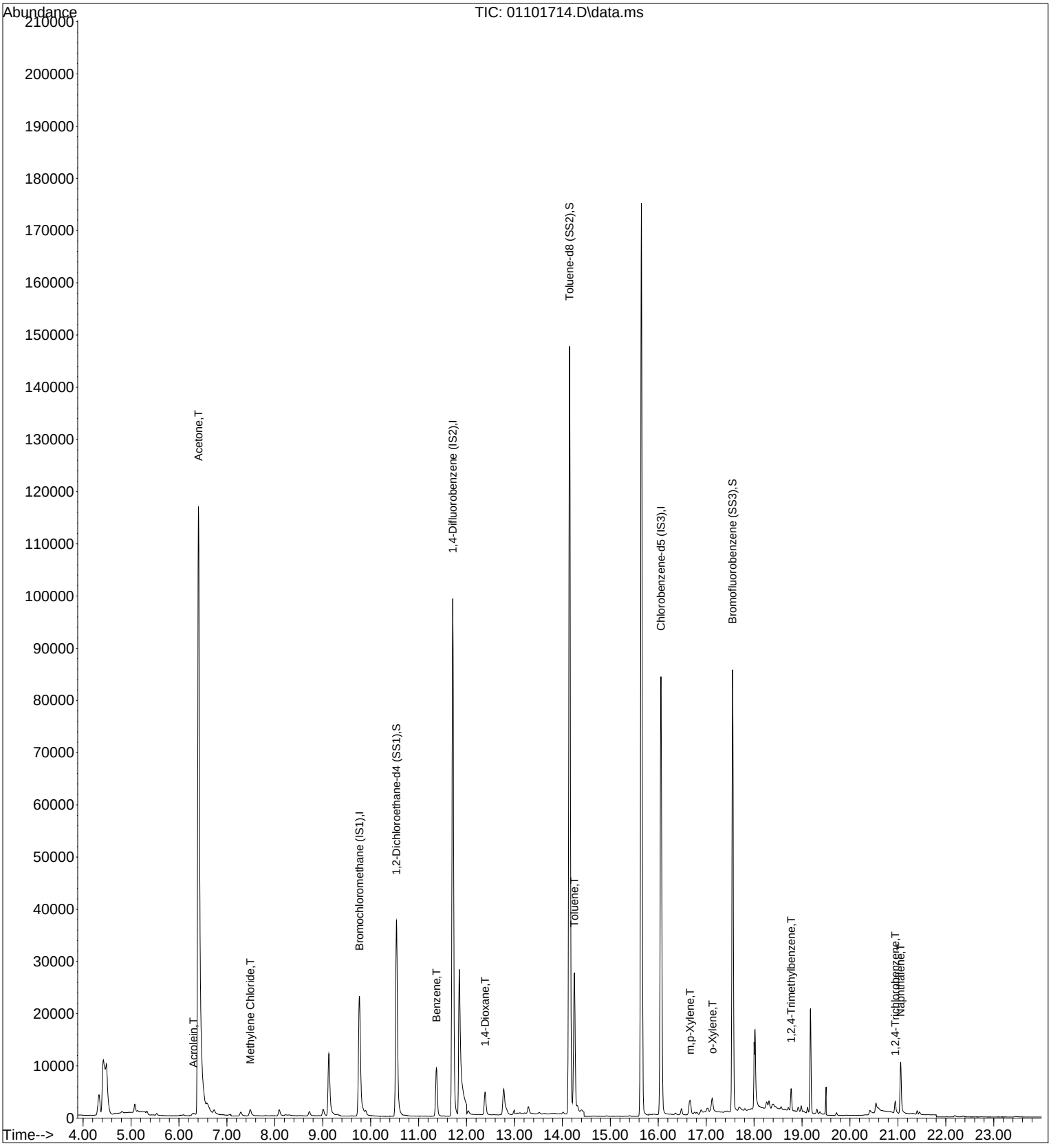
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	41036	1000.000	pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	202128	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	31373	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	67909	1037.592	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.76%				
33) Toluene-d8 (SS2)	14.15	98	201940	1058.864	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.89%				
45) Bromofluorobenzene (SS3)	17.55	174	65462	1089.610	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.96%				
Target Compounds							Qvalue
9) Acrolein	6.30	56	1666	88.925	pg		94
10) Acetone	6.41	58	91108	3516.771	pg		94
13) Methylene Chloride	7.49	84	1318	27.153	pg		88
23) Benzene	11.37	78	18419	89.745	pg		100
29) 1,4-Dioxane	12.39	88	6797	177.535	pg		94
34) Toluene	14.25	91	36850	194.434	pg		100
41) m,p-Xylene	16.67	91	5944	35.450	pg		97
43) o-Xylene	17.13	106	3550	40.652	pg	#	10
47) 1,2,4-Trimethylbenzene	18.77	105	5100	27.342	pg	#	84
52) 1,2,4-Trichlorobenzene	20.95	182	2542	41.673	pg		99
53) Naphthalene	21.06	128	17843	90.457	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101714.D Vial: 1
Acq On : 10 Jan 2017 16:19 Operator: CL
Sample : AS01028-FCA01015 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:06 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091727.D
Acq On : 10 Jan 2017 4:06
Operator : JM
Sample : AS00990 FCA00500
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Jan 10 07:51:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44737	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	131684	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102789	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72570	823.660	pg		0.00
Spiked Amount 1000.000			Recovery = 82.37%				
57) Toluene-d8 (SS2)	12.63	98	136174	1084.152	pg		0.00
Spiked Amount 1000.000			Recovery = 108.42%				
74) Bromofluorobenzene (SS3)	16.14	174	33195	802.442	pg		0.00
Spiked Amount 1000.000			Recovery = 80.24%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5261	58.591	pg	#	72
3) * Dichlorodifluoromethane	3.59	85	731	3.822	pg		98
4) * Chloromethane	3.71	50	713	4.987	pg		89
7) * 1,3-Butadiene	4.00	54	57	0.561	pg	#	1
8) * Bromomethane	4.21	94	59	0.679	pg	#	1
10) * Ethanol	4.44	45	3492	57.020	pg		99
11) * Acetonitrile	4.61	41	921	5.998	pg	#	47
12) * Acrolein	4.72	56	866	16.879	pg		96
13) * Acetone	4.84	58	7346	126.995	pg	#	59
14) * Trichlorofluoromethane	4.98	101	278	2.176	pg		99
15) * 2-Propanol (Isopropa...	5.03	45	1597	10.190	pg		95
16) * Acrylonitrile	5.19	53	301	3.304	pg		88
18) tert-Butanol	5.56	59	396	4.192	pg	#	79
19) * Methylene Chloride	5.58	84	3814	59.193	pg		98
21) * Trichlorotrifluoroet...	5.83	151	56	1.118	pg	#	19
22) * Carbon Disulfide	5.85	76	3297	13.958	pg		98
26) * Vinyl Acetate	6.71	86	382	31.489	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	481	13.854	pg	#	62
29) DIPE	7.65	45	966	4.774	pg	#	53
30) * Ethyl Acetate	7.64	61	779	43.888	pg		83
31) * n-Hexane	7.64	57	104	1.139	pg	#	60
39) * Benzene	9.35	78	1028	6.769	pg		99
41) 1-Butanol	9.31	56	2507	88.065	pg	#	49
48) * 1,4-Dioxane	10.67	88	50	1.579	pg	#	70
49) Isooctane	10.78	56	55	0.758	pg	#	54
50) * Methyl Methacrylate	10.89	69	66	1.733	pg	#	42
51) * n-Heptane	11.03	71	257	3.296	pg		95
53) * 4-Methyl-2-pentanone	11.73	58	441	16.073	pg	#	66
58) * Toluene	12.74	91	2242	15.432	pg		98
59) * 2-Hexanone	13.08	58	60	2.414	pg	#	68
66) * Ethylbenzene	15.13	91	132	1.077	pg	#	45
67) * m- & p-Xylenes	15.29	91	364	3.824	pg	#	64
68) * Bromoform	15.33	173	198	6.509	pg		98
69) Cyclohexanone	15.44	98	127	11.946	pg		99
70) * Styrene	15.63	104	115	2.269	pg	#	28
71) * o-Xylene	15.73	91	88	0.945	pg	#	28
72) * n-Nonane	15.98	57	82	1.954	pg	#	42
76) * alpha-Pinene	16.61	93	61	1.011	pg	#	18
77) * n-Propylbenzene	16.72	91	61	0.499	pg	#	56
80) * 1,3,5-Trimethylbenzene	16.91	105	58	0.692	pg	#	29
84) * 1,2,4-Trimethylbenzene	17.26	105	106	1.400	pg		97
85) * Benzyl Chloride	17.36	126	86	11.266	pg	#	51
86) * 1,3-Dichlorobenzene	17.38	146	76	1.869	pg	#	17
87) * 1,4-Dichlorobenzene	17.43	146	2540	73.545	pg		94
88) n-Decane	17.43	85	137	9.463	pg	#	1

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091727.D
Acq On : 10 Jan 2017 4:06
Operator : JM
Sample : AS00990 FCA00500
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Jan 10 07:51:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
93) * D-Limonene	17.74	68	211	6.328	pg		93
98) * Naphthalene	19.29	128	132	4.084	pg	#	66
99) n-Dodecane	19.31	85	76	14.617	pg	#	33

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091727.D
Acq On : 10 Jan 2017 4:06
Operator : JM
Sample : AS00990 FCA00500
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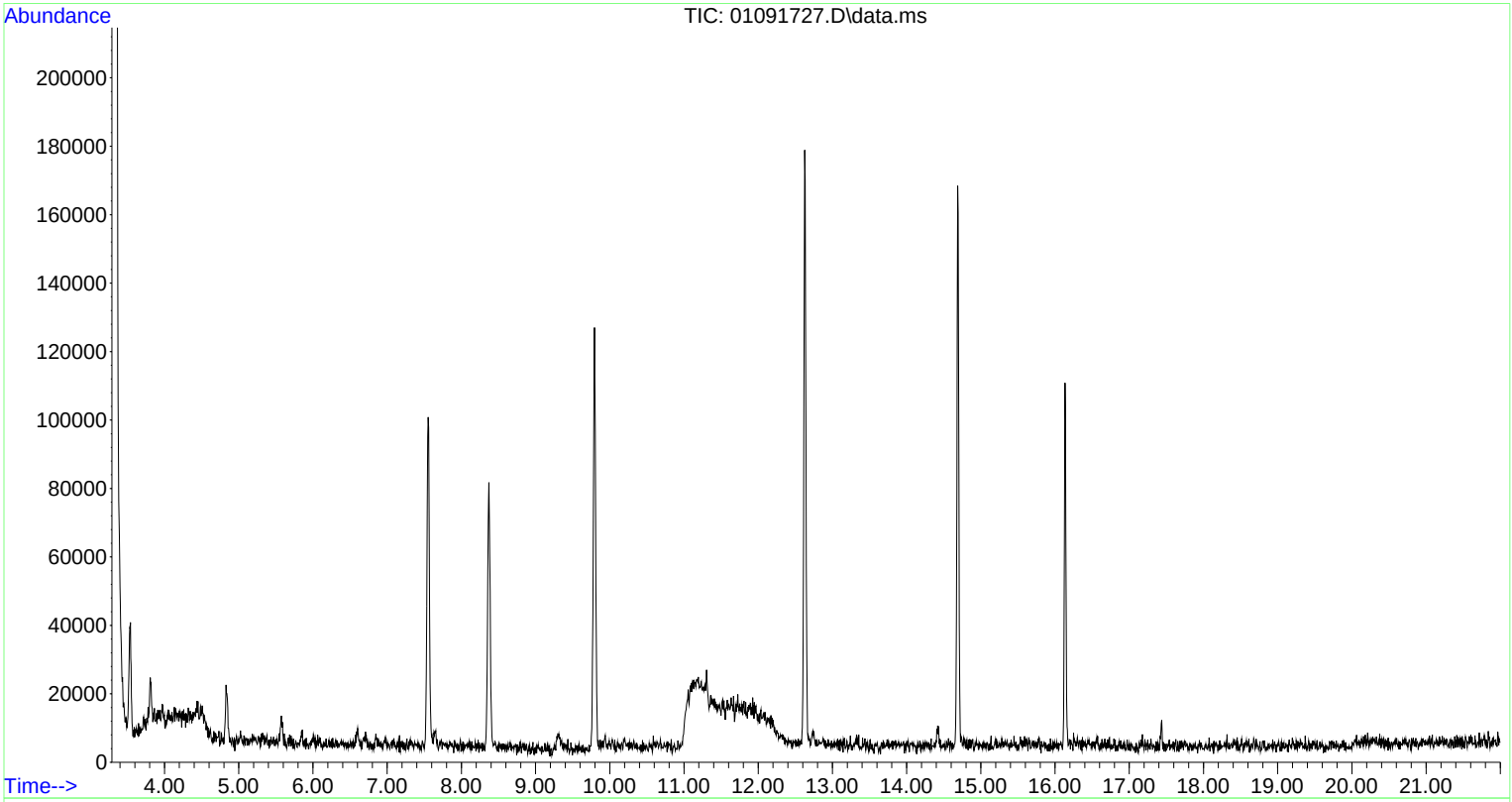
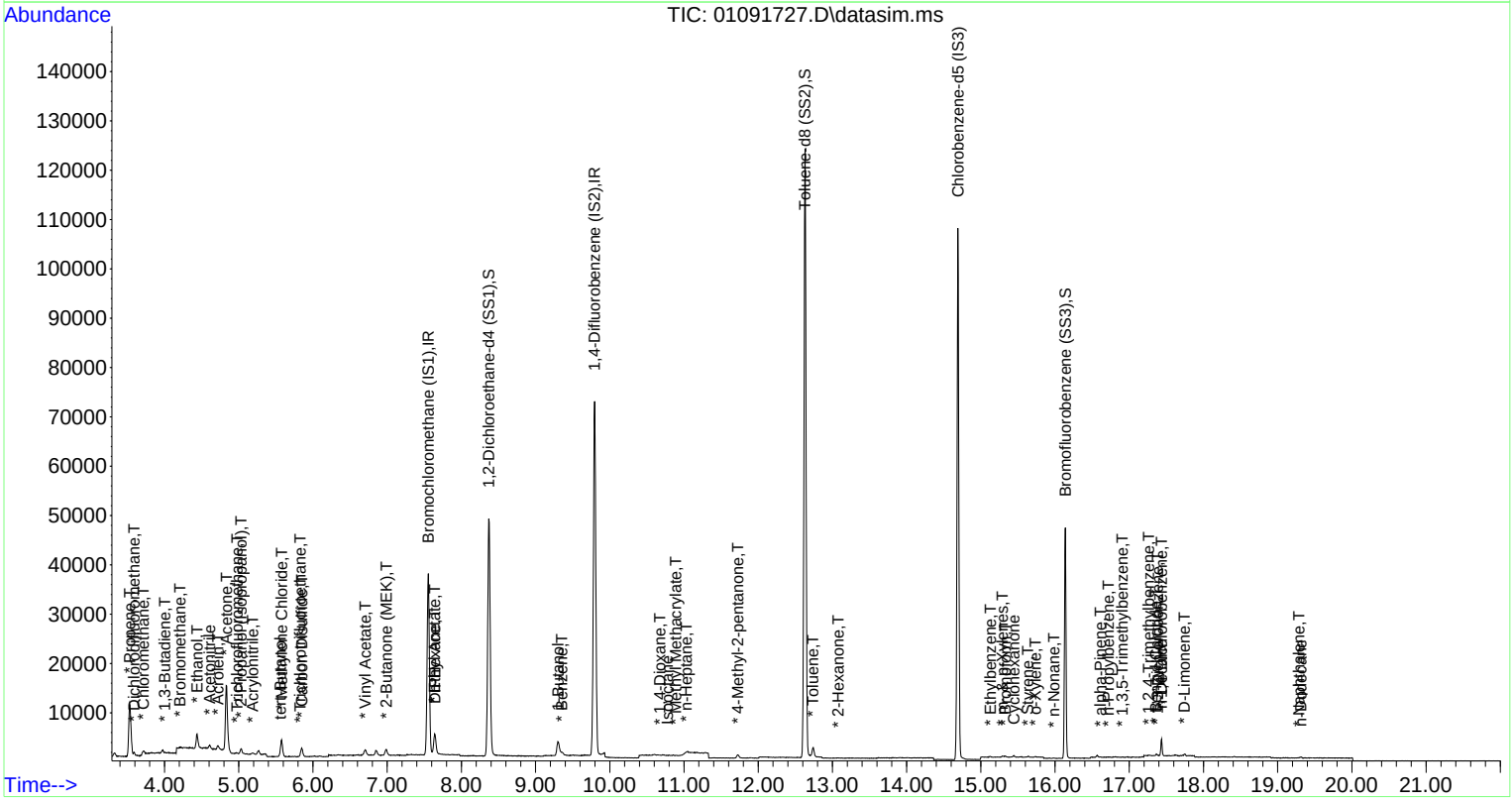
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091725.D
Acq On : 10 Jan 2017 2:44
Operator : JM
Sample : AC02054 FCA00662
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

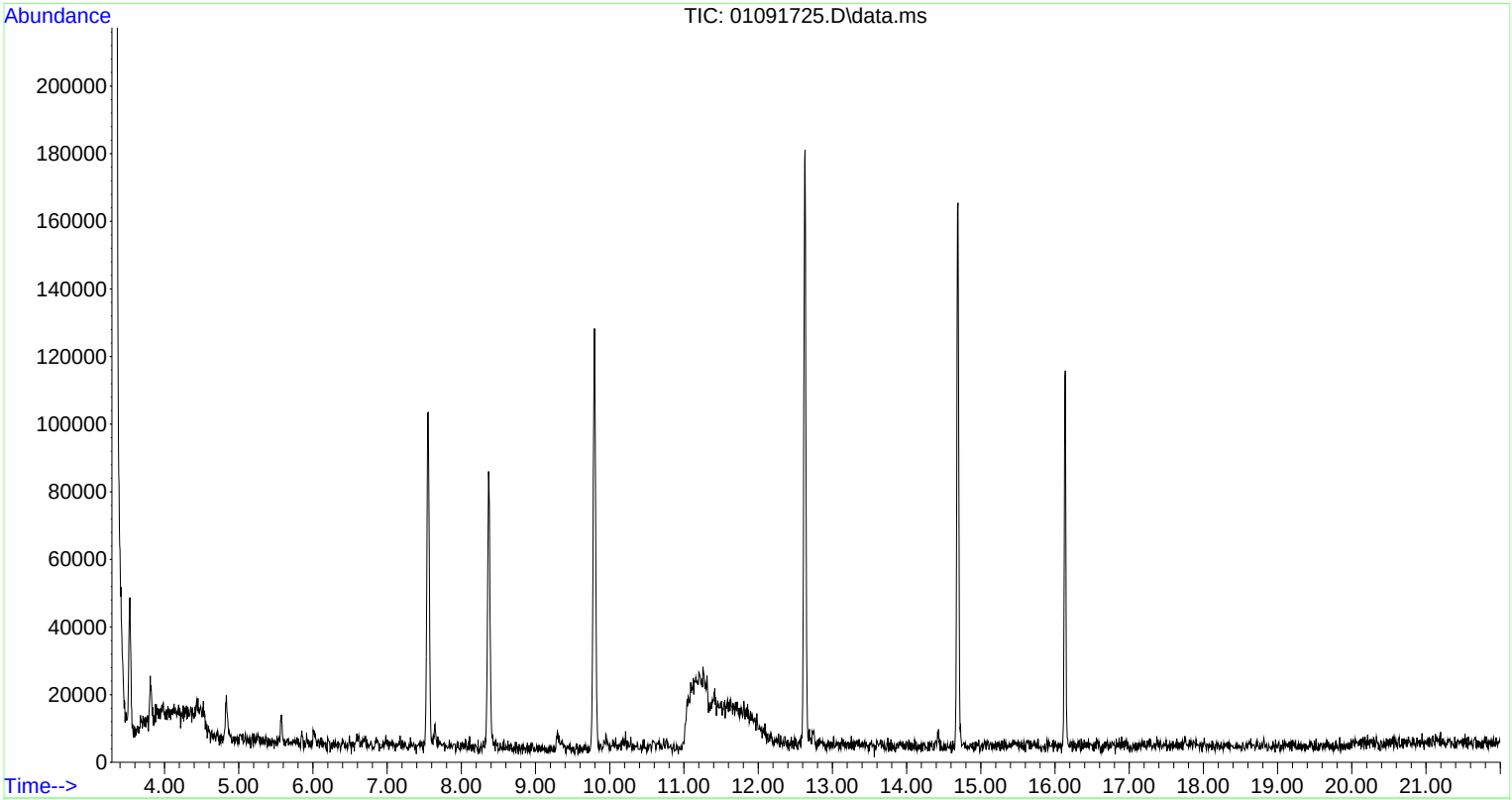
Quant Time: Jan 10 07:51:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

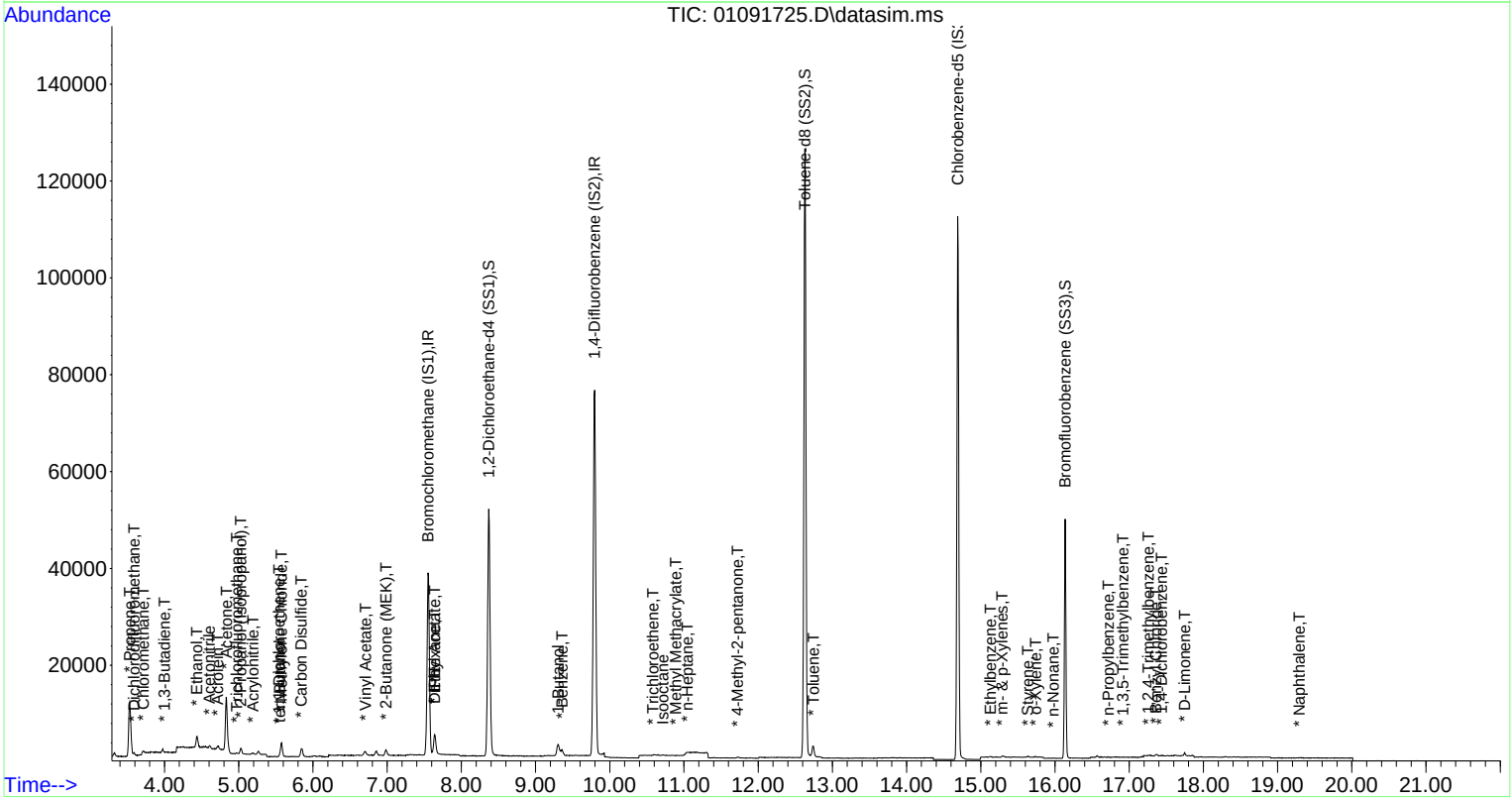
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46286	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	140627	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	108905	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	76141	835.270	pg		0.00
Spiked Amount 1000.000			Recovery = 83.53%				
57) Toluene-d8 (SS2)	12.63	98	140398	1055.008	pg		0.00
Spiked Amount 1000.000			Recovery = 105.50%				
74) Bromofluorobenzene (SS3)	16.14	174	34637	790.278	pg		0.00
Spiked Amount 1000.000			Recovery = 79.03%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5410	58.234	pg	#	73
3) * Dichlorodifluoromethane	3.59	85	636	3.214	pg		99
4) * Chloromethane	3.71	50	585	3.954	pg		91
7) * 1,3-Butadiene	4.00	54	20	0.190	pg	#	1
10) * Ethanol	4.44	45	2725	43.007	pg		89
11) * Acetonitrile	4.60	41	795	5.004	pg	#	45
12) * Acrolein	4.71	56	678	12.772	pg		88
13) * Acetone	4.84	58	5998	100.222	pg	#	58
14) * Trichlorofluoromethane	4.97	101	235	1.778	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	1621	9.997	pg		97
16) * Acrylonitrile	5.19	53	280	2.971	pg		99
17) * 1,1-Dichloroethene	5.55	96	53	0.990	pg	#	1
18) tert-Butanol	5.55	59	120	1.228	pg		93
19) * Methylene Chloride	5.58	84	3255	48.827	pg		98
22) * Carbon Disulfide	5.84	76	3183	13.024	pg		99
26) * Vinyl Acetate	6.71	86	223	17.767	pg	#	1
27) * 2-Butanone (MEK)	6.99	72	469	13.056	pg	#	52
29) DIPE	7.64	45	935	4.466	pg	#	53
30) * Ethyl Acetate	7.64	61	843	45.904	pg		96
31) * n-Hexane	7.64	57	148	1.567	pg	#	60
39) * Benzene	9.36	78	1966	12.122	pg		98
41) 1-Butanol	9.31	56	2167	71.280	pg	#	47
47) * Trichloroethene	10.58	130	50	0.967	pg	#	3
49) Isooctane	10.71	56	54	0.697	pg	#	1
50) * Methyl Methacrylate	10.89	69	57	1.401	pg	#	42
51) * n-Heptane	11.04	71	196	2.354	pg		100
53) * 4-Methyl-2-pentanone	11.72	58	109	3.720	pg	#	47
58) * Toluene	12.74	91	2619	17.015	pg		96
66) * Ethylbenzene	15.13	91	141	1.086	pg	#	84
67) * m- & p-Xylenes	15.29	91	366	3.629	pg		87
70) * Styrene	15.63	104	104	1.937	pg	#	28
71) * o-Xylene	15.74	91	131	1.328	pg		99
72) * n-Nonane	15.98	57	57	1.282	pg	#	42
77) * n-Propylbenzene	16.72	91	99	0.764	pg	#	56
80) * 1,3,5-Trimethylbenzene	16.92	105	56	0.631	pg	#	29
84) * 1,2,4-Trimethylbenzene	17.26	105	74	0.922	pg	#	24
85) * Benzyl Chloride	17.36	126	66	8.160	pg		88
87) * 1,4-Dichlorobenzene	17.43	146	58	1.585	pg	#	17
93) * D-Limonene	17.75	68	332	9.398	pg		95
98) * Naphthalene	19.29	128	77	2.249	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091725.D
Acq On : 10 Jan 2017 2:44
Operator : JM
Sample : AC02054 FCA00662
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Jan 10 07:51:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





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LABORATORY REPORT

February 13, 2017

Sevda Aleckson
NOREAS
16361 Scientific Way
Irvine, CA 92618

RE: NAVFAC 018 Moffett / 16104

Dear Sevda:

Enclosed are the results of the samples submitted to our laboratory on January 23, 2017. For your reference, these analyses have been assigned our service request number P1700289.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:46 pm, Feb 13, 2017

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: NOREAS
Project: NAVFAC 018 Moffett / 16104

Service Request No: P1700289

CASE NARRATIVE

The samples were received intact under chain of custody on January 23, 2017 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The canister dilution factor for sample 17M002-1-04 (P1700289-006) was elevated because re-pressurization had to be performed. Due to an autocan malfunction the canister was evacuated before it was injected; therefore, the additional pressurization was done so the sample could be analyzed.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1700289-003	Vinyl chloride

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1177034
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: NOREAS Service Request: P1700289
Project ID: NAVFAC 018 Moffett / 16104

Date Received: 1/23/2017
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC SIM
17M045-1-01	P1700289-001	Air	1/17/2017	07:55	AS00885	-3.40	3.65			X
17M045-1-02	P1700289-002	Air	1/17/2017	07:56	AS00974	-1.95	3.54			X
17M045-A-01	P1700289-003	Air	1/17/2017	07:54	AS00877	-1.60	3.68			X
17M002-1-02	P1700289-004	Air	1/17/2017	10:00	AS00934	-1.94	3.72			X
17M002-1-03	P1700289-005	Air	1/17/2017	10:04	AC00988	-2.28	3.74			X
17M002-1-04	P1700289-006	Air	1/17/2017	10:03	AC01365	0.59	3.78	-8.15	2.97	X
17M302-1-03	P1700289-007	Air	1/17/2017	10:07	AS00799	0.31	3.58			X
17M302-1-04	P1700289-008	Air	1/17/2017	10:03	AS00581	-2.56	3.81			X
17M067-1-01	P1700289-009	Air	1/17/2017	09:17	AC02065	-1.67	3.80			X
17M067-A-01	P1700289-010	Air	1/17/2017	09:18	AS01221	0.33	3.86			X
17M076-1-01	P1700289-011	Air	1/17/2017	07:41	AC02125	0.00	3.57			X
17M126-1-01-F	P1700289-012	Air	1/17/2017	08:24	AS01170	-1.31	3.79			X
17M126-1-02-F	P1700289-013	Air	1/17/2017	08:23	AS00758	-1.78	3.60			X
17M126-1-04-F	P1700289-014	Air	1/17/2017	08:21	AC01300	-2.27	3.68			X
17M126-1-05-F	P1700289-015	Air	1/17/2017	08:25	AS00487	-1.42	3.82			X
17M126-A-01-F	P1700289-016	Air	1/17/2017	08:07	AS00871	-1.74	3.71			X
17M014-C-01-N	P1700289-017	Air	1/17/2017	08:40	AS00896	-0.18	3.85			X
17M014-C-02-N	P1700289-018	Air	1/17/2017	08:39	AC01913	-2.94	3.80			X
17M014-1-03-N	P1700289-019	Air	1/17/2017	08:56	AS00537	-4.91	3.77			X
17M014-1-04-N	P1700289-020	Air	1/17/2017	08:57	AC00835	-3.75	3.55			X
17M014-1-05-N	P1700289-021	Air	1/17/2017	08:51	AS01138	-3.60	3.91			X
17M314-1-05-N	P1700289-022	Air	1/17/2017	08:52	AC00641	-5.88	3.60			X
17M107-1-01-N	P1700289-023	Air	1/17/2017	08:12	AC01179	-2.39	3.84			X
17M107-1-02-N	P1700289-024	Air	1/17/2017	08:11	SC02017	0.23	3.75			X

P1760289

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

COC No. 006
PAGE 1 of 2

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
1	17M045-1-01	AS00885	FCA01022	1/17/17	0755	-29.81	-2.49	6L	8hr	X				
2	17M045-1-02	AS00974	FCA00919	1/17/17	0756	-29.34	-5.76	6L	8hr	X				
3	17M045-A-01	AS00877	FCR00263	1/17/17	0754	-29.71	-5.13	6L	8hr	X				
4	17M002-1-02	AS00934	FCA00012	1/17/17	1000	-29.32	-5.88	6L	8hr	X				
5	17M002-1-03	AC00988	FCA000929	1/17/17	1004	-29.45	-6.54	6L	8hr	X				
6	17M002-1-04	AC01365	FCA01021	1/17/17	1003	-28.27	-0.81	6L	8hr	X				X
7	17M302-1-03	AS00799	FCA00954	1/17/17	1007	-29.88	-1.35	6L	8hr	X				
8	17M302-1-04	AS00581	FCA00067	1/17/17	1003	-29.64	-7.11	6L	8hr	X				
9	17M067-1-01	AC02065	FCR00273	1/17/17	0917	-29.95	-4.41	6L	24hr	X				
10	17M067-A-01	AS01221	FCR00279	1/17/17	0918	-30.47	-1.12	6L	24hr	X				
11	17M076-1-01	AC02125	FCA01052	1/17/17	0741	-29.95	-0.61	6L	8hr	X				
12	17M126-1-01-F	AS01170	FCS00289	1/17/17	0824	-30.21	-4.14	6L	8hr	X				X

5 02499

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD
OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/19/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature): FEDEX	Date	Received By (signature)	Date 1/23/17 0935
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken
Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

NOREAS

CHAIN-OF-CUSTODY RECORD - AIR ANALYSES

A1706289

COC No. 006

PAGE 2 of 2

Project Name/No: NAVFAC 018 Moffett 16104	**Purchase Order No.**	16104	**Laboratory SDG No:**
Project Location: Moffett Field IR Site 28	**Laboratory Name:**	ALS Simi Valley Laboratory	**ANALYSES REQUIRED**
Company Name: NOREAS	**Laboratory Contact:**	Sue Anderson	
Address: 16361 Scientific Way Irvine, CA 92618	**Laboratory Address:**	2655 Park Center Drive, Suite A Simi Valley, CA 93065	
Project Manager: Luis Rivero	**Laboratory Phone:**	(805) 526-7161	
Phone/email: (619) 302-9651/ luis.rivero@noreasinc.com			
Project Contact: Sevda Aleckson	**Airbill No.**	FedEx	
Phone/email: (949) 467-9117 / sevda.aleckson@noreasinc.com			

	Sample ID	Canister ID	Flow Controller ID	Date Sampled	Time Sampled	Initial Pressure (" Hg)	Final Pressure (" Hg)	Sample / Canister Volume	Comments	TO-15 SIM (VOCs)	TO-3 (TPH)	TO-17	ASTM D-1946-M390	QC Level IV
13	17M126-1-02-F	AS00758	FCS00290	1/17/17	0823	-30.13	-5.09	6L	8hr	X				
14	17M126-1-04-F	AC01300	FCA00856	1/17/17	0821	-30.22	-6.19	6L	8hr	X				
15	17M126-1-05-F	AS00487	FCS00105	1/17/17	0825	-29.77	-4.13	6L	8hr	X				
16	17M126-A-01-F	AS00871	FCR00247	1/17/17	0807	-29.75	-5.14	6L	24hr	X				
17	17M014-C-01-N	AS00896	FCA01059	1/17/17	0840	-28.92	-1.72	6L	8hr	X				
18	17M014-C-02-N	AC01913	FCA01008	1/17/17	0839	-29.21	-7.35	6L	8hr	X				X
19	17M014-1-03-N	AS00537	FCA01015	1/17/17	0856	-29.92	-11.25	6L	8hr	X				
20	17M014-1-04-N	AC00835	FCA01084	1/17/17	0857	-27.13	-8.95	6L	8hr	X				
21	17M014-1-05-N	AS01138	FCS00268	1/17/17	0851	-29.78	-8.58	6L	8hr	X				X
22	17M314-1-05-N	AC001641	FCA00937	1/17/17	0852	-29.65	-13.16	6L	8hr	X				
23	17M107-1-01-N	AC01179	FCA00662	1/17/17	0812	-29.38	-5.03	6L	8hr	X				
24	17M107-1-02-N	SC02017	FCA00760	1/17/17	0811	-28.25	-0.63	6L	8hr	X				X

6062499

Special Instructions: Analytical requirements are documented in the Final SAP (September 2016); Please email data to luis.rivero@noreasinc.com and sevda.aleckson@noreasinc.com

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD OR ☐ _____

Sampler(s) Name(s): Michael Price

Relinquished By (signature):	Date 1/19/17	Received By (signature)	Date
Company NOREAS	Time 1300	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date 1/23/17 0930
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Sample Condition: ☐ Intact ☐ Broken

Custody Seal: ☐ Intact ☐ Broken ☐ Absent

DISTRIBUTION: White - Laboratory; Blue - Project File

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700289

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/23/17 Date opened: 1/23/17 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700289-001.01	6.0 L Silonite Can					
P1700289-002.01	6.0 L Silonite Can					
P1700289-003.01	6.0 L Silonite Can					
P1700289-004.01	6.0 L Silonite Can					
P1700289-005.01	6.0 L Ambient Can					
P1700289-006.01	6.0 L Ambient Can					
P1700289-007.01	6.0 L Silonite Can					
P1700289-008.01	6.0 L Silonite Can					
P1700289-009.01	6.0 L Ambient Can					
P1700289-010.01	6.0 L Silonite Can					
P1700289-011.01	6.0 L Ambient Can					
P1700289-012.01	6.0 L Silonite Can					
P1700289-013.01	6.0 L Silonite Can					
P1700289-014.01	6.0 L Ambient Can					
P1700289-015.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: NOREAS Work order: P1700289

Project: NAVFAC 018 Moffett / 16104

Sample(s) received on: 1/23/17 Date opened: 1/23/17 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1700289-016.01	6.0 L Silonite Can					
P1700289-017.01	6.0 L Silonite Can					
P1700289-018.01	6.0 L Ambient Can					
P1700289-019.01	6.0 L Silonite Can					
P1700289-020.01	6.0 L Ambient Can					
P1700289-021.01	6.0 L Silonite Can					
P1700289-022.01	6.0 L Ambient Can					
P1700289-023.01	6.0 L Ambient Can					
P1700289-024.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M045-1-01** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-001

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00885
Initial Pressure (psig): -3.40 Final Pressure (psig): 3.65

Canister Dilution Factor: 1.62

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.085**	0.041	0.032	0.012	
75-35-4	1,1-Dichloroethene	**0.054**	0.041	0.034	0.014	
156-60-5	trans-1,2-Dichloroethene	**0.095**	0.041	0.034	0.012	
75-34-3	1,1-Dichloroethane	**0.20**	0.041	0.032	0.0099	
156-59-2	cis-1,2-Dichloroethene	**1.2**	0.041	0.034	0.015	
79-01-6	Trichloroethene	**4.8**	0.041	0.034	0.014	
127-18-4	Tetrachloroethene	**2.6**	0.041	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M045-1-02** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-002

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00974
Initial Pressure (psig): -1.95 Final Pressure (psig): 3.54

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.074**	0.036	0.029	0.011	
75-35-4	1,1-Dichloroethene	**0.048**	0.036	0.030	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.082**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.19**	0.036	0.029	0.0087	
156-59-2	cis-1,2-Dichloroethene	**1.1**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**4.7**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**2.6**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M045-A-01** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-003

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00877
Initial Pressure (psig): -1.60 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.016**	0.035	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	0.029	0.035	0.029	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.041**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.010**	0.035	0.028	0.0085	**J**
156-59-2	cis-1,2-Dichloroethene	**0.18**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**0.46**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**0.30**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M002-1-02** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-004

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00934
Initial Pressure (psig): -1.94 Final Pressure (psig): 3.72

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029	0.036	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.044**	0.036	0.030	0.011	
75-34-3	1,1-Dichloroethane	0.029	0.036	0.029	0.0088	**U**
156-59-2	cis-1,2-Dichloroethene	**0.043**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.25**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.082**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M002-1-03** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-005

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00988
Initial Pressure (psig): -2.28 Final Pressure (psig): 3.74

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.072**	0.037	0.030	0.011	
75-35-4	1,1-Dichloroethene	**0.021**	0.037	0.031	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.044**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.024**	0.037	0.030	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.23**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.72**	0.037	0.031	0.013	
127-18-4	Tetrachloroethene	**0.076**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M002-1-04** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-006

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01365

Initial Pressure (psig): 0.59 Final Pressure (psig): 3.78
Initial Pressure 2 (psig): -8.15 Final Pressure 2 (psig): 2.97

Canister Dilution Factor: 3.26

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.065	0.082	0.065	0.025	**U**
75-35-4	1,1-Dichloroethene	0.068	0.082	0.068	0.028	**U**
156-60-5	trans-1,2-Dichloroethene	**0.036**	0.082	0.068	0.024	**J**
75-34-3	1,1-Dichloroethane	0.065	0.082	0.065	0.020	**U**
156-59-2	cis-1,2-Dichloroethene	0.068	0.082	0.068	0.030	**U**
79-01-6	Trichloroethene	**0.063**	0.082	0.068	0.028	**J**
127-18-4	Tetrachloroethene	**0.059**	0.082	0.068	0.027	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M302-1-03** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-007

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00799
Initial Pressure (psig): 0.31 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.052**	0.031	0.024	0.0093	
75-35-4	1,1-Dichloroethene	**0.018**	0.031	0.026	0.010	**J**
156-60-5	trans-1,2-Dichloroethene	**0.054**	0.031	0.026	0.0089	
75-34-3	1,1-Dichloroethane	**0.024**	0.031	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.19**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**0.60**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.088**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M302-1-04** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-008

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00581

Initial Pressure (psig): -2.56 Final Pressure (psig): 3.81

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.026**	0.038	0.032	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.011**	0.038	0.030	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.016**	0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.091**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.067**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M067-1-01** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-009

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02065
Initial Pressure (psig): -1.67 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.028	0.036	0.028	0.011	**U**
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.042**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.0096**	0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.031**	0.036	0.030	0.013	**J**
79-01-6	Trichloroethene	**0.34**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.072**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M067-A-01** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-010

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01221

Initial Pressure (psig): 0.33 Final Pressure (psig): 3.86

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.031	0.025	0.0093	**U**
75-35-4	1,1-Dichloroethene	0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.038**	0.031	0.026	0.0090	
75-34-3	1,1-Dichloroethane	**0.020**	0.031	0.025	0.0075	**J**
156-59-2	cis-1,2-Dichloroethene	**0.039**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**0.14**	0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.069**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M076-1-01** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-011

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02125
Initial Pressure (psig): 0.00 Final Pressure (psig): 3.57

Canister Dilution Factor: 1.24

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.031	0.025	0.0094	**U**
75-35-4	1,1-Dichloroethene	0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.037**	0.031	0.026	0.0091	
75-34-3	1,1-Dichloroethane	**0.011**	0.031	0.025	0.0076	**J**
156-59-2	cis-1,2-Dichloroethene	**0.034**	0.031	0.026	0.011	
79-01-6	Trichloroethene	**0.27**	0.031	0.026	0.011	
127-18-4	Tetrachloroethene	**0.067**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-01-F** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-012

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01170

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.79

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**1.3**	0.035	0.028	0.010	
75-35-4	1,1-Dichloroethene	**0.29**	0.035	0.029	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.14**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.29**	0.035	0.028	0.0084	
156-59-2	cis-1,2-Dichloroethene	**21**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**15**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**32**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-02-F** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-013

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00758
Initial Pressure (psig): -1.78 Final Pressure (psig): 3.60

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**2.1**	0.036	0.028	0.011	
75-35-4	1,1-Dichloroethene	**0.49**	0.036	0.030	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.22**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.46**	0.036	0.028	0.0087	
156-59-2	cis-1,2-Dichloroethene	**34**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**23**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**51**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-04-F** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-014

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01300
Initial Pressure (psig): -2.27 Final Pressure (psig): 3.68

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**2.4**	0.037	0.030	0.011	
75-35-4	1,1-Dichloroethene	**0.50**	0.037	0.031	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.25**	0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.48**	0.037	0.030	0.0090	
156-59-2	cis-1,2-Dichloroethene	**37**	0.037	0.031	0.014	
79-01-6	Trichloroethene	**24**	0.037	0.031	0.013	
127-18-4	Tetrachloroethene	**56**	0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-1-05-F** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-015

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00487
Initial Pressure (psig): -1.42 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.45**	0.035	0.028	0.011	
75-35-4	1,1-Dichloroethene	**0.096**	0.035	0.029	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.053**	0.035	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.10**	0.035	0.028	0.0085	
156-59-2	cis-1,2-Dichloroethene	**6.8**	0.035	0.029	0.013	
79-01-6	Trichloroethene	**5.3**	0.035	0.029	0.012	
127-18-4	Tetrachloroethene	**11**	0.035	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M126-A-01-F** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-016

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00871

Initial Pressure (psig): -1.74 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.038**	0.036	0.028	0.011	
75-35-4	1,1-Dichloroethene	0.030	0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.043**	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.016**	0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.52**	0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.43**	0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.85**	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-C-01-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-017

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00896

Initial Pressure (psig): -0.18 Final Pressure (psig): 3.85

Canister Dilution Factor: 1.28

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.066**	0.032	0.026	0.0097	
75-35-4	1,1-Dichloroethene	**0.014**	0.032	0.027	0.011	**J**
156-60-5	trans-1,2-Dichloroethene	**0.065**	0.032	0.027	0.0093	
75-34-3	1,1-Dichloroethane	**0.022**	0.032	0.026	0.0078	**J**
156-59-2	cis-1,2-Dichloroethene	**0.058**	0.032	0.027	0.012	
79-01-6	Trichloroethene	**0.54**	0.032	0.027	0.011	
127-18-4	Tetrachloroethene	**0.087**	0.032	0.027	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-C-02-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-018

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01913
Initial Pressure (psig): -2.94 Final Pressure (psig): 3.80

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.076**	0.039	0.031	0.012	
75-35-4	1,1-Dichloroethene	**0.028**	0.039	0.033	0.014	**J**
156-60-5	trans-1,2-Dichloroethene	**0.082**	0.039	0.033	0.011	
75-34-3	1,1-Dichloroethane	**0.037**	0.039	0.031	0.0096	**J**
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.039	0.033	0.014	
79-01-6	Trichloroethene	**3.2**	0.039	0.033	0.013	
127-18-4	Tetrachloroethene	**0.089**	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-03-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-019

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00537
Initial Pressure (psig): -4.91 Final Pressure (psig): 3.77

Canister Dilution Factor: 1.89

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.038	0.047	0.038	0.014	**U**
75-35-4	1,1-Dichloroethene	0.040	0.047	0.040	0.016	**U**
156-60-5	trans-1,2-Dichloroethene	**0.047**	0.047	0.040	0.014	**J**
75-34-3	1,1-Dichloroethane	0.038	0.047	0.038	0.012	**U**
156-59-2	cis-1,2-Dichloroethene	**0.022**	0.047	0.040	0.017	**J**
79-01-6	Trichloroethene	**0.082**	0.047	0.040	0.016	
127-18-4	Tetrachloroethene	**0.093**	0.047	0.040	0.015	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-04-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-020

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00835
Initial Pressure (psig): -3.75 Final Pressure (psig): 3.55

Canister Dilution Factor: 1.67

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.042	0.033	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035	0.042	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.042**	0.042	0.035	0.012	
75-34-3	1,1-Dichloroethane	0.033	0.042	0.033	0.010	**U**
156-59-2	cis-1,2-Dichloroethene	**0.022**	0.042	0.035	0.015	**J**
79-01-6	Trichloroethene	**0.078**	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.090**	0.042	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M014-1-05-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-021

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01138
Initial Pressure (psig): -3.60 Final Pressure (psig): 3.91

Canister Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034	0.042	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035	0.042	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	**0.056**	0.042	0.035	0.012	
75-34-3	1,1-Dichloroethane	**0.014**	0.042	0.034	0.010	**J**
156-59-2	cis-1,2-Dichloroethene	**0.053**	0.042	0.035	0.015	
79-01-6	Trichloroethene	**0.76**	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.096**	0.042	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M314-1-05-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-022

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00641

Initial Pressure (psig): -5.88 Final Pressure (psig): 3.60

Canister Dilution Factor: 2.07

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.041	0.052	0.041	0.016	**U**
75-35-4	1,1-Dichloroethene	0.043	0.052	0.043	0.018	**U**
156-60-5	trans-1,2-Dichloroethene	**0.057**	0.052	0.043	0.015	
75-34-3	1,1-Dichloroethane	**0.015**	0.052	0.041	0.013	**J**
156-59-2	cis-1,2-Dichloroethene	**0.058**	0.052	0.043	0.019	
79-01-6	Trichloroethene	**0.76**	0.052	0.043	0.018	
127-18-4	Tetrachloroethene	**0.086**	0.052	0.043	0.017	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M107-1-01-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-023

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01179
Initial Pressure (psig): -2.39 Final Pressure (psig): 3.84

Canister Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030	0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032	0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.055**	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.010**	0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	**0.022**	0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.082**	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.067**	0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M107-1-02-N** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-024

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC02017
Initial Pressure (psig): 0.23 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.24

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025	0.031	0.025	0.0094	**U**
75-35-4	1,1-Dichloroethene	0.026	0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.062**	0.031	0.026	0.0091	
75-34-3	1,1-Dichloroethane	**0.0092**	0.031	0.025	0.0076	**J**
156-59-2	cis-1,2-Dichloroethene	**0.018**	0.031	0.026	0.011	**J**
79-01-6	Trichloroethene	**0.078**	0.031	0.026	0.011	
127-18-4	Tetrachloroethene	**0.065**	0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170206-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170207-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **Method Blank** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170208-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.020	0.025	0.020	0.0076	**U**
75-35-4	1,1-Dichloroethene	0.021	0.025	0.021	0.0086	**U**
156-60-5	trans-1,2-Dichloroethene	0.021	0.025	0.021	0.0073	**U**
75-34-3	1,1-Dichloroethane	0.020	0.025	0.020	0.0061	**U**
156-59-2	cis-1,2-Dichloroethene	0.021	0.025	0.021	0.0092	**U**
79-01-6	Trichloroethene	0.021	0.025	0.021	0.0085	**U**
127-18-4	Tetrachloroethene	0.021	0.025	0.021	0.0082	**U**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 1/17/17
Analyst: Cory Lewis Date(s) Received: 1/23/17
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 2/6 - 2/8/17
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P170206-MB	**100**	**100**	**99**	70-130	
Method Blank	P170207-MB	**93**	**98**	**111**	70-130	
Method Blank	P170208-MB	**99**	**100**	**96**	70-130	
Lab Control Sample	P170206-LCS	**99**	**101**	**101**	70-130	
Lab Control Sample	P170207-LCS	**93**	**99**	**113**	70-130	
Lab Control Sample	P170208-LCS	**101**	**101**	**101**	70-130	
17M045-1-01	P1700289-001	**93**	**100**	**115**	70-130	
17M045-1-02	P1700289-002	**93**	**99**	**116**	70-130	
17M045-A-01	P1700289-003	**91**	**100**	**116**	70-130	
17M002-1-02	P1700289-004	**96**	**101**	**109**	70-130	
17M002-1-03	P1700289-005	**96**	**99**	**109**	70-130	
17M002-1-04	P1700289-006	**96**	**100**	**107**	70-130	
17M302-1-03	P1700289-007	**98**	**99**	**107**	70-130	
17M302-1-03	P1700289-007DUP	**97**	**99**	**106**	70-130	
17M302-1-04	P1700289-008	**99**	**102**	**107**	70-130	
17M067-1-01	P1700289-009	**98**	**102**	**104**	70-130	
17M067-A-01	P1700289-010	**100**	**102**	**105**	70-130	
17M076-1-01	P1700289-011	**97**	**101**	**106**	70-130	
17M126-1-01-F	P1700289-012	**104**	**101**	**106**	70-130	
17M126-1-02-F	P1700289-013	**103**	**102**	**104**	70-130	
17M126-1-04-F	P1700289-014	**102**	**102**	**106**	70-130	
17M126-1-05-F	P1700289-015	**103**	**103**	**106**	70-130	
17M126-A-01-F	P1700289-016	**98**	**102**	**106**	70-130	
17M014-C-01-N	P1700289-017	**95**	**102**	**106**	70-130	
17M014-C-02-N	P1700289-018	**100**	**102**	**103**	70-130	
17M014-1-03-N	P1700289-019	**103**	**101**	**101**	70-130	
17M014-1-04-N	P1700289-020	**102**	**102**	**99**	70-130	
17M014-1-05-N	P1700289-021	**101**	**102**	**100**	70-130	
17M314-1-05-N	P1700289-022	**102**	**99**	**97**	70-130	
17M107-1-01-N	P1700289-023	**103**	**101**	**99**	70-130	
17M107-1-02-N	P1700289-024	**102**	**102**	**98**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170206-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**4.15**	**99**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.22**	**99**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.42**	**104**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.21**	**99**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.36**	**103**	70-121	
79-01-6	Trichloroethene	4.25	**4.37**	**103**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.22**	**99**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170207-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**3.98**	**95**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.13**	**97**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.19**	**98**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**3.96**	**93**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.19**	**99**	70-121	
79-01-6	Trichloroethene	4.25	**4.30**	**101**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.30**	**101**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **NOREAS**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P170208-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	DOD Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.20	**4.21**	**100**	64-127	
75-35-4	1,1-Dichloroethene	4.25	**4.21**	**99**	61-133	
156-60-5	trans-1,2-Dichloroethene	4.27	**4.44**	**104**	67-124	
75-34-3	1,1-Dichloroethane	4.25	**4.21**	**99**	68-126	
156-59-2	cis-1,2-Dichloroethene	4.24	**4.35**	**103**	70-121	
79-01-6	Trichloroethene	4.25	**4.33**	**102**	71-123	
127-18-4	Tetrachloroethene	4.25	**4.18**	**98**	66-124	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02061705.D
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:59
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170206-LCS	02061706.D	09:31
17M045-1-01	P1700289-001	02061728.D	21:15
17M045-1-02	P1700289-002	02061729.D	21:46
17M045-A-01	P1700289-003	02061730.D	22:17

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02071703.D
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:25
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170207-LCS	02071704.D	03:57
17M002-1-02	P1700289-004	02071706.D	05:00
17M002-1-03	P1700289-005	02071707.D	05:31
17M002-1-04	P1700289-006	02071709.D	09:13
17M302-1-03	P1700289-007	02071711.D	10:16
17M302-1-03 (Lab Duplicate)	P1700289-007DUP	02071712.D	10:48
17M302-1-04	P1700289-008	02071713.D	11:19
17M067-1-01	P1700289-009	02071715.D	12:22
17M067-A-01	P1700289-010	02071716.D	12:54
17M076-1-01	P1700289-011	02071717.D	13:25
17M126-1-01-F	P1700289-012	02071718.D	13:56
17M126-1-02-F	P1700289-013	02071719.D	14:27
17M126-1-04-F	P1700289-014	02071720.D	14:59
17M126-1-05-F	P1700289-015	02071721.D	15:30
17M126-A-01-F	P1700289-016	02071729.D	19:49
17M014-C-01-N	P1700289-017	02071730.D	20:20

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 02081703.D
Analyst: Cory Lewis Date Analyzed: 2/8/17
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 01:27
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P170208-LCS	02081704.D	01:59
17M014-C-02-N	P1700289-018	02081706.D	03:01
17M014-1-03-N	P1700289-019	02081707.D	03:33
17M014-1-04-N	P1700289-020	02081708.D	03:33
17M014-1-05-N	P1700289-021	02081709.D	04:35
17M314-1-05-N	P1700289-022	02081710.D	05:06
17M107-1-01-N	P1700289-023	02081711.D	05:38
17M107-1-02-N	P1700289-024	02081712.D	06:09

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **NOREAS**
Client Sample ID: **17M302-1-03** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-007DUP

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00799
Initial Pressure (psig): 0.31 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.22

CAS #	Compound	Sample Result		Duplicate Sample Result		Average	% RPD	RPD Limit	Data Qualifier
		µg/m³	ppbV	**µg/m³**	ppbV	µg/m³			
75-01-4	Vinyl Chloride	0.0525	0.0205	0.0521	0.0204	0.0523	**0.8**	25	
75-35-4	1,1-Dichloroethene	0.0179	0.00451	0.0173	0.00436	0.0176	**3**	25	**J**
156-60-5	trans-1,2-Dichloroethene	0.0542	0.0137	0.0563	0.0142	0.05525	**4**	25	
75-34-3	1,1-Dichloroethane	0.0241	0.00595	0.0247	0.00610	0.0244	**2**	25	**J**
156-59-2	cis-1,2-Dichloroethene	0.186	0.0470	0.186	0.0469	0.186	**0**	25	
79-01-6	Trichloroethene	0.602	0.112	0.600	0.112	0.601	**0.3**	25	
127-18-4	Tetrachloroethene	0.0876	0.0129	0.0873	0.0129	0.08745	**0.3**	25	

U = This analyte was analzyed for but not detected at the specified detection limit.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02061704.D

Analyst: Cory Lewis Date Analyzed: 2/6/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:28

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	54422		9.76	264473		11.71		45785		16.05	
	Upper Limit	76191		10.09	370262		12.04		64099		16.38	
	Lower Limit	32653		9.43	158684		11.38		27471		15.72	
	Client Sample ID											
01	Method Blank	51975		9.78	253570		11.72		43764		16.06	
02	Lab Control Sample	53207		9.76	259467		11.71		45451		16.05	
03	17M045-1-01	58715		9.76	291506		11.71		48689		16.05	
04	17M045-1-02	57859		9.75	289946		11.71		47938		16.05	
05	17M045-A-01	58251		9.76	286813		11.71		47617		16.05	
06												
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02071702.D

Analyst: Cory Lewis Date Analyzed: 2/7/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:54

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	54654		9.75	268758		11.71		44086		16.05	
	Upper Limit	76516		10.08	376261		12.04		61720		16.38	
	Lower Limit	32792		9.42	161255		11.38		26452		15.72	
	Client Sample ID											
01	Method Blank	53273		9.78	263102		11.72		42772		16.06	
02	Lab Control Sample	53781		9.75	263913		11.71		44025		16.05	
03	17M002-1-02	49768		9.75	245899		11.71		41856		16.05	
04	17M002-1-03	50275		9.76	258139		11.71		43388		16.05	
05	17M002-1-04	52120		9.76	255631		11.71		44091		16.05	
06	17M302-1-03	49951		9.76	255101		11.71		43307		16.05	
07	17M302-1-03 (Lab Duplicate)	49510		9.75	253179		11.71		43377		16.05	
08	17M302-1-04	48680		9.76	239825		11.71		43818		16.05	
09	17M067-1-01	48772		9.76	239619		11.71		43582		16.05	
10	17M067-A-01	48088		9.76	239880		11.71		42624		16.05	
11	17M076-1-01	51499		9.75	248607		11.71		44673		16.05	
12	17M126-1-01-F	47711		9.76	246757		11.71		43194		16.06	
13	17M126-1-02-F	47104		9.76	244870		11.71		43900		16.06	
14	17M126-1-04-F	47824		9.76	243901		11.71		43732		16.05	
15	17M126-1-05-F	45879		9.76	236904		11.71		42432		16.06	
16	17M126-A-01-F	51503		9.76	252672		11.71		44138		16.05	
17	17M014-C-01-N	53507		9.75	257420		11.71		45153		16.05	
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **NOREAS**

Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Project ID: P1700289

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 02081702.D

Analyst: Cory Lewis Date Analyzed: 2/8/17

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 00:54

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	46667		9.76	228741		11.71		40782		16.05	
	Upper Limit	65334		10.09	320237		12.04		57095		16.38	
	Lower Limit	28000		9.43	137245		11.38		24469		15.72	
	Client Sample ID											
01	Method Blank	45169		9.78	220474		11.72		38765		16.06	
02	Lab Control Sample	45939		9.76	225445		11.71		40407		16.05	
03	17M014-C-02-N	46978		9.76	228227		11.71		41367		16.06	
04	17M014-1-03-N	45893		9.76	230767		11.71		40371		16.05	
05	17M014-1-04-N	45578		9.76	225421		11.71		40702		16.05	
06	17M014-1-05-N	45566		9.76	222895		11.71		40396		16.06	
07	17M314-1-05-N	45428		9.76	236016		11.71		41443		16.05	
08	17M107-1-01-N	44967		9.76	226940		11.71		40781		16.05	
09	17M107-1-02-N	45794		9.76	224368		11.71		40841		16.05	
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
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AREA UPPER LIMIT = 140% of internal standard area
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RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	52120	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	255631	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	44091	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	87552	962.120	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.21%				
33) Toluene-d8 (SS2)	14.15	98	260777	1000.807	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.08%				
45) Bromofluorobenzene (SS3)	17.55	174	85946	1066.328	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.63%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	98114	751.573	pg		100
3) Chloromethane	4.67	52	3034	100.272	pg		93
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	4133	33.221	pg		98
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.48	94	482	10.426	pg		95
8) Chloroethane	5.70	64	190	5.271	pg	#	43
9) Acrolein	6.28	56	7591	256.856	pg		92
10) Acetone	6.41	58	106868	2765.082	pg	#	83
11) Trichlorofluoromethane	6.61	101	38728	389.316	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.49	84	11234	185.047	pg		96
14) Trichlorotrifluoroethane	7.80	151	8466	153.570	pg		100
15) trans-1,2-Dichloroethene	8.53	96	645	11.155	pg		93
16) 1,1-Dichloroethane	8.73	63	174	N.D.			
17) Methyl tert-Butyl Ether	8.81	73	418	N.D.			
18) cis-1,2-Dichloroethene	9.60	96	223	N.D.			
19) Chloroform	9.89	83	5883	52.542	pg		100
21) 1,2-Dichloroethane	10.65	62	1701	20.226	pg		99
22) 1,1,1-Trichloroethane	10.91	97	556	5.450	pg		98
23) Benzene	11.37	78	58914	244.311	pg		99
24) Carbon Tetrachloride	11.52	117	12729	138.064	pg		99
26) 1,2-Dichloropropane	12.18	63	491	8.612	pg		94
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.42	130	1198	19.391	pg		99
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.26	75	64	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.95	83	71	N.D.			
34) Toluene	14.25	91	103785	421.946	pg		100
35) Dibromochloromethane	14.66	129	161	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.40	166	1160	17.996	pg		99
39) Chlorobenzene	16.11	112	340	N.D.			
40) Ethylbenzene	16.48	91	21704	84.815	pg		99
41) m,p-Xylene	16.65	91	51421	258.270	pg		98
42) Styrene	17.01	104	4412	30.175	pg		97
43) o-Xylene	17.12	106	10676	108.911	pg		89
44) 1,1,2,2-Tetrachloroethane	17.12	83	207	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	5093	23.487	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	19723	91.376	pg		87
48) 1,3-Dichlorobenzene	18.92	146	132	N.D.			
49) 1,4-Dichlorobenzene	18.98	146	1869	15.417	pg		99
50) 1,2-Dichlorobenzene	19.31	146	122	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.95	182	78	N.D.			
53) Naphthalene	21.07	128	4582	17.924	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

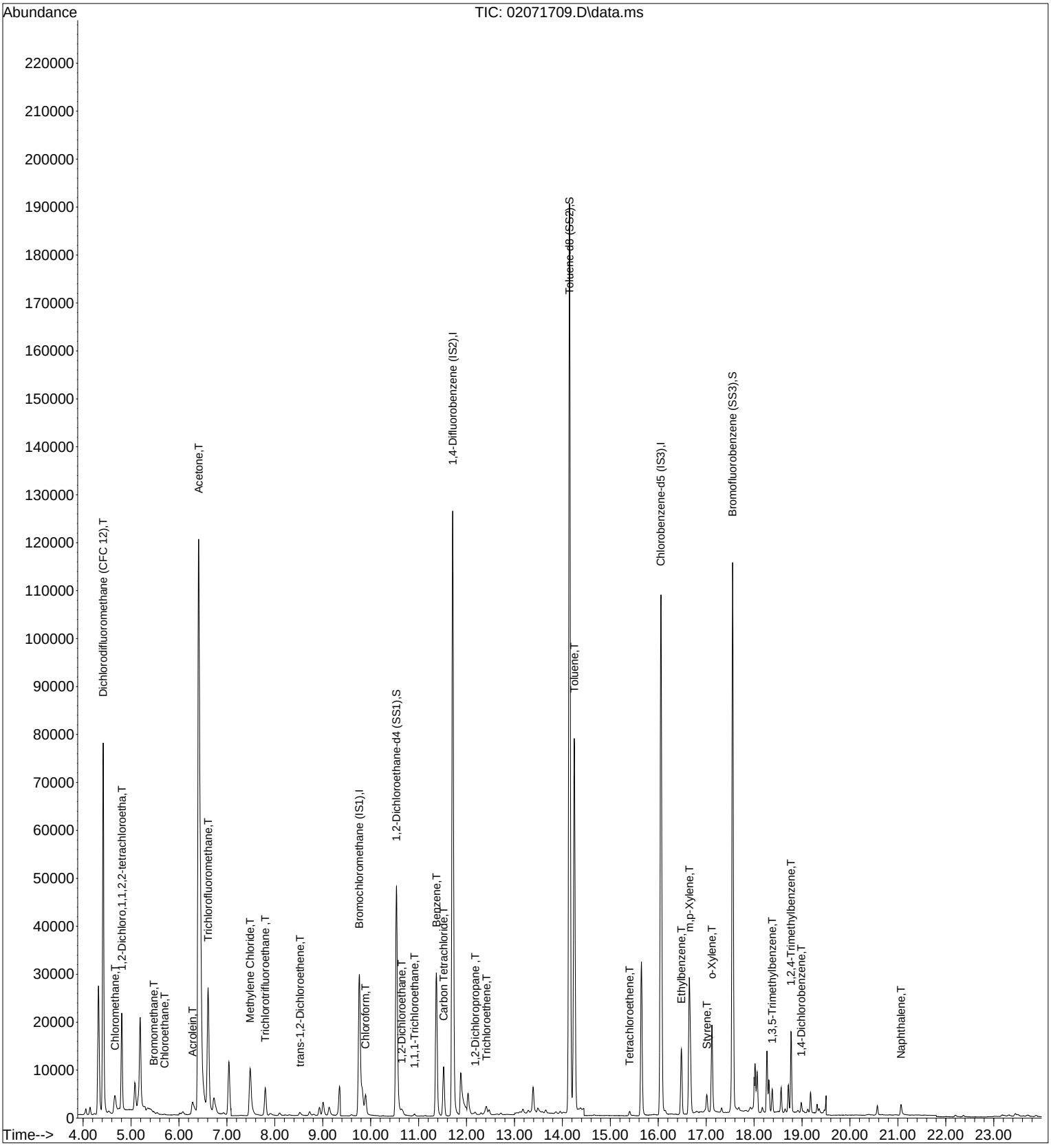
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

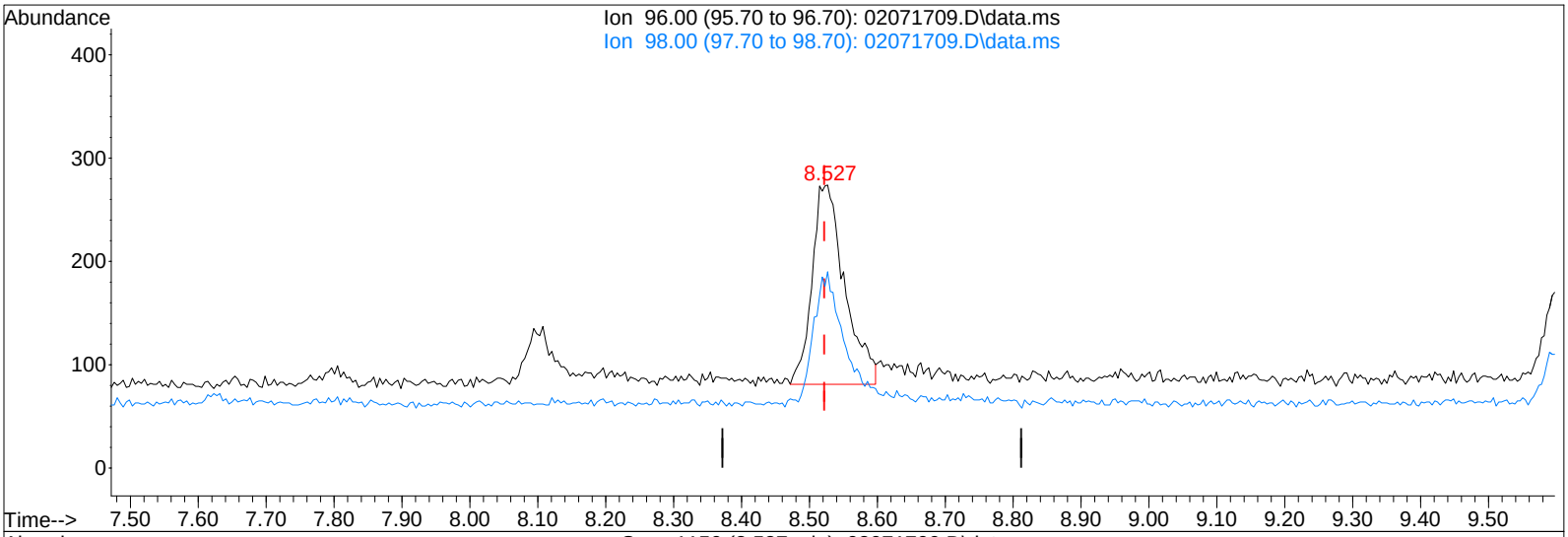
Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

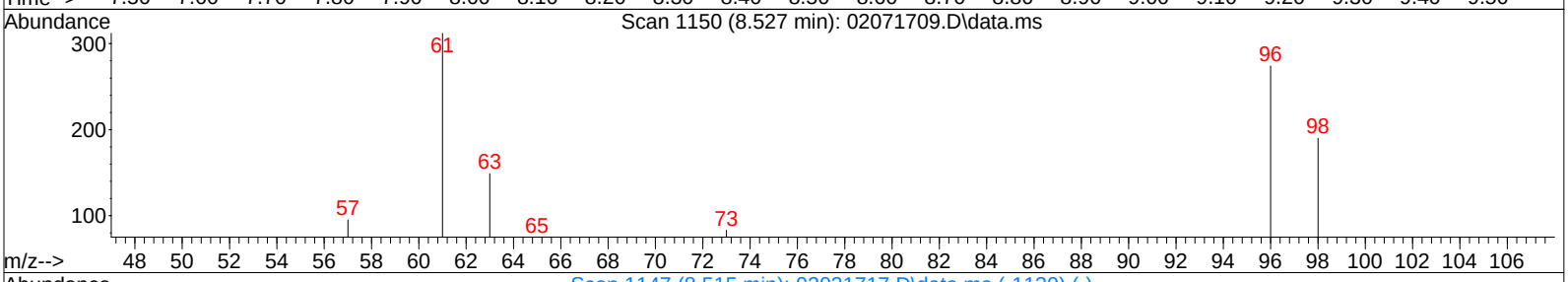


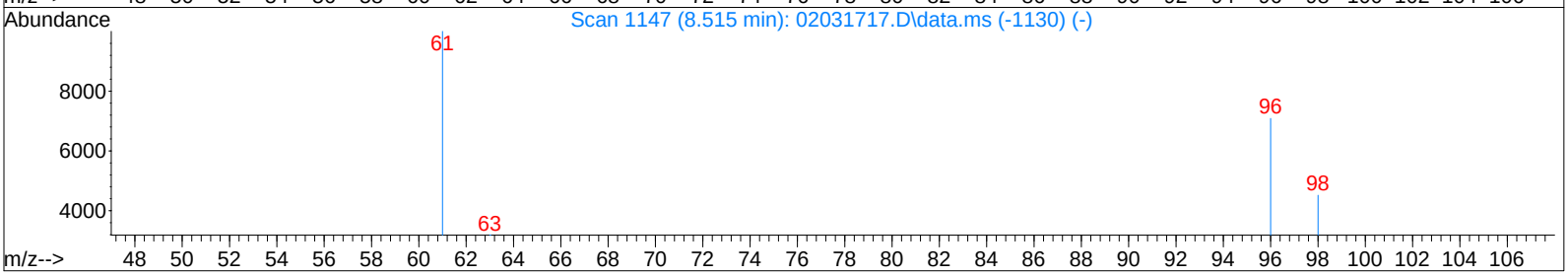
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02071709.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.527min (+0.005) 11.15pg

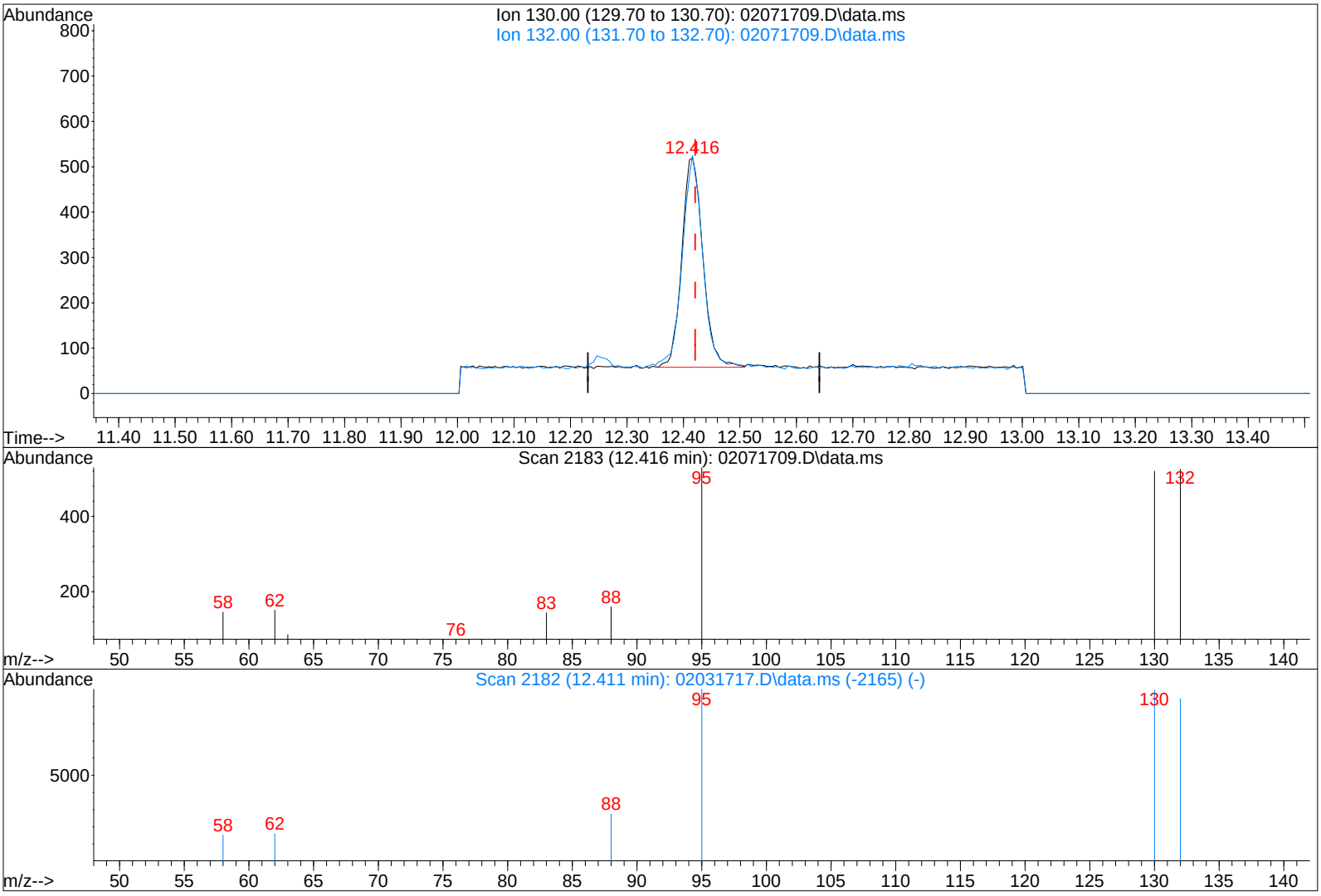
response 645

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	56.28
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071709.D\data.ms

(28) Trichloroethene (T)

12.416min (-0.005) 19.39pg

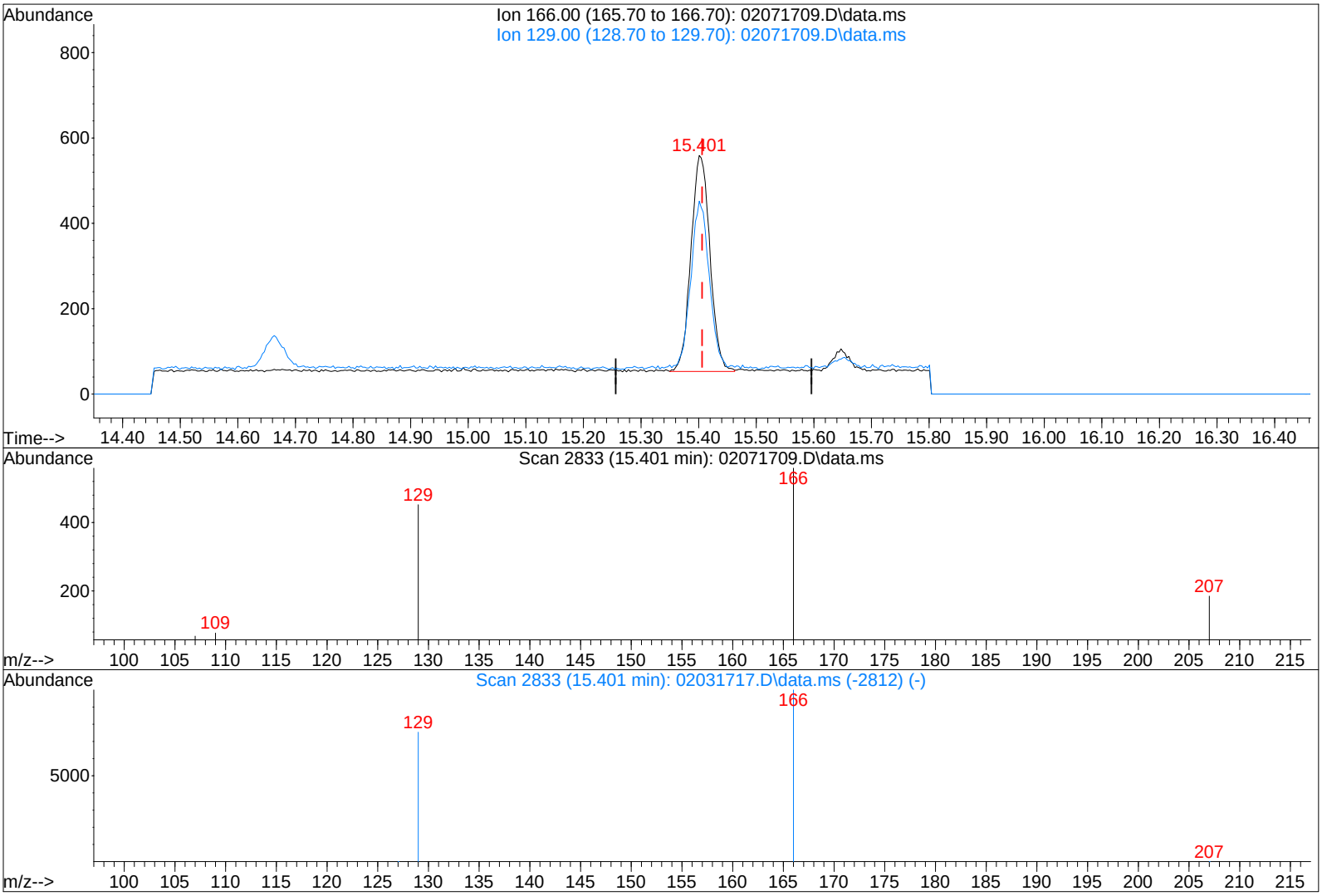
response 1198

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	94.07
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071709.D Vial: 3
Acq On : 7 Feb 2017 9:13 Operator: CL
Sample : P1700289-006 PF2 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 10:32:36 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071709.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.005) 18.00pg

response 1160

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	74.14
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 08:28:41 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	45566	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	222895	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	40396	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	80611	1013.260 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.33%		
33) Toluene-d8 (SS2)	14.15	98	231671	1019.684 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%		
45) Bromofluorobenzene (SS3)	17.56	174	74014	1002.284 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.23%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	173191	1517.502 pg	100
3) Chloromethane	4.63	52	4954	187.277 pg	92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	7230	66.474 pg	100
5) Vinyl Chloride	4.95	62	189	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.47	94	781	19.324 pg	98
8) Chloroethane	5.68	64	262	8.314 pg	90
9) Acrolein	6.26	56	7420	287.183 pg	94
10) Acetone	6.39	58	219365	6492.189 pg	95
11) Trichlorofluoromethane	6.59	101	69280	796.615 pg	100
12) 1,1-Dichloroethene	7.33	96	110	N.D.	
13) Methylene Chloride	7.47	84	19410	365.710 pg	92
14) Trichlorotrifluoroethane	7.79	151	13866	287.702 pg	99
15) trans-1,2-Dichloroethene	8.51	96	1688	33.392 pg	97
16) 1,1-Dichloroethane	8.72	63	753	8.329 pg	97
17) Methyl tert-Butyl Ether	8.80	73	743	N.D.	
18) cis-1,2-Dichloroethene	9.60	96	1697	31.352 pg	99
19) Chloroform	9.89	83	11484	117.318 pg	97
21) 1,2-Dichloroethane	10.64	62	3559	48.405 pg	100
22) 1,1,1-Trichloroethane	10.91	97	1135	12.727 pg	97
23) Benzene	11.37	78	123816	587.306 pg	100
24) Carbon Tetrachloride	11.52	117	23546	292.123 pg	100
26) 1,2-Dichloropropane	12.18	63	1316	26.473 pg	99
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	24529	455.335 pg	99
29) 1,4-Dioxane	12.40	88	172	N.D.	
30) cis-1,3-Dichloropropene	13.26	75	64	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.95	83	147	N.D.	
34) Toluene	14.25	91	271178	1264.415 pg	100
35) Dibromochloromethane	14.66	129	385	6.776 pg	97
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.40	166	3215	57.202 pg	99
39) Chlorobenzene	16.10	112	356	N.D.	
40) Ethylbenzene	16.48	91	54294	231.578 pg	100
41) m,p-Xylene	16.65	91	92780	508.627 pg	99
42) Styrene	17.02	104	5332	39.802 pg	98
43) o-Xylene	17.12	106	21383	238.091 pg	99
44) 1,1,2,2-Tetrachloroethane	17.12	83	175	N.D.	
46) 1,3,5-Trimethylbenzene	18.38	105	2743	13.807 pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	19246	97.322 pg	87
48) 1,3-Dichlorobenzene	18.92	146	732	6.837 pg	99
49) 1,4-Dichlorobenzene	18.98	146	22009	198.148 pg	100
50) 1,2-Dichlorobenzene	19.31	146	785	7.310 pg	98
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.94	182	1102	15.645 pg	98
53) Naphthalene	21.06	128	7939	33.896 pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 08:28:41 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

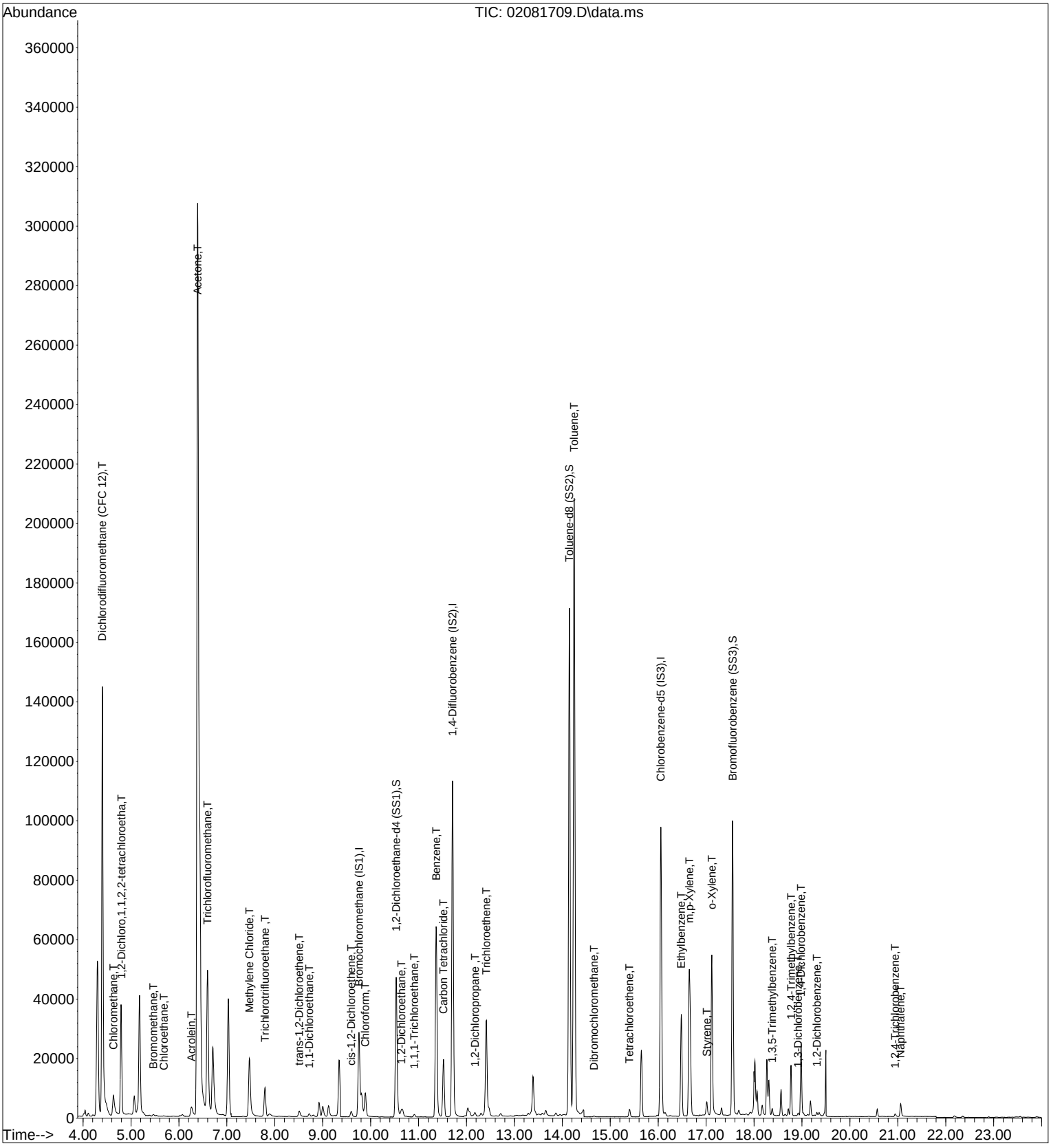
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

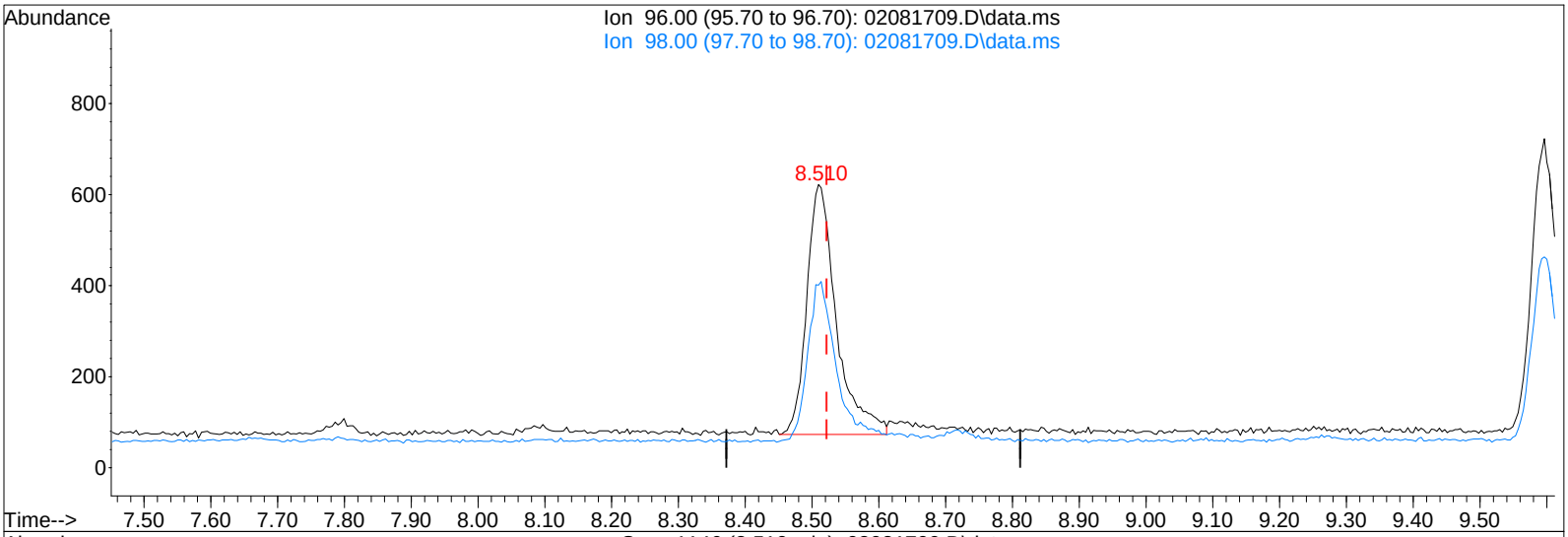
Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

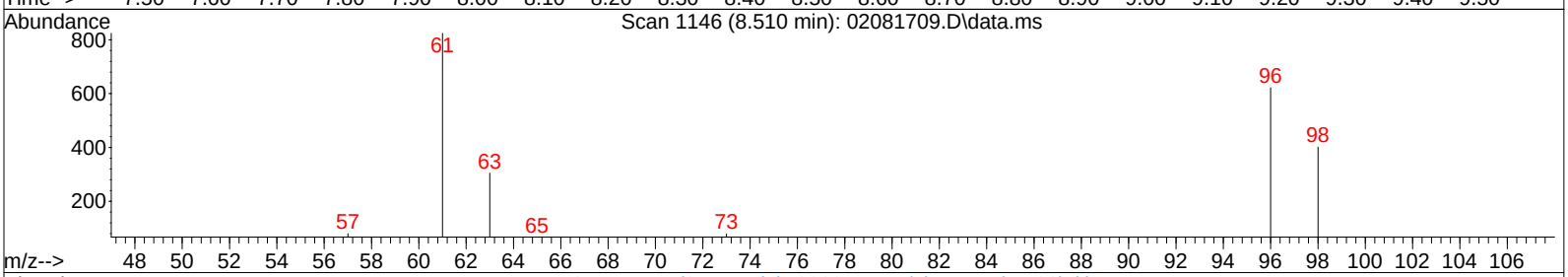
Quant Time: Feb 08 08:28:41 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

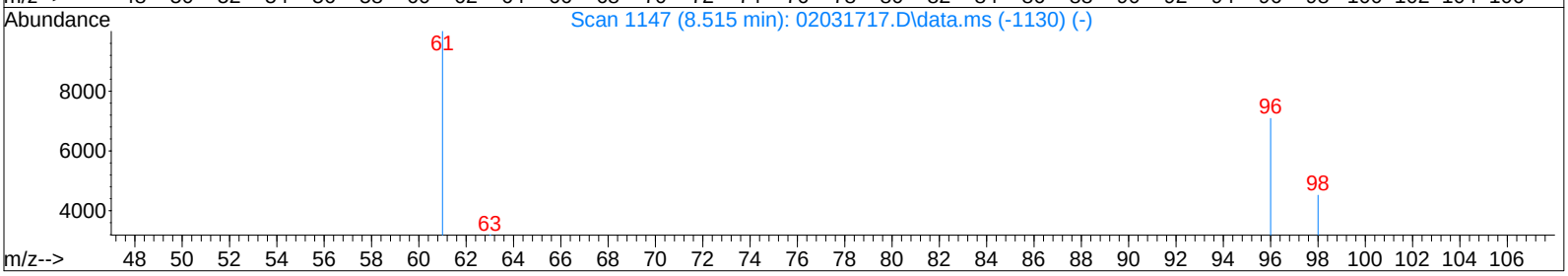


Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:38 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02081709.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.510min (-0.012) 33.39pg

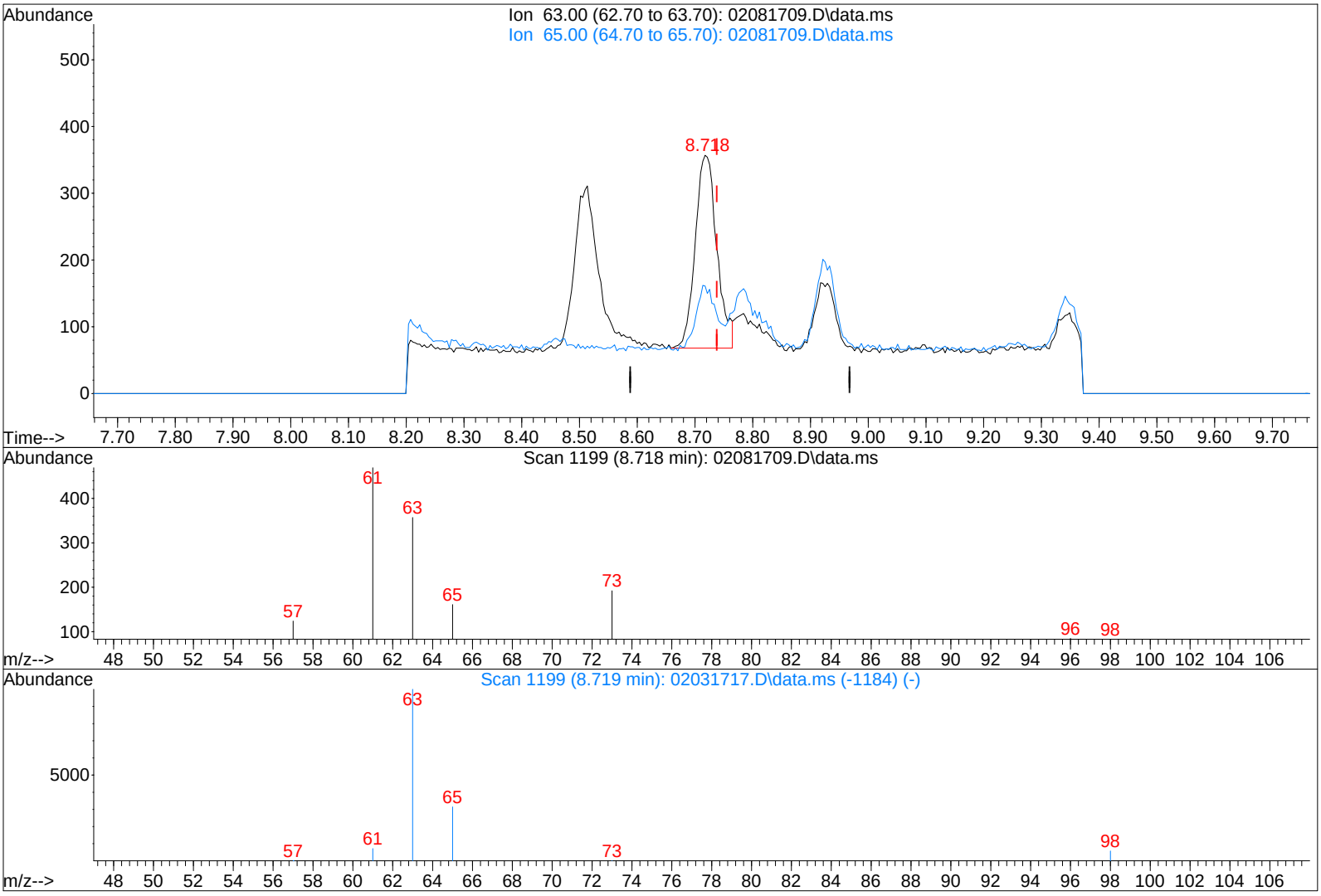
response 1688

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	59.36
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:38 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081709.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.020) 8.33pg

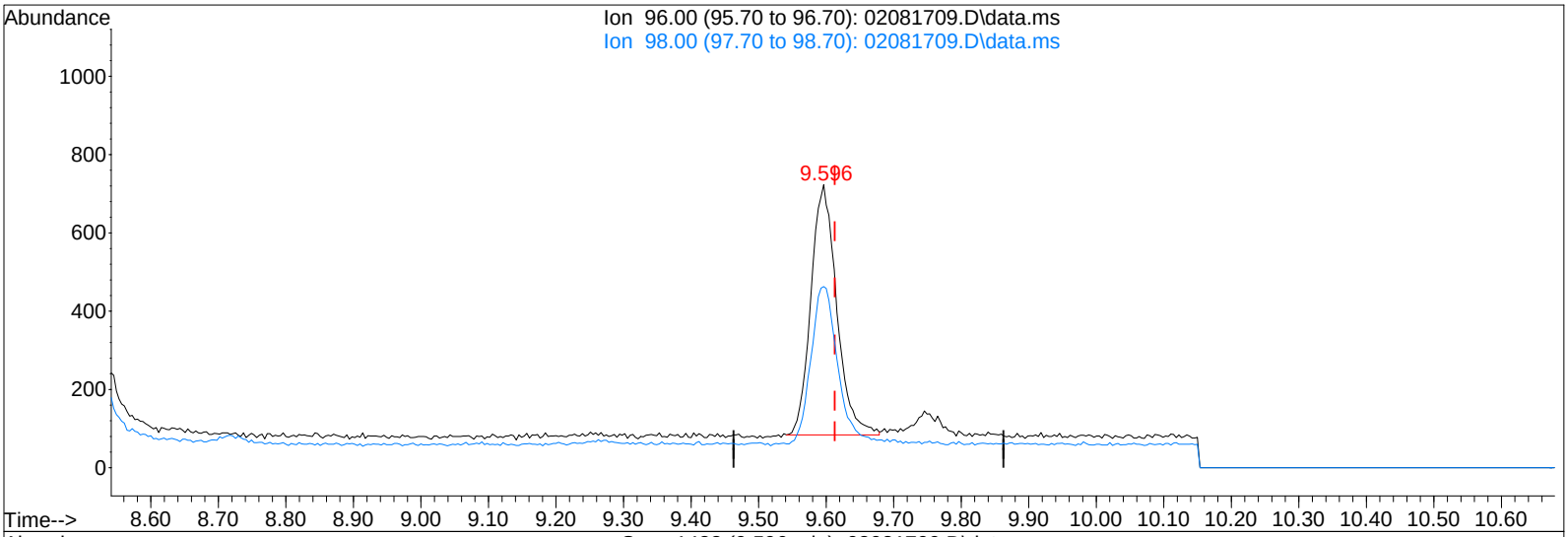
response 753

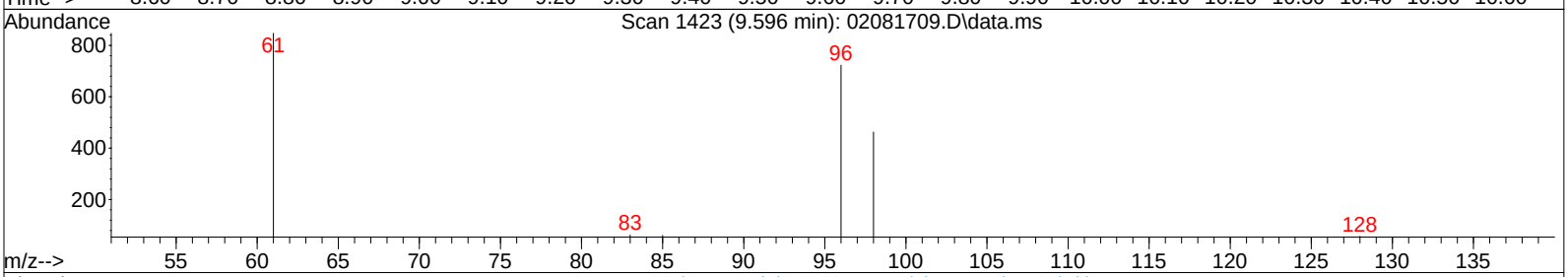
Ion	Exp%	Act%
63.00	100	100
65.00	31.30	29.61
0.00	0.00	0.00
0.00	0.00	0.00

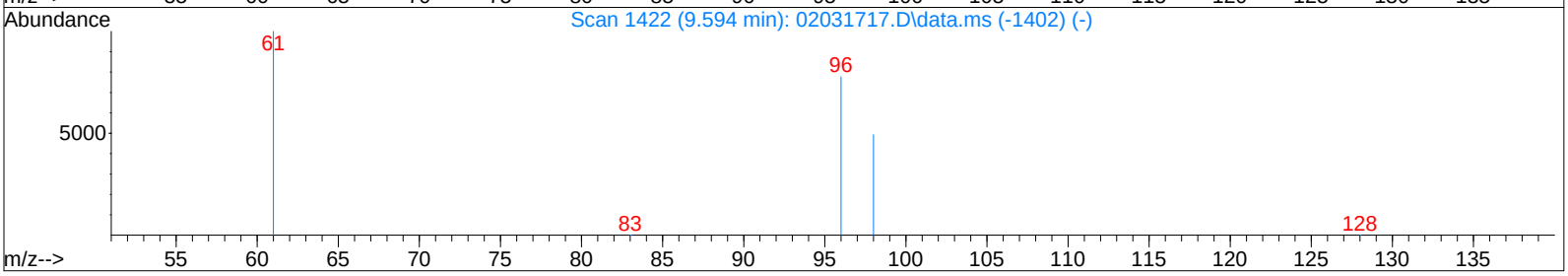
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:38 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02081709.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.596min (-0.017) 31.35pg

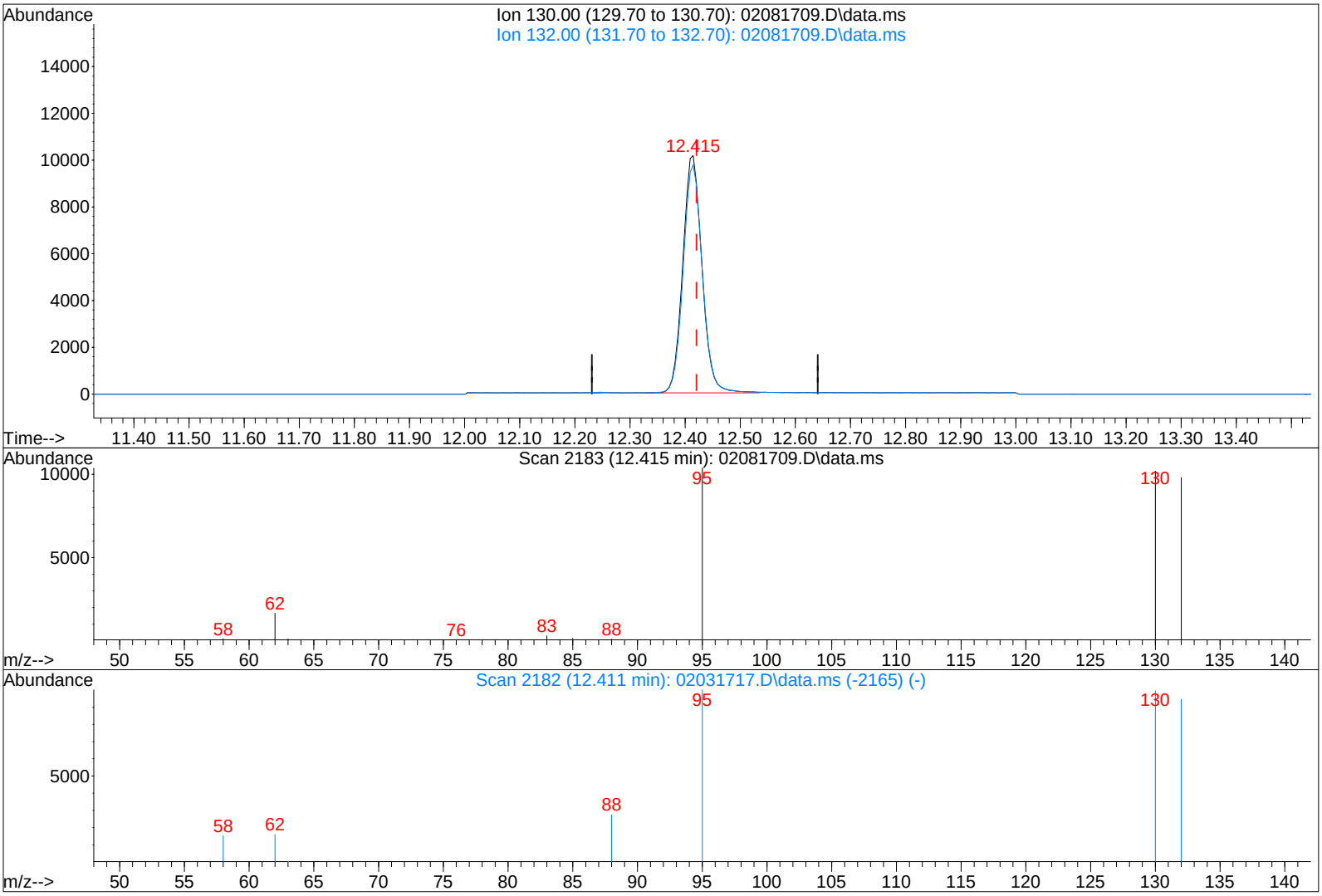
response 1697

Ion	Exp%	Act%
96.00	100	100
98.00	64.00	65.11
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:38 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081709.D\data.ms

(28) Trichloroethene (T)

12.415min (-0.006) 455.34pg

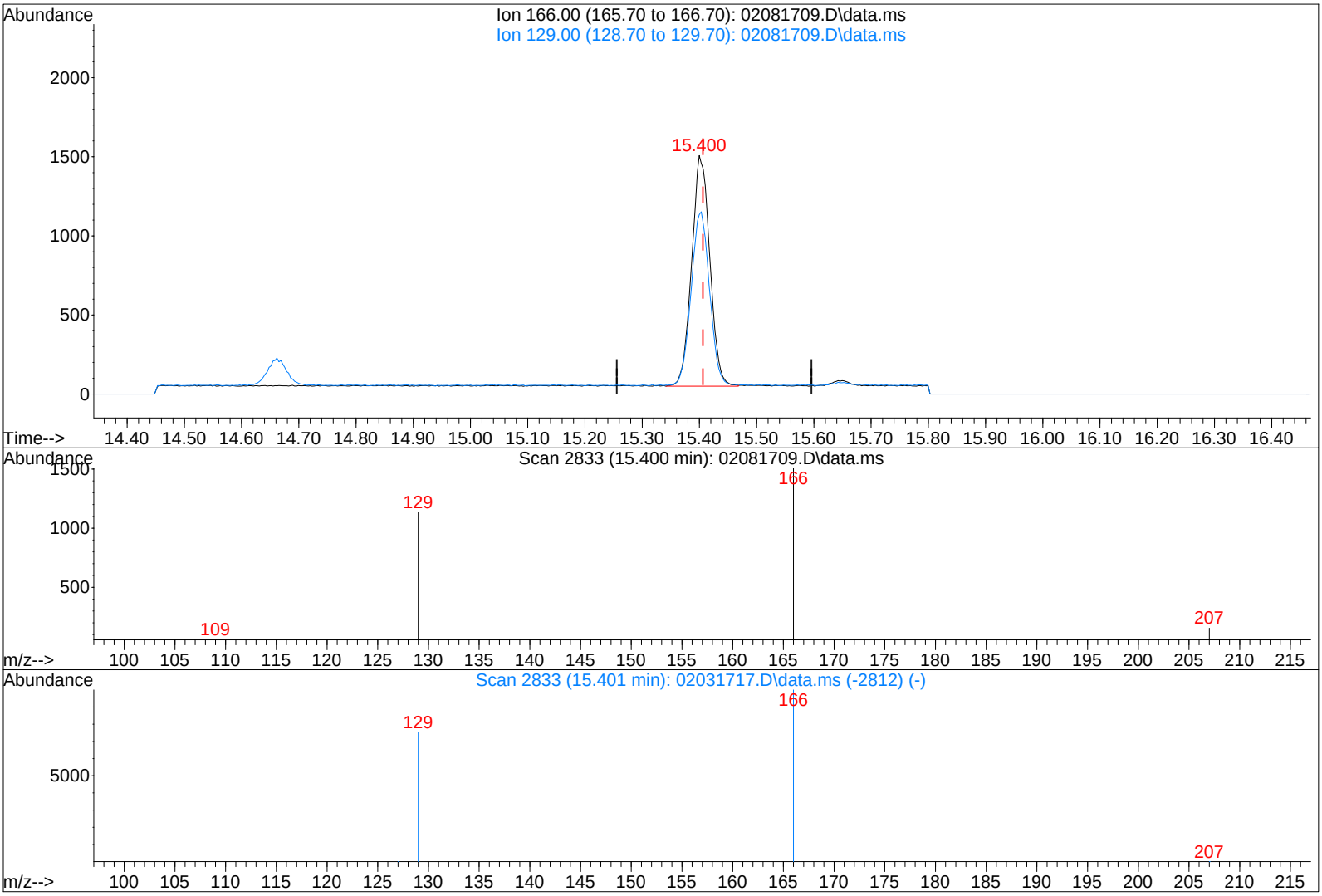
response 24529

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	96.22
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081709.D Vial: 8
Acq On : 8 Feb 2017 4:35 Operator: CL
Sample : P1700289-021 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 08:28:41 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081709.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.006) 57.20pg

response 3215

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	76.39
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:52:49 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46978	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228227	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	41367	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	82103	1000.995 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.10%		
33) Toluene-d8 (SS2)	14.15	98	236508	1016.654 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.67%		
45) Bromofluorobenzene (SS3)	17.55	174	77503	1024.896 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.49%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.40	85	182627	1552.084 pg	100
3) Chloromethane	4.61	52	5914	216.848 pg	92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	8386	74.785 pg	99
5) Vinyl Chloride	4.93	62	4932	48.177 pg	98
6) 1,3-Butadiene	5.12	54	6245	85.558 pg	93
7) Bromomethane	5.45	94	1392	33.407 pg	92
8) Chloroethane	5.67	64	2697	83.013 pg	99
9) Acrolein	6.25	56	39585	1486.042 pg	94
10) Acetone	6.39	58	544887	15641.437 pg	99
11) Trichlorofluoromethane	6.59	101	80090	893.234 pg	100
12) 1,1-Dichloroethene	7.34	96	903	17.992 pg	88
13) Methylene Chloride	7.47	84	35784	653.954 pg	96
14) Trichlorotrifluoroethane	7.79	151	16561	333.291 pg	99
15) trans-1,2-Dichloroethene	8.51	96	2737	52.516 pg	98
16) 1,1-Dichloroethane	8.72	63	2220	23.818 pg	100
17) Methyl tert-Butyl Ether	8.79	73	1403	8.428 pg	90
18) cis-1,2-Dichloroethene	9.59	96	4843	86.785 pg	100
19) Chloroform	9.89	83	11274	111.711 pg	98
21) 1,2-Dichloroethane	10.64	62	3745	49.404 pg	99
22) 1,1,1-Trichloroethane	10.91	97	1167	12.692 pg	98
23) Benzene	11.37	78	155982	717.643 pg	100
24) Carbon Tetrachloride	11.52	117	23716	285.389 pg	100
26) 1,2-Dichloropropane	12.18	63	1169	22.966 pg	98
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	111479	2021.054 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.25	75	745	9.237 pg	98
31) trans-1,3-Dichloropropene	13.77	75	1172	16.628 pg	90
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d	
34) Toluene	14.25	91	303156	1380.495 pg	100
35) Dibromochloromethane	14.66	129	597	10.262 pg	98
36) 1,2-Dibromoethane	14.92	107	619	11.288 pg	90
37) Tetrachloroethene	15.40	166	3259	56.630 pg	98
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.48	91	75420	314.135 pg	100
41) m,p-Xylene	16.65	91	202212	1082.521 pg	100
42) Styrene	17.01	104	14727	107.354 pg	99
43) o-Xylene	17.12	106	35054	381.150 pg	99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	14849	72.988 pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	49452	244.195 pg	88
48) 1,3-Dichlorobenzene	18.92	146	54179	494.131 pg	99
49) 1,4-Dichlorobenzene	18.98	146	5008	44.029 pg	99
50) 1,2-Dichlorobenzene	19.31	146	779	7.084 pg	95
51) 1,2-Dibromo-3-chloropr...	19.72	157	161	N.D.	
52) 1,2,4-Trichlorobenzene	20.95	182	833	11.548 pg	98
53) Naphthalene	21.06	128	13197	55.023 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:52:49 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

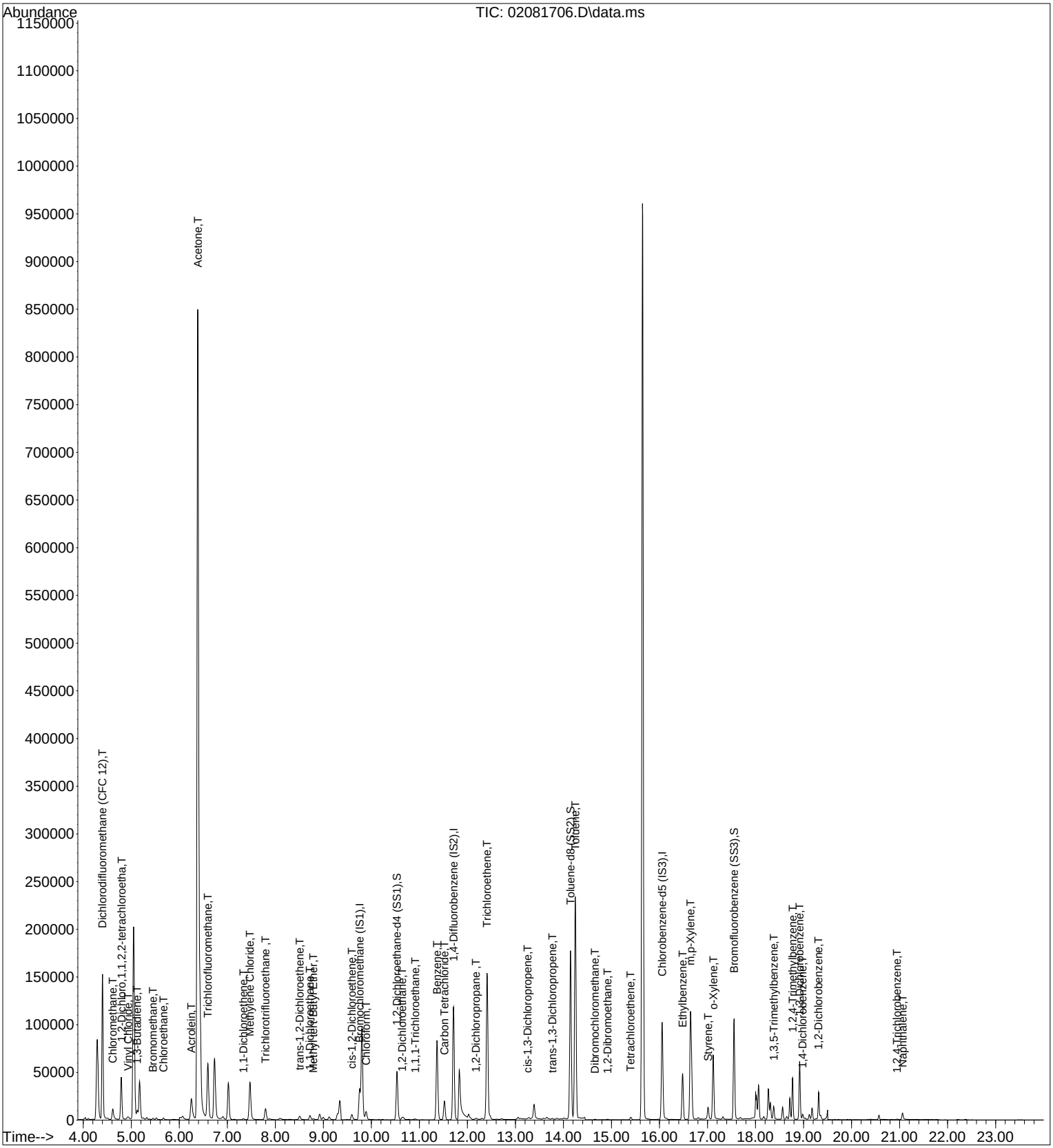
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	81	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

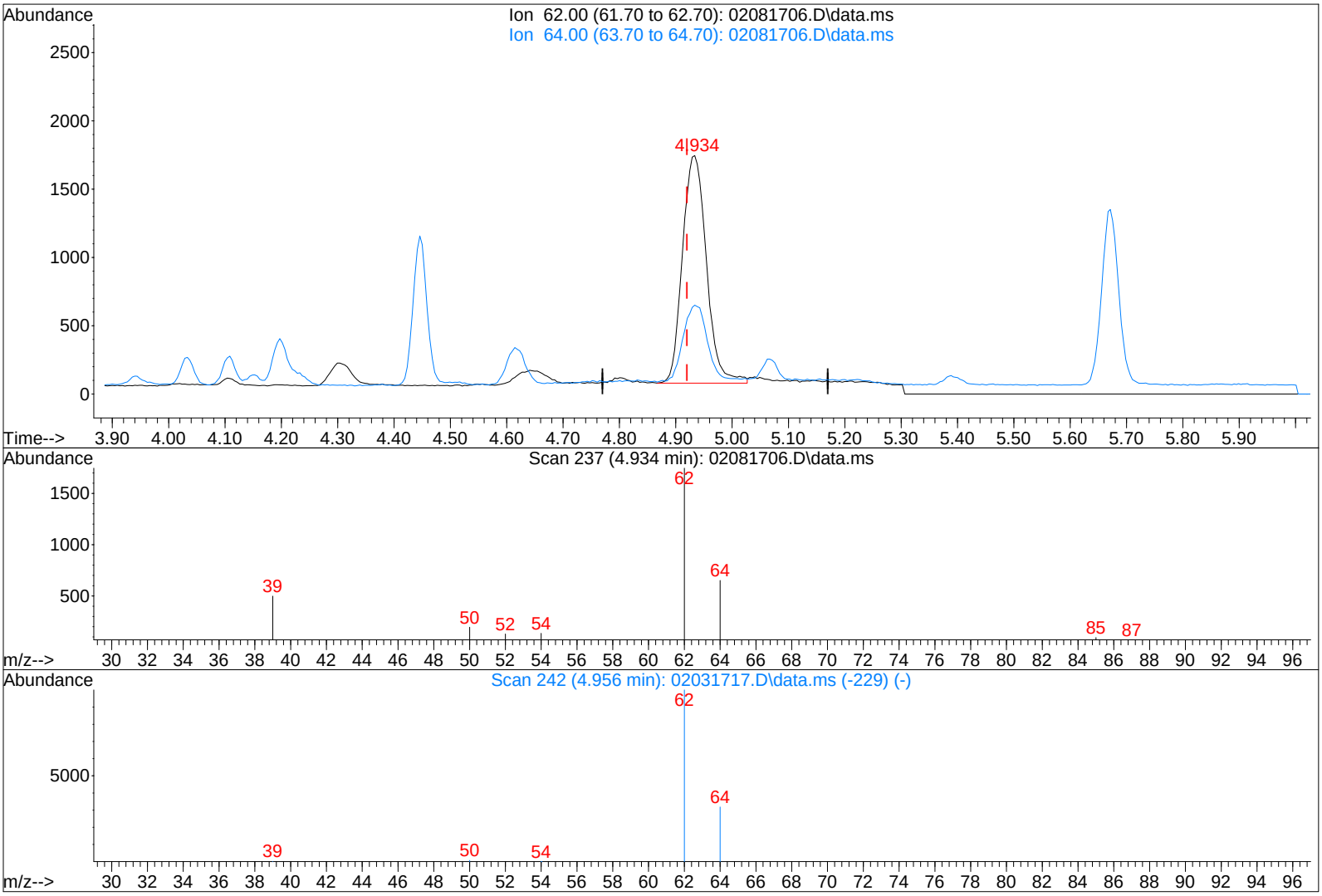
Quant Time: Feb 08 07:52:49 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(5) Vinyl Chloride (T)

4.934min (+0.014) 48.18pg

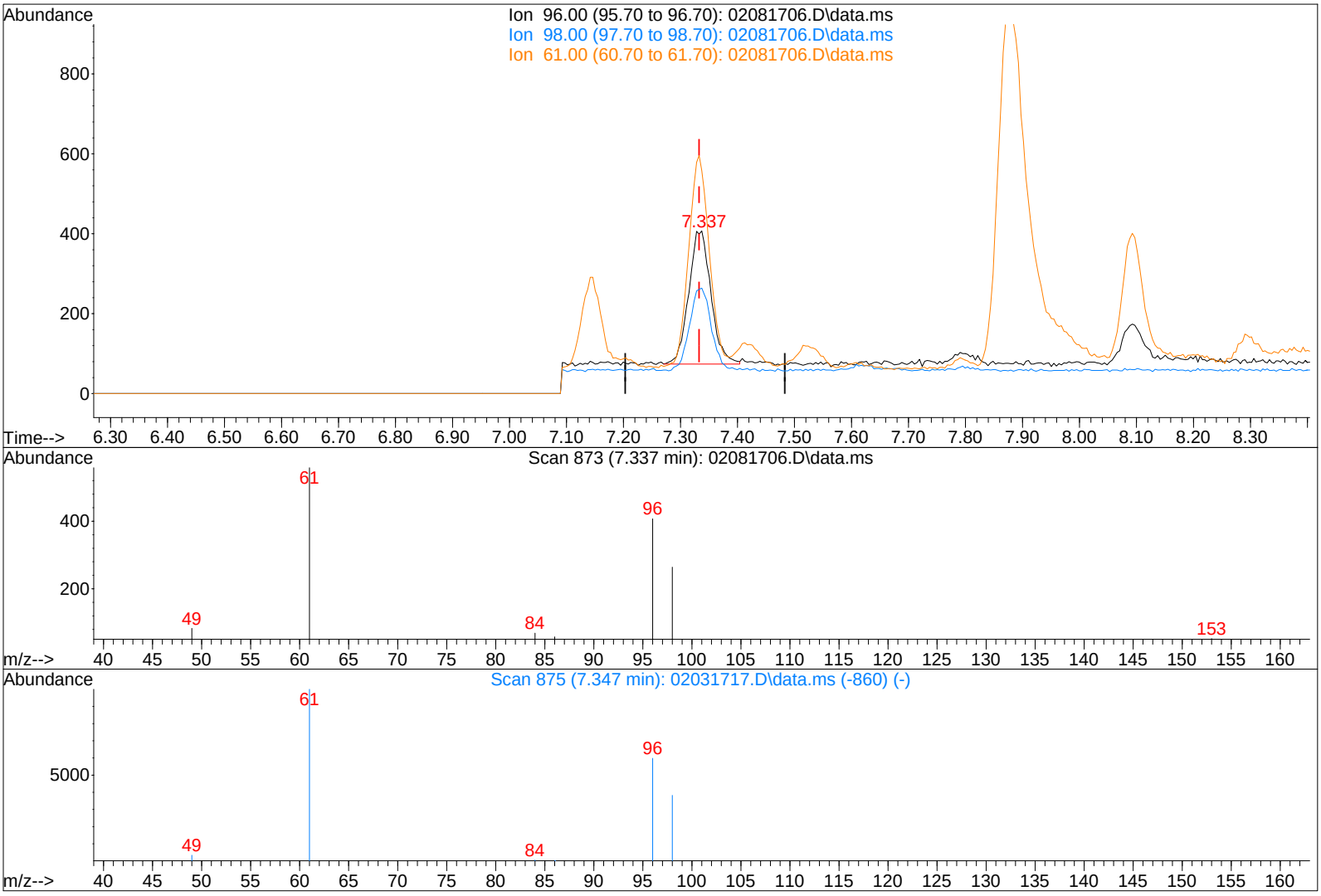
response 4932

Ion	Exp%	Act%
62.00	100	100
64.00	32.20	33.60
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(12) 1,1-Dichloroethene (T)

7.337min (+0.004) 17.99pg

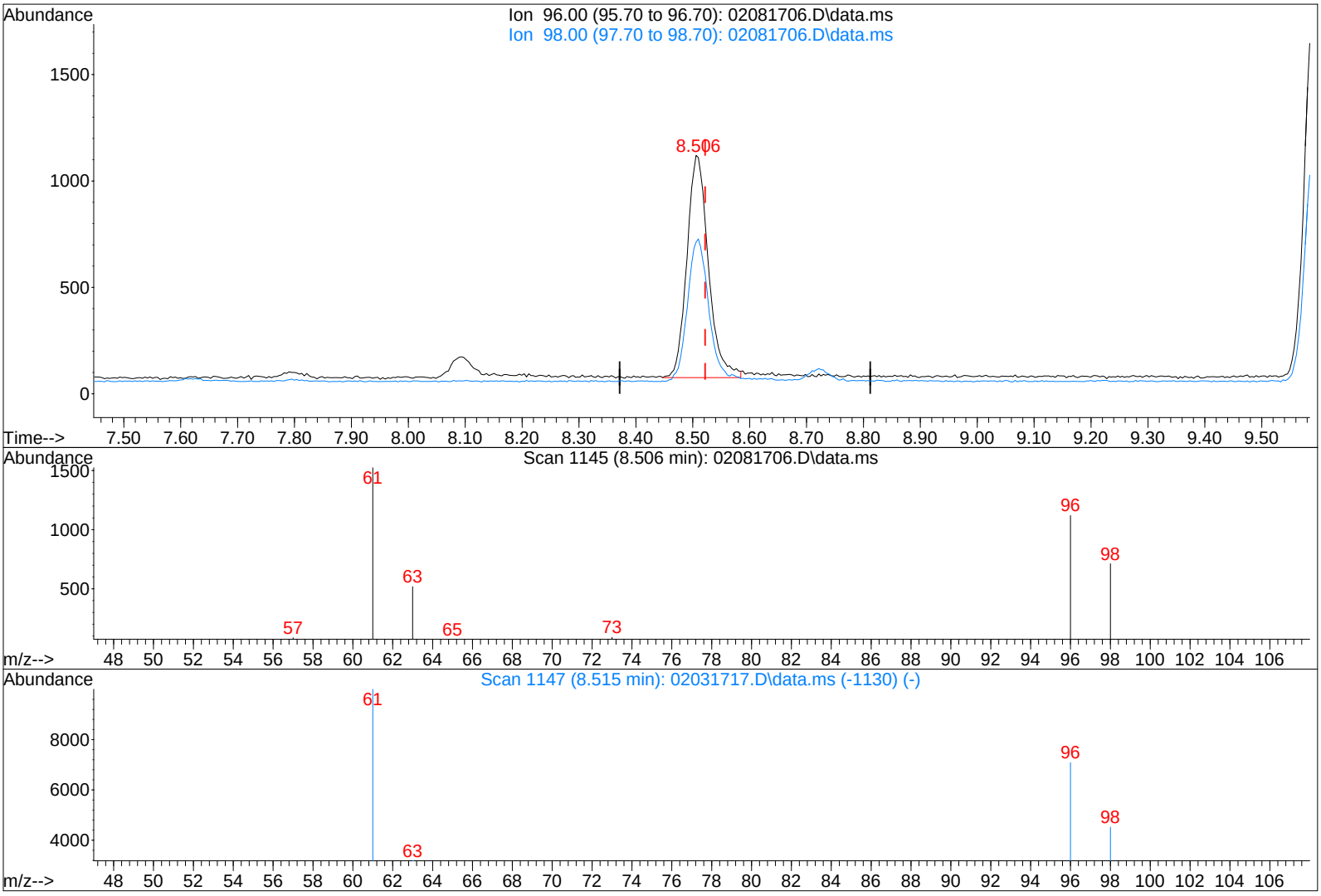
response 903

Ion	Exp%	Act%
96.00	100	100
98.00	63.90	60.58
61.00	167.20	147.51
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.506min (-0.016) 52.52pg

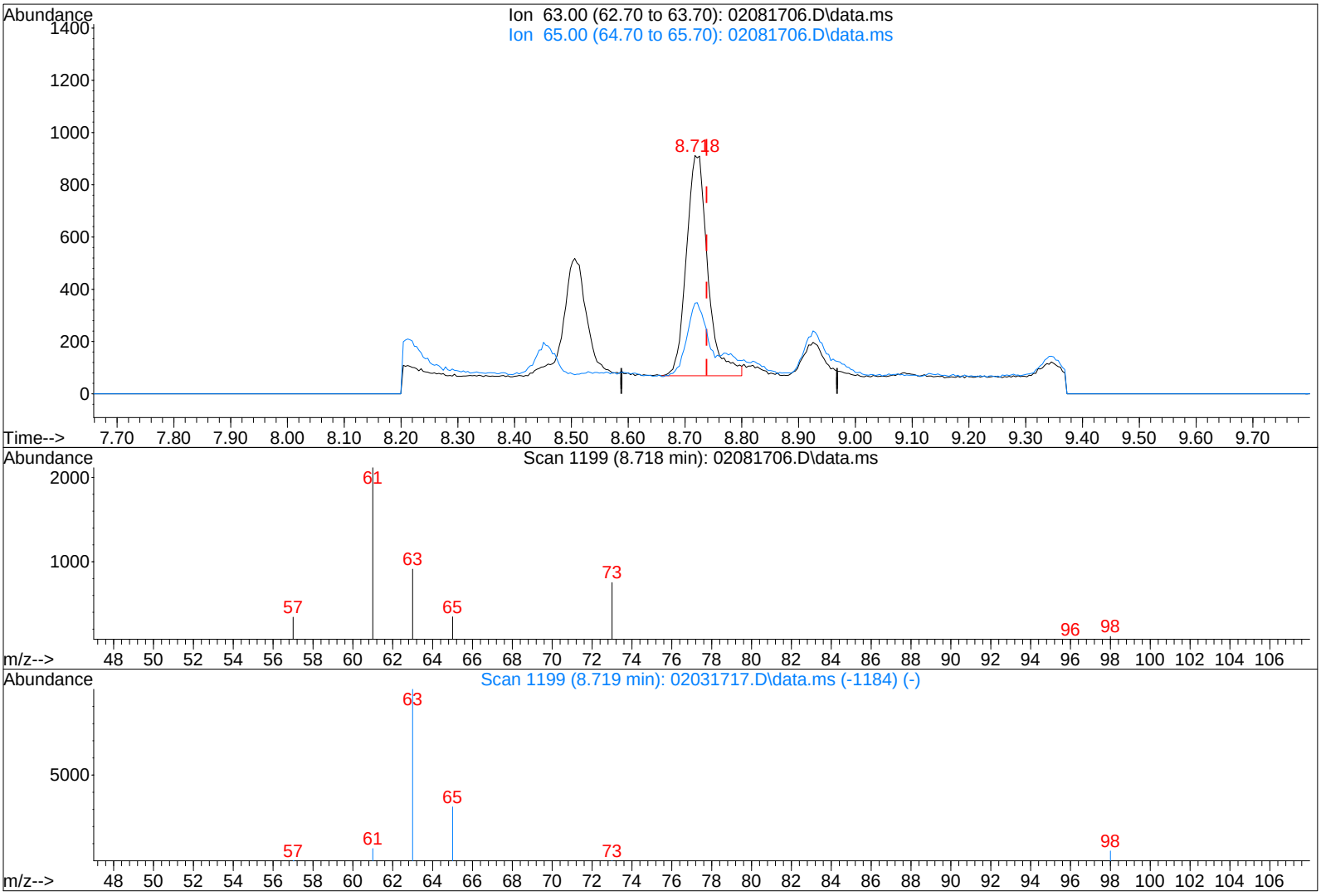
response 2737

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	62.99
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.020) 23.82pg

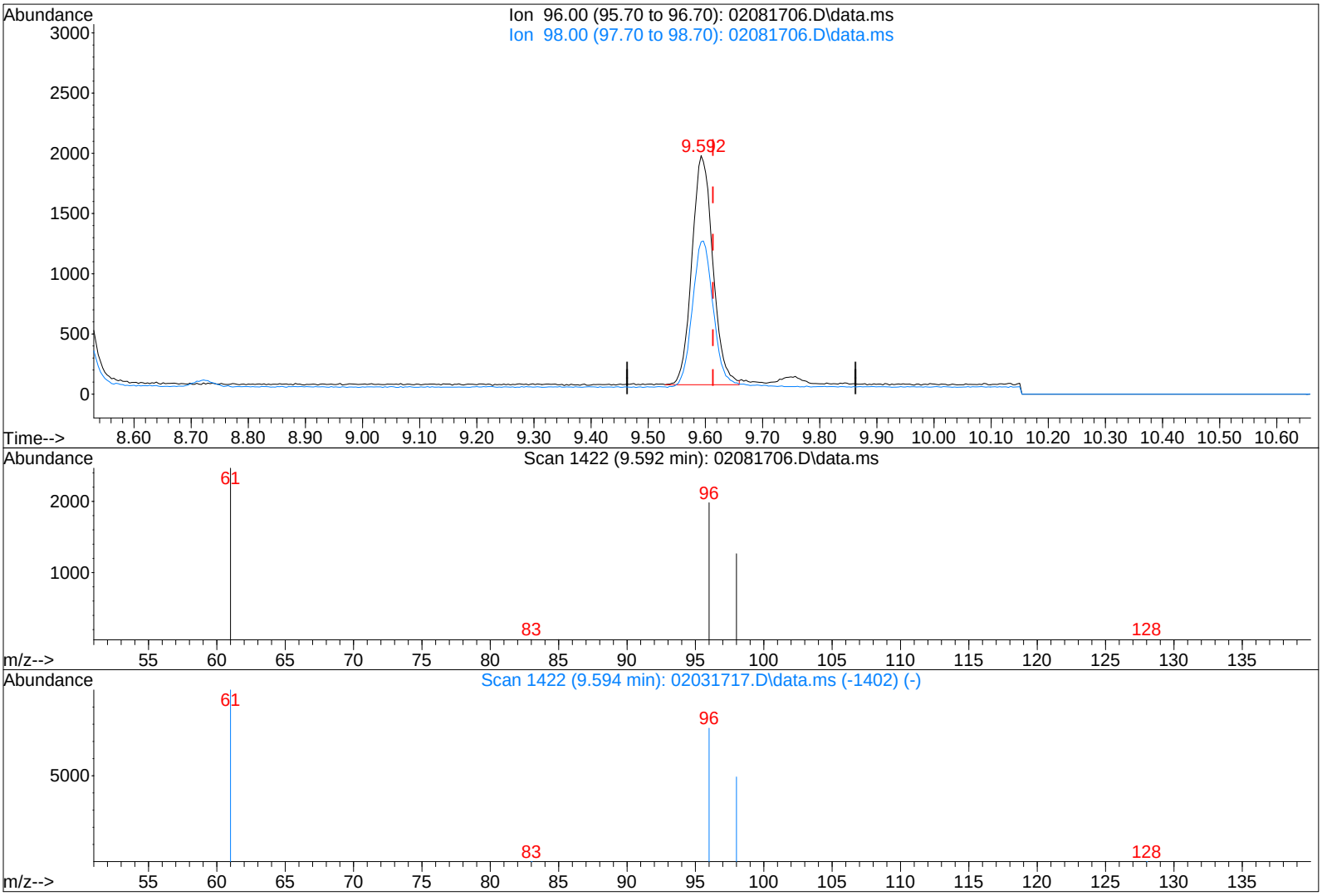
response 2220

Ion	Exp%	Act%
63.00	100	100
65.00	31.30	31.49
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.592min (-0.021) 86.78pg

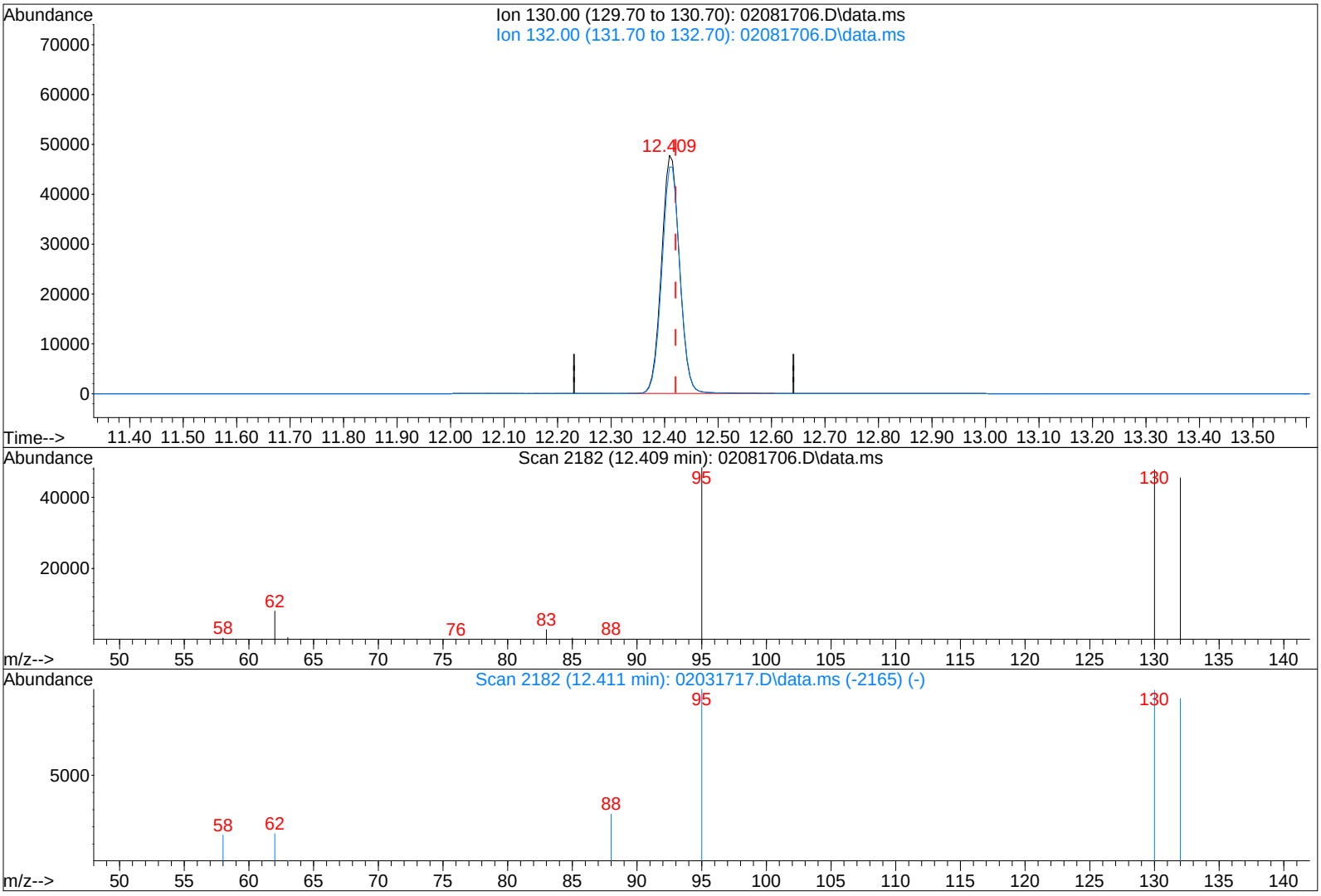
response 4843

Ion	Exp%	Act%
96.00	100	100
98.00	64.00	63.64
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(28) Trichloroethene (T)

12.409min (-0.012) 2021.05pg

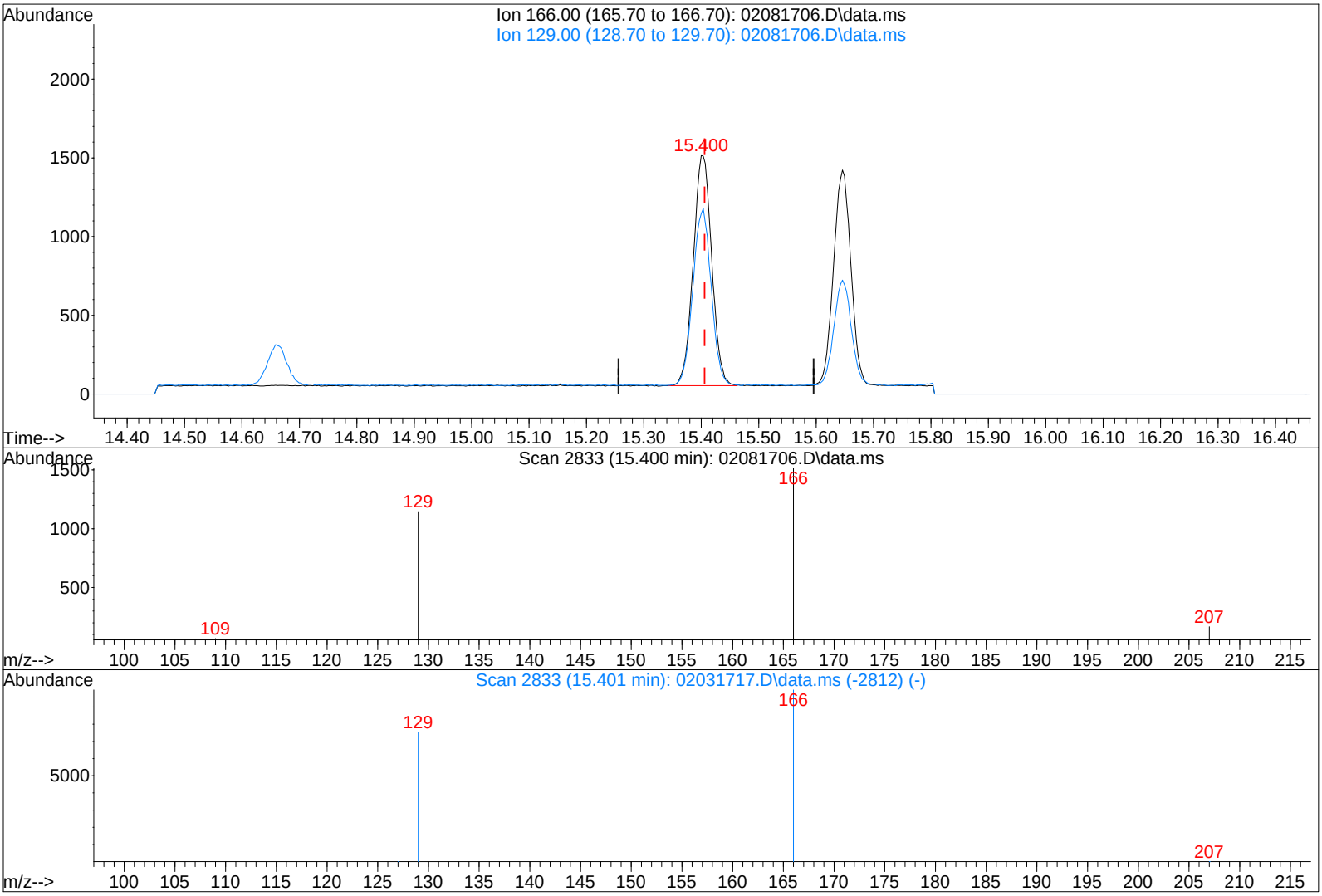
response 111479

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	95.98
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081706.D Vial: 15
Acq On : 8 Feb 2017 3:01 Operator: CL
Sample : P1700289-018 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081706.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.006) 56.63pg

response 3259

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	76.71
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 08:31:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	45794	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	224368	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	40841	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	81436	1018.533 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.85%			
33) Toluene-d8 (SS2)	14.15	98	233643	1021.613 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.16%			
45) Bromofluorobenzene (SS3)	17.55	174	73175	980.125 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.01%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	236684	2063.503 pg		100
3) Chloromethane	4.64	52	6656	250.365 pg		92
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	10201	93.323 pg		99
5) Vinyl Chloride	4.95	62	229	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.46	94	2763	68.025 pg		98
8) Chloroethane	5.68	64	566	17.872 pg		98
9) Acrolein	6.25	56	16404	631.737 pg		91
10) Acetone	6.39	58	405590	11943.824 pg		98
11) Trichlorofluoromethane	6.59	101	94327	1079.217 pg		100
12) 1,1-Dichloroethene	7.33	96	101	N.D.		
13) Methylene Chloride	7.47	84	24452	458.415 pg		94
14) Trichlorotrifluoroethane	7.80	151	18981	391.870 pg		100
15) trans-1,2-Dichloroethene	8.51	96	2534	49.878 pg		99
16) 1,1-Dichloroethane	8.72	63	675	7.429 pg		98
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.59	96	808	14.853 pg		100
19) Chloroform	9.89	83	19667	199.914 pg		99
21) 1,2-Dichloroethane	10.65	62	4830	65.365 pg		100
22) 1,1,1-Trichloroethane	10.91	97	50426	562.616 pg		100
23) Benzene	11.37	78	164440	776.117 pg		100
24) Carbon Tetrachloride	11.52	117	31421	387.884 pg		99
26) 1,2-Dichloropropane	12.18	63	1166	23.301 pg		98
27) Bromodichloromethane	0.00	83	0	N.D. d		
28) Trichloroethene	12.42	130	3416	62.995 pg		98
29) 1,4-Dioxane	12.39	88	3638	84.627 pg		97
30) cis-1,3-Dichloropropene	13.26	75	66	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.25	91	333654	1545.507 pg		100
35) Dibromochloromethane	14.66	129	570	9.967 pg		99
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.40	166	2983	52.726 pg		98
39) Chlorobenzene	16.05	112	684	N.D.		
40) Ethylbenzene	16.48	91	69478	293.113 pg		99
41) m,p-Xylene	16.65	91	171594	930.442 pg		99
42) Styrene	17.01	104	7736	57.119 pg	#	81
43) o-Xylene	17.12	106	32352	356.301 pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.38	105	20588	102.500 pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	59723	298.712 pg		87
48) 1,3-Dichlorobenzene	18.92	146	64	N.D.		
49) 1,4-Dichlorobenzene	18.98	146	2267	20.188 pg		99
50) 1,2-Dichlorobenzene	19.31	146	104	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.		
53) Naphthalene	21.07	128	2955	12.479 pg		89

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 08:31:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

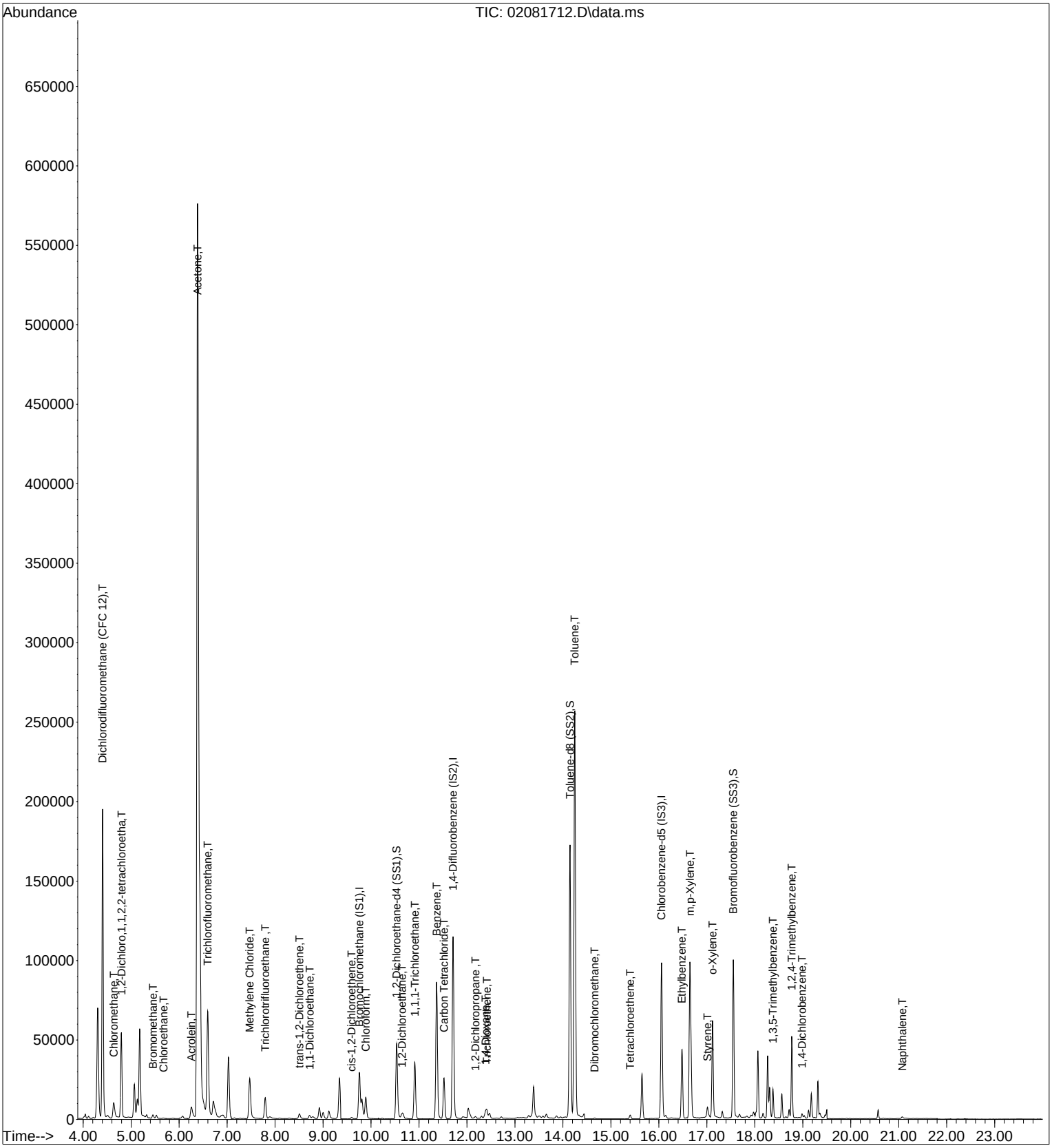
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

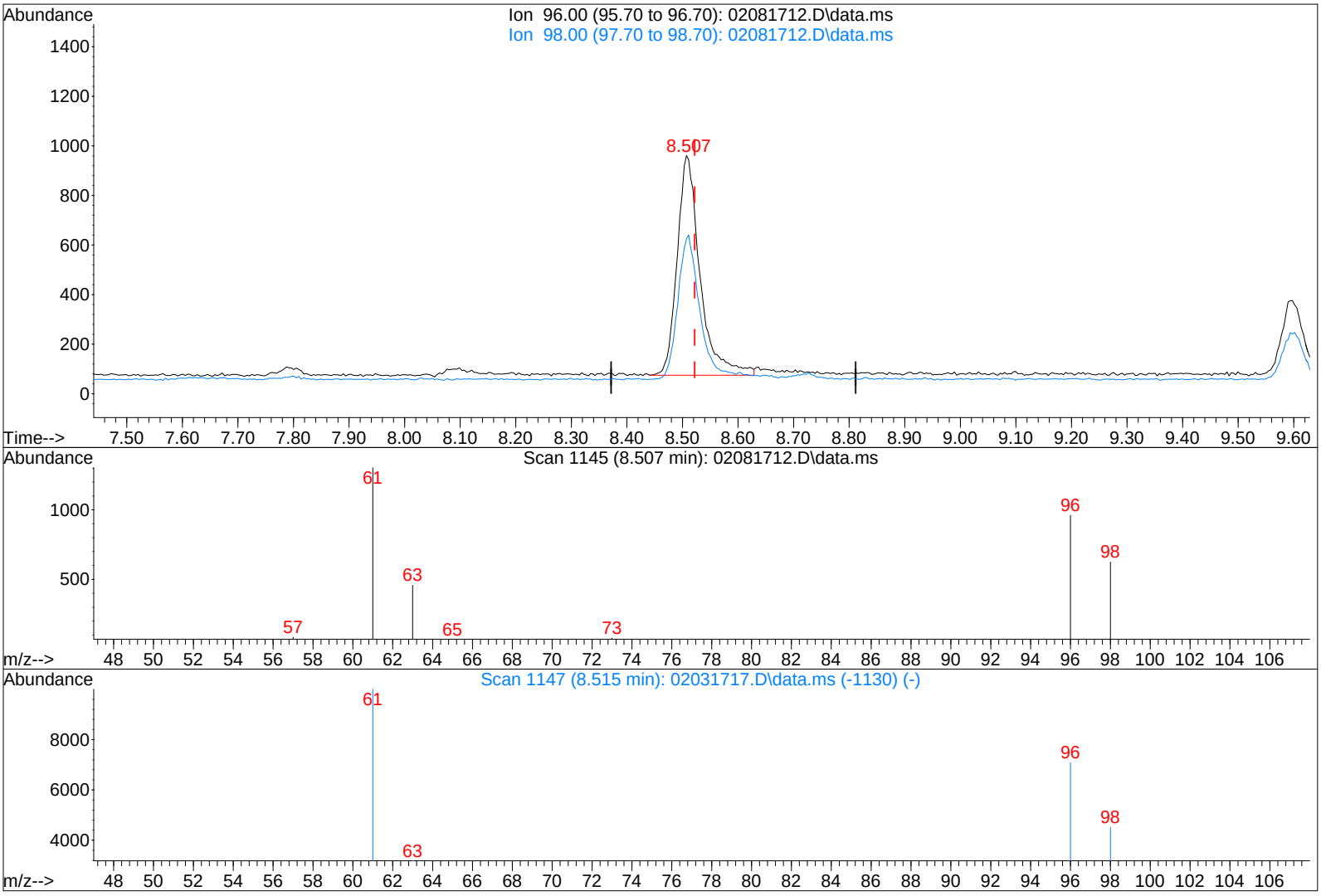
Quant Time: Feb 08 08:31:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:46 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081712.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.507min (-0.015) 49.88pg

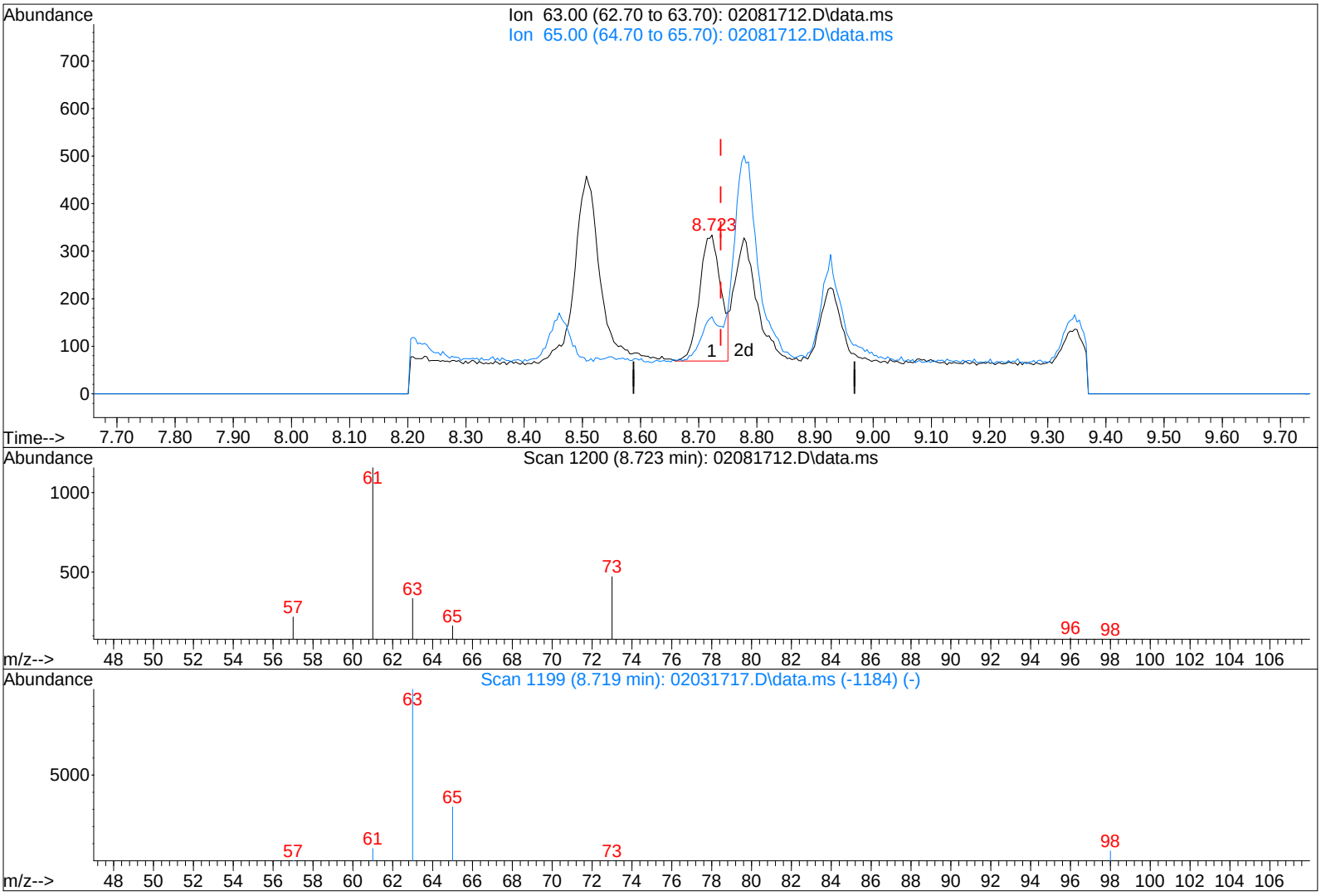
response 2534

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	62.51
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:46 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081712.D\data.ms

(16) 1,1-Dichloroethane (T)

8.723min (-0.015) 7.43pg

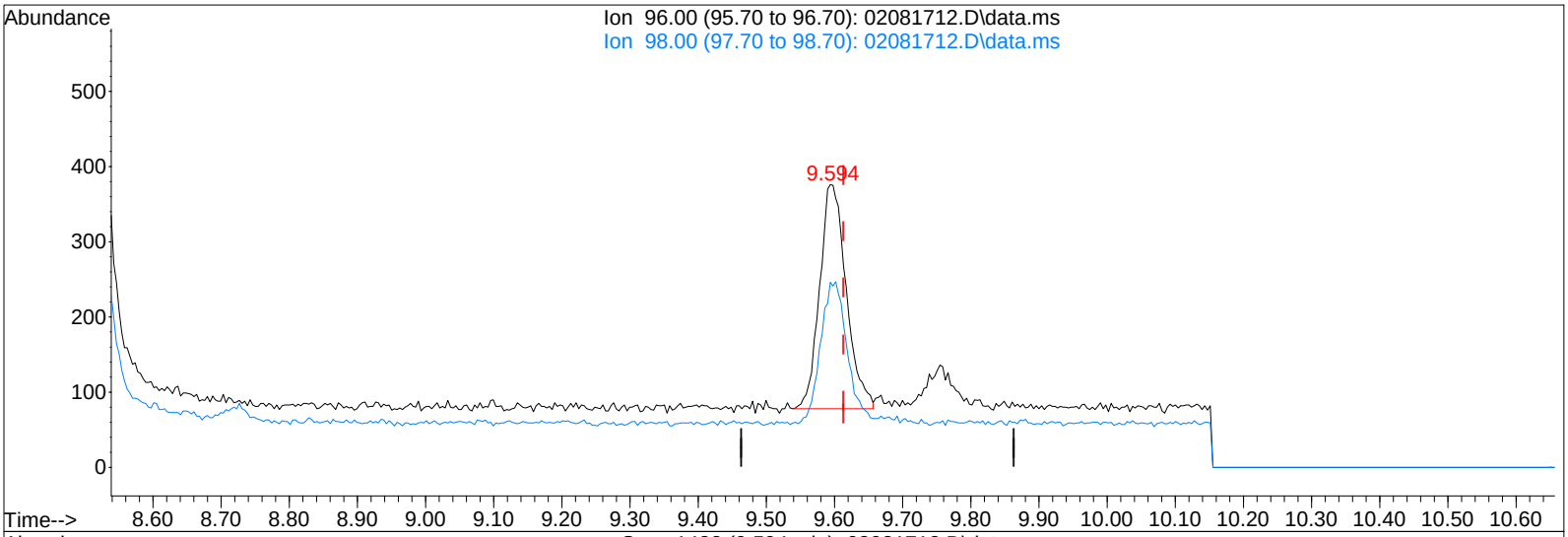
response 675

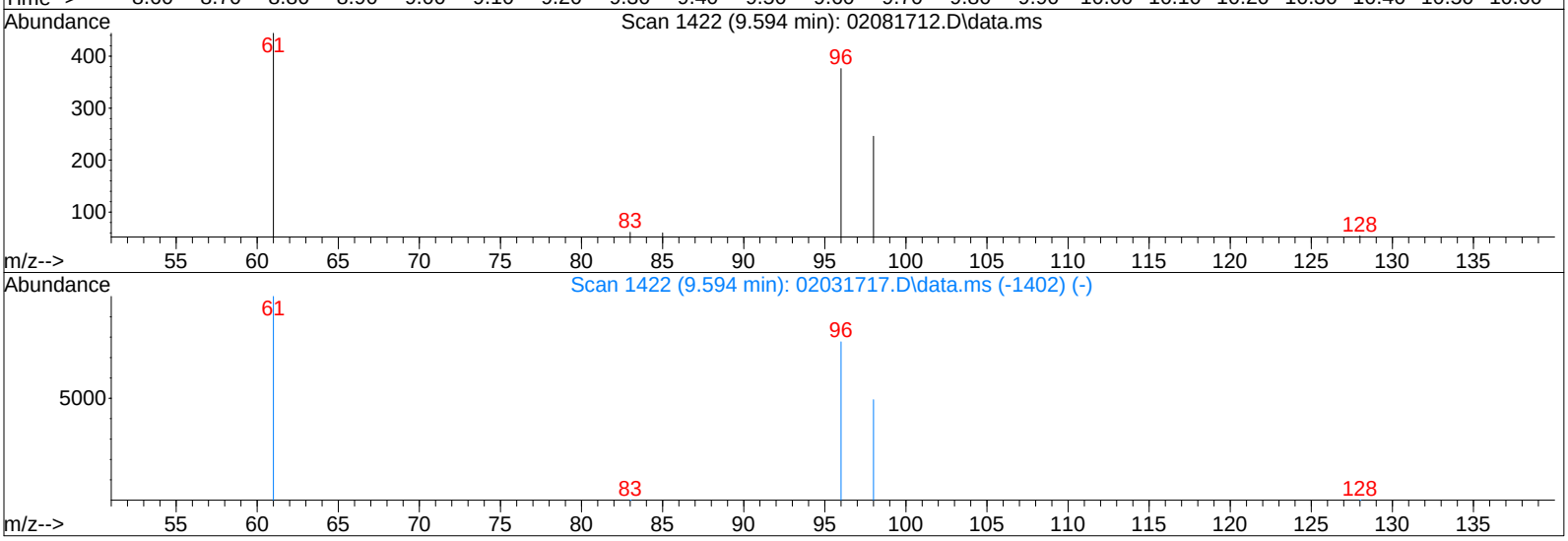
Ion	Exp%	Act%
63.00	100	100
65.00	31.30	32.15
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:46 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02081712.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.594min (-0.019) 14.85pg

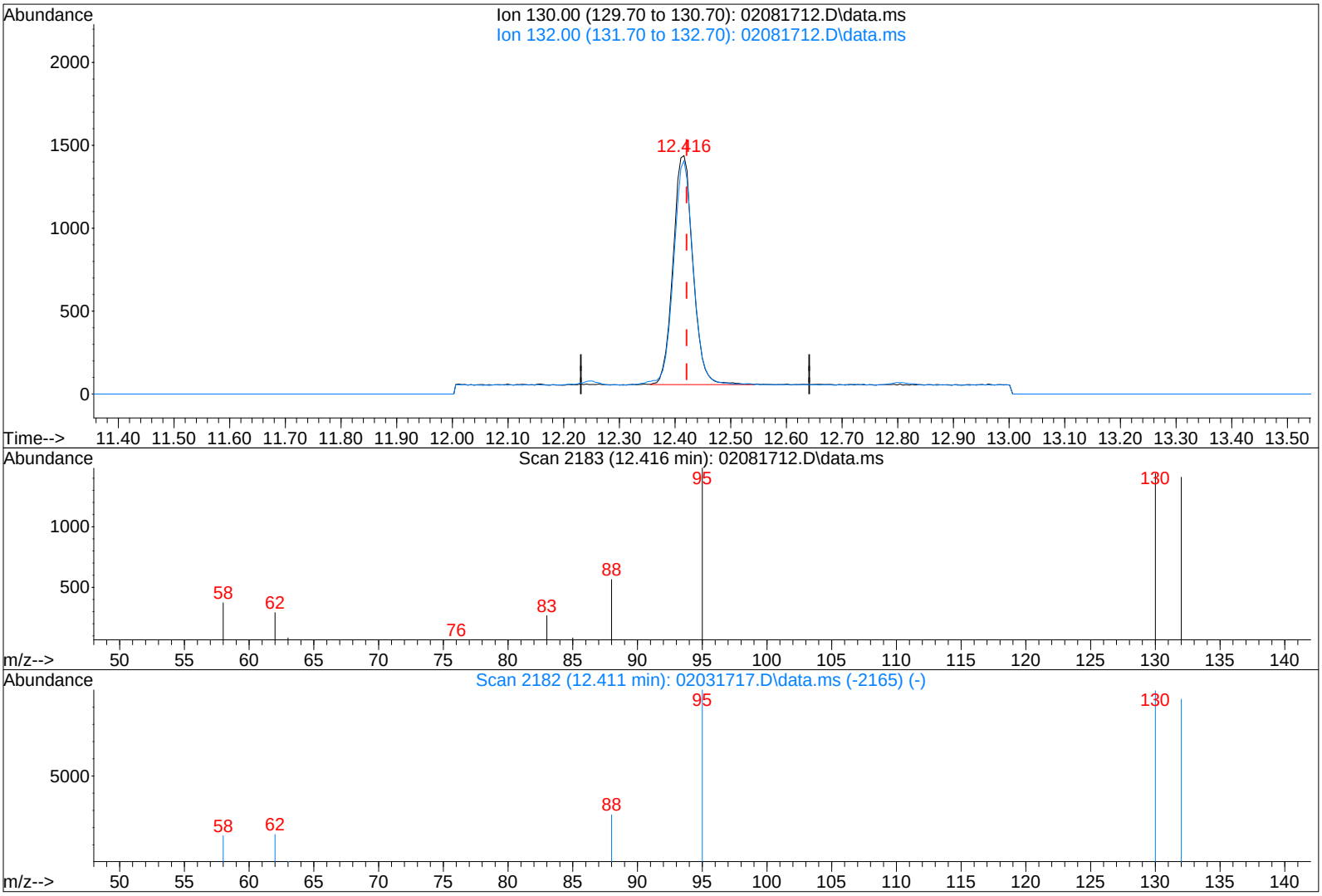
response 808

Ion	Exp%	Act%
96.00	100	100
98.00	64.00	63.61
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:46 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081712.D\data.ms

(28) Trichloroethene (T)

12.416min (-0.005) 63.00pg

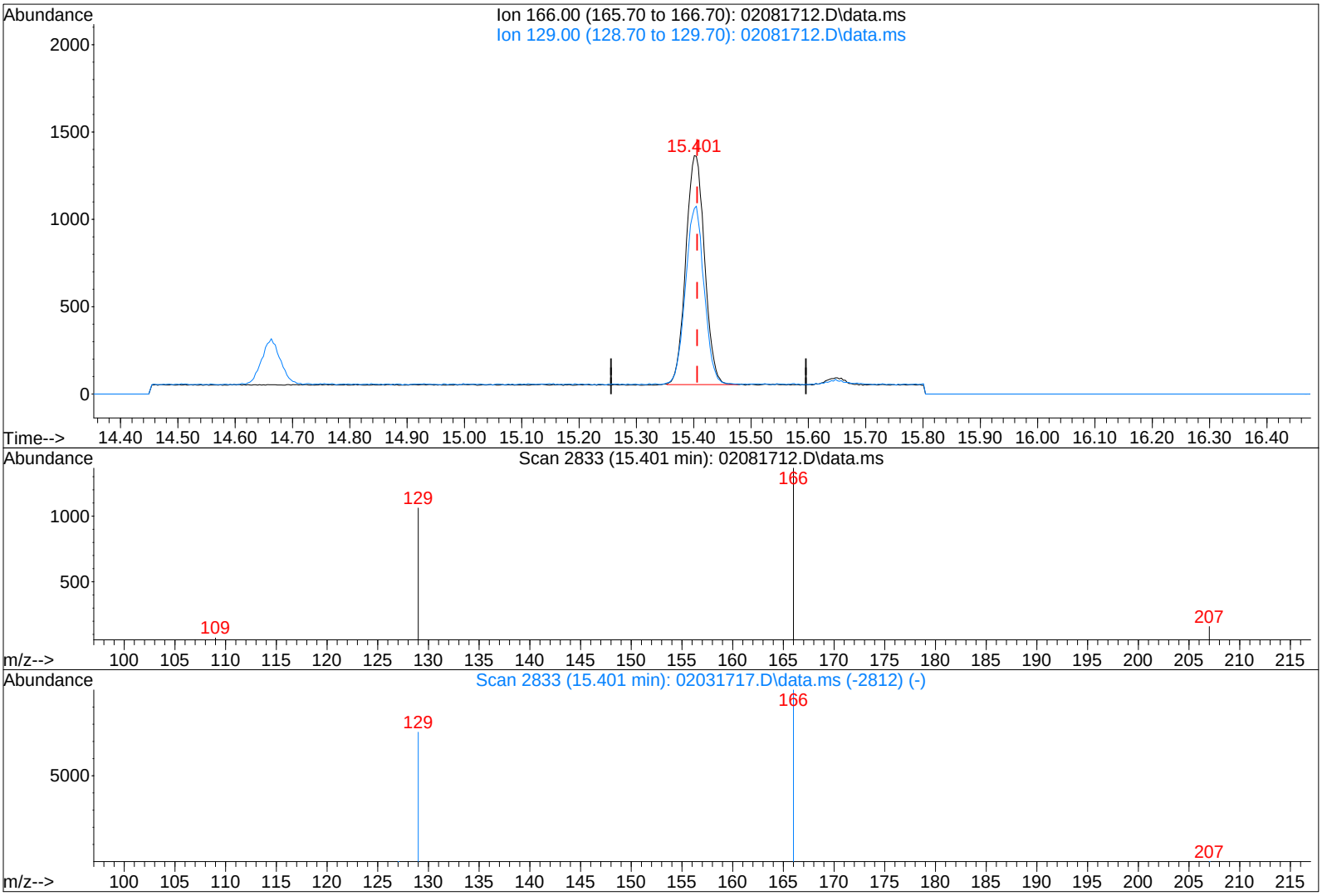
response 3416

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	97.25
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\08\02081712.D Vial: 11
Acq On : 8 Feb 2017 6:09 Operator: CL
Sample : P1700289-024 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 08 07:14:46 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02081712.D\data.ms

(37) Tetrachloroethene (T)

15.401min (-0.005) 52.73pg

response 2983

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	77.20
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:24:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	47711	1000.000 pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	246757	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	43194	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.53	65	86431	1037.572 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.76%		
33) Toluene-d8 (SS2)	14.15	98	254750	1012.836 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.28%		
45) Bromofluorobenzene (SS3)	17.56	174	83450	1056.861 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.69%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.41	85	249181	2085.168 pg	100
3) Chloromethane	4.64	52	6050	218.427 pg	93
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	9395	82.496 pg	100
5) Vinyl Chloride	4.94	62	96948	932.465 pg	97
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.48	94	1106	26.135 pg	92
8) Chloroethane	5.69	64	481	14.578 pg	97
9) Acrolein	6.26	56	7677	283.771 pg	94
10) Acetone	6.39	58	329304	9307.718 pg	95
11) Trichlorofluoromethane	6.60	101	95577	1049.582 pg	100
12) 1,1-Dichloroethene	7.34	96	10837	212.604 pg	97
13) Methylene Chloride	7.48	84	79320	1427.305 pg	97
14) Trichlorotrifluoroethane	7.80	151	20121	398.715 pg	99
15) trans-1,2-Dichloroethene	8.51	96	5467	103.286 pg	98
16) 1,1-Dichloroethane	8.72	63	19767	208.821 pg	98
17) Methyl tert-Butyl Ether	8.80	73	1011	5.980 pg	78
18) cis-1,2-Dichloroethene	9.59	96	880225	15530.943 pg	99
19) Chloroform	9.89	83	11726	114.405 pg	99
21) 1,2-Dichloroethane	10.64	62	8001	103.928 pg	100
22) 1,1,1-Trichloroethane	10.91	97	2879	30.831 pg	99
23) Benzene	11.37	78	111364	504.493 pg	100
24) Carbon Tetrachloride	11.52	117	30779	364.692 pg	99
26) 1,2-Dichloropropane	12.17	63	3637	66.087 pg	97
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.41	130	637087	10682.704 pg	99
29) 1,4-Dioxane	0.00	88	0	N.D. d	
30) cis-1,3-Dichloropropene	13.26	75	235	N.D.	
31) trans-1,3-Dichloropropene	13.73	75	215	N.D.	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d	
34) Toluene	14.25	91	253145	1066.192 pg	100
35) Dibromochloromethane	14.66	129	296	N.D.	
36) 1,2-Dibromoethane	14.92	107	129	N.D.	
37) Tetrachloroethene	15.40	166	1432070	23015.795 pg	99
39) Chlorobenzene	16.11	112	890	6.004 pg	88
40) Ethylbenzene	16.48	91	62767	250.376 pg	100
41) m,p-Xylene	16.65	91	146063	748.859 pg	100
42) Styrene	17.01	104	14238	99.399 pg	97
43) o-Xylene	17.12	106	28045	292.041 pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d	
46) 1,3,5-Trimethylbenzene	18.38	105	11965	56.324 pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	51275	242.487 pg	88
48) 1,3-Dichlorobenzene	18.92	146	262	N.D.	
49) 1,4-Dichlorobenzene	18.98	146	5043	42.461 pg	100
50) 1,2-Dichlorobenzene	19.31	146	305	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.94	182	608	8.072 pg	98
53) Naphthalene	21.06	128	22476	89.746 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:24:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

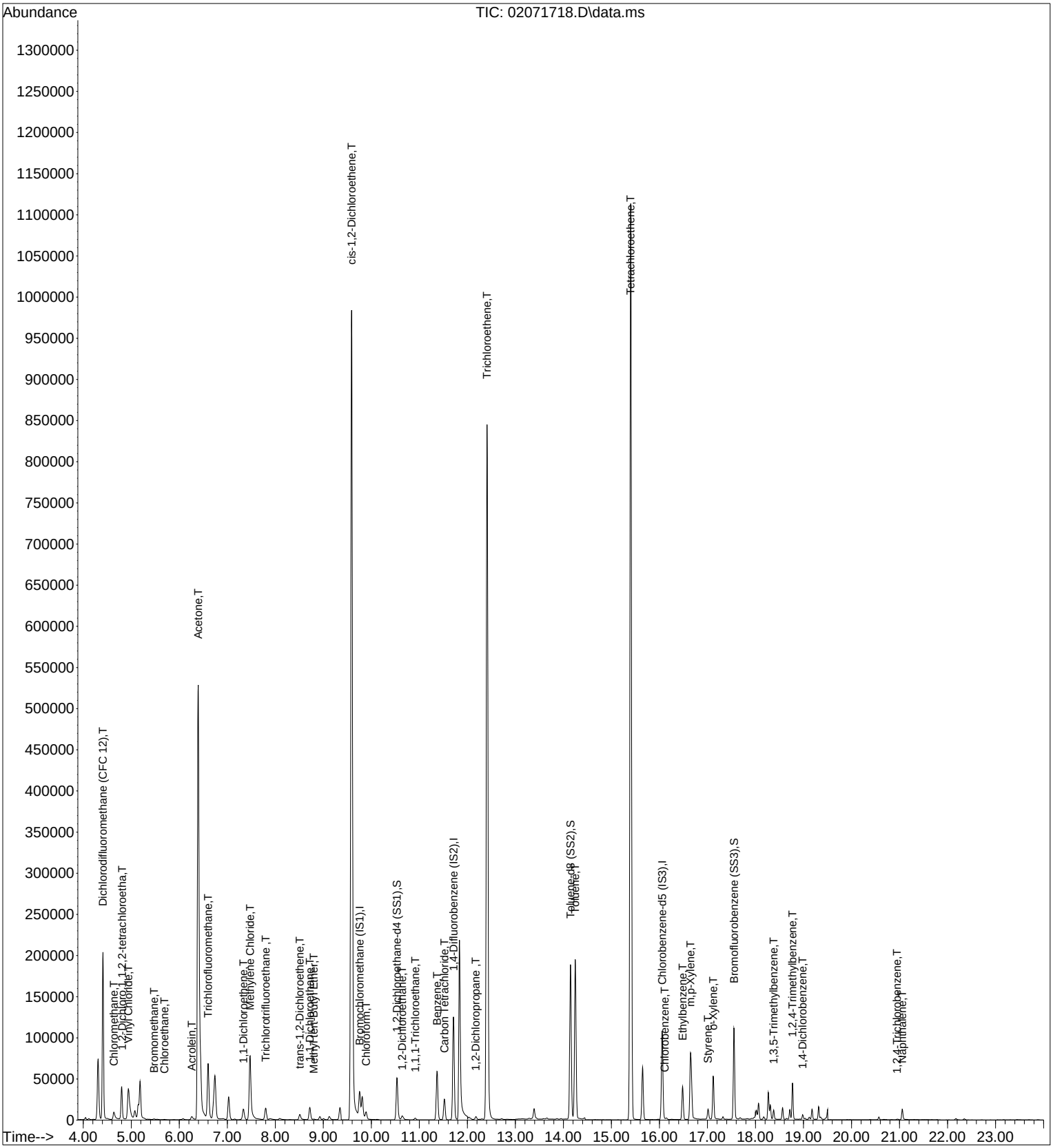
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

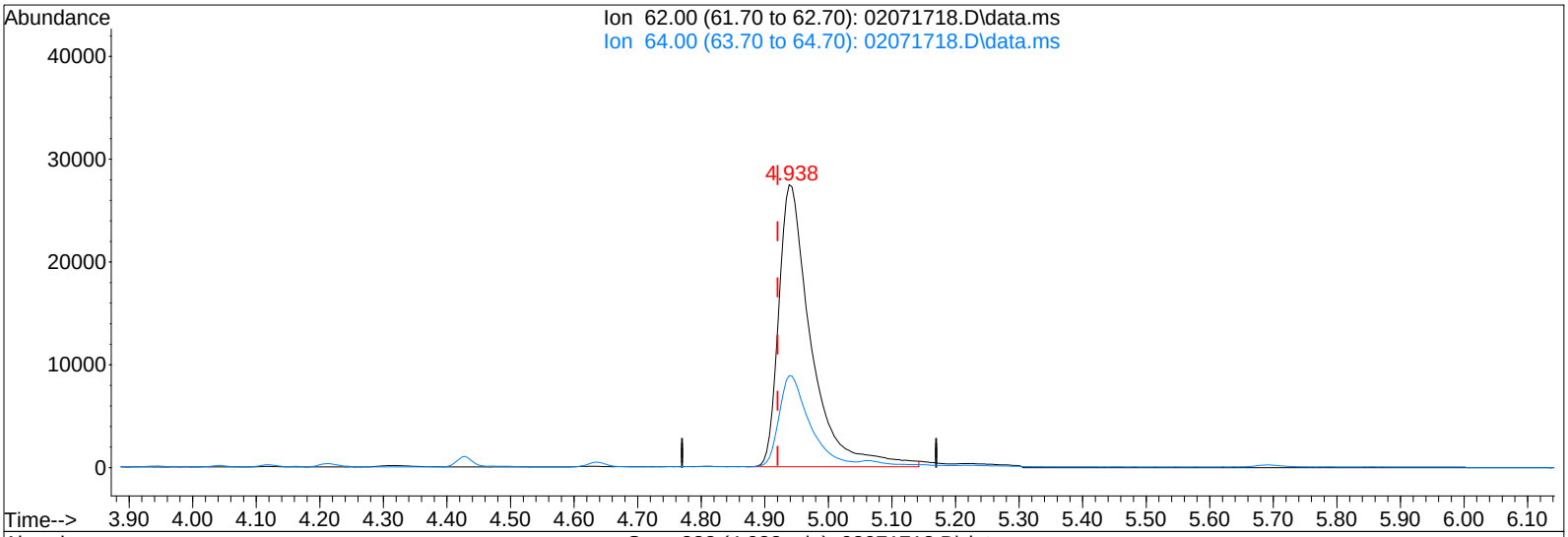
Quant Time: Feb 07 14:24:57 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

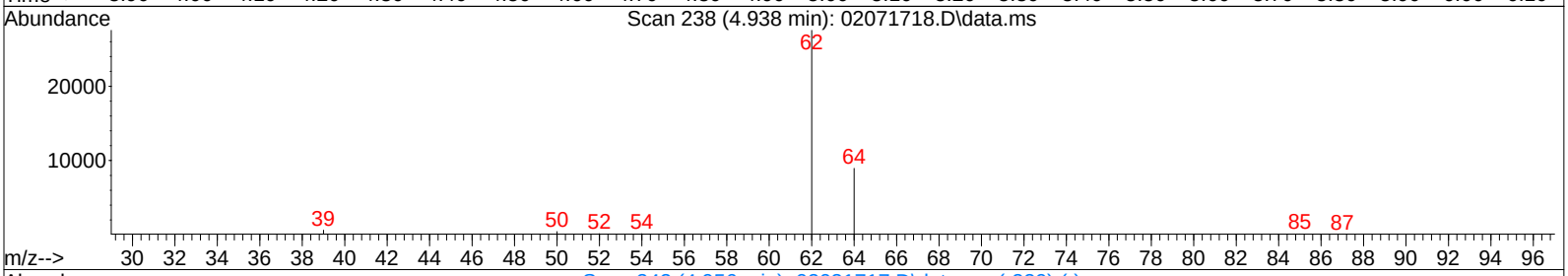


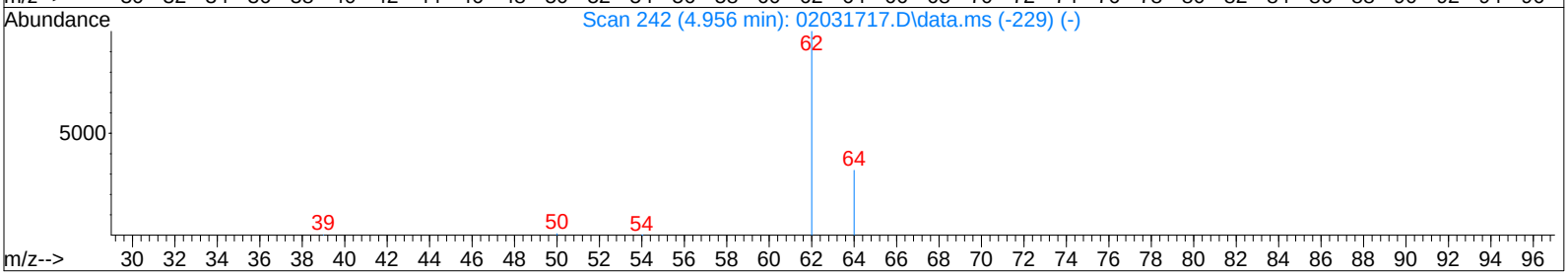
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02071718.D\data.ms

(5) Vinyl Chloride (T)

4.938min (+0.018) 932.47pg

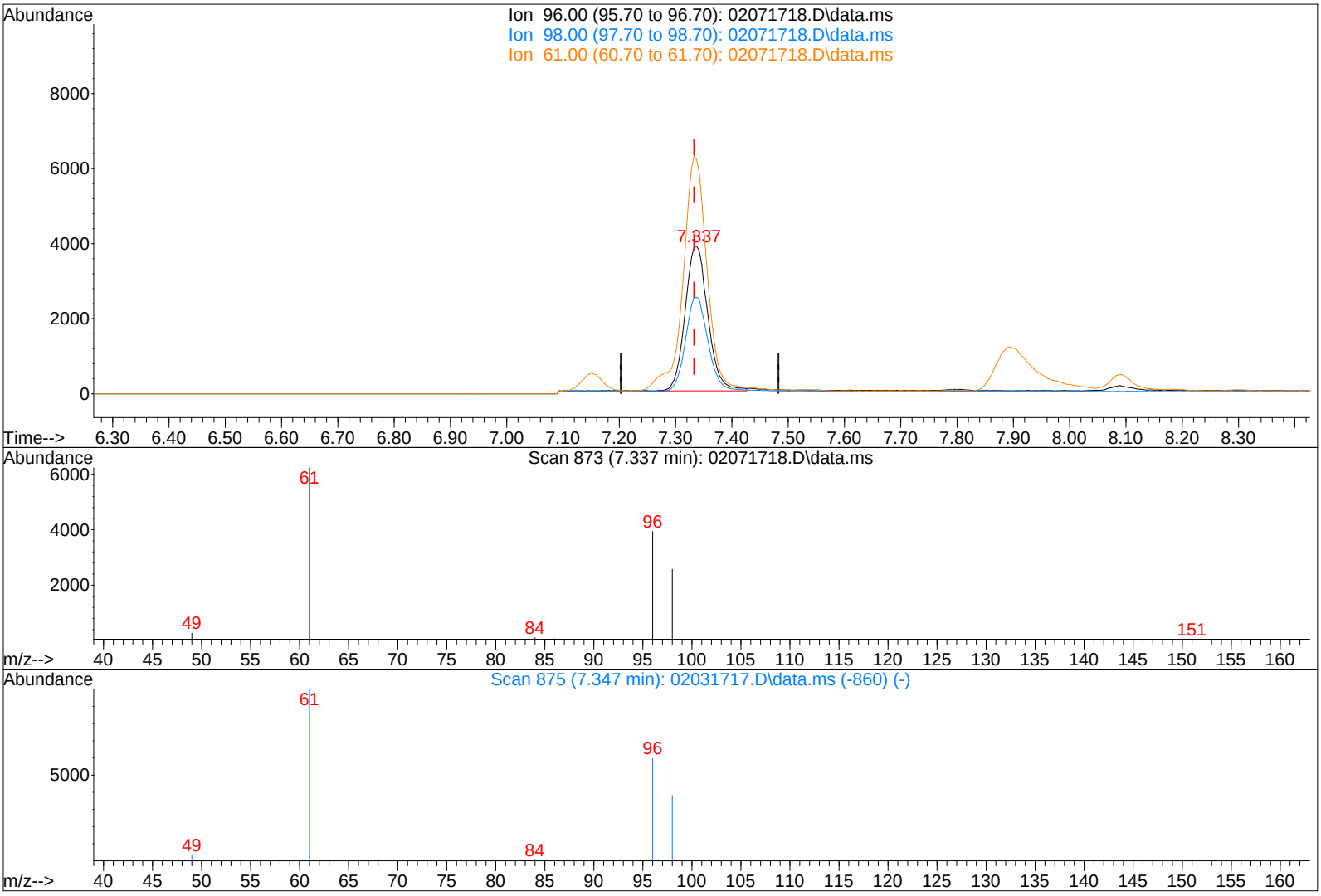
response 96948

Ion	Exp%	Act%
62.00	100	100
64.00	32.20	30.67
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071718.D\data.ms

(12) 1,1-Dichloroethene (T)

7.337min (+0.004) 212.60pg

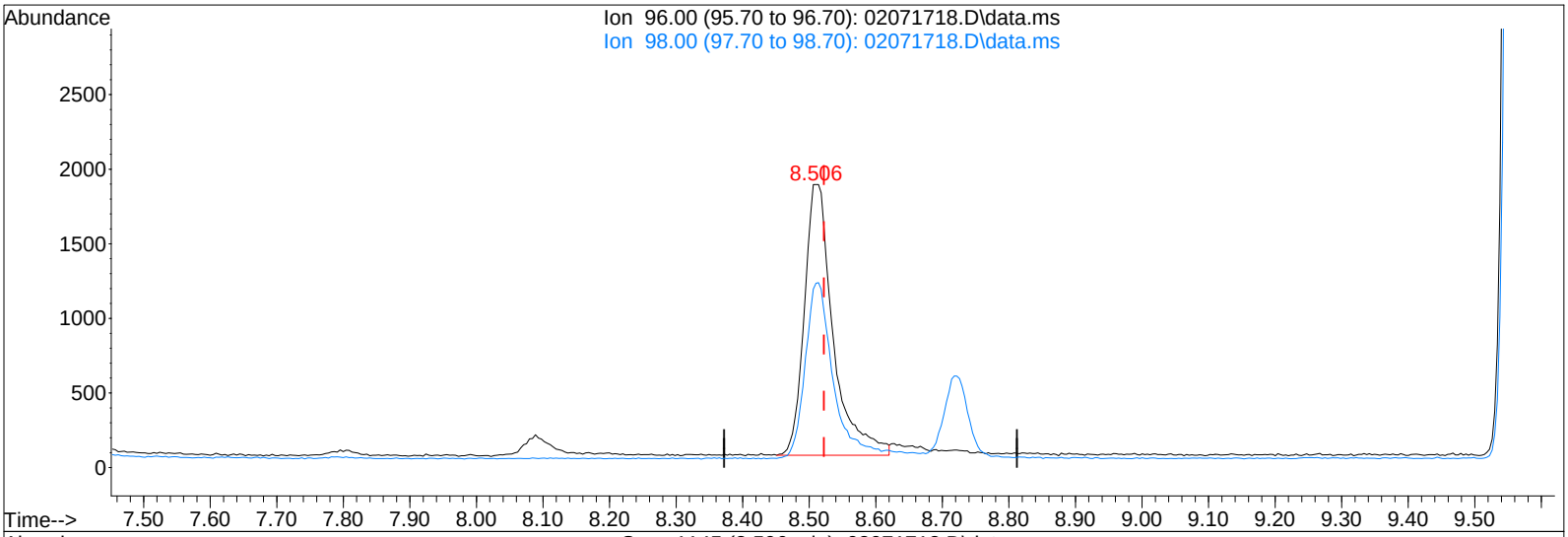
response 10837

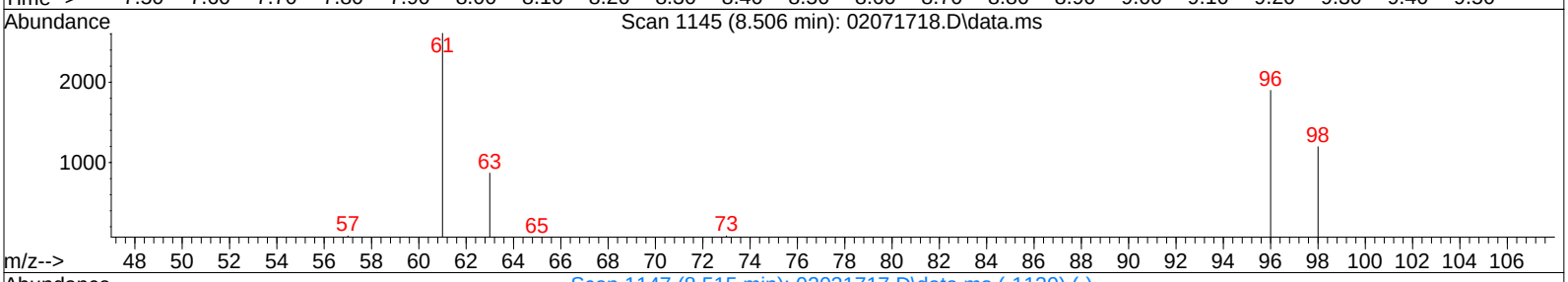
Ion	Exp%	Act%
96.00	100	100
98.00	63.90	64.89
61.00	167.20	171.69
0.00	0.00	0.00

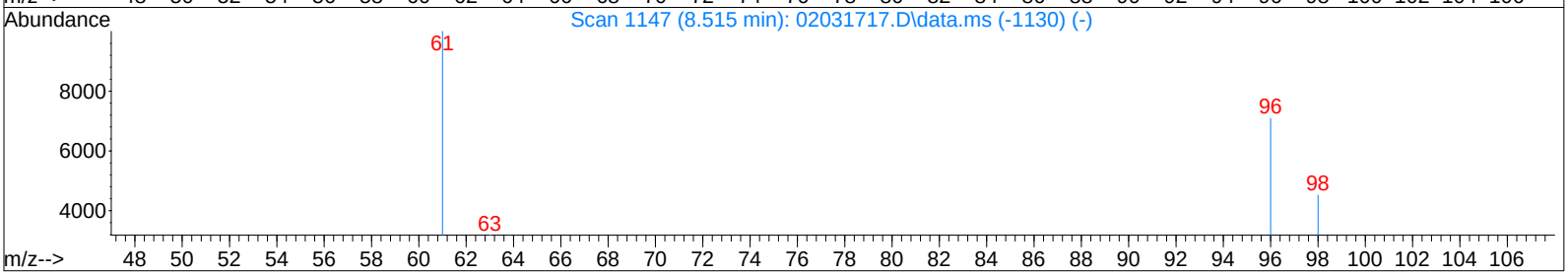
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02071718.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.506min (-0.016) 103.29pg

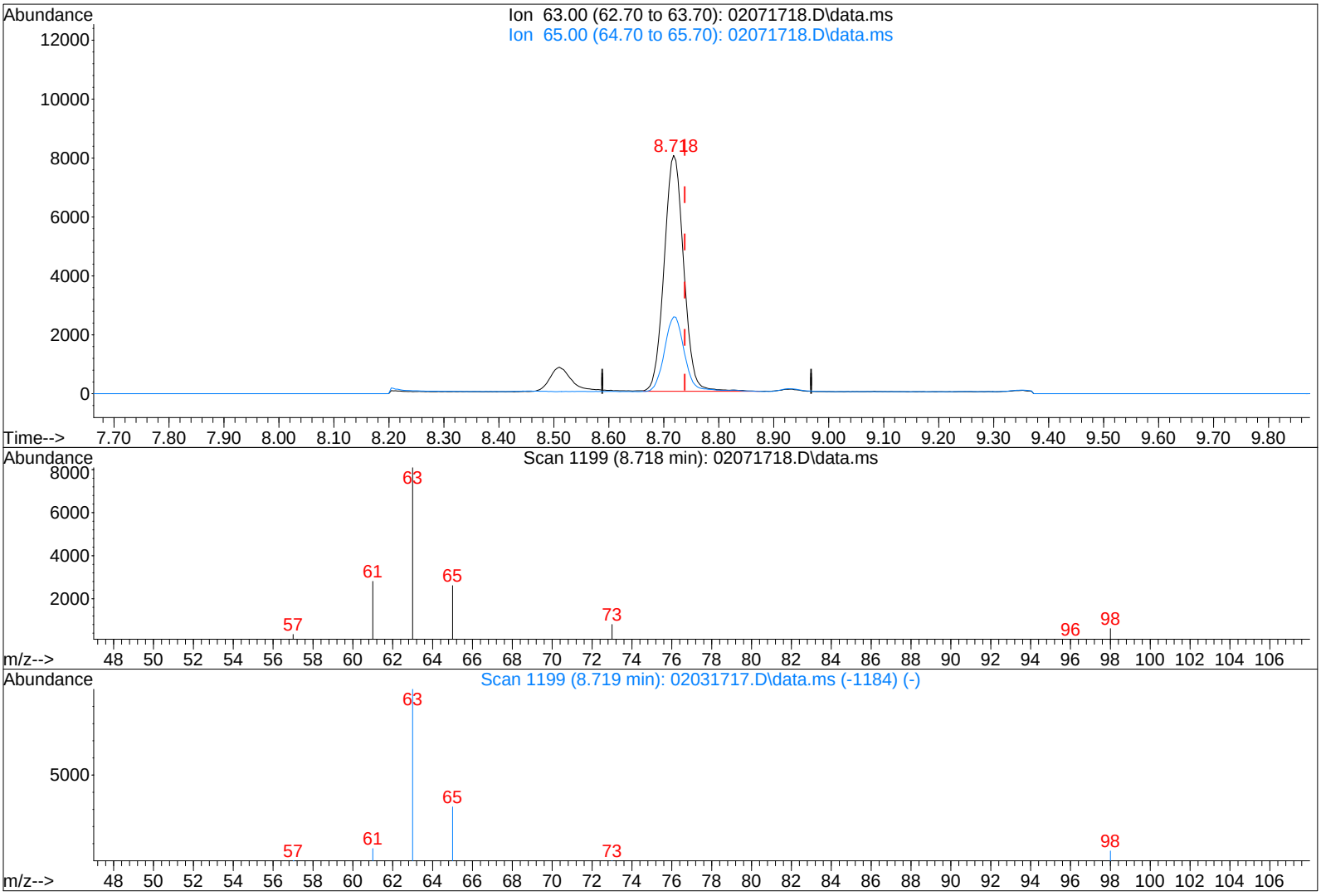
response 5467

Ion	Exp%	Act%
96.00	100	100
98.00	61.60	62.85
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071718.D\data.ms

(16) 1,1-Dichloroethane (T)

8.718min (-0.020) 208.82pg

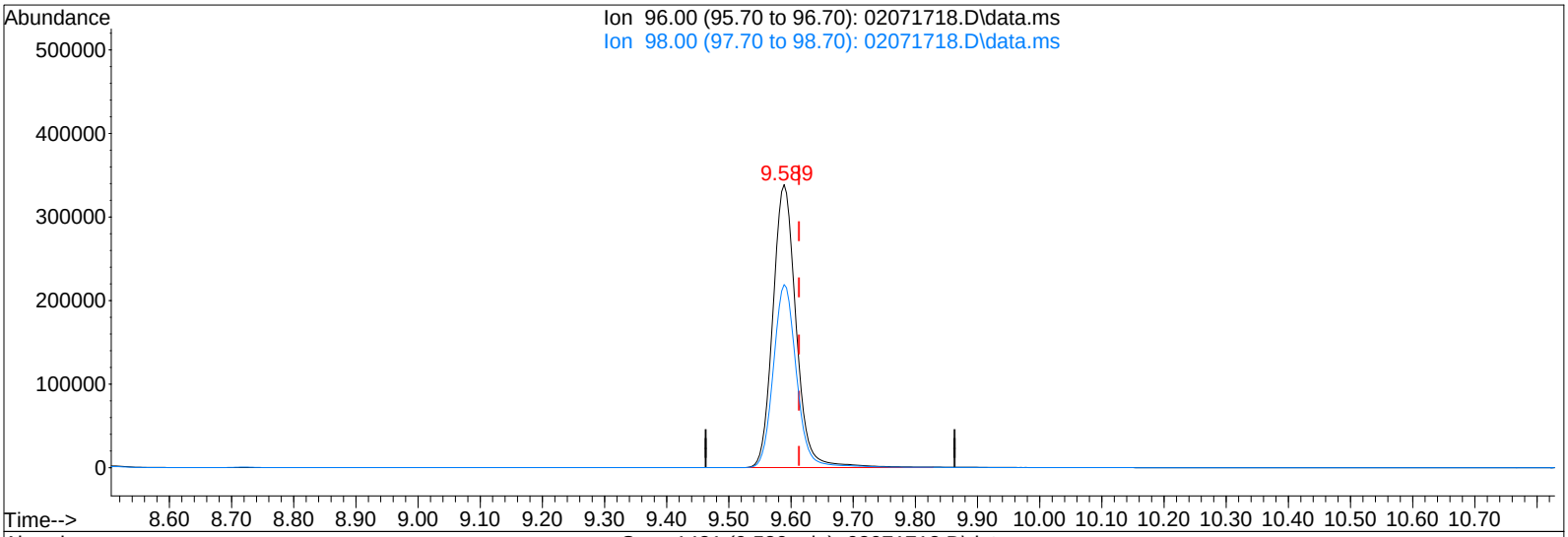
response 19767

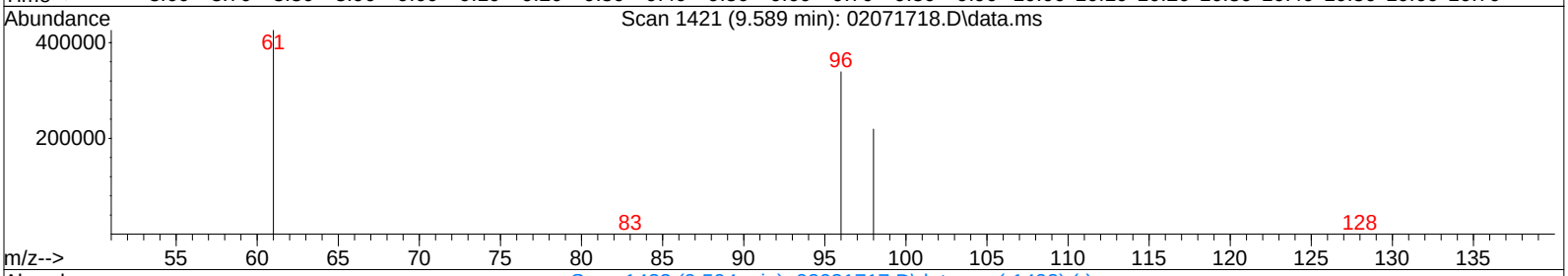
Ion	Exp%	Act%
63.00	100	100
65.00	31.30	32.62
0.00	0.00	0.00
0.00	0.00	0.00

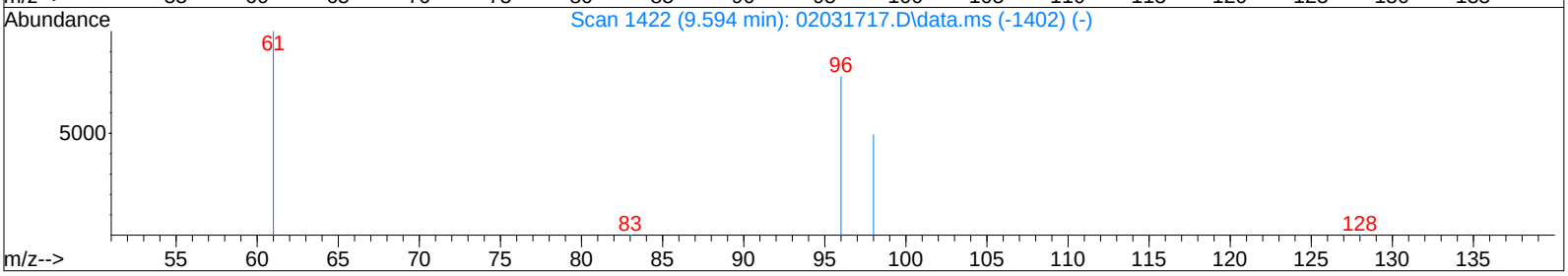
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 02071718.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.589min (-0.024) 15530.94pg

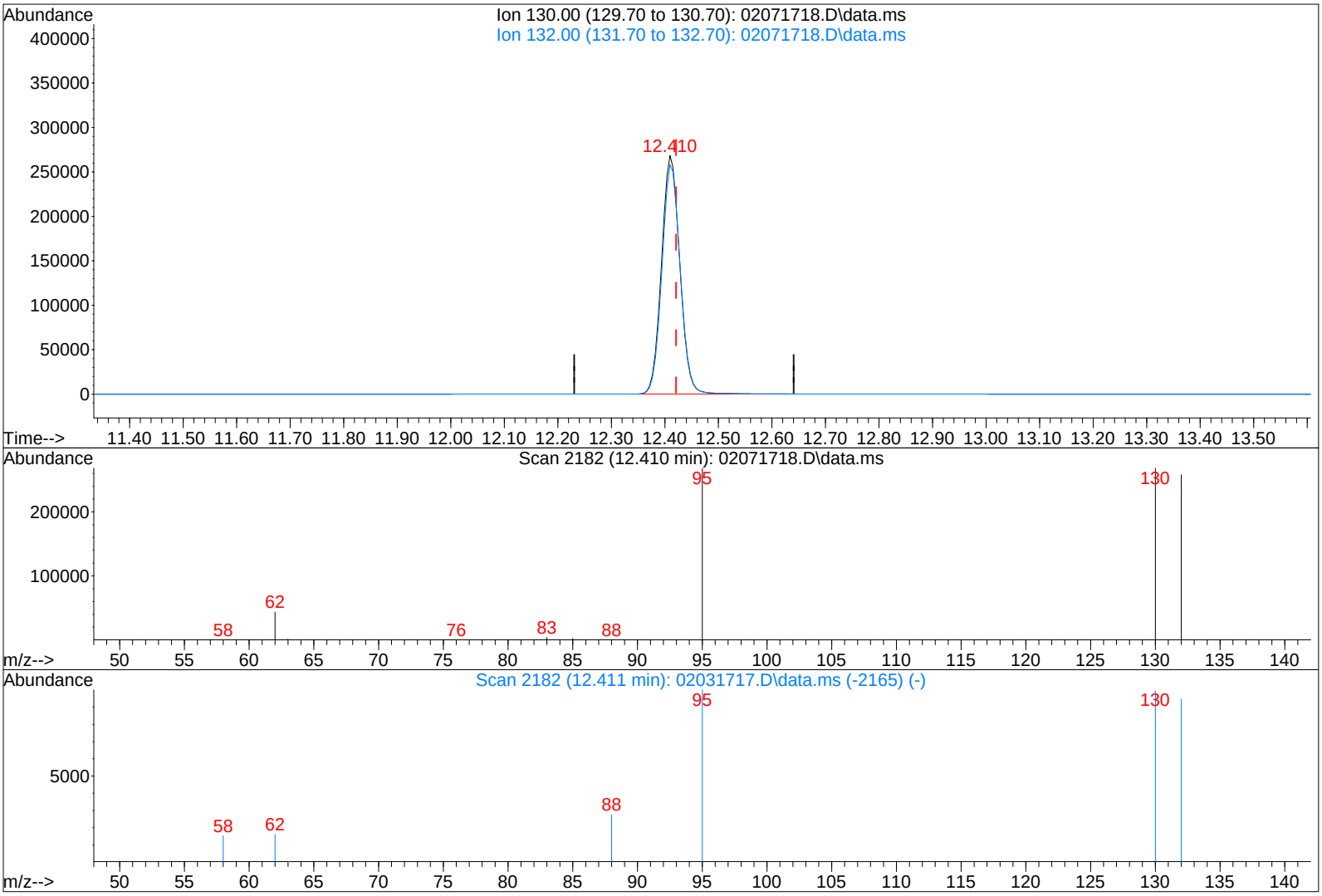
response 880225

Ion	Exp%	Act%
96.00	100	100
98.00	64.00	64.63
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071718.D\data.ms

(28) Trichloroethene (T)

12.410min (-0.011) 10682.70pg

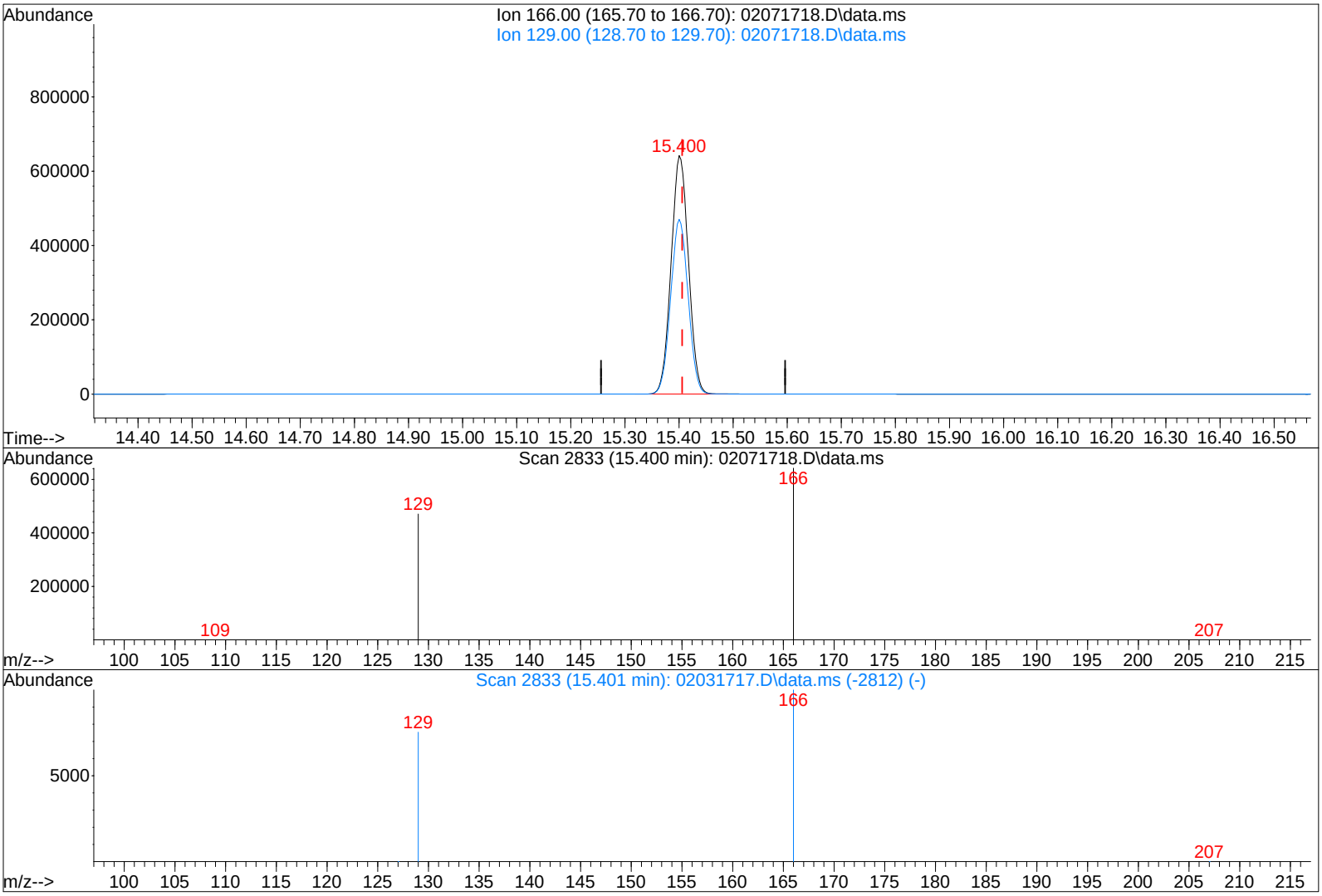
response 637087

Ion	Exp%	Act%
130.00	100	100
132.00	94.90	96.32
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\07\02071718.D Vial: 9
Acq On : 7 Feb 2017 13:56 Operator: CL
Sample : P1700289-012 (1000mL) Inst : MS19
Misc : S29-01241701

Quant Time: Feb 07 14:23:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 02071718.D\data.ms

(37) Tetrachloroethene (T)

15.400min (-0.006) 23015.79pg

response 1432070

Ion	Exp%	Act%
166.00	100	100
129.00	75.20	73.95
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	51975	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	253570	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	43764	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	90349	995.626	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.56%				
33) Toluene-d8 (SS2)	14.15	98	257551	996.460	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.65%				
45) Bromofluorobenzene (SS3)	17.56	174	79294	991.148	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.11%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	117	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.44	94	53	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.47	58	8214	213.120	pg	#	72
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.53	84	348	N.D.			
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.74	73	396	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.91	83	1489	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	3967	N.D.			
24) Carbon Tetrachloride	11.53	117	52	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	12.42	130	101	N.D.			
29) 1,4-Dioxane	12.42	88	71	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	1273	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	16.11	112	148	N.D.			
40) Ethylbenzene	16.49	91	173	N.D.			
41) m,p-Xylene	16.66	91	540	N.D.			
42) Styrene	17.04	104	209	N.D.			
43) o-Xylene	17.12	106	92	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	219	N.D.			
46) 1,3,5-Trimethylbenzene	18.38	105	77	N.D.			
47) 1,2,4-Trimethylbenzene	18.78	105	207	N.D.			
48) 1,3-Dichlorobenzene	18.93	146	118	N.D.			
49) 1,4-Dichlorobenzene	18.99	146	172	N.D.			
50) 1,2-Dichlorobenzene	19.32	146	119	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.98	182	117	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

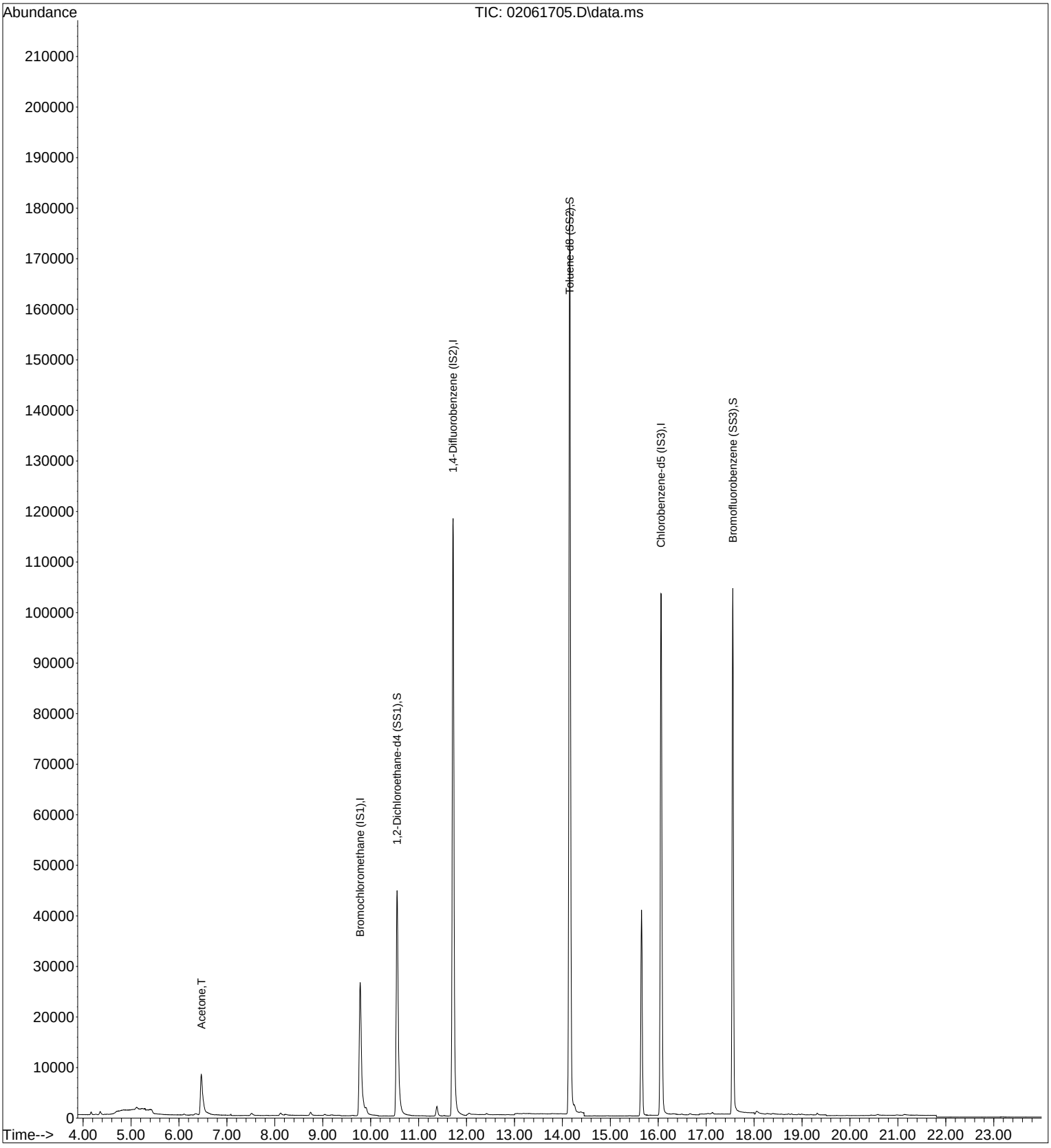
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061705.D Vial: 2
Acq On : 6 Feb 2017 8:59 Operator: CL
Sample : MB S19020617 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 06 10:17:31 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	53273	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	263102	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42772	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	86067	925.331	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.53%			
33) Toluene-d8 (SS2)	14.15	98	261254	974.166	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.42%			
45) Bromofluorobenzene (SS3)	17.56	174	86502	1106.322	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.63%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	113	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	6.33	56	100	N.D.		
10) Acetone	6.47	58	4052	102.572	pg #	89
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.52	84	471	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	8.75	73	63	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.91	83	1035	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.38	78	3429	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	13.78	75	63	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.26	91	1197	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	16.11	112	117	N.D.		
40) Ethylbenzene	16.49	91	169	N.D.		
41) m,p-Xylene	16.66	91	369	N.D.		
42) Styrene	17.03	104	191	N.D.		
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	17.13	83	222	N.D.		
46) 1,3,5-Trimethylbenzene	18.38	105	70	N.D.		
47) 1,2,4-Trimethylbenzene	18.78	105	142	N.D.		
48) 1,3-Dichlorobenzene	18.93	146	96	N.D.		
49) 1,4-Dichlorobenzene	18.99	146	116	N.D.		
50) 1,2-Dichlorobenzene	19.32	146	99	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.98	182	138	N.D.		
53) Naphthalene	21.12	128	797	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

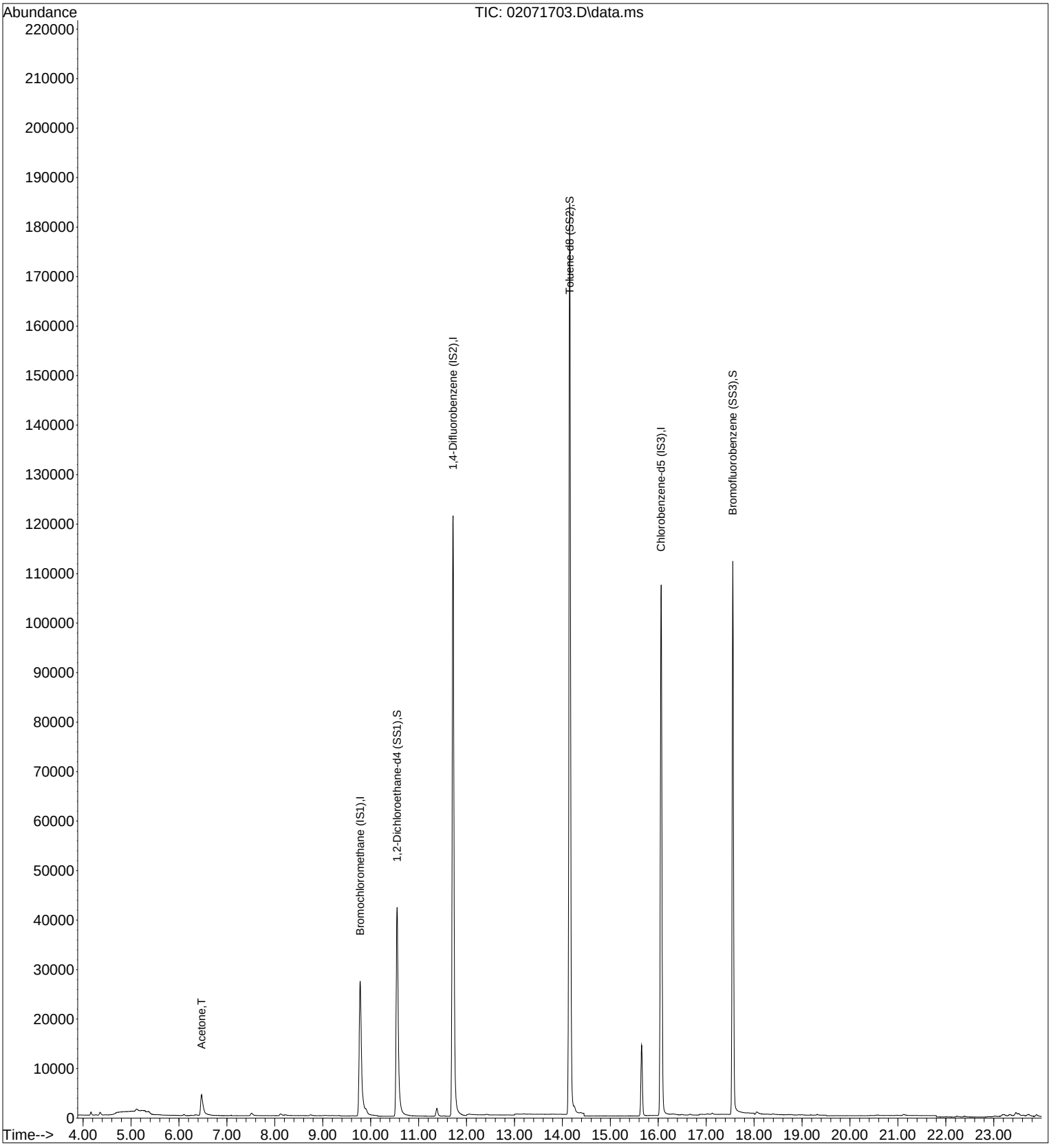
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071703.D Vial: 2
Acq On : 7 Feb 2017 3:25 Operator: CL
Sample : MB S19020717 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 07 07:21:07 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081703.D Vial: 2
Acq On : 8 Feb 2017 1:27 Operator: CL
Sample : MB S19020817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 08 07:14:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	45169	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	220474	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	38765	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	78144	990.883	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.09%				
33) Toluene-d8 (SS2)	14.15	98	223733	995.559	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.56%				
45) Bromofluorobenzene (SS3)	17.56	174	68106	961.083	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.11%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	417	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.47	58	5056	150.949	pg	#	86
11) Trichlorofluoromethane	6.64	101	171	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.51	84	1063	20.204	pg		98
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	8.75	73	297	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.90	83	968	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.38	78	2876	N.D.			
24) Carbon Tetrachloride	11.53	117	89	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.25	91	2921	N.D.			
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.41	166	54	N.D.			
39) Chlorobenzene	16.11	112	111	N.D.			
40) Ethylbenzene	16.50	91	213	N.D.			
41) m,p-Xylene	16.67	91	586	N.D.			
42) Styrene	17.04	104	131	N.D.			
43) o-Xylene	17.13	106	102	N.D.			
44) 1,1,2,2-Tetrachloroethane	17.13	83	120	N.D.			
46) 1,3,5-Trimethylbenzene	18.39	105	66	N.D.			
47) 1,2,4-Trimethylbenzene	18.80	105	167	N.D.			
48) 1,3-Dichlorobenzene	18.94	146	63	N.D.			
49) 1,4-Dichlorobenzene	19.01	146	105	N.D.			
50) 1,2-Dichlorobenzene	19.33	146	70	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	21.00	182	75	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081703.D Vial: 2
Acq On : 8 Feb 2017 1:27 Operator: CL
Sample : MB S19020817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 08 07:14:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

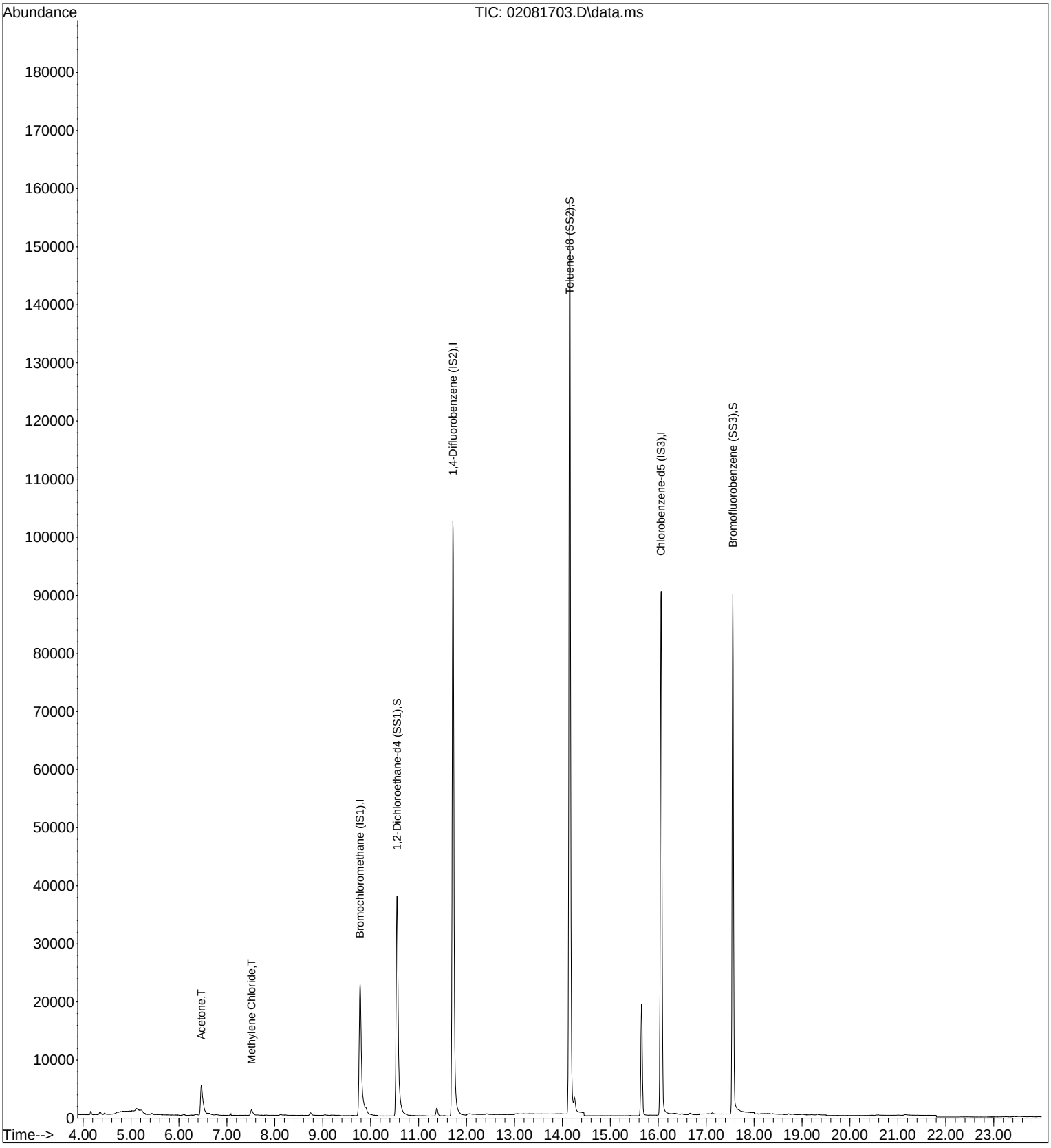
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081703.D Vial: 2
Acq On : 8 Feb 2017 1:27 Operator: CL
Sample : MB S19020817 1000mL Inst : MS19
Misc : S29-01241701/AC01205

Quant Time: Feb 08 07:14:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	53207	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	259467	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	45451	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	91424	984.144	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.41%			
33) Toluene-d8 (SS2)	14.15	98	265817	1005.067	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.51%			
45) Bromofluorobenzene (SS3)	17.55	174	84028	1011.337	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	71163	533.986	pg	100
3) Chloromethane	4.65	52	15974	517.147	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	61713	485.916	pg	100
5) Vinyl Chloride	4.96	62	60183	519.060	pg	100
6) 1,3-Butadiene	5.14	54	42751	517.131	pg	95
7) Bromomethane	5.48	94	24270	514.275	pg	99
8) Chloroethane	5.70	64	18996	516.241	pg	99
9) Acrolein	6.27	56	12523	415.083	pg	89
10) Acetone	6.40	58	129950	3293.611	pg	93
11) Trichlorofluoromethane	6.62	101	52933	521.242	pg	100
12) 1,1-Dichloroethene	7.35	96	29975	527.316	pg	98
13) Methylene Chloride	7.48	84	31414	506.882	pg	98
14) Trichlorotrifluoroethane	7.80	151	28873	513.044	pg	100
15) trans-1,2-Dichloroethene	8.52	96	32590	552.111	pg	100
16) 1,1-Dichloroethane	8.72	63	55500	525.747	pg	99
17) Methyl tert-Butyl Ether	8.79	73	99703	528.791	pg	99
18) cis-1,2-Dichloroethene	9.59	96	34450	545.058	pg	100
19) Chloroform	9.89	83	59680	522.123	pg	100
21) 1,2-Dichloroethane	10.64	62	45745	532.819	pg	98
22) 1,1,1-Trichloroethane	10.91	97	55677	534.654	pg	100
23) Benzene	11.37	78	139735	567.630	pg	100
24) Carbon Tetrachloride	11.52	117	48737	517.822	pg	100
26) 1,2-Dichloropropane	12.18	63	30623	529.189	pg	99
27) Bromodichloromethane	12.36	83	44950	538.092	pg	100
28) Trichloroethene	12.41	130	34228	545.822	pg	99
29) 1,4-Dioxane	12.38	88	26183	526.677	pg	98
30) cis-1,3-Dichloropropene	13.26	75	48275	526.494	pg	100
31) trans-1,3-Dichloropropene	13.77	75	42349	528.484	pg	100
32) 1,1,2-Trichloroethane	13.95	83	26212	543.878	pg	99
34) Toluene	14.25	91	127727	511.607	pg	100
35) Dibromochloromethane	14.66	129	34268	518.136	pg	100
36) 1,2-Dibromoethane	14.92	107	33700	540.537	pg	99
37) Tetrachloroethene	15.40	166	34547	528.031	pg	100
39) Chlorobenzene	16.10	112	84998	544.966	pg	100
40) Ethylbenzene	16.48	91	145914	553.143	pg	100
41) m,p-Xylene	16.66	91	225501	1098.724	pg	100
42) Styrene	17.01	104	79487	527.365	pg	100
43) o-Xylene	17.12	106	54195	536.325	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	52122	532.269	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	118264	529.072	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	119511	537.120	pg	100
48) 1,3-Dichlorobenzene	18.92	146	65463	543.398	pg	100
49) 1,4-Dichlorobenzene	18.98	146	64923	519.497	pg	100
50) 1,2-Dichlorobenzene	19.31	146	63278	523.729	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19838	508.914	pg	98
52) 1,2,4-Trichlorobenzene	20.95	182	36822	464.612	pg	100
53) Naphthalene	21.06	128	129677	492.084	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

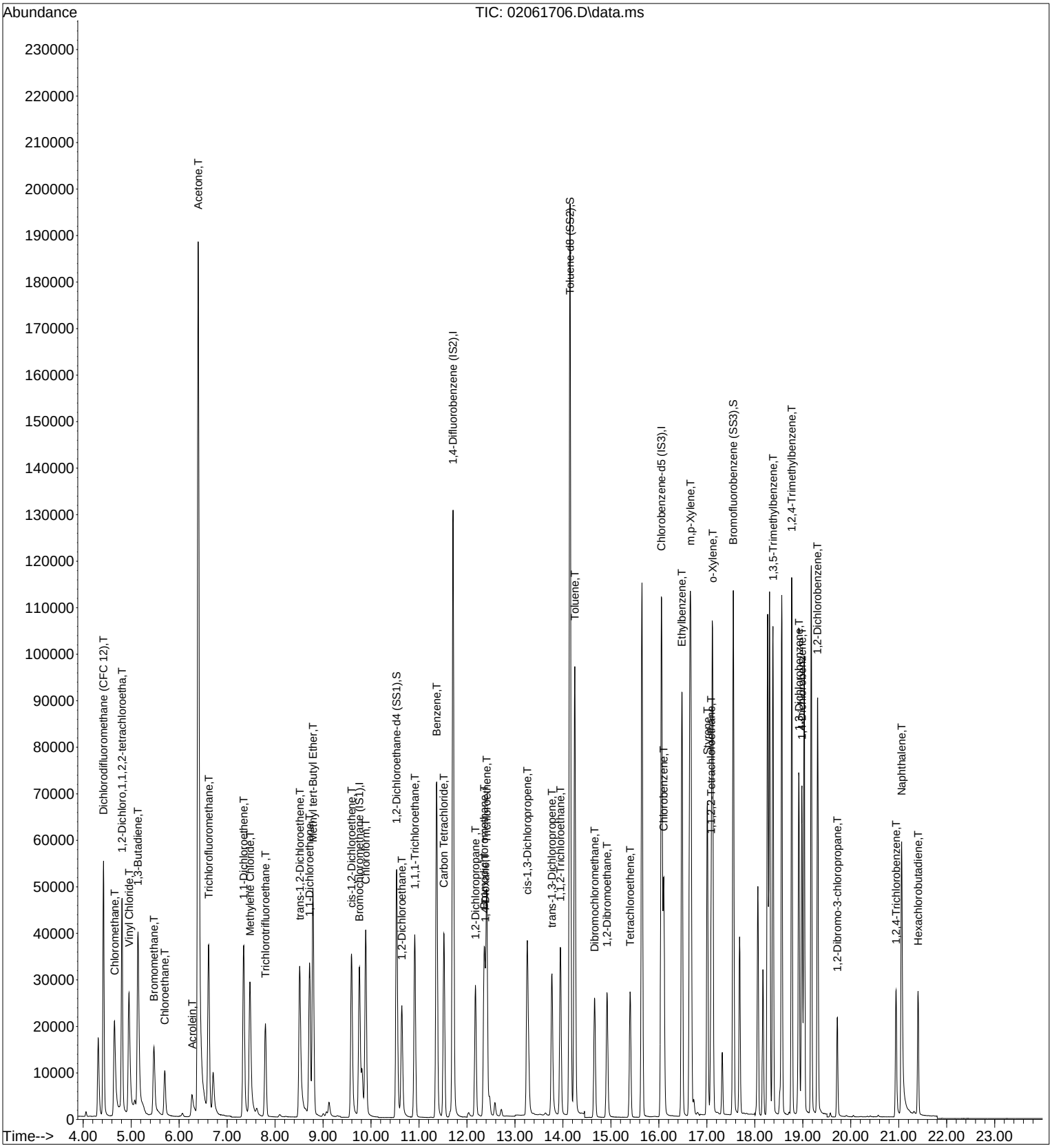
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	25761	509.785	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061706.D Vial: 2
Acq On : 6 Feb 2017 9:31 Operator: CL
Sample : LCS S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 06 10:17:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	53781	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	263913	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	44025	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	86942	925.909	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.59%				
33) Toluene-d8 (SS2)	14.15	98	267147	993.079	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.31%				
45) Bromofluorobenzene (SS3)	17.55	174	90440	1123.767	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.38%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	67795	503.284	pg		100
3) Chloromethane	4.65	52	15674	502.019	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	59758	465.501	pg		100
5) Vinyl Chloride	4.95	62	58332	497.726	pg		100
6) 1,3-Butadiene	5.14	54	41756	499.704	pg		98
7) Bromomethane	5.47	94	24466	512.895	pg		98
8) Chloroethane	5.70	64	18758	504.333	pg		99
9) Acrolein	6.26	56	12225	400.881	pg		91
10) Acetone	6.40	58	128561	3223.629	pg	#	90
11) Trichlorofluoromethane	6.61	101	52563	512.074	pg		100
12) 1,1-Dichloroethene	7.34	96	29667	516.328	pg		95
13) Methylene Chloride	7.47	84	30433	485.812	pg		97
14) Trichlorotrifluoroethane	7.80	151	29113	511.788	pg		100
15) trans-1,2-Dichloroethene	8.51	96	31214	523.156	pg		98
16) 1,1-Dichloroethane	8.72	63	52870	495.488	pg		99
17) Methyl tert-Butyl Ether	8.79	73	96423	505.937	pg		98
18) cis-1,2-Dichloroethene	9.59	96	33431	523.291	pg		100
19) Chloroform	9.89	83	56131	485.833	pg		100
21) 1,2-Dichloroethane	10.64	62	42703	492.079	pg		100
22) 1,1,1-Trichloroethane	10.91	97	53064	504.124	pg		100
23) Benzene	11.37	78	131950	530.285	pg		100
24) Carbon Tetrachloride	11.52	117	46885	492.828	pg		100
26) 1,2-Dichloropropane	12.18	63	29148	495.214	pg		100
27) Bromodichloromethane	12.36	83	42129	495.826	pg		100
28) Trichloroethene	12.41	130	34316	538.007	pg		99
29) 1,4-Dioxane	12.38	88	25548	505.246	pg		96
30) cis-1,3-Dichloropropene	13.26	75	46165	495.000	pg		100
31) trans-1,3-Dichloropropene	13.77	75	40609	498.233	pg		100
32) 1,1,2-Trichloroethane	13.95	83	25252	515.132	pg		98
34) Toluene	14.25	91	124901	491.859	pg		100
35) Dibromochloromethane	14.66	129	33241	494.140	pg		100
36) 1,2-Dibromoethane	14.92	107	32864	518.248	pg		99
37) Tetrachloroethene	15.40	166	35750	537.213	pg		98
39) Chlorobenzene	16.10	112	84575	559.818	pg		100
40) Ethylbenzene	16.48	91	141768	554.834	pg		99
41) m,p-Xylene	16.66	91	218627	1099.735	pg		98
42) Styrene	17.01	104	77762	532.631	pg		100
43) o-Xylene	17.12	106	53719	548.833	pg		98
44) 1,1,2,2-Tetrachloroethane	17.09	83	49223	518.946	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	116326	537.258	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	116781	541.851	pg		99
48) 1,3-Dichlorobenzene	18.92	146	65788	563.784	pg		100
49) 1,4-Dichlorobenzene	18.98	146	65360	539.934	pg		100
50) 1,2-Dichlorobenzene	19.31	146	63291	540.804	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19224	509.137	pg		92
52) 1,2,4-Trichlorobenzene	20.95	182	36938	481.172	pg		98
53) Naphthalene	21.06	128	127487	499.443	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

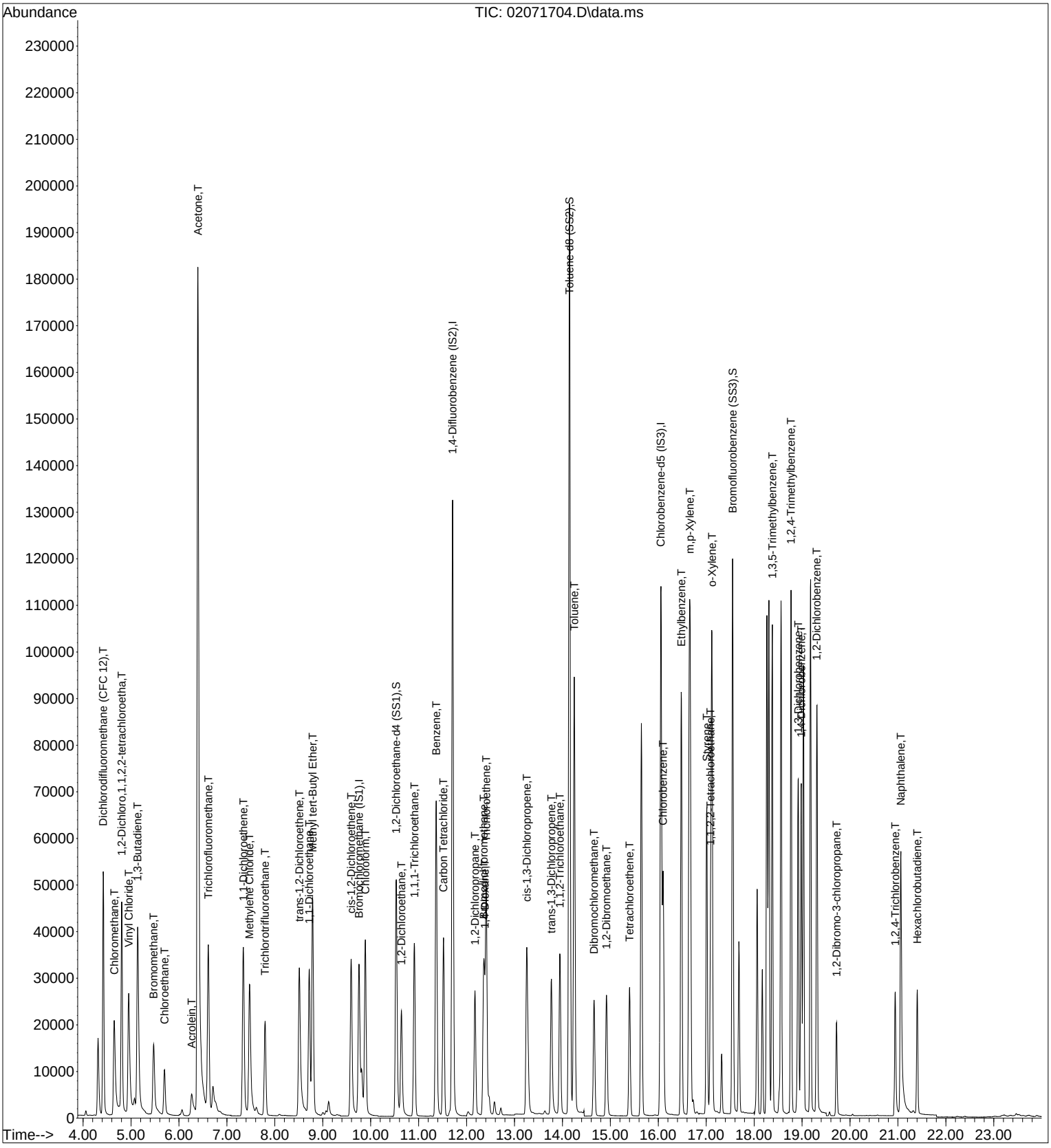
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26334	538.004	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071704.D Vial: 2
Acq On : 7 Feb 2017 3:57 Operator: CL
Sample : LCS S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 07 07:21:08 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081704.D Vial: 2
Acq On : 8 Feb 2017 1:59 Operator: CL
Sample : LCS S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 08 07:14:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	45939	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	225445	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	40407	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.53	65	80747	1006.728	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.67%				
33) Toluene-d8 (SS2)	14.15	98	231670	1008.146	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.81%				
45) Bromofluorobenzene (SS3)	17.55	174	74244	1005.125	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.51%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.42	85	62146	540.103	pg		100
3) Chloromethane	4.65	52	12177	456.592	pg	#	86
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	53458	487.511	pg		100
5) Vinyl Chloride	4.95	62	52709	526.521	pg		100
6) 1,3-Butadiene	5.14	54	36331	509.001	pg		96
7) Bromomethane	5.47	94	21313	523.067	pg		99
8) Chloroethane	5.70	64	16480	518.722	pg		98
9) Acrolein	6.27	56	10511	403.513	pg		90
10) Acetone	6.40	58	115909	3402.517	pg		95
11) Trichlorofluoromethane	6.61	101	46421	529.437	pg		100
12) 1,1-Dichloroethene	7.34	96	25820	526.084	pg		98
13) Methylene Chloride	7.48	84	26874	502.231	pg		100
14) Trichlorotrifluoroethane	7.80	151	23841	490.653	pg		100
15) trans-1,2-Dichloroethene	8.51	96	28267	554.638	pg		99
16) 1,1-Dichloroethane	8.72	63	47975	526.364	pg		99
17) Methyl tert-Butyl Ether	8.79	73	85777	526.907	pg		98
18) cis-1,2-Dichloroethene	9.59	96	29681	543.901	pg		99
19) Chloroform	9.89	83	51704	523.909	pg		100
21) 1,2-Dichloroethane	10.64	62	40085	540.761	pg		100
22) 1,1,1-Trichloroethane	10.91	97	48003	533.891	pg		100
23) Benzene	11.37	78	118399	557.051	pg		100
24) Carbon Tetrachloride	11.52	117	41677	512.867	pg		100
26) 1,2-Dichloropropane	12.17	63	26397	525.000	pg		99
27) Bromodichloromethane	12.35	83	38212	526.464	pg		100
28) Trichloroethene	12.41	130	29472	540.905	pg		100
29) 1,4-Dioxane	12.38	88	22382	518.161	pg		98
30) cis-1,3-Dichloropropene	13.26	75	40598	509.586	pg		100
31) trans-1,3-Dichloropropene	13.77	75	35414	508.634	pg		100
32) 1,1,2-Trichloroethane	13.95	83	22873	546.218	pg		99
34) Toluene	14.25	91	109853	506.415	pg		100
35) Dibromochloromethane	14.66	129	28528	496.441	pg		100
36) 1,2-Dibromoethane	14.92	107	29030	535.901	pg		99
37) Tetrachloroethene	15.40	166	29670	521.925	pg		99
39) Chlorobenzene	16.10	112	73587	530.699	pg		100
40) Ethylbenzene	16.48	91	125082	533.362	pg		100
41) m,p-Xylene	16.66	91	193461	1060.279	pg		100
42) Styrene	17.01	104	66014	492.649	pg		100
43) o-Xylene	17.12	106	46600	518.730	pg		99
44) 1,1,2,2-Tetrachloroethane	17.09	83	44704	513.503	pg		100
46) 1,3,5-Trimethylbenzene	18.38	105	101763	512.082	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	101639	513.819	pg		100
48) 1,3-Dichlorobenzene	18.92	146	55690	519.979	pg		100
49) 1,4-Dichlorobenzene	18.98	146	55492	499.461	pg		100
50) 1,2-Dichlorobenzene	19.31	146	54038	503.083	pg		100
51) 1,2-Dibromo-3-chloropr...	19.72	157	15824	456.614	pg		99
52) 1,2,4-Trichlorobenzene	20.94	182	30514	433.081	pg		99
53) Naphthalene	21.06	128	104838	447.488	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081704.D Vial: 2
Acq On : 8 Feb 2017 1:59 Operator: CL
Sample : LCS S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 08 07:14:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

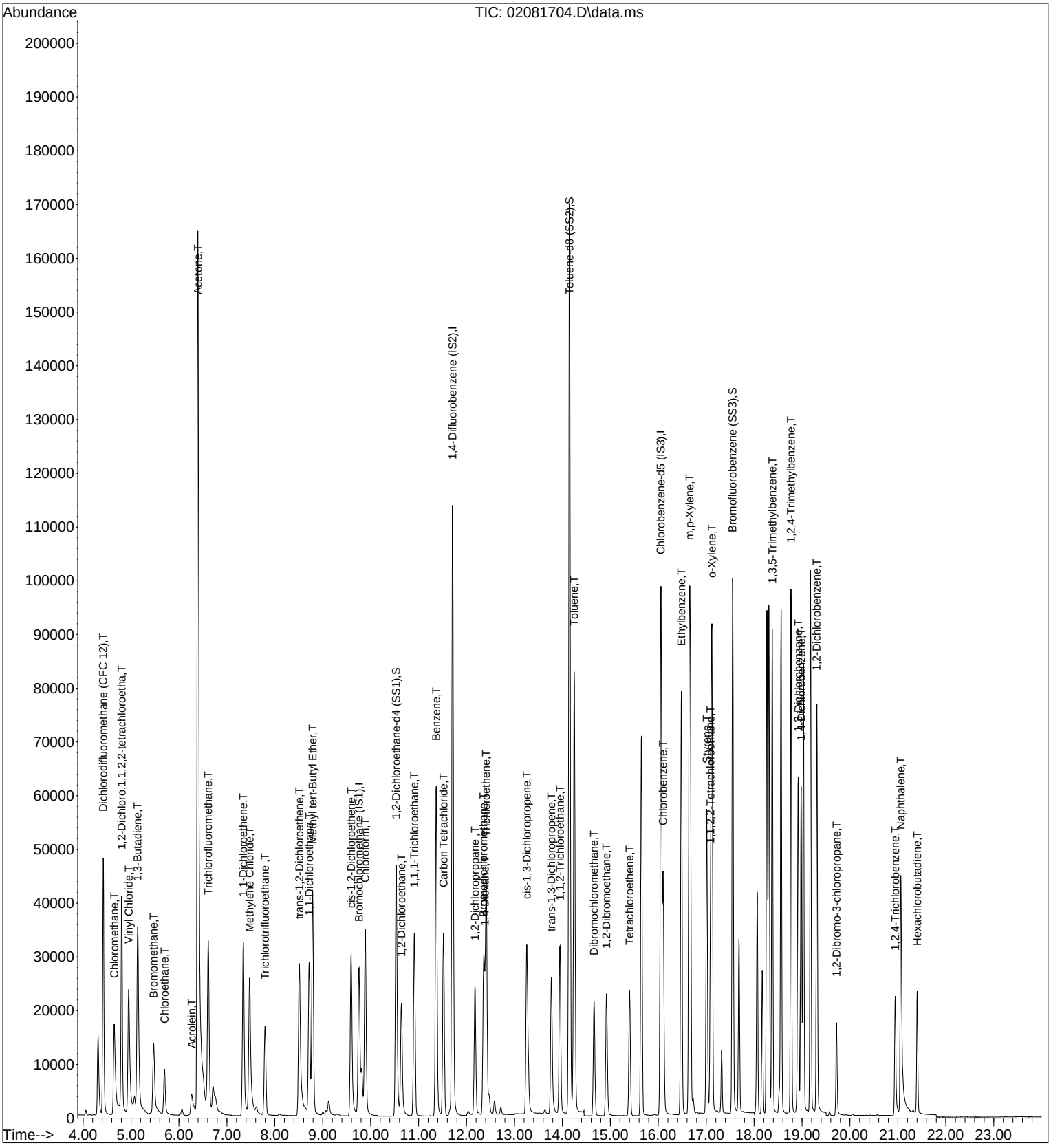
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	21900	487.478	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081704.D Vial: 2
Acq On : 8 Feb 2017 1:59 Operator: CL
Sample : LCS S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 08 07:14:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017
Response Via : Initial Calibration

CL 2/4/17

Calibration Files
10 =02031713.D 20 =02031714.D 50 =02031715.D 100 =02031716.D 500 =02031717.D 1000=02031718.D 2000=02031719.D
5000=02031720.D 10K =02031721.D 50K =02031723.D

		Compound	10	20	50	100	500	1000	2000	5000	10K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	2.602	2.623	2.694	2.516	2.484	2.874	2.642	2.410	2.269	1.934	2.505	10.35
3)	T	Chloromethane	0.653	0.756	0.612	0.536	0.599	0.731	0.634	0.495	0.301	0.487	0.581	22.92
4)	T	1,2-Dichloro,1...	2.719	2.562	2.524	2.318	2.330	2.655	2.394	2.226	2.144	1.999	2.387	9.63
5)	T	Vinyl Chloride	2.091	2.251	2.310	2.155	2.151	2.472	2.269	2.115	2.058	1.920	2.179	7.03
6)	T	1,3-Butadiene		1.033	1.573	1.427	1.532	1.840	1.717	1.634	1.581	1.647	1.554	14.61
7)	T	Bromomethane	0.903	0.835	0.842	0.835	0.851	0.975	0.899	0.890	1.050	0.790	0.887	8.64
8)	T	Chloroethane	0.663	0.694	0.714	0.676	0.666	0.782	0.723	0.685	0.679	0.632	0.692	5.94
9)	T	Acrolein			0.659	0.562	0.492	0.587	0.568	0.567	0.567	0.533	0.567	8.32
10)	T	Acetone				1.086	0.665	0.747	0.682	0.643	0.628		0.742	23.40
11)	T	Trichlorofluor...	1.926	2.002	2.027	1.871	1.841	2.119	1.934	1.847	1.800	1.720	1.909	6.18
12)	T	1,1-Dichloroet...	0.988	1.061	1.056	1.036	1.036	1.210	1.126	1.085	1.059	1.025	1.068	5.80
13)	T	Methylene Chlo...		1.361	1.249	1.129	1.086	1.249	1.158	1.109	1.083	1.059	1.165	8.66
14)	T	Trichlorotrifl...	1.079	1.061	1.087	0.977	0.989	1.172	1.096	1.056	1.011	1.049	1.058	5.40
15)	T	trans-1,2-Dich...		1.013	1.100	0.921	1.105	1.285	1.210	1.156	1.118	1.077	1.109	9.54
16)	T	1,1-Dichloroet...	2.001	1.988	2.005	1.872	1.948	2.261	2.084	1.966	1.901	1.814	1.984	6.23
17)	T	Methyl tert-Bu...	3.550	3.512	3.625	3.389	3.442	3.987	3.682	3.489	3.407	3.354	3.544	5.28
18)	T	cis-1,2-Dichlo...	1.136	1.032	1.185	1.111	1.164	1.357	1.288	1.239	1.204	1.161	1.188	7.72
19)	T	Chloroform			2.560	2.191	2.024	2.331	2.163	2.042	1.970	1.904	2.148	10.00
20)	S	1,2-Dichloroet...	1.744	1.758	1.772	1.778	1.761	1.756	1.754	1.741	1.729	1.666	1.746	1.81
21)	T	1,2-Dichloroet...	1.469	1.529	1.613	1.520	1.582	1.865	1.751	1.668	1.611	1.528	1.614	7.45
22)	T	1,1,1-Trichlor...	1.967	1.929	1.987	1.843	1.890	2.209	2.068	1.959	1.892	1.830	1.957	5.79
23)	T	Benzene			5.252	4.583	4.379	5.071	4.699	4.462	4.329	4.240	4.627	7.85
24)	T	Carbon Tetrach...	1.929	1.720	1.770	1.630	1.663	1.948	1.833	1.771	1.728	1.697	1.769	6.00
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.232	0.211	0.220	0.206	0.213	0.251	0.236	0.225	0.219	0.217	0.223	6.05
27)	T	Bromodichlorom...	0.302	0.318	0.315	0.299	0.303	0.362	0.343	0.328	0.318	0.330	0.322	6.14
28)	T	Trichloroethene	0.247	0.232	0.237	0.227	0.231	0.272	0.254	0.241	0.233	0.243	0.242	5.50
29)	T	1,4-Dioxane	0.191	0.178	0.182	0.179	0.184	0.217	0.204	0.194	0.188	0.198	0.192	6.32
30)	T	cis-1,3-Dichlo...	0.317	0.302	0.324	0.309	0.332	0.404	0.390	0.382	0.375	0.398	0.353	11.34
31)	T	trans-1,3-Dich...	0.267	0.231	0.264	0.270	0.288	0.358	0.352	0.353	0.350	0.355	0.309	15.89
32)	T	1,1,2-Trichlor...	0.177	0.172	0.184	0.173	0.179	0.212	0.199	0.190	0.184	0.188	0.186	6.63
33)	S	Toluene-d8 (SS2)	1.013	1.019	1.022	1.025	1.029	1.028	1.022	1.015	1.009	1.012	1.019	0.69
34)	T	Toluene	1.105	1.016	0.990	0.899	0.880	1.039	0.975	0.927	0.900	0.890	0.962	7.84
35)	T	Dibromochlorom...	0.221	0.232	0.242	0.231	0.233	0.284	0.275	0.274	0.274	0.284	0.255	9.86
36)	T	1,2-Dibromoethane	0.224	0.205	0.225	0.217	0.228	0.274	0.264	0.258	0.253	0.254	0.240	9.69
37)	T	Tetrachloroethene	0.249	0.238	0.242	0.229	0.234	0.278	0.265	0.260	0.257	0.270	0.252	6.54
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	3.581	3.412	3.488	3.160	3.197	3.836	3.646	3.538	3.439	3.019	3.432	7.18
40)	T	Ethylbenzene	5.940	5.559	5.768	5.398	5.562	6.664	6.299	6.027	5.811	5.009	5.804	8.06
41)	T	m,p-Xylene	4.712	4.368	4.522	4.108	4.260	5.105	4.813	4.648	4.550	4.071	4.516	7.17

Method Path : I:\MS19\METHODS\
Method File : S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.704	2.639	2.901	2.858	3.070	3.891	3.847	3.901	3.898	3.453	3.316	16.17
43)	T	o-Xylene	2.267	2.039	2.127	2.016	2.066	2.479	2.359	2.316	2.297	2.267	2.223	6.91
44)	T	1,1,2,2-Tetrac...	2.221	2.001	2.066	1.939	2.013	2.418	2.316	2.264	2.222	2.085	2.155	7.25
45)	S	Bromofluoroben...	1.727	1.741	1.762	1.749	1.794	1.822	1.905	1.991	2.017	1.771	1.828	5.79
46)	T	1,3,5-Trimethy...	5.522	4.160	4.492	4.303	4.596	5.563	5.362	5.295	5.290	4.597	4.918	10.92
47)	T	1,2,4-Trimethy...	4.117	4.149	4.432	4.335	4.613	5.697	5.529	5.503	5.523	5.056	4.895	12.93
48)	T	1,3-Dichlorobe...	2.054	2.001	2.429	2.346	2.440	3.061	3.037	3.093	3.118	2.926	2.651	16.74
49)	T	1,4-Dichlorobe...	2.552	2.473	2.526	2.494	2.432	3.071	3.033	3.067	3.064	2.783	2.750	10.26
50)	T	1,2-Dichlorobe...	2.339	2.165	2.440	2.312	2.381	2.992	2.950	2.991	2.991	3.021	2.658	13.39
51)	T	1,2-Dibromo-3-...	0.614	0.509	0.668	0.666	0.757	1.012	1.065	1.129	1.161	0.996	0.858	27.91
52)	T	1,2,4-Trichlor...	1.814	1.320	1.493	1.466	1.470	1.976	2.015	2.043	2.039	1.802	1.744	16.08
53)	T	Naphthalene		3.711	4.969	5.093	5.014	6.840	6.930	6.892	6.936		5.798	21.63
54)	T	Hexachlorobuta...	1.172	0.821	1.005	0.950	1.005	1.246	1.242	1.247	1.239	1.193	1.112	13.83

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

CL 2/4/17

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301702		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01241705		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:		5	50	250	1000	5000

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
Propene	1.036	207.2	20.72	4.144	1.036	0.2072		0.01036	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	NA	51.80
Dichlorodifluoromethane	1.047	209.4	20.94	4.188	1.047	0.2094		0.01047	0.02094	0.05235	0.1047	0.5235	1.047	2.094	5.235	10.47	NA	52.35
Chloromethane	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Freon-114	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
Vinyl Chloride	1.023	204.6	20.46	4.092	1.023	0.2046		0.01023	0.02046	0.05115	0.1023	0.5115	1.023	2.046	5.115	10.23	NA	51.15
1,3-Butadiene	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Bromomethane	0.993	198.6	19.86	3.972	0.993	0.1986		0.00993	0.01986	0.04965	0.0993	0.4965	0.993	1.986	4.965	9.93	NA	49.65
Chloroethane	1.009	201.8	20.18	4.036	1.009	0.2018		0.01009	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	NA	50.45
Ethanol	5.207	1041.4	104.14	20.828	5.207	1.0414		0.05207	0.10414	0.26035	0.5207	2.6035	5.207	10.414	26.035	52.07	NA	260.35
Acetonitrile	1.046	209.2	20.92	4.184	1.046	0.2092		0.01046	0.02092	0.05230	0.1046	0.5230	1.046	2.092	5.230	10.46	NA	52.30
Acrolein	1.041	208.2	20.82	4.164	1.041	0.2082		0.01041	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	NA	52.05
Acetone	5.313	1062.6	106.26	21.252	5.313	1.0626		0.05313	0.10626	0.26565	0.5313	2.6565	5.313	10.626	26.565	53.13	NA	265.65
Trichlorofluoromethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Isopropanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Acrylonitrile	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
1,1-Dichloroethene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
tert-Butanol	2.114	422.8	42.28	8.456	2.114	0.4228		0.02114	0.04228	0.10570	0.2114	1.0570	2.114	4.228	10.570	21.14	NA	105.70
Methylene Chloride	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Allyl Chloride	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Trichlorotrifluoroethane	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
Carbon Disulfide	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
trans-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067	0.2134		0.01067	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	NA	53.35
1,1-Dichloroethane	1.020	204.0	20.40	4.080	1.020	0.2040		0.01020	0.02040	0.05100	0.1020	0.5100	1.020	2.040	5.100	10.20	NA	51.00
Methyl tert-Butyl Ether	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Vinyl Acetate	5.265	1053.0	105.30	21.060	5.265	1.0530		0.05265	0.10530	0.26325	0.5265	2.6325	5.265	10.530	26.325	52.65	NA	263.25
2-Butanone	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
cis-1,2-Dichloroethene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
Diisopropyl Ether	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl Acetate	2.129	425.8	42.58	8.516	2.129	0.4258		0.02129	0.04258	0.10645	0.2129	1.0645	2.129	4.258	10.645	21.29	NA	106.45
n-Hexane	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Chloroform	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
Tetrahydrofuran	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Ethyl tert-Butyl Ether	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
1,2-Dichloroethane	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
1,1,1-Trichloroethane	1.074	214.8	21.48	4.296	1.074	0.2148		0.01074	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	NA	53.70
Isopropyl Acetate	2.104	420.8	42.08	8.416	2.104	0.4208		0.02104	0.04208	0.10520	0.2104	1.0520	2.104	4.208	10.520	21.04	NA	105.20
1-Butanol	2.105	421.0	42.10	8.420	2.105	0.4210		0.02105	0.04210	0.10525	0.2105	1.0525	2.105	4.210	10.525	21.05	NA	105.25
Benzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
Carbon Tetrachloride	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
Cyclohexane	2.130	426.0	42.60	8.520	2.130	0.4260		0.02130	0.04260	0.10650	0.2130	1.0650	2.130	4.260	10.650	21.30	NA	106.50
tert-Amyl Methyl Ether	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2-Dichloropropane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Bromodichloromethane	1.066	213.2	21.32	4.264	1.066	0.2132		0.01066	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	NA	53.30
Trichloroethene	1.060	212.0	21.20	4.240	1.060	0.2120		0.01060	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	NA	53.00
1,4-Dioxane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
Isooctane	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methyl Methacrylate	2.110	422.0	42.20	8.440	2.110	0.4220		0.02110	0.04220	0.10550	0.2110	1.0550	2.110	4.220	10.550	21.10	NA	105.50
n-Heptane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
cis-1,3-Dichloropropene	1.116	223.2	22.32	4.464	1.116	0.2232		0.01116	0.02232	0.05580	0.1116	0.5580	1.116	2.232	5.580	11.16	NA	55.80

Date Updated: 10/11/16
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:	S29-01171712		20ng/L Std. ID:	S29-01301702		
1ng/L Std. ID:	S29-01301707		200ng/L Std. ID:	S29-01241705		
4ng/L Std. ID:	S29-01301704					
Dilution Factors:	5	50	250	1000	5000	

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	0.2	1	1	1	4	20	20	20	20		200
							Injection (L):	0.050	0.020	0.050	0.100	0.125	0.050	0.100	0.250	0.500	NA	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	20ng	50ng
4-Methyl-2-pentanone	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
trans-1,3-Dichloropropene	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
1,1,2-Trichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Toluene	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
2-Hexanone	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2-Dibromoethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064	0.2128		0.01064	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	NA	53.20
n-Octane	1.057	211.4	21.14	4.228	1.057	0.2114		0.01057	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	NA	52.85
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Chlorobenzene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
Ethylbenzene	1.055	211.0	21.10	4.220	1.055	0.2110		0.01055	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	NA	52.75
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		0.02123	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	NA	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
Styrene	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
o-Xylene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
n-Nonane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
Cumene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
alpha-Pinene	1.044	208.8	20.88	4.176	1.044	0.2088		0.01044	0.02088	0.05220	0.1044	0.5220	1.044	2.088	5.220	10.44	NA	52.20
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		0.01063	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	NA	53.15
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049	0.2098		0.01049	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	NA	52.45
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050	0.2100		0.01050	0.02100	0.05250	0.1050	0.5250	1.050	2.100	5.250	10.50	NA	52.50
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		0.01062	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	NA	53.10
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052	0.2104		0.01052	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	NA	52.60
n-Decane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061	0.2122		0.01061	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	NA	53.05
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027	0.2054		0.01027	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	NA	51.35
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058	0.2116		0.01058	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	NA	52.90
d-Limonene	1.005	201.0	20.10	4.020	1.005	0.2010		0.01005	0.02010	0.05025	0.1005	0.5025	1.005	2.010	5.025	10.05	NA	50.25
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053	0.2106		0.01053	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	NA	52.65
n-Undecane	1.054	210.8	21.08	4.216	1.054	0.2108		0.01054	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	NA	52.70
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043	0.2086		0.01043	0.02086	0.05215	0.1043	0.5215	1.043	2.086	5.215	10.43	NA	52.15
Naphthalene	1.083	216.6	21.66	4.332	1.083	0.2166		0.01083	0.02166	0.05415	0.1083	0.5415	1.083	2.166	5.415	10.83	NA	54.15
n-Dodecane	1.045	209.0	20.90	4.180	1.045	0.2090		0.01045	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	NA	52.25
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059	0.2118		0.01059	0.02118	0.05295	0.1059	0.5295	1.059	2.118	5.295	10.59	NA	52.95
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065	0.2130		0.01065	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	NA	53.25
Cyclohexanone	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051	0.2102		0.01051	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	NA	52.55
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056	0.2112		0.01056	0.02112	0.05280	0.1056	0.5280	1.056	2.112	5.280	10.56	NA	52.80

Calibration Status Report MS19

Method : I:\MS19\METHODS\S19020317.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration

CL 2/4/17

#	ID	Conc	ISTD Conc	Path\File
1	10	10	1000	I:\MS19\DATA\2017_02\03\02031713.D
2	20	21	1000	I:\MS19\DATA\2017_02\03\02031714.D
3	50	52	1000	I:\MS19\DATA\2017_02\03\02031715.D
4	100	105	1000	I:\MS19\DATA\2017_02\03\02031716.D
5	500	524	1000	I:\MS19\DATA\2017_02\03\02031717.D
6	1000	1047	1000	I:\MS19\DATA\2017_02\03\02031718.D
7	2000	2094	1000	I:\MS19\DATA\2017_02\03\02031719.D
8	5000	5235	1000	I:\MS19\DATA\2017_02\03\02031720.D
9	10K	10470	1000	I:\MS19\DATA\2017_02\03\02031721.D
10	50K	52350	1000	I:\MS19\DATA\2017_02\03\02031723.D

#	ID	Update Time	Quant Time	Acquisition Time
1	10	Feb 04 07:27 2017	Feb 04 07:11 2017	3 Feb 2017 14:51
2	20	Feb 04 07:27 2017	Feb 04 07:13 2017	3 Feb 2017 15:22
3	50	Feb 04 07:27 2017	Feb 04 07:15 2017	3 Feb 2017 15:54
4	100	Feb 04 07:27 2017	Feb 04 07:16 2017	3 Feb 2017 16:25
5	500	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 16:57
6	1000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 17:28
7	2000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 17:59
8	5000	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 18:30
9	10K	Feb 04 07:27 2017	Feb 04 07:09 2017	3 Feb 2017 19:01
10	50K	Feb 04 07:28 2017	Feb 04 07:09 2017	3 Feb 2017 20:04

S19020317.M Sat Feb 04 07:48:54 2017

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	49044	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	242869	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42558	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	85551	1112.594	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.26%				
33) Toluene-d8 (SS2)	14.15	98	245965	1007.434	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.74%				
45) Bromofluorobenzene (SS3)	17.56	174	73508	808.254	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 80.83%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	1336	11.538	pg		99
3) Chloromethane	4.69	52	322m	12.433	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	1340	12.258	pg		93
5) Vinyl Chloride	5.01	62	1049	10.265	pg		96
6) 1,3-Butadiene	5.20	54	583m	9.365	pg		
7) Bromomethane	5.52	94	440m	10.861	pg		
8) Chloroethane	5.74	64	328	10.176	pg		88
9) Acrolein	6.36	56	906m	34.191	pg		
10) Acetone	6.47	58	10917	331.930	pg	#	70
11) Trichlorofluoromethane	6.65	101	991	11.121	pg		99
12) 1,1-Dichloroethene	7.38	96	513	9.816	pg	#	77
13) Methylene Chloride	7.51	84	920	17.079	pg		96
14) Trichlorotrifluoroethane	7.82	151	555	10.342	pg		100
15) trans-1,2-Dichloroethene	8.55	96	385	7.289	pg	#	61
16) 1,1-Dichloroethane	8.74	63	1001	10.922	pg		99
17) Methyl tert-Butyl Ether	8.83	73	1856	11.023	pg		98
18) cis-1,2-Dichloroethene	9.62	96	593	10.421	pg		100
19) Chloroform	9.90	83	2989	30.172	pg		98
21) 1,2-Dichloroethane	10.66	62	758	10.398	pg	#	64
22) 1,1,1-Trichloroethane	10.92	97	1036	11.100	pg		99
23) Benzene	11.38	78	4165	19.350	pg		96
24) Carbon Tetrachloride	11.53	117	998	11.481	pg		98
26) 1,2-Dichloropropane	12.19	63	598	11.062	pg		95
27) Bromodichloromethane	12.37	83	783	9.937	pg		99
28) Trichloroethene	12.42	130	636	10.247	pg		92
29) 1,4-Dioxane	12.42	88	492	10.395	pg		99
30) cis-1,3-Dichloropropene	13.28	75	860	9.788	pg		97
31) trans-1,3-Dichloropropene	13.80	75	690	9.081	pg	#	86
32) 1,1,2-Trichloroethane	13.96	83	456	9.963	pg		92
34) Toluene	14.26	91	2826	12.147	pg		95
35) Dibromochloromethane	14.67	129	570	8.439	pg		97
36) 1,2-Dibromoethane	14.94	107	574	9.444	pg		97
37) Tetrachloroethene	15.40	166	641	9.665	pg		97
39) Chlorobenzene	16.11	112	1617	10.062	pg		95
40) Ethylbenzene	16.49	91	2667	9.919	pg		100
41) m,p-Xylene	16.67	91	4257	20.305	pg		97
42) Styrene	17.04	104	1221	7.602	pg		97
43) o-Xylene	17.13	106	1017	9.758	pg		91
44) 1,1,2,2-Tetrachloroethane	17.10	83	998	10.025	pg		90
46) 1,3,5-Trimethylbenzene	18.39	105	2465	10.901	pg	#	85
47) 1,2,4-Trimethylbenzene	18.78	105	1843	8.096	pg		91
48) 1,3-Dichlorobenzene	18.93	146	925	7.398	pg		98
49) 1,4-Dichlorobenzene	19.00	146	1149	8.708	pg		97
50) 1,2-Dichlorobenzene	19.32	146	1053	8.350	pg		97
51) 1,2-Dibromo-3-chloropr...	19.74	157	275	6.061	pg		88
52) 1,2,4-Trichlorobenzene	20.99	182	805	8.992	pg		86
53) Naphthalene	21.13	128	2562	8.944	pg		91

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

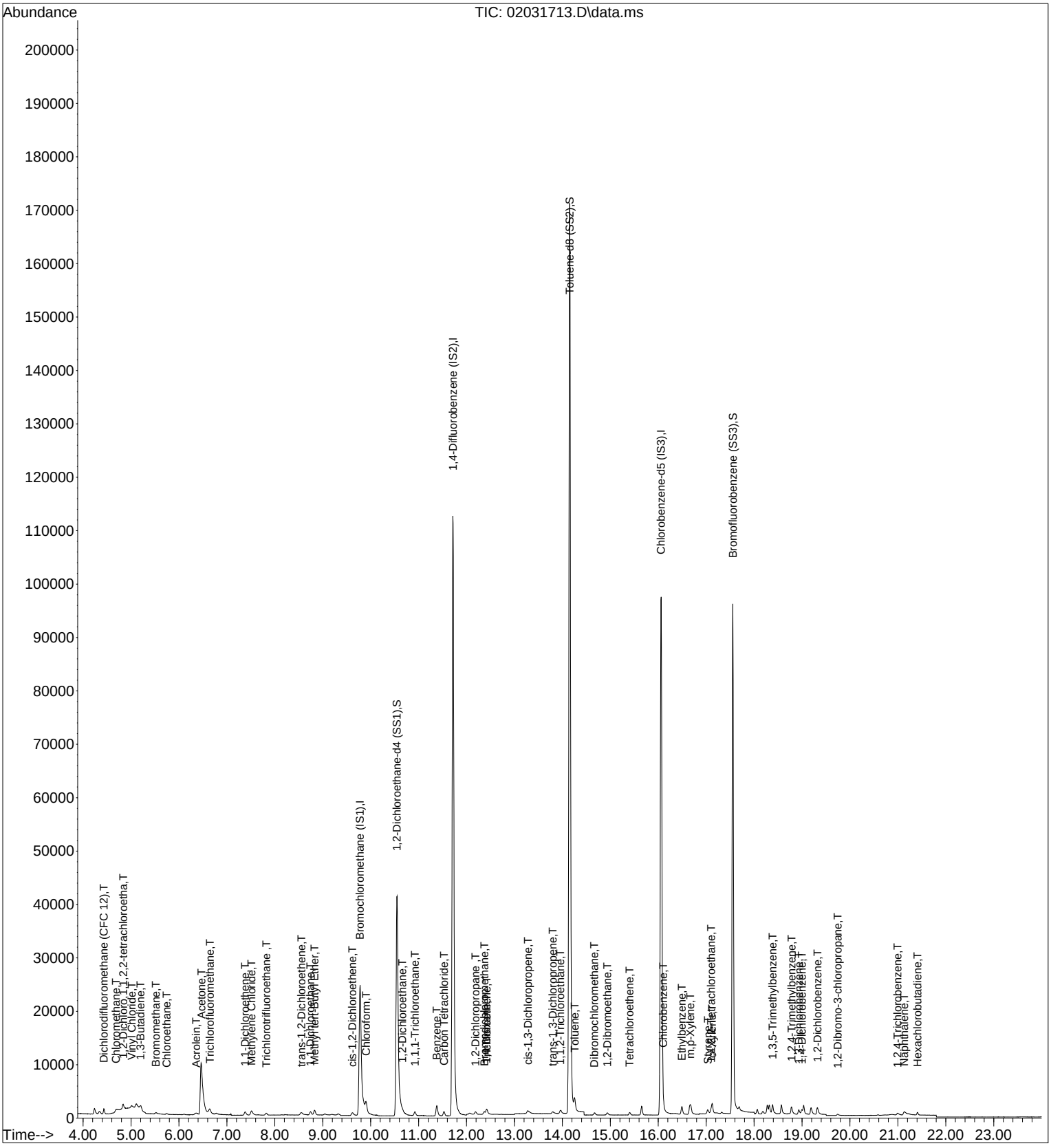
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	528	9.051	pg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

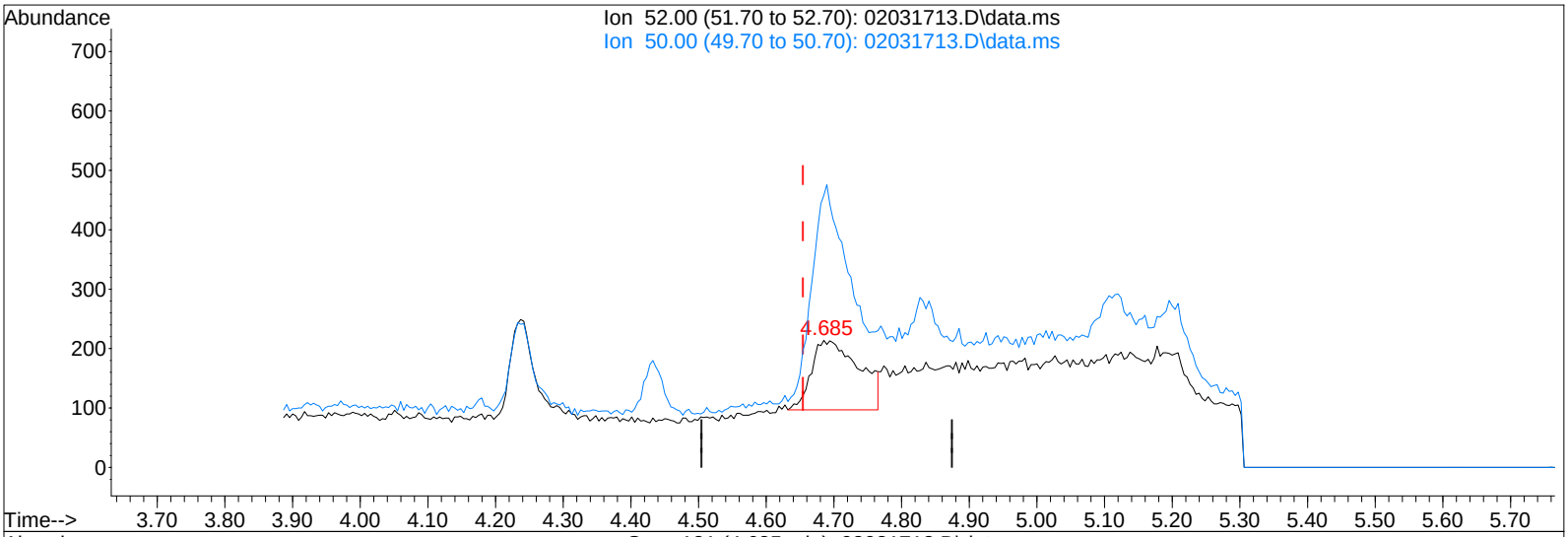
Quant Time: Feb 04 07:11:09 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

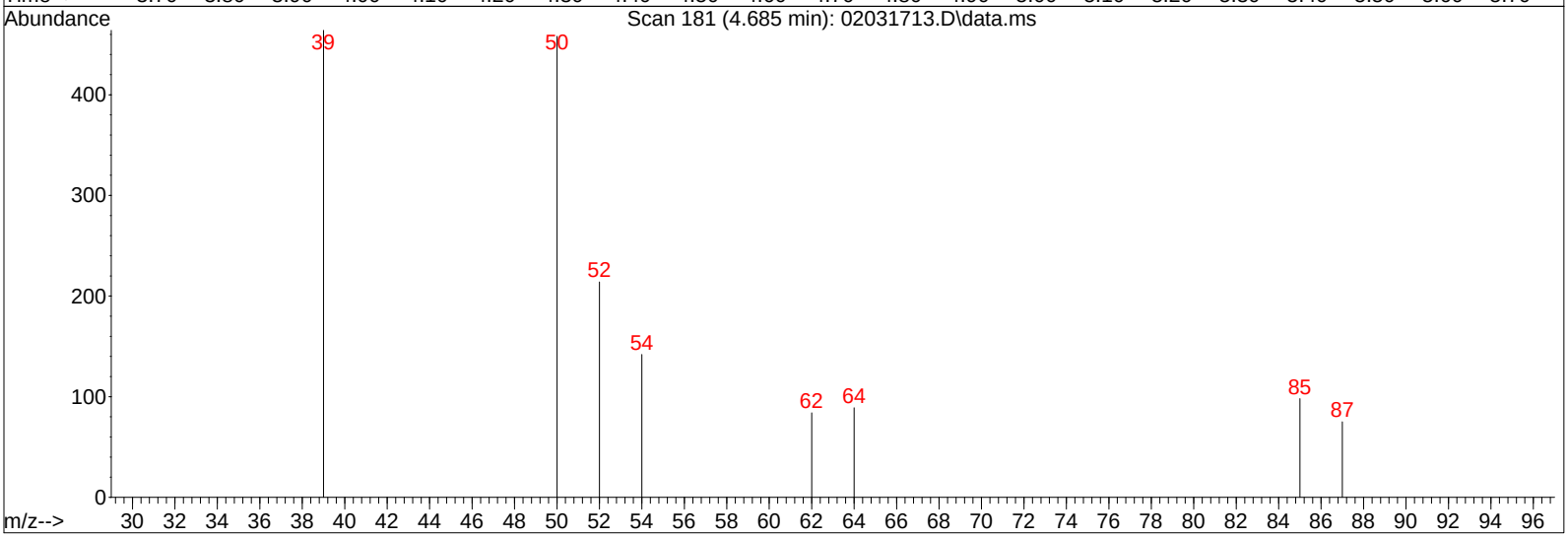


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 22.16pg

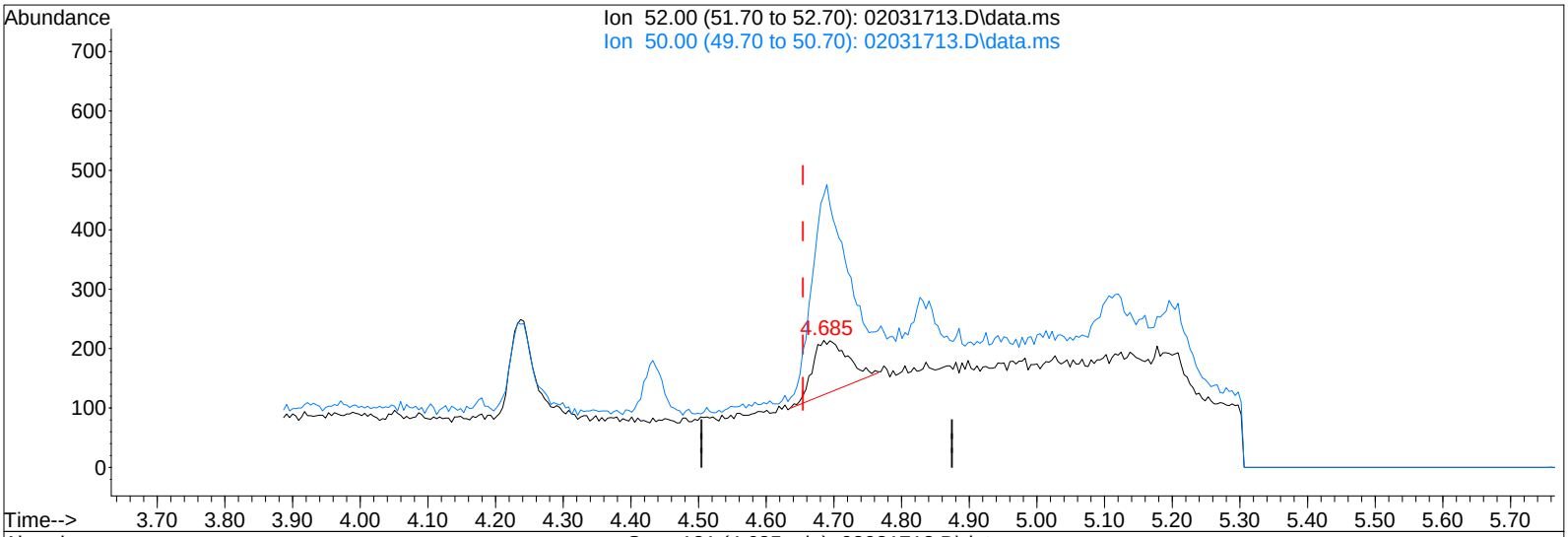
response 574

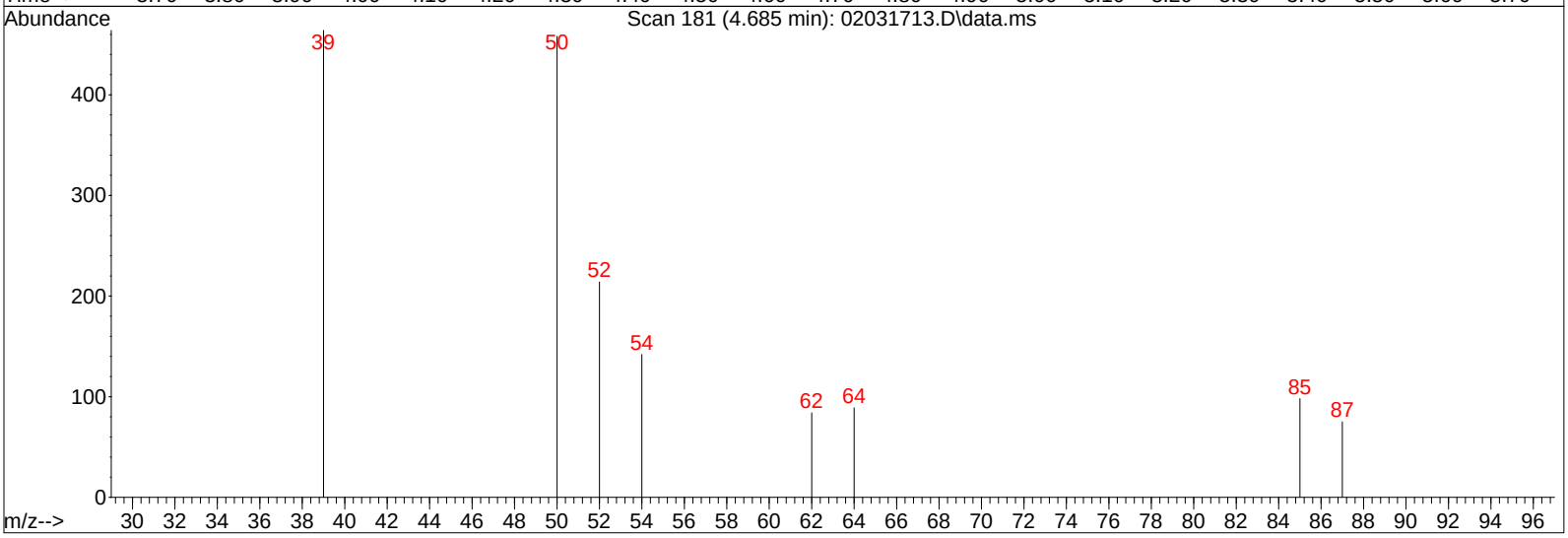
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	290.24
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(3) Chloromethane (T)

4.685min (+0.031) 12.43pg m

response 322

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	517.39#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

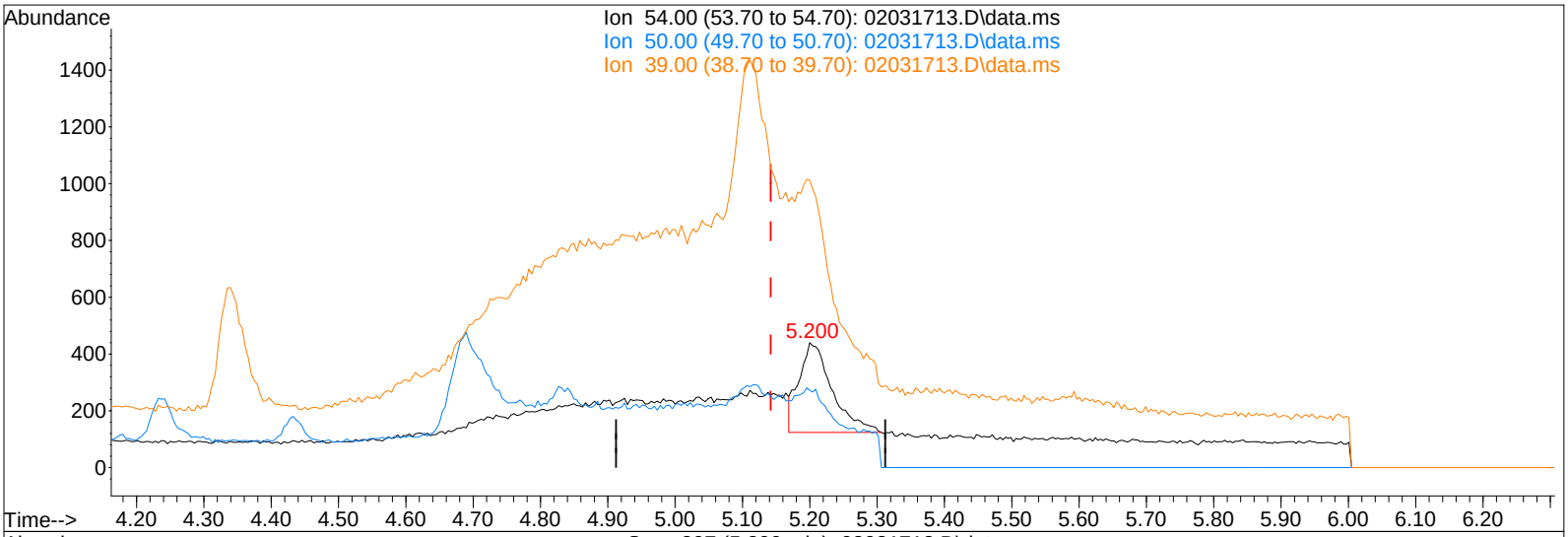
CL 2/4/17

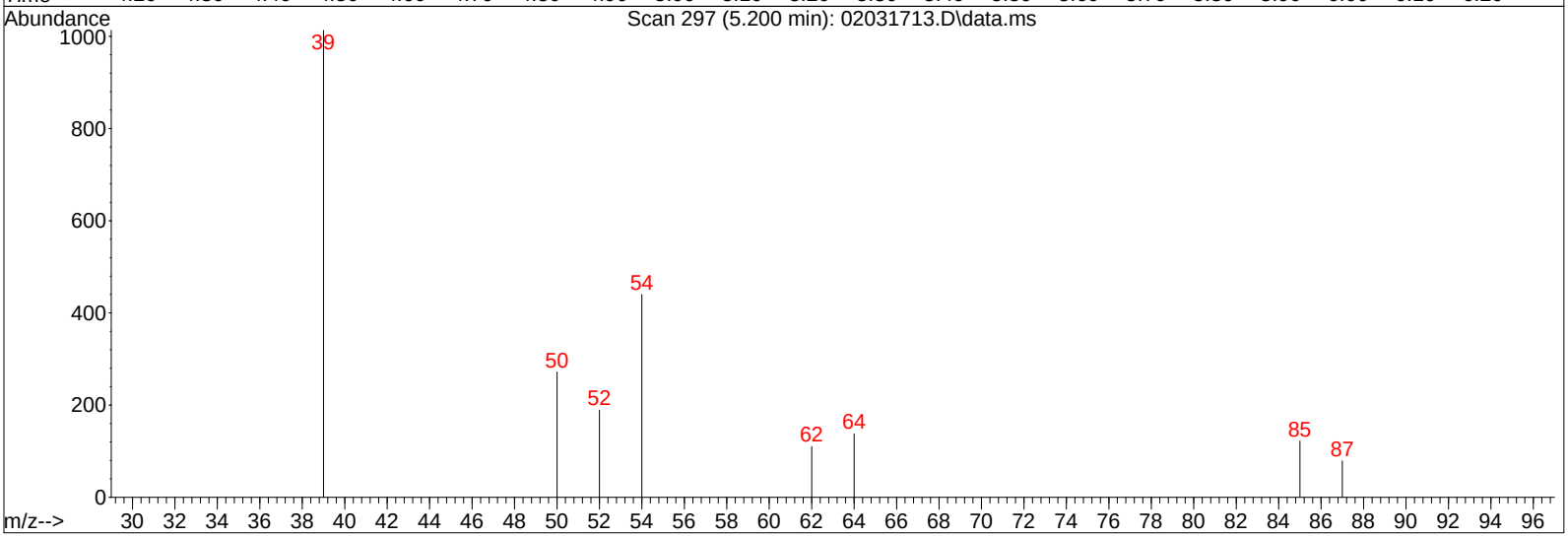
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.057) 17.38pg

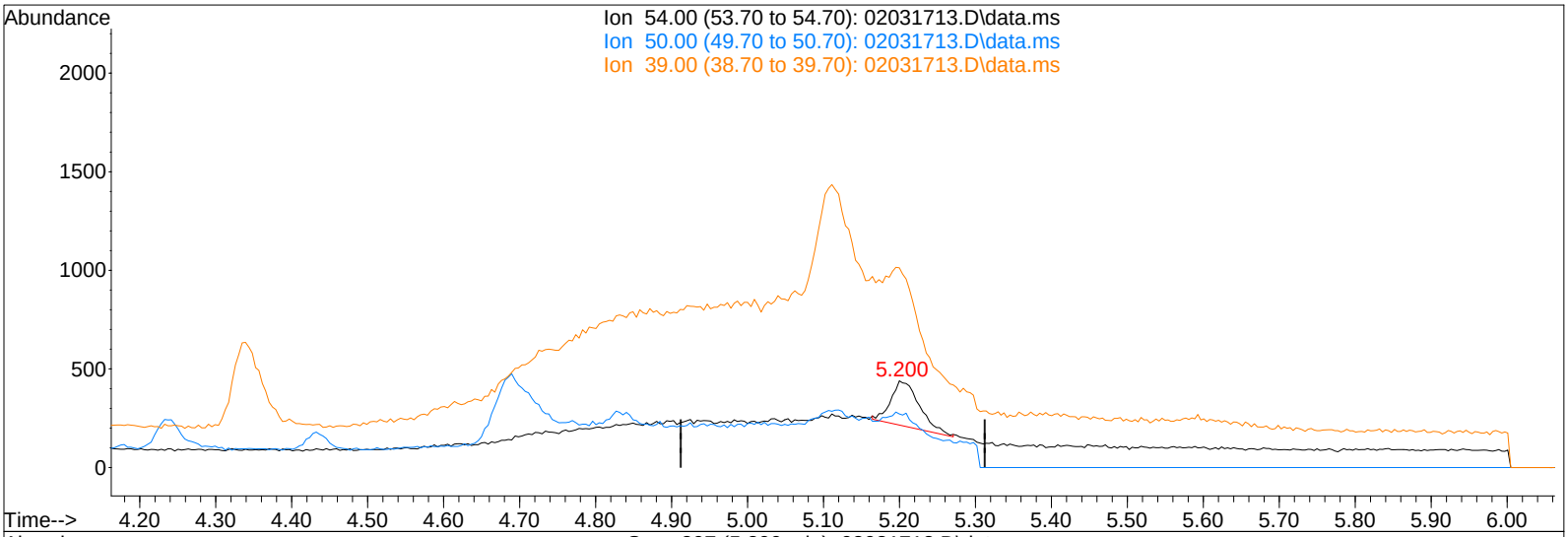
response 1082

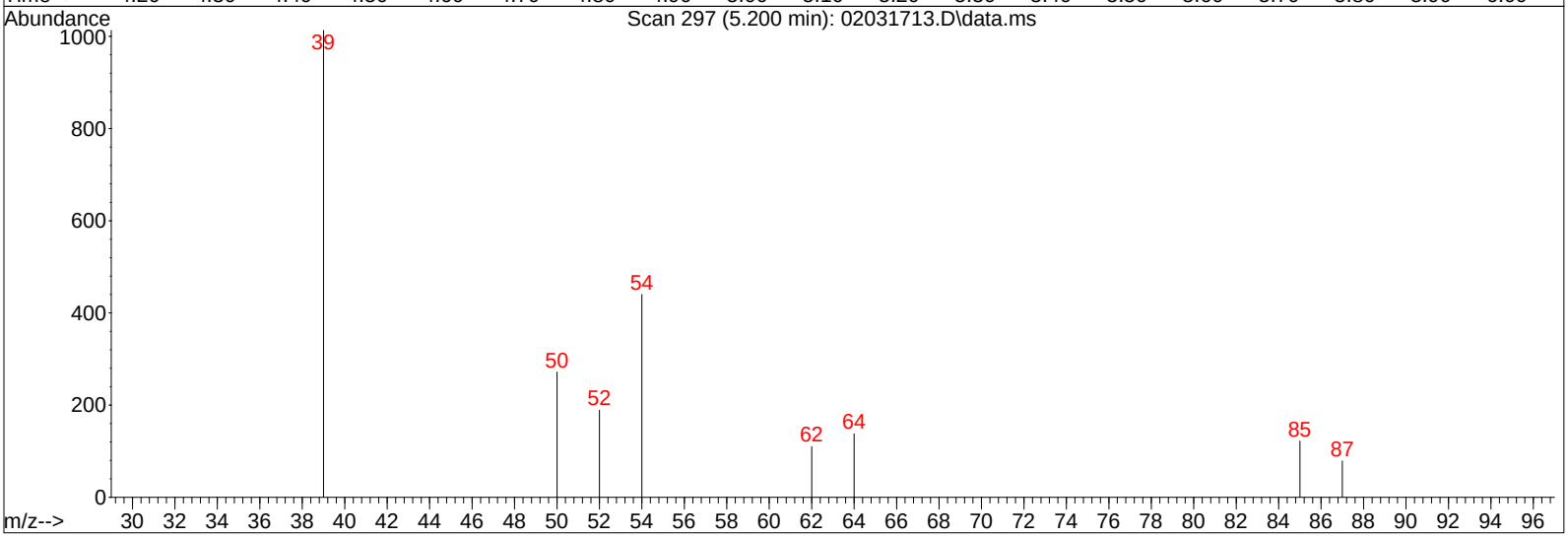
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	113.68#
39.00	111.40	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(6) 1,3-Butadiene (T)

5.200min (+0.057) 9.36pg m

response 583

BLC

CL 2/4/17

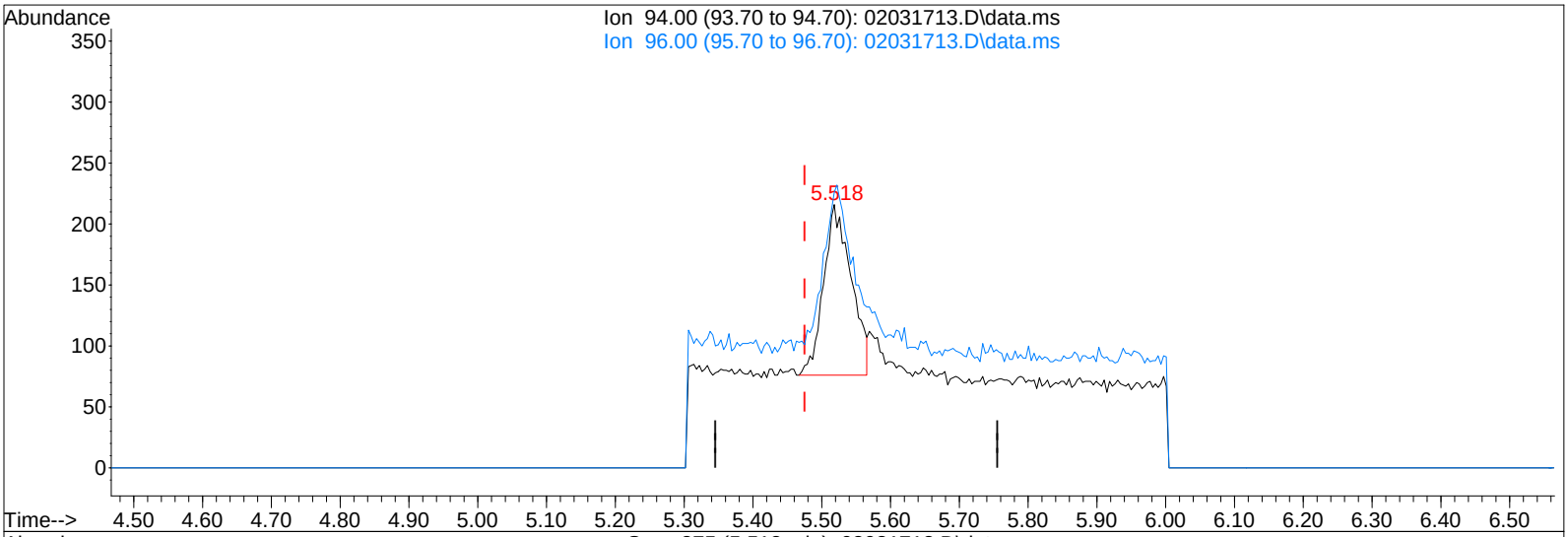
WJA 2/7/17

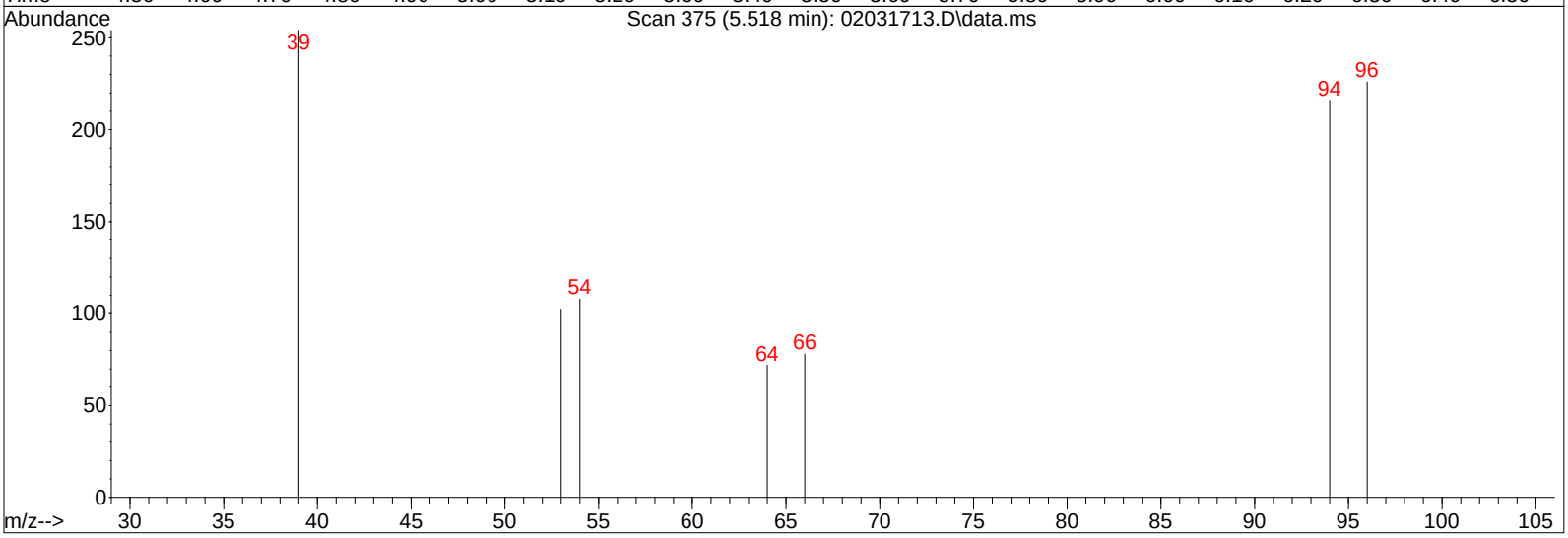
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	0.00#
39.00	111.40	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(7) Bromomethane (T)

5.518min (+0.043) 9.65pg

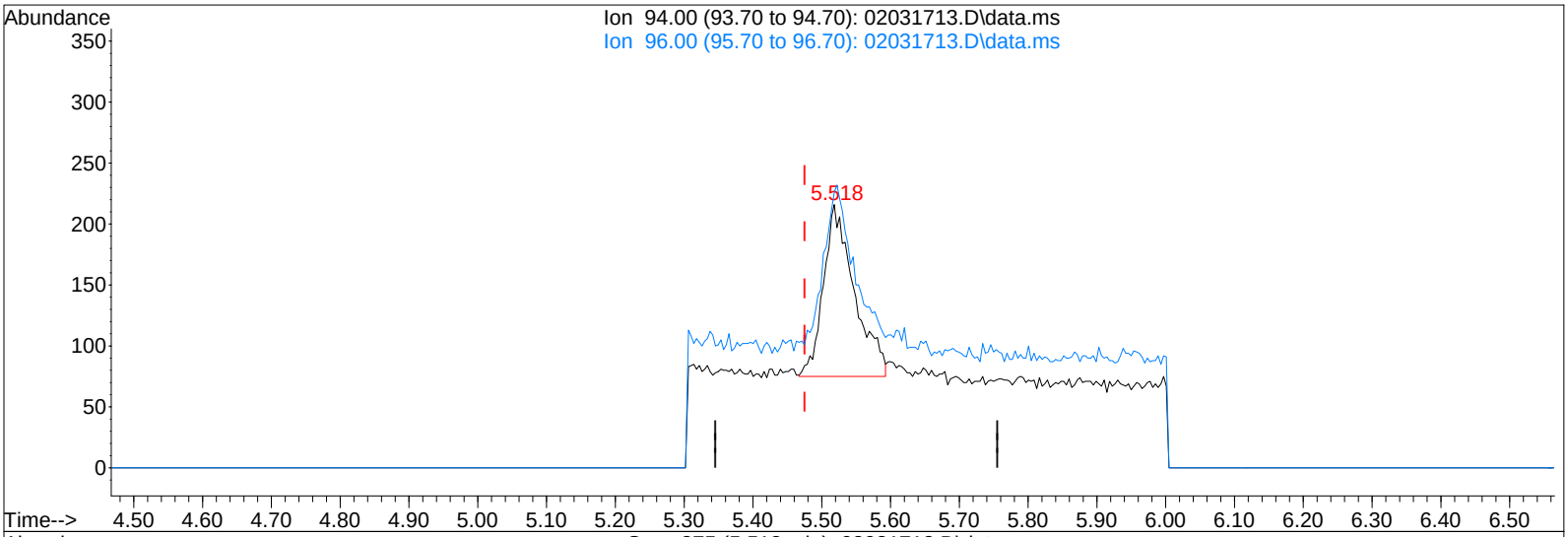
response 391

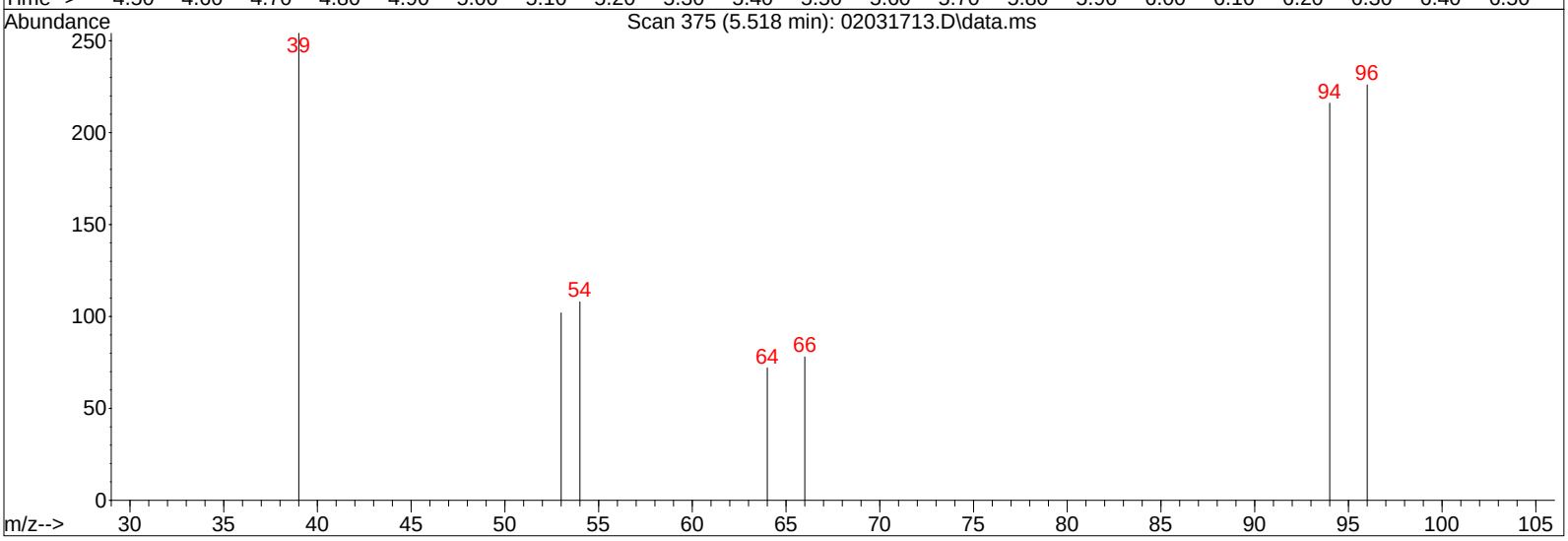
Ion	Exp%	Act%
94.00	100	100
96.00	93.00	87.98
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(7) Bromomethane (T)

5.518min (+0.043) 10.86pg m

response 440

BLC

CL 2/4/17

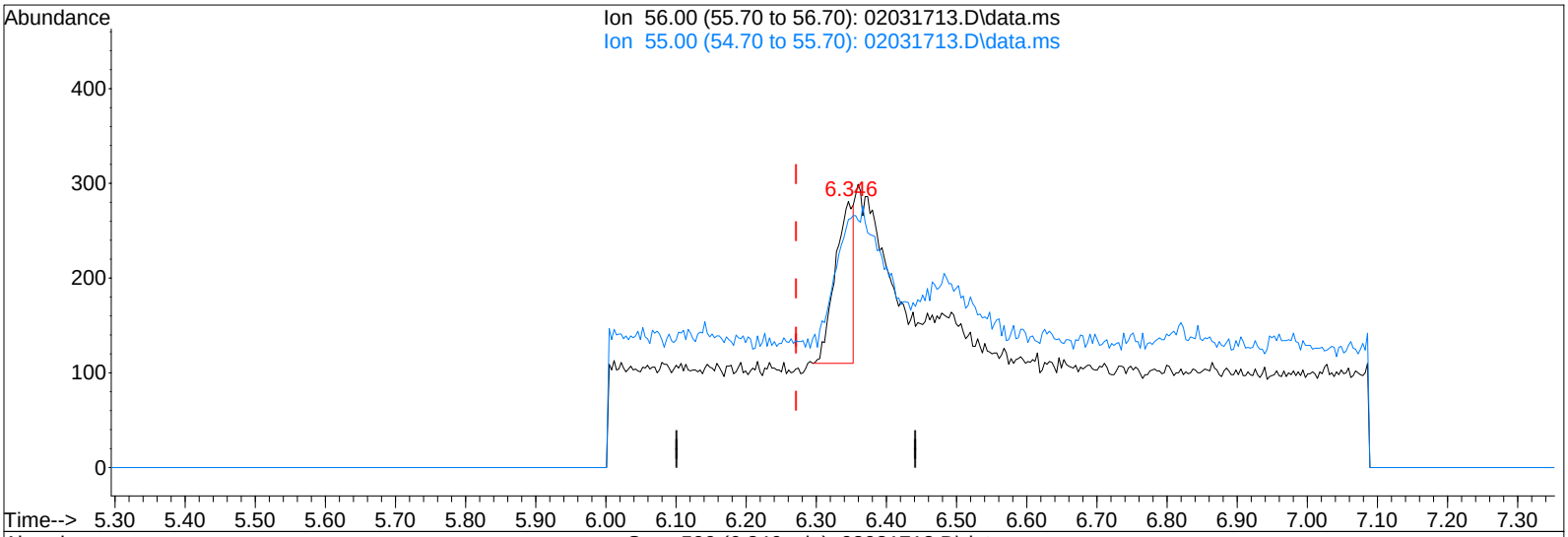
VOA 2/7/17

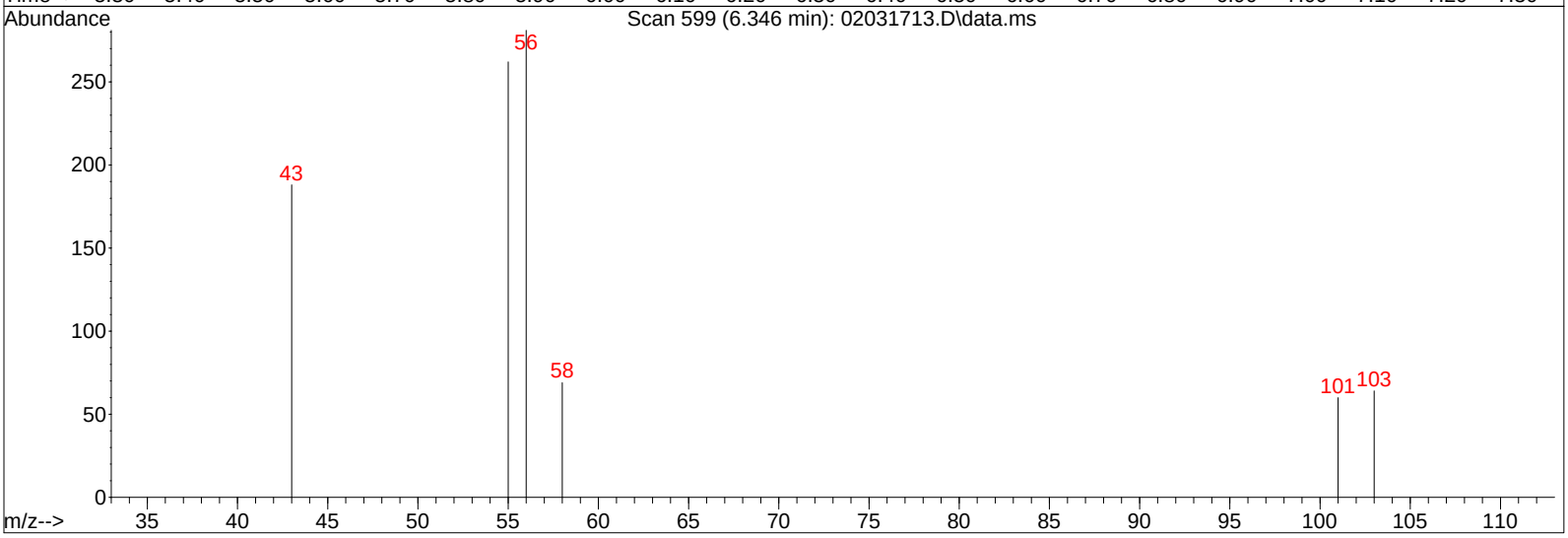
Ion	Exp%	Act%
94.00	100	100
96.00	93.00	78.18
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(9) Acrolein (T)

6.346min (+0.075) 11.66pg

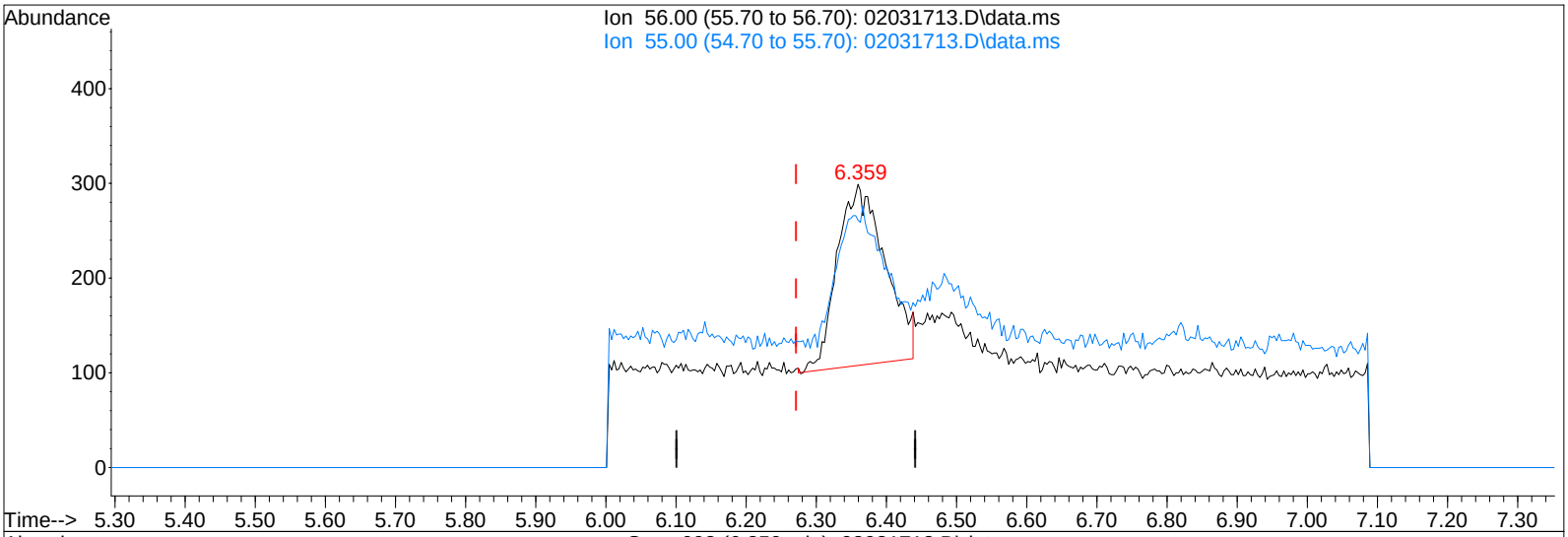
response 309

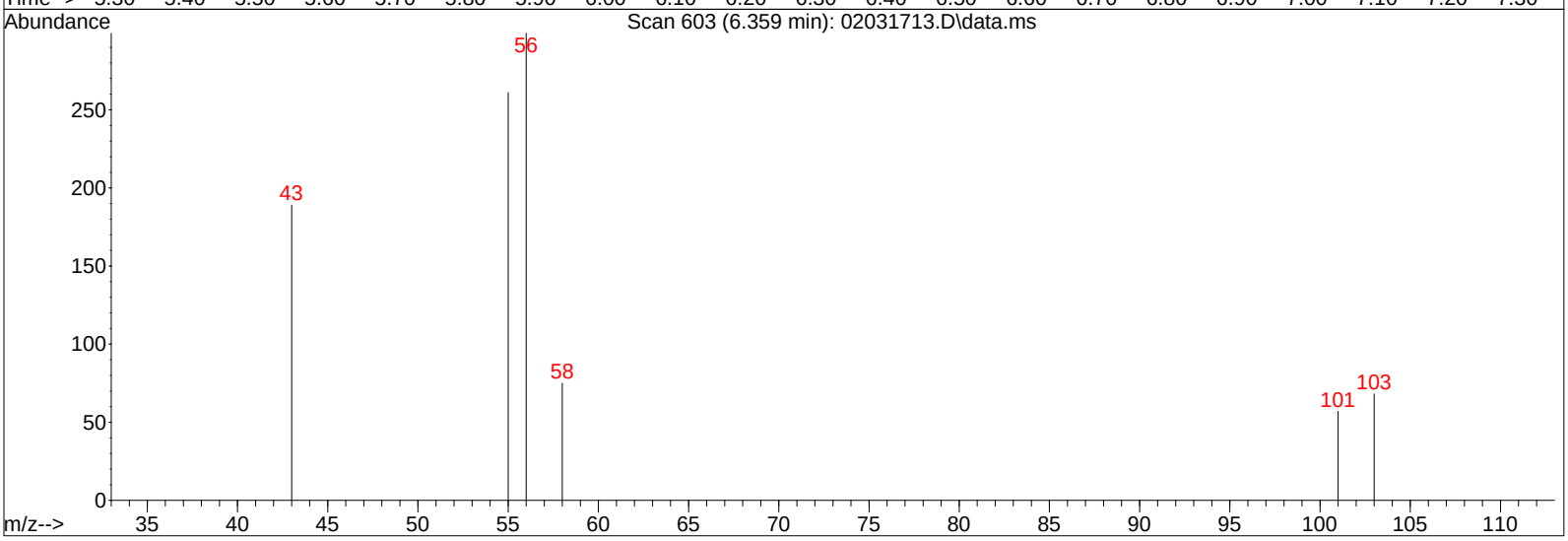
Ion	Exp%	Act%
56.00	100	100
55.00	74.00	108.41#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031713.D Vial: 12
Acq On : 3 Feb 2017 14:51 Operator: CL
Sample : 10pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01171712 (2/15)

Quant Time: Feb 04 07:09:20 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031713.D\data.ms

(9) Acrolein (T)

6.359min (+0.088) 34.19pg m

response 906

Ion	Exp%	Act%
56.00	100	100
55.00	74.00	36.98#
0.00	0.00	0.00
0.00	0.00	0.00

SP

CL 2/4/17

WH 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.79	130	48491	1000.000	pg	0.03
25) 1,4-Difluorobenzene (IS2)	11.72	114	240179	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	42539	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	85268	1121.559	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.16%			
33) Toluene-d8 (SS2)	14.15	98	244738	1013.636	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.36%			
45) Bromofluorobenzene (SS3)	17.55	174	74065	814.743	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.47%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.45	85	2663	23.260	pg	100
3) Chloromethane	4.70	52	737m	28.780	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.84	85	2497	23.102	pg	97
5) Vinyl Chloride	5.02	62	2233	22.101	pg	100
6) 1,3-Butadiene	5.22	54	1059m	17.205	pg	
7) Bromomethane	5.54	94	804	20.072	pg	93
8) Chloroethane	5.75	64	679	21.306	pg	75
9) Acrolein	6.36	56	744m	28.398	pg	
10) Acetone	6.48	58	6522	200.562	pg	92
11) Trichlorofluoromethane	6.65	101	2037	23.119	pg	100
12) 1,1-Dichloroethene	7.39	96	1090	21.095	pg	96
13) Methylene Chloride	7.53	84	1395	26.193	pg	93
14) Trichlorotrifluoroethane	7.82	151	1079	20.336	pg	99
15) trans-1,2-Dichloroethene	8.57	96	1048	20.067	pg	95
16) 1,1-Dichloroethane	8.75	63	1967	21.707	pg	99
17) Methyl tert-Butyl Ether	8.83	73	3631	21.810	pg	98
18) cis-1,2-Dichloroethene	9.63	96	1065	18.930	pg	98
19) Chloroform	9.91	83	3149	32.150	pg	99
21) 1,2-Dichloroethane	10.67	62	1560	21.643	pg	85
22) 1,1,1-Trichloroethane	10.92	97	2009	21.771	pg	98
23) Benzene	11.38	78	7074	33.239	pg	100
24) Carbon Tetrachloride	11.53	117	1760	20.478	pg	99
26) 1,2-Dichloropropane	12.19	63	1076	20.128	pg	97
27) Bromodichloromethane	12.37	83	1630	20.919	pg	99
28) Trichloroethene	12.42	130	1182	19.256	pg	99
29) 1,4-Dioxane	12.42	88	910	19.442	pg	95
30) cis-1,3-Dichloropropene	13.28	75	1618	18.621	pg	94
31) trans-1,3-Dichloropropene	13.80	75	1183	15.743	pg	93
32) 1,1,2-Trichloroethane	13.97	83	877	19.377	pg	96
34) Toluene	14.26	91	5141	22.345	pg	99
35) Dibromochloromethane	14.67	129	1185	17.742	pg	98
36) 1,2-Dibromoethane	14.93	107	1041	17.320	pg	98
37) Tetrachloroethene	15.41	166	1213	18.494	pg	99
39) Chlorobenzene	16.11	112	3080	19.173	pg	100
40) Ethylbenzene	16.49	91	4990	18.567	pg	99
41) m,p-Xylene	16.67	91	7889	37.646	pg	97
42) Styrene	17.03	104	2382	14.836	pg	96
43) o-Xylene	17.13	106	1828	17.547	pg	97
44) 1,1,2,2-Tetrachloroethane	17.10	83	1798	18.068	pg	97
46) 1,3,5-Trimethylbenzene	18.39	105	3713	16.427	pg	100
47) 1,2,4-Trimethylbenzene	18.78	105	3713	16.317	pg	99
48) 1,3-Dichlorobenzene	18.93	146	1801	14.411	pg	100
49) 1,4-Dichlorobenzene	18.99	146	2226	16.878	pg	97
50) 1,2-Dichlorobenzene	19.32	146	1949	15.462	pg	97
51) 1,2-Dibromo-3-chloropr...	19.74	157	456	10.054	pg	82
52) 1,2,4-Trichlorobenzene	20.99	182	1171	13.085	pg	97
53) Naphthalene	21.13	128	3419	11.941	pg	82

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

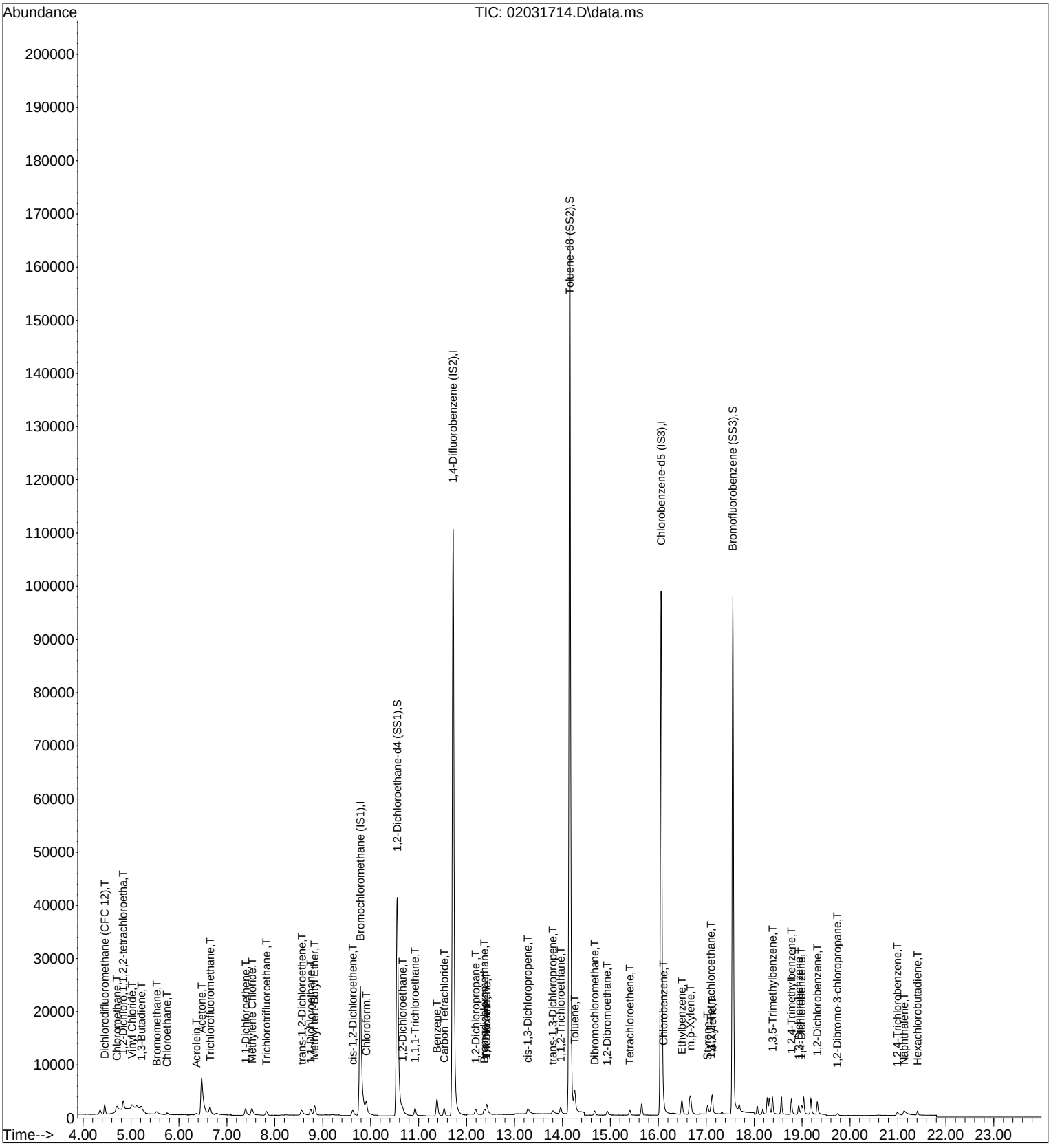
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.41	225	740	12.690	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

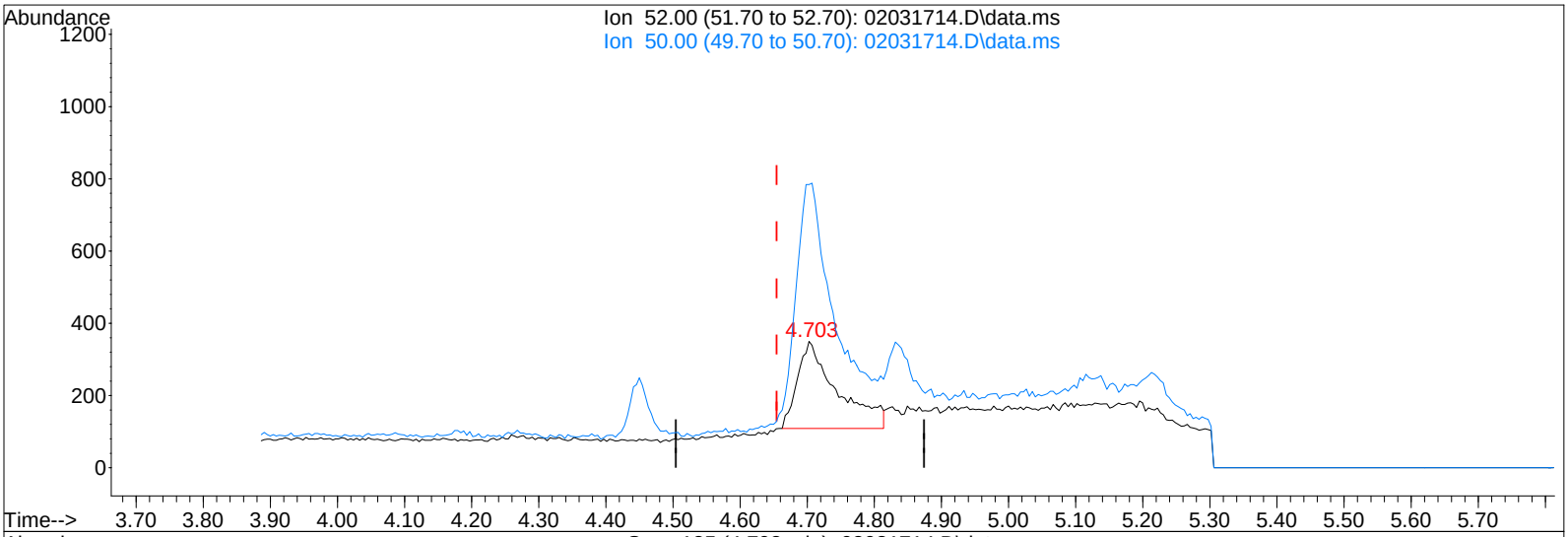
Quant Time: Feb 04 07:13:35 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

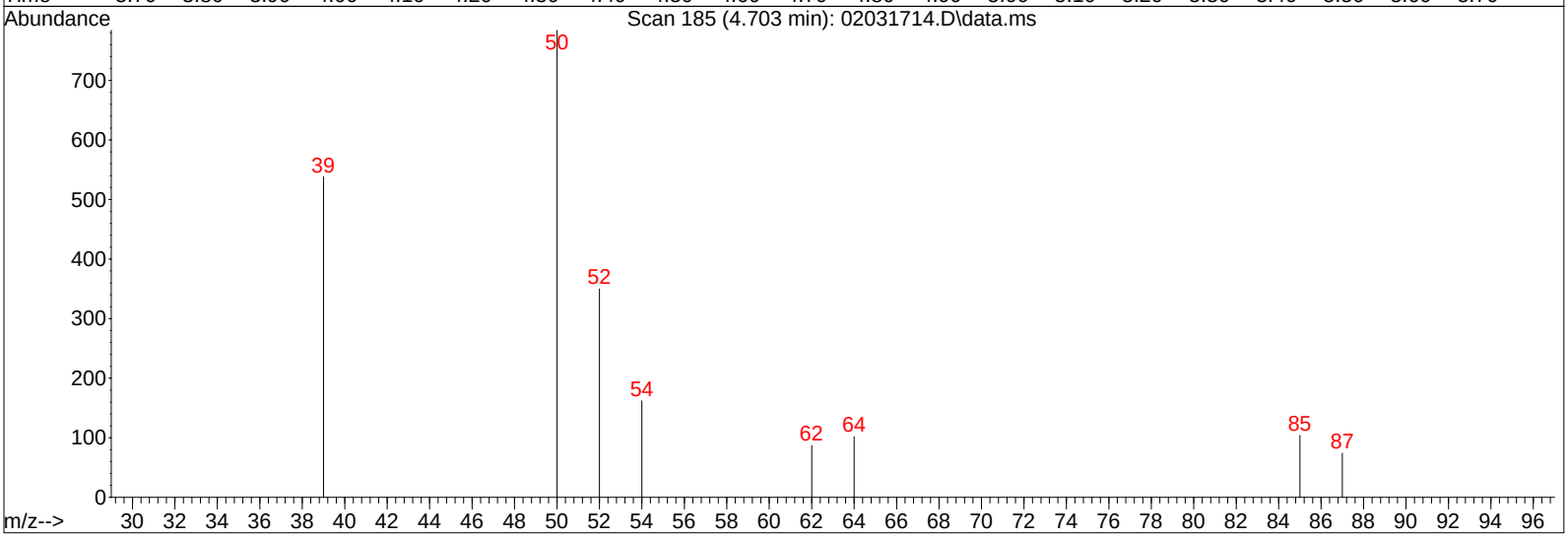


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(3) Chloromethane (T)

4.703min (+0.048) 38.66pg

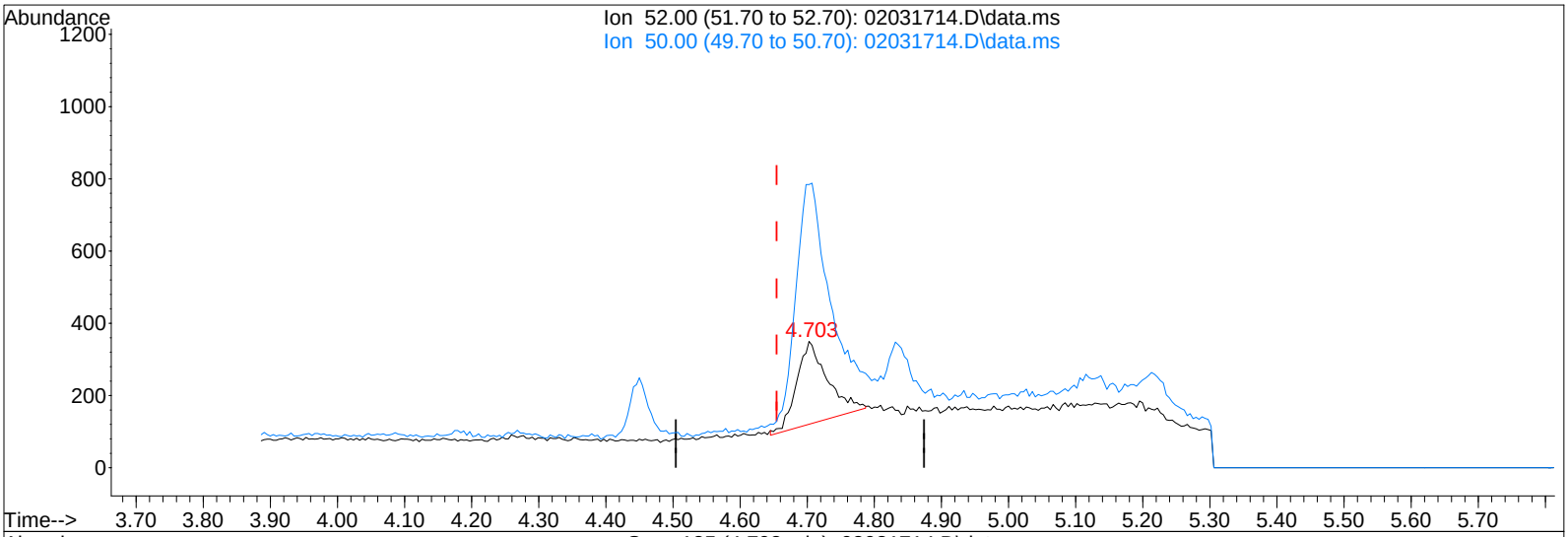
response 990

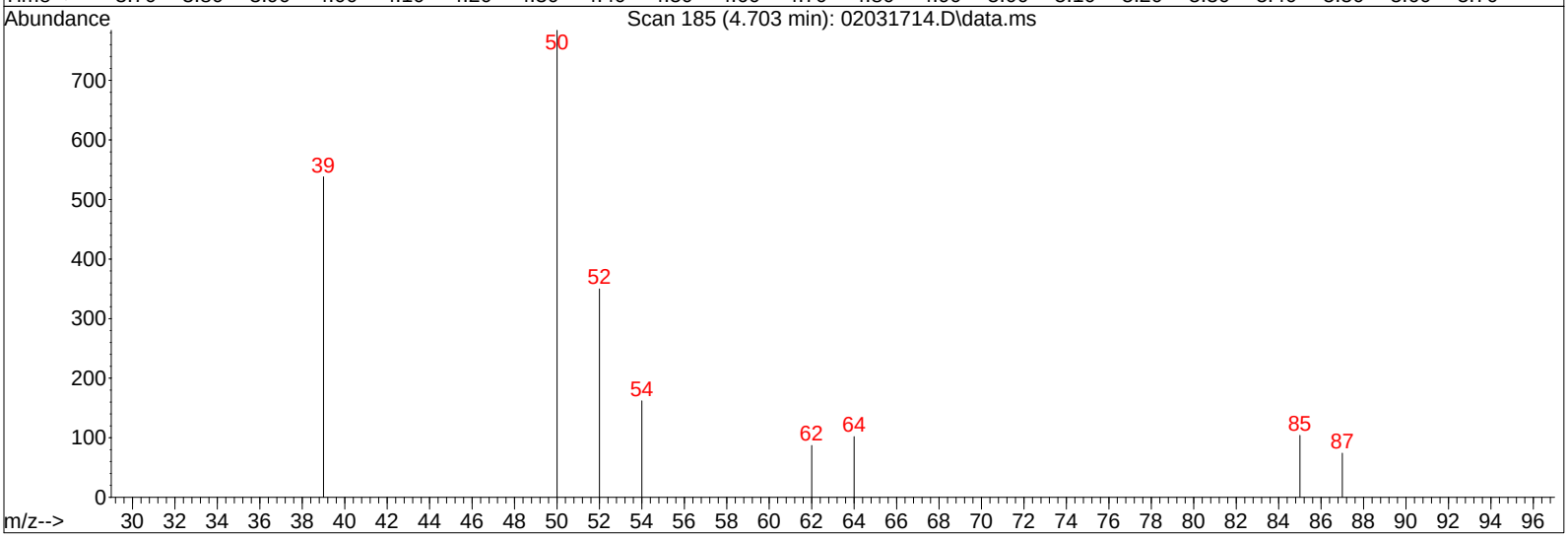
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	284.85
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(3) Chloromethane (T)

4.703min (+0.048) 28.78pg m

response 737

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	382.63#
0.00	0.00	0.00
0.00	0.00	0.00

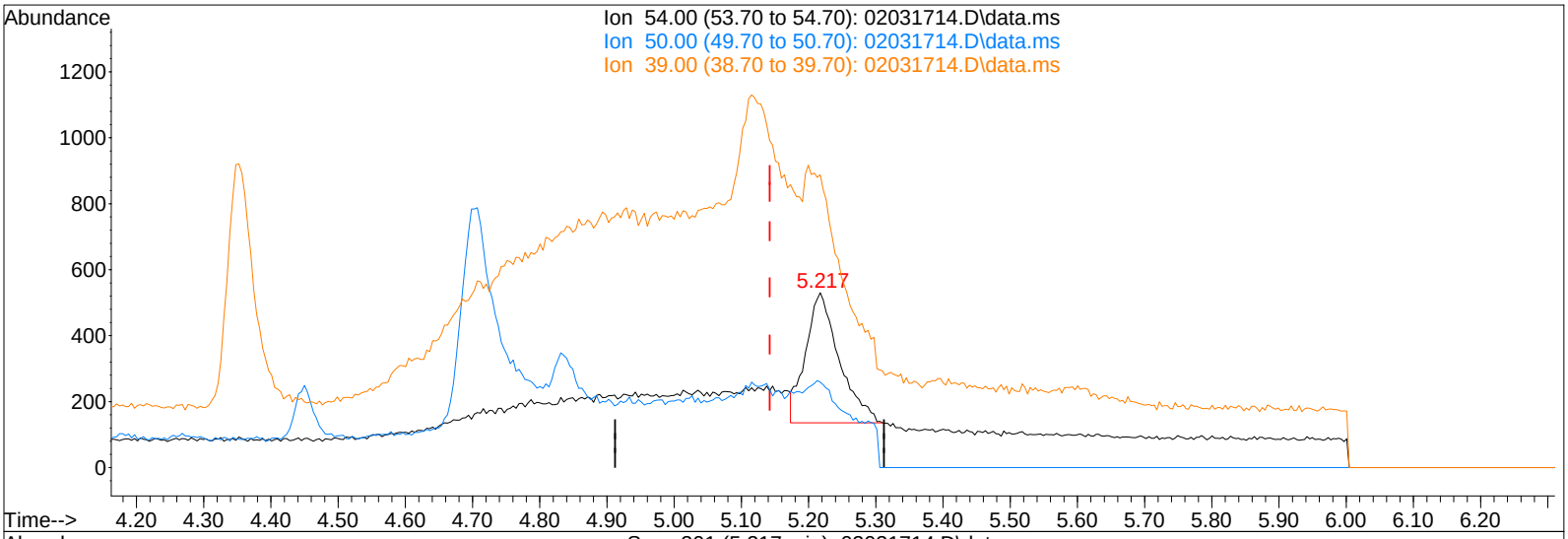
BLC

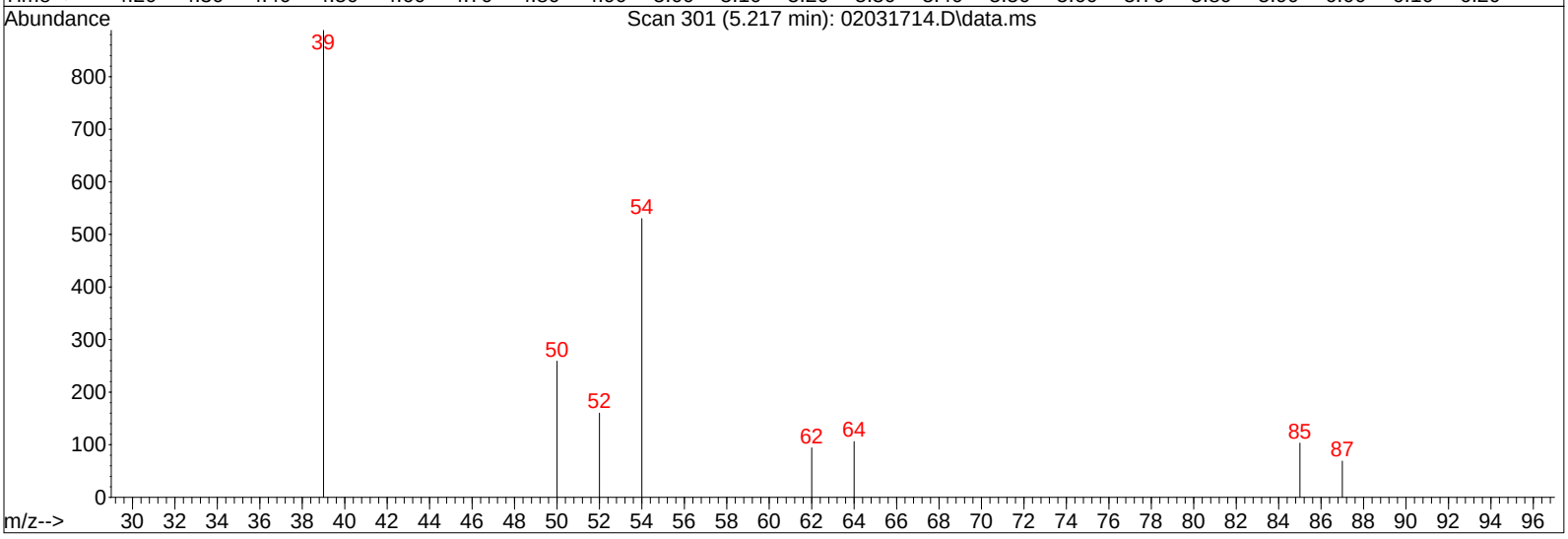
CL 2/4/17 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(6) 1,3-Butadiene (T)

5.217min (+0.075) 22.11pg

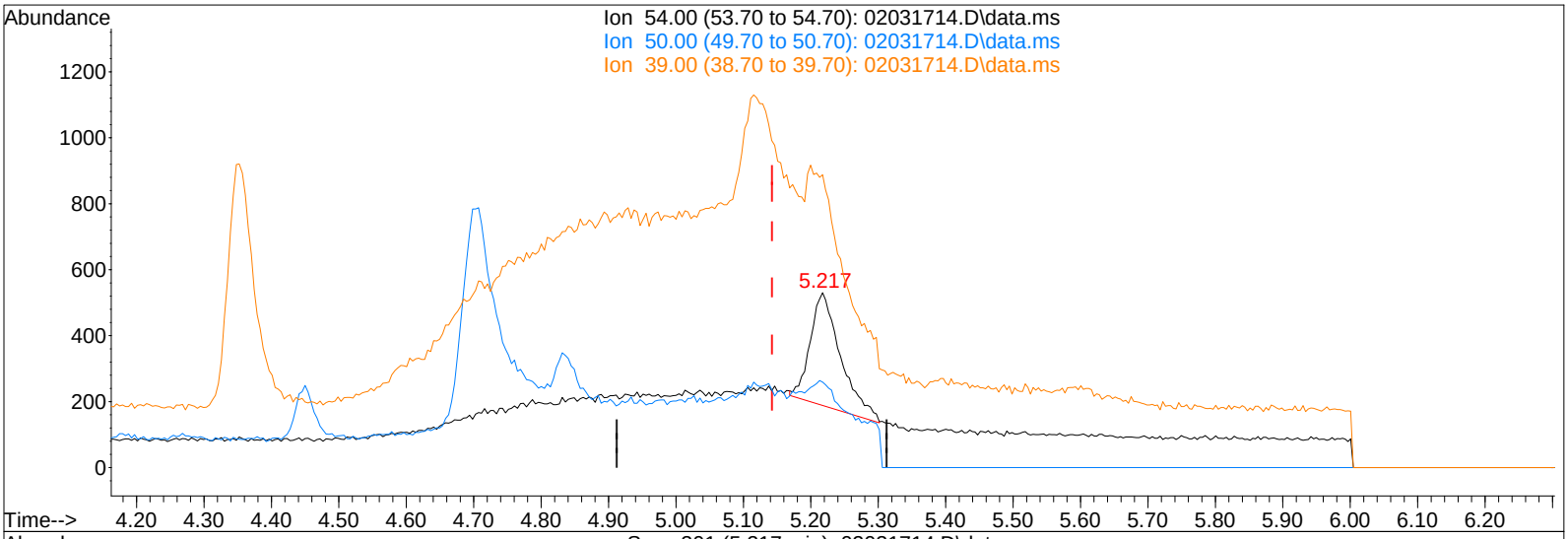
response 1361

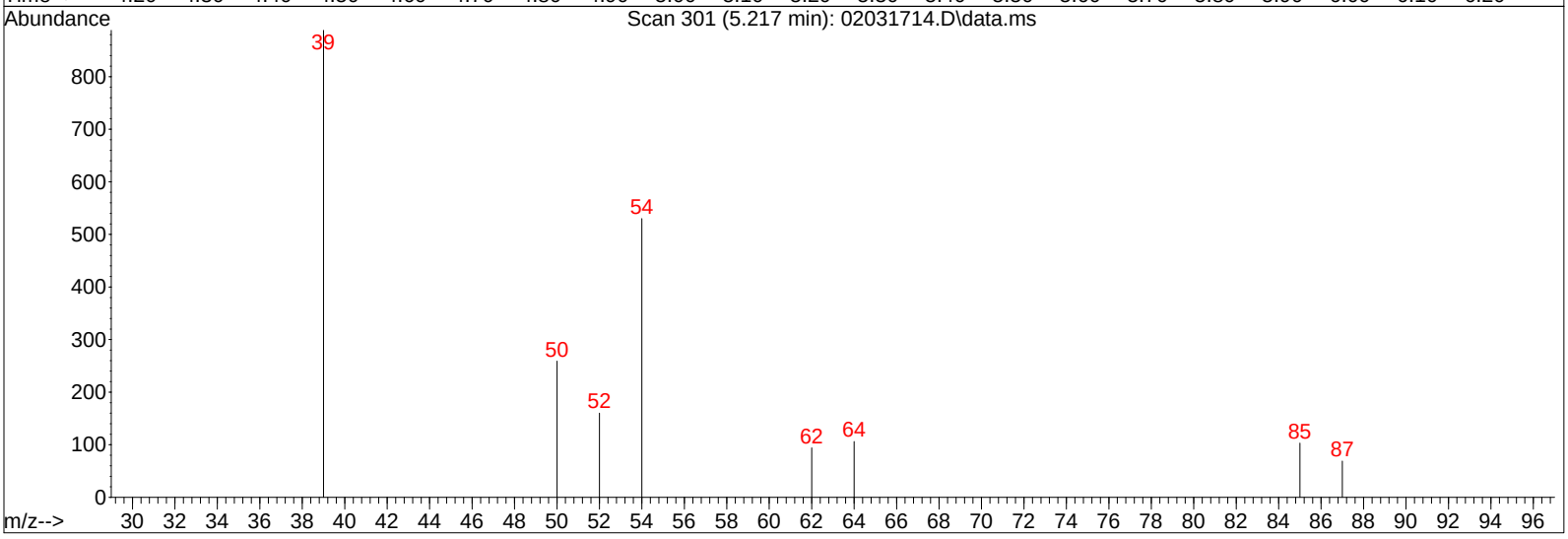
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	118.66#
39.00	111.40	160.40#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(6) 1,3-Butadiene (T)

5.217min (+0.075) 17.20pg m

response 1059

BLC

Ion	Exp%	Act%
54.00	100	100
50.00	33.50	0.00#
39.00	111.40	0.00#
0.00	0.00	0.00

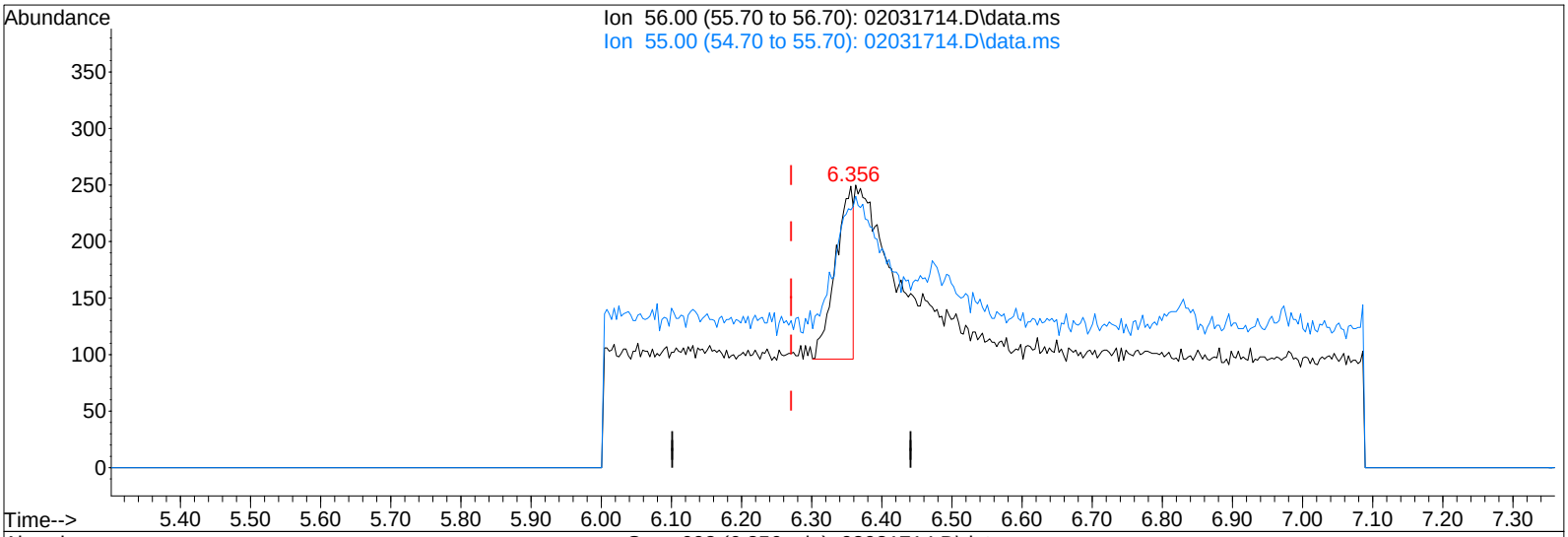
CL 2/4/17

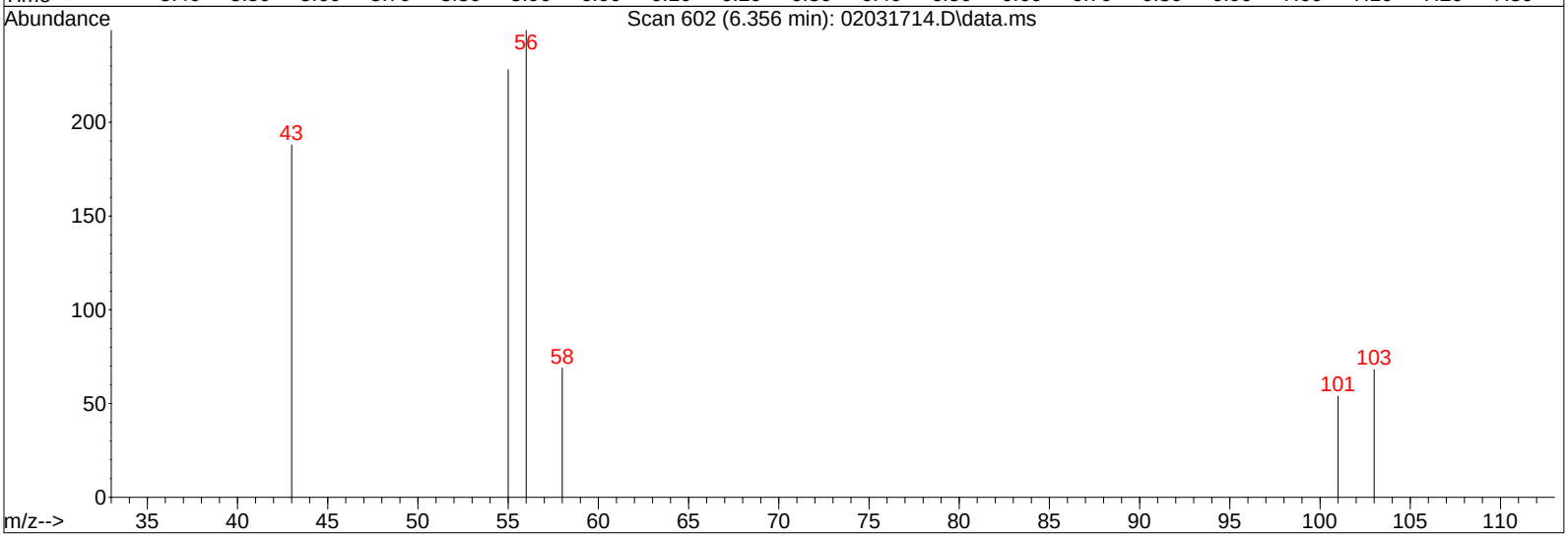
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(9) Acrolein (T)

6.356min (+0.085) 10.34pg

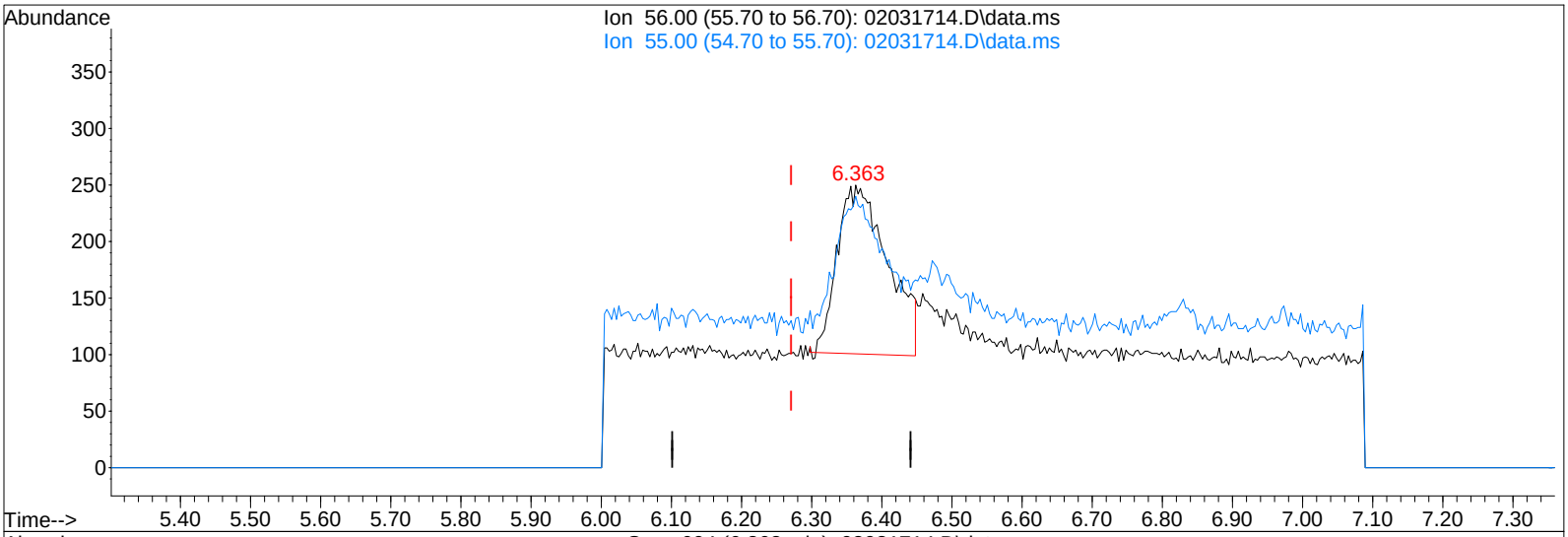
response 271

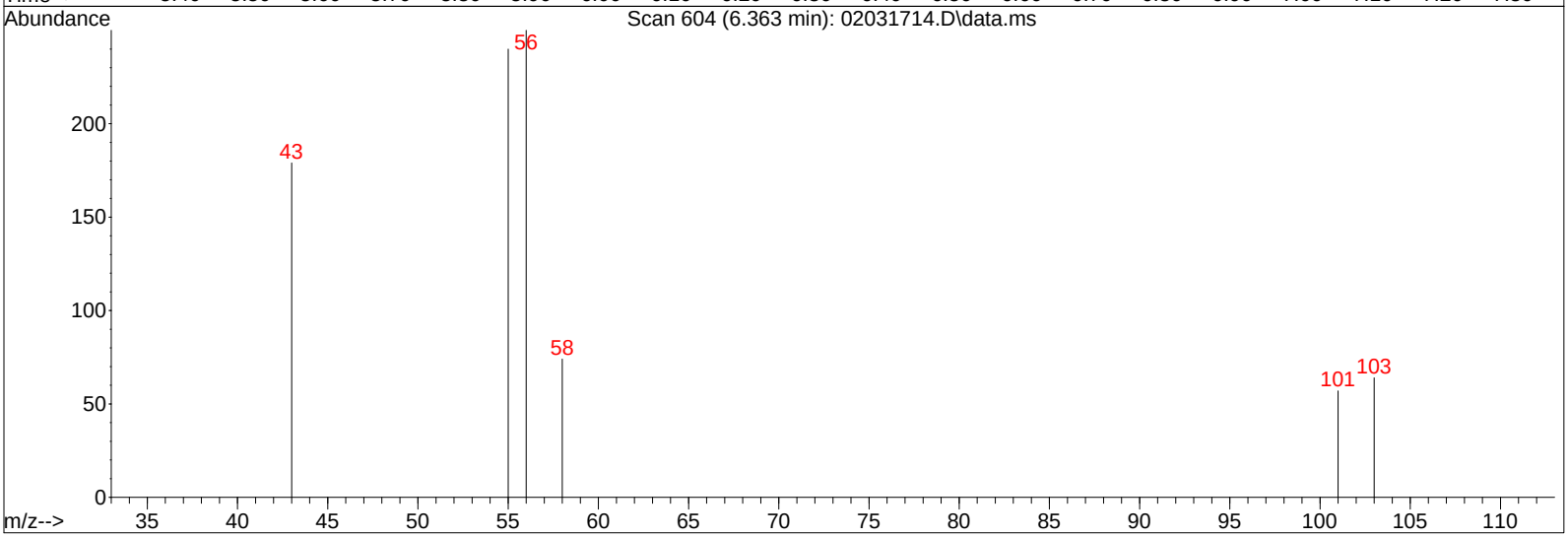
Ion	Exp%	Act%
56.00	100	100
55.00	74.00	26.57#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031714.D Vial: 13
Acq On : 3 Feb 2017 15:22 Operator: CL
Sample : 20pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:21 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031714.D\data.ms

(9) Acrolein (T)

6.363min (+0.092) 28.40pg m

response 744

Ion	Exp%	Act%
56.00	100	100
55.00	74.00	9.68#
0.00	0.00	0.00
0.00	0.00	0.00

SP

CL 2/4/17

2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	46447	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	230528	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.06	54	41150	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	82290	1130.022	pg		0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.00%				
33) Toluene-d8 (SS2)	14.15	98	235665	1016.920	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.69%				
45) Bromofluorobenzene (SS3)	17.56	174	72508	824.538	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.45	85	6551	59.738	pg		99
3) Chloromethane	4.69	52	1429m	58.259	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.83	85	5890	56.893	pg		100
5) Vinyl Chloride	5.00	62	5489	56.719	pg		99
6) 1,3-Butadiene	5.20	54	3862m	65.504	pg		
7) Bromomethane	5.52	94	1941	50.589	pg		100
8) Chloroethane	5.74	64	1674	54.840	pg		96
9) Acrolein	6.35	56	1592	63.439	pg	#	60
10) Acetone	6.46	58	15358	493.068	pg	#	82
11) Trichlorofluoromethane	6.64	101	4937	58.499	pg		100
12) 1,1-Dichloroethene	7.38	96	2598	52.492	pg		97
13) Methylene Chloride	7.51	84	3067	60.121	pg		97
14) Trichlorotrifluoroethane	7.82	151	2649	52.123	pg		100
15) trans-1,2-Dichloroethene	8.55	96	2725	54.475	pg		100
16) 1,1-Dichloroethane	8.74	63	4750	54.726	pg		99
17) Methyl tert-Butyl Ether	8.82	73	8974	56.276	pg		100
18) cis-1,2-Dichloroethene	9.62	96	2929	54.352	pg		99
19) Chloroform	9.90	83	6291	67.055	pg		98
21) 1,2-Dichloroethane	10.66	62	3941	57.083	pg		98
22) 1,1,1-Trichloroethane	10.93	97	4955	56.059	pg		100
23) Benzene	11.38	78	12832	62.949	pg		99
24) Carbon Tetrachloride	11.53	117	4337	52.683	pg		99
26) 1,2-Dichloropropane	12.19	63	2690	52.426	pg		99
27) Bromodichloromethane	12.37	83	3869	51.732	pg		99
28) Trichloroethene	12.42	130	2898	49.189	pg		97
29) 1,4-Dioxane	12.40	88	2232	49.684	pg		98
30) cis-1,3-Dichloropropene	13.27	75	4166	49.952	pg		99
31) trans-1,3-Dichloropropene	13.79	75	3242	44.951	pg		94
32) 1,1,2-Trichloroethane	13.96	83	2248	51.747	pg		99
34) Toluene	14.25	91	12020	54.430	pg		99
35) Dibromochloromethane	14.67	129	2963	46.219	pg		99
36) 1,2-Dibromoethane	14.93	107	2734	47.392	pg		99
37) Tetrachloroethene	15.41	166	2957	46.971	pg		100
39) Chlorobenzene	16.11	112	7614	48.998	pg		100
40) Ethylbenzene	16.49	91	12521	48.161	pg		100
41) m,p-Xylene	16.66	91	19753	97.442	pg		98
42) Styrene	17.02	104	6333	40.776	pg		100
43) o-Xylene	17.13	106	4613	45.775	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	4489	46.633	pg		98
46) 1,3,5-Trimethylbenzene	18.38	105	9696	44.344	pg		99
47) 1,2,4-Trimethylbenzene	18.77	105	9594	43.585	pg		99
48) 1,3-Dichlorobenzene	18.93	146	5288	43.742	pg		100
49) 1,4-Dichlorobenzene	18.99	146	5499	43.102	pg		98
50) 1,2-Dichlorobenzene	19.31	146	5312	43.565	pg		99
51) 1,2-Dibromo-3-chloropr...	19.73	157	1447	32.981	pg		96
52) 1,2,4-Trichlorobenzene	20.96	182	3204	37.012	pg		98
53) Naphthalene	21.09	128	11072	39.974	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

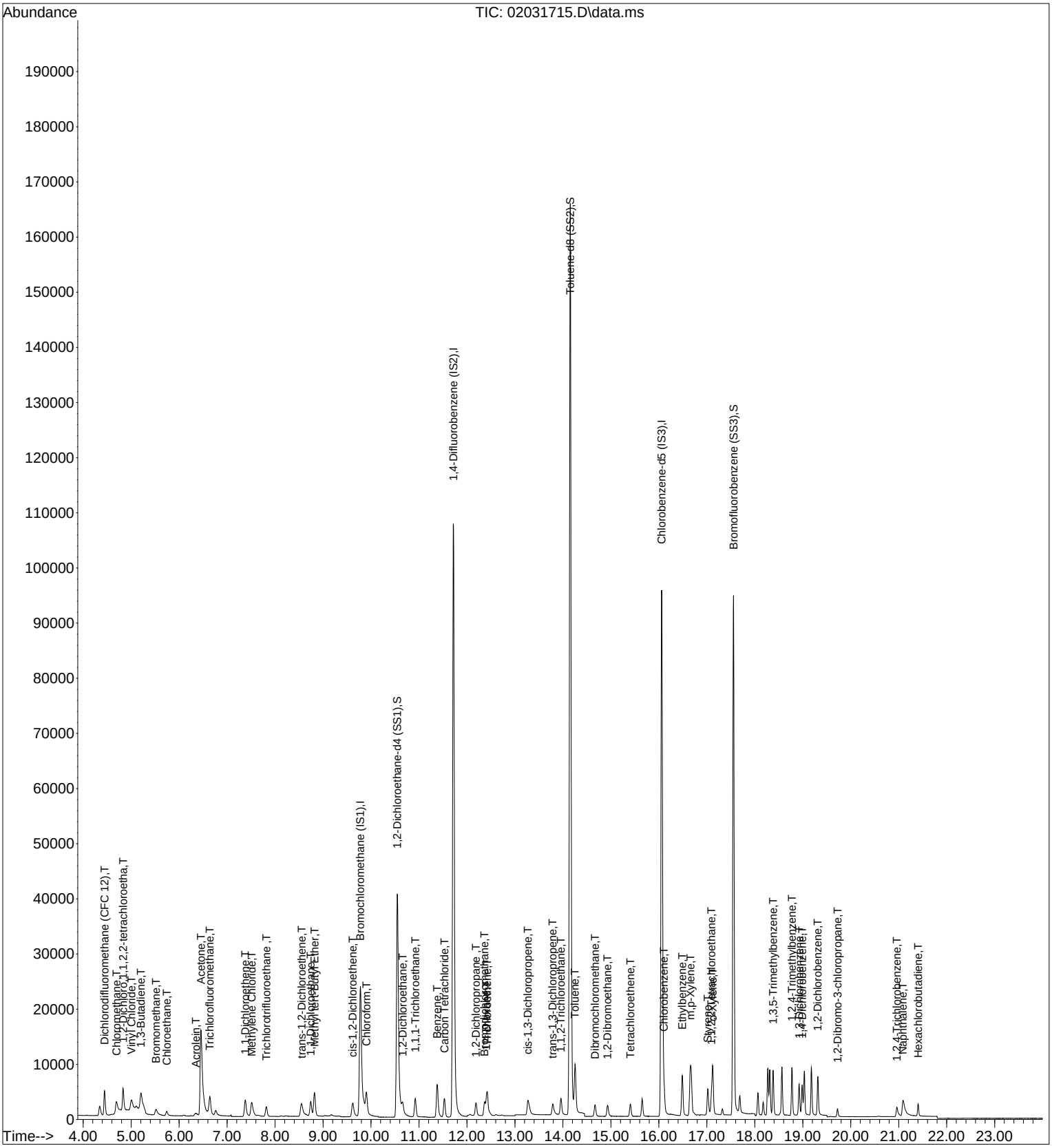
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	2190	38.824	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

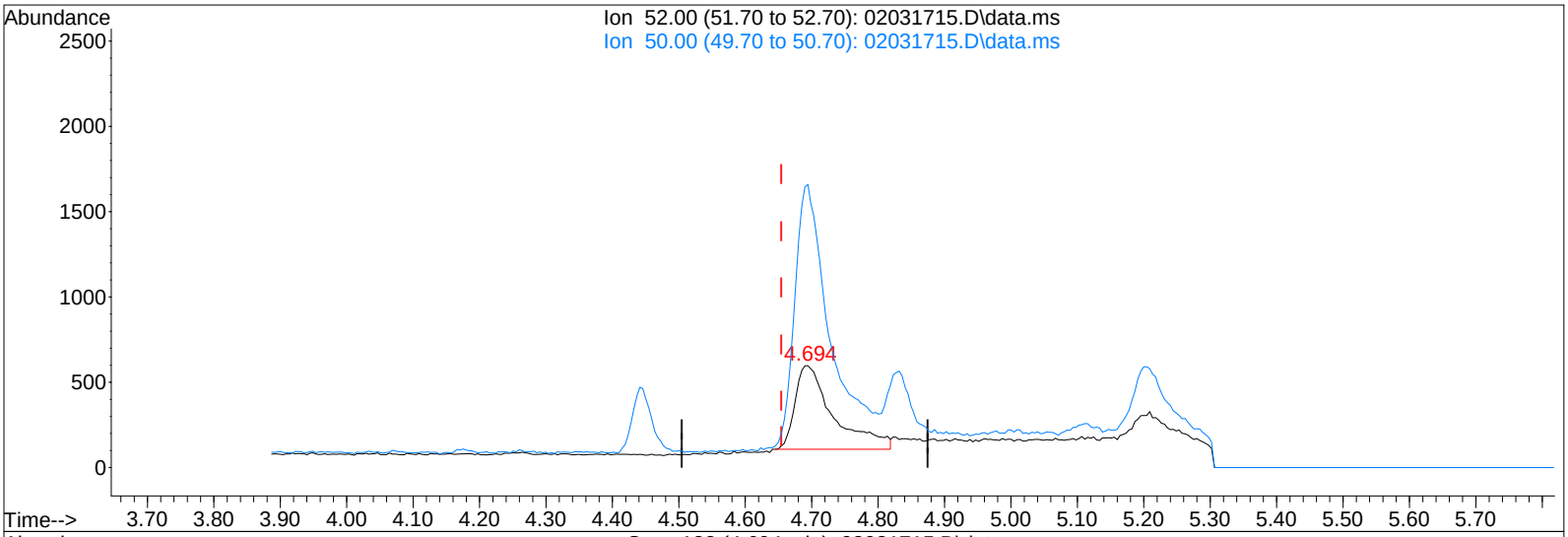
Quant Time: Feb 04 07:15:32 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

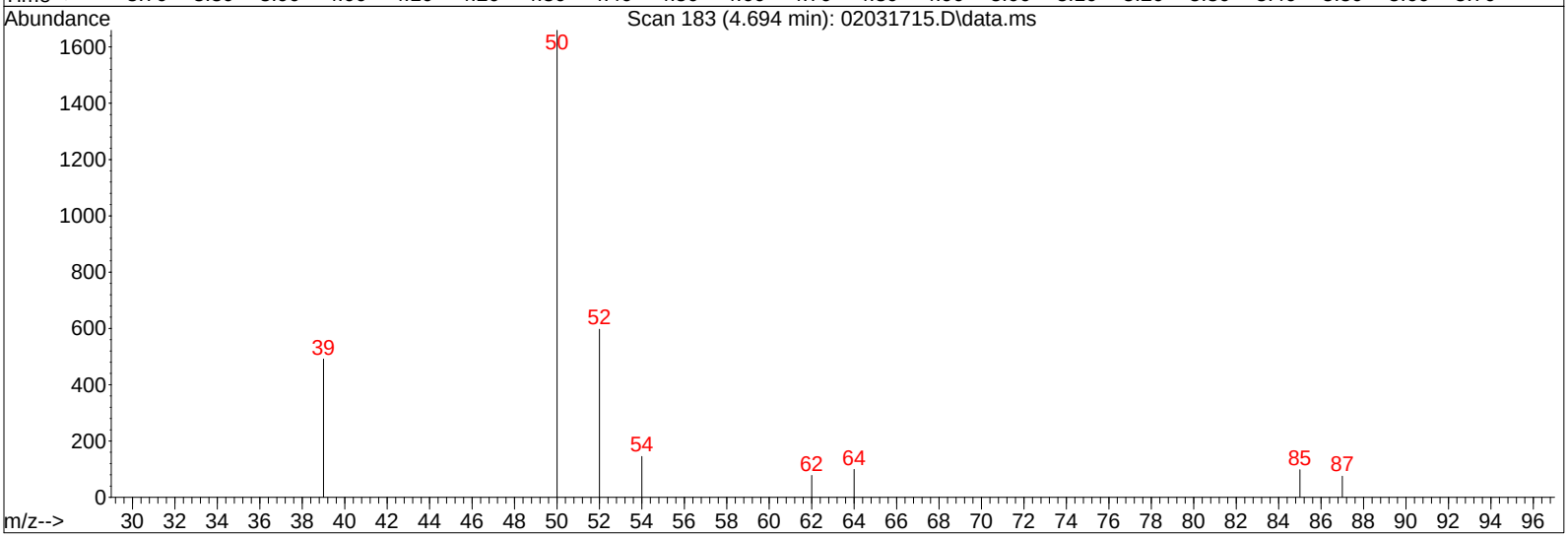


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 80.32pg

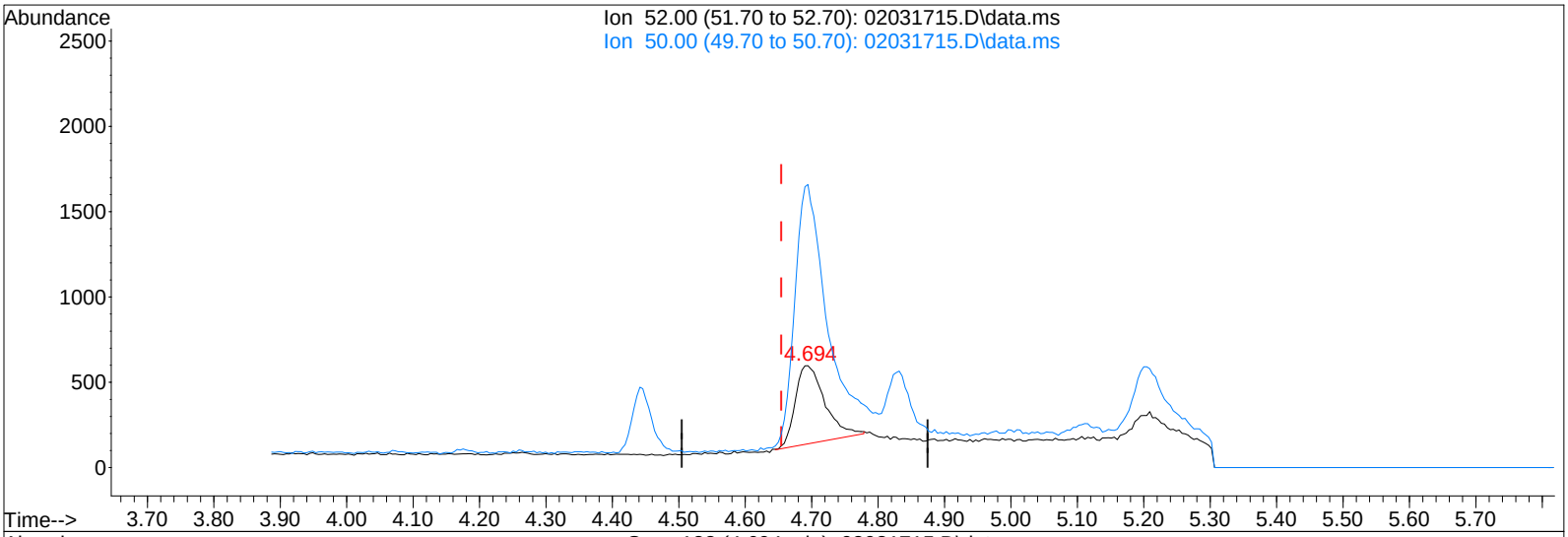
response 1970

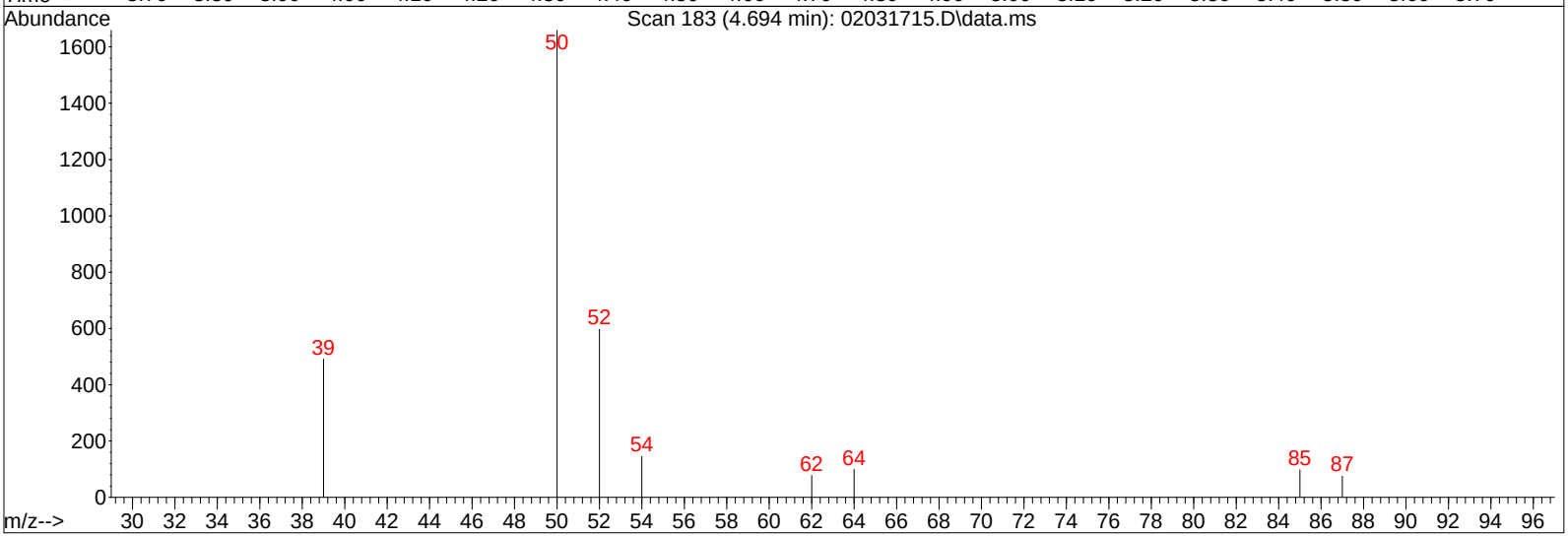
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	295.48
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(3) Chloromethane (T)

4.694min (+0.040) 58.26pg m

response 1429

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	407.35#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

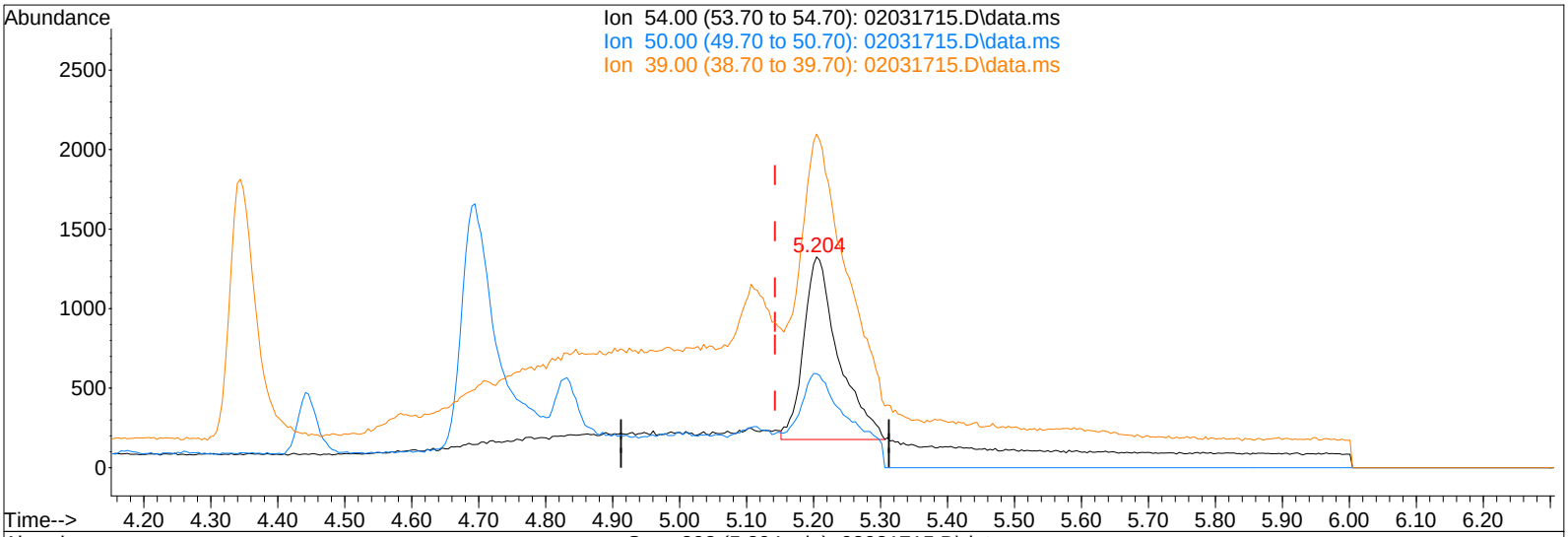
CL 2/4/17

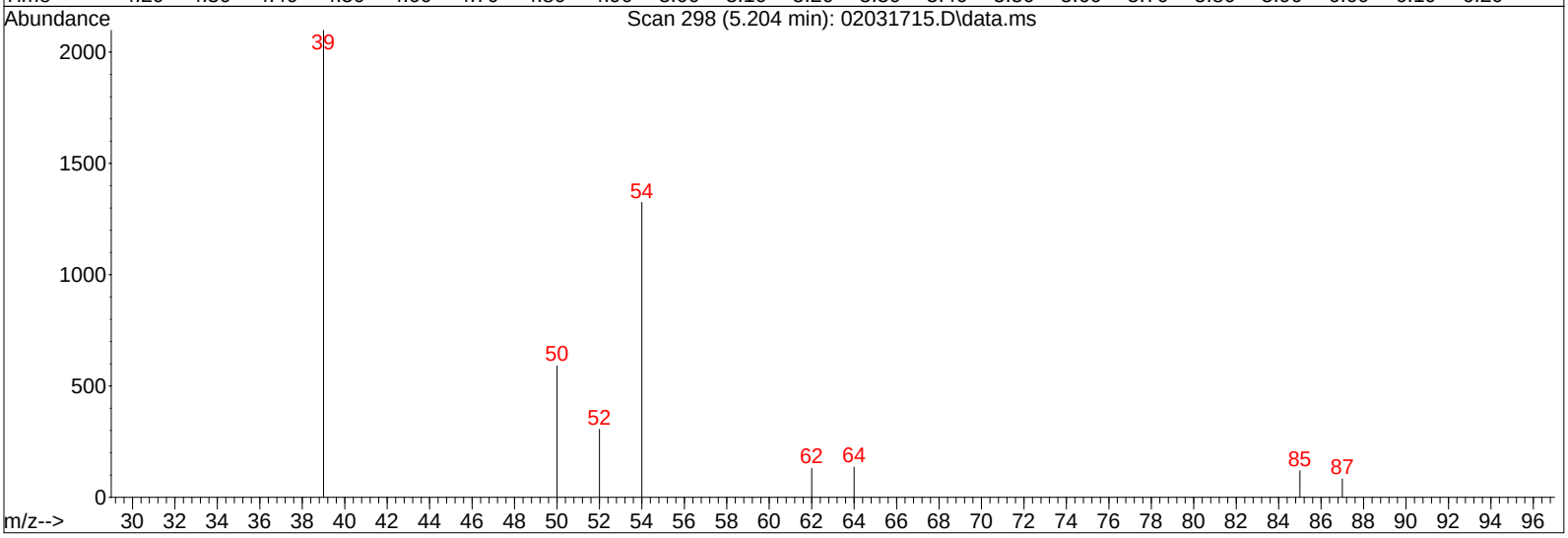
VOA 2/7/17

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(6) 1,3-Butadiene (T)

5.204min (+0.062) 70.42pg

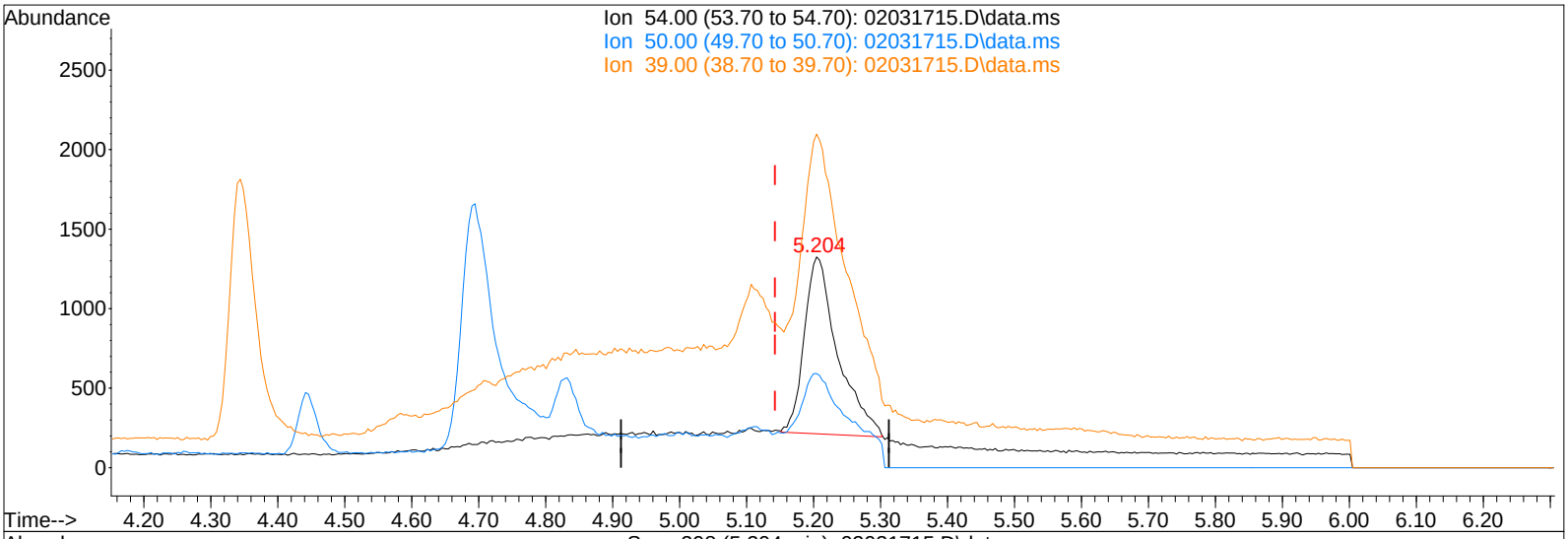
response 4152

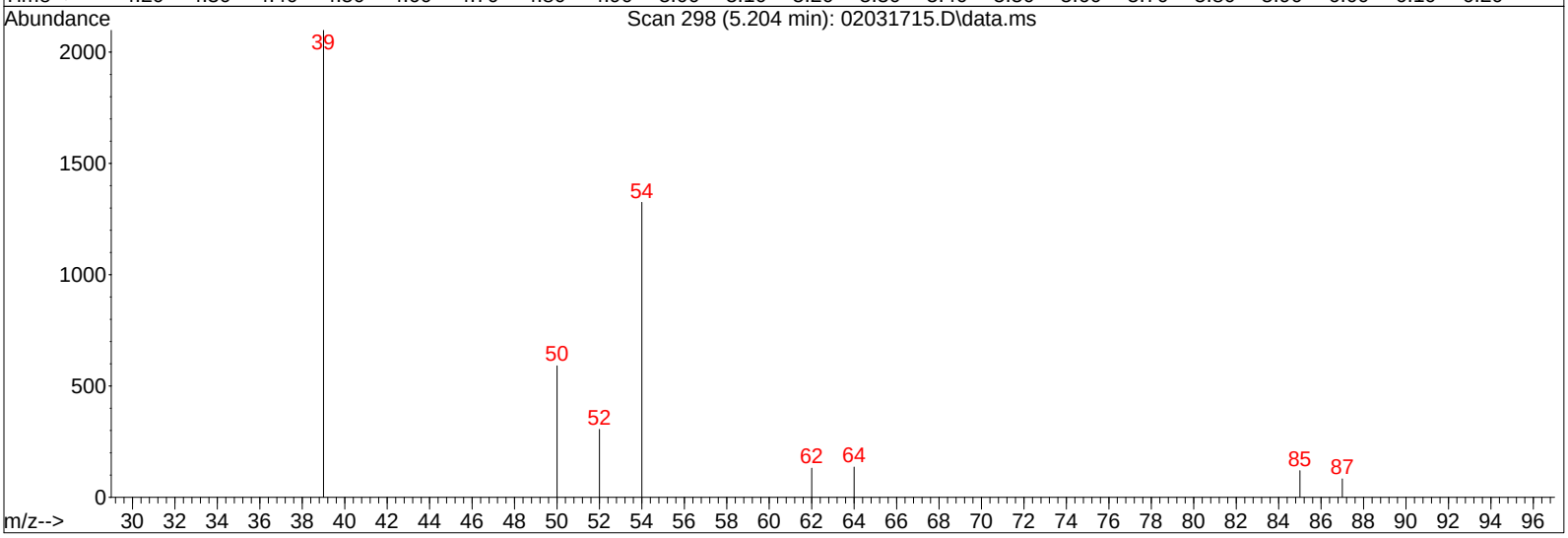
Ion	Exp%	Act%
54.00	100	100
50.00	33.50	74.83#
39.00	111.40	188.49#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031715.D Vial: 13
Acq On : 3 Feb 2017 15:54 Operator: CL
Sample : 50pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:22 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031715.D\data.ms

(6) 1,3-Butadiene (T)

5.204min (+0.062) 65.50pg m

response 3862

BLC

Ion	Exp%	Act%
54.00	100	100
50.00	33.50	80.45#
39.00	111.40	202.64#
0.00	0.00	0.00

CL 2/4/17 WH 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration CL 2/4/17
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	50327	1000.000	pg		0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	249940	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	45065	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	89496	1134.227	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 113.42%				
33) Toluene-d8 (SS2)	14.15	98	256212	1019.716	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.97%				
45) Bromofluorobenzene (SS3)	17.56	174	78831	818.563	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 81.86%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	13256	111.561	pg		100
3) Chloromethane	4.68	52	2711m	102.004	pg		
4) 1,2-Dichloro,1,1,2,2-t...	4.82	85	11724	104.514	pg		99
5) Vinyl Chloride	4.99	62	11097	105.827	pg		97
6) 1,3-Butadiene	5.18	54	7593	118.858	pg	#	63
7) Bromomethane	5.50	94	4171	100.330	pg		98
8) Chloroethane	5.72	64	3433	103.793	pg		98
9) Acrolein	6.33	56	2946	108.344	pg		87
10) Acetone	6.43	58	29026	860.034	pg	#	86
11) Trichlorofluoromethane	6.63	101	9878	108.022	pg		99
12) 1,1-Dichloroethene	7.37	96	5524	103.006	pg		98
13) Methylene Chloride	7.50	84	6007	108.674	pg		97
14) Trichlorotrifluoroethane	7.81	151	5160	93.704	pg		100
15) trans-1,2-Dichloroethene	8.54	96	4943	91.197	pg		87
16) 1,1-Dichloroethane	8.73	63	9611	102.193	pg		99
17) Methyl tert-Butyl Ether	8.81	73	18180	105.217	pg		100
18) cis-1,2-Dichloroethene	9.61	96	5948	101.865	pg		99
19) Chloroform	9.90	83	11664	114.740	pg		99
21) 1,2-Dichloroethane	10.65	62	8050	107.610	pg		100
22) 1,1,1-Trichloroethane	10.92	97	9962	104.017	pg		99
23) Benzene	11.38	78	24264	109.853	pg		100
24) Carbon Tetrachloride	11.53	117	8653	97.007	pg		99
26) 1,2-Dichloropropane	12.18	63	5472	98.361	pg		99
27) Bromodichloromethane	12.36	83	7955	98.104	pg		100
28) Trichloroethene	12.42	130	6020	94.244	pg		100
29) 1,4-Dioxane	12.40	88	4760	97.727	pg		97
30) cis-1,3-Dichloropropene	13.26	75	8631	95.452	pg		100
31) trans-1,3-Dichloropropene	13.78	75	7170	91.693	pg		96
32) 1,1,2-Trichloroethane	13.95	83	4595	97.559	pg		100
34) Toluene	14.25	91	23657	98.806	pg		99
35) Dibromochloromethane	14.67	129	6126	88.136	pg		100
36) 1,2-Dibromoethane	14.93	107	5723	91.499	pg		98
37) Tetrachloroethene	15.40	166	6061	88.799	pg		100
39) Chlorobenzene	16.11	112	15109	88.783	pg		99
40) Ethylbenzene	16.48	91	25666	90.145	pg		100
41) m,p-Xylene	16.66	91	39301	177.030	pg		100
42) Styrene	17.02	104	13667	80.353	pg		99
43) o-Xylene	17.12	106	9575	86.759	pg		100
44) 1,1,2,2-Tetrachloroethane	17.10	83	9228	87.535	pg		99
46) 1,3,5-Trimethylbenzene	18.38	105	20344	84.959	pg		100
47) 1,2,4-Trimethylbenzene	18.77	105	20552	85.255	pg		100
48) 1,3-Dichlorobenzene	18.92	146	11187	84.499	pg		100
49) 1,4-Dichlorobenzene	18.98	146	11892	85.113	pg		99
50) 1,2-Dichlorobenzene	19.31	146	11024	82.557	pg		99
51) 1,2-Dibromo-3-chloropr...	19.72	157	3160	65.769	pg		99
52) 1,2,4-Trichlorobenzene	20.95	182	6892	72.699	pg		100
53) Naphthalene	21.07	128	24857	81.947	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

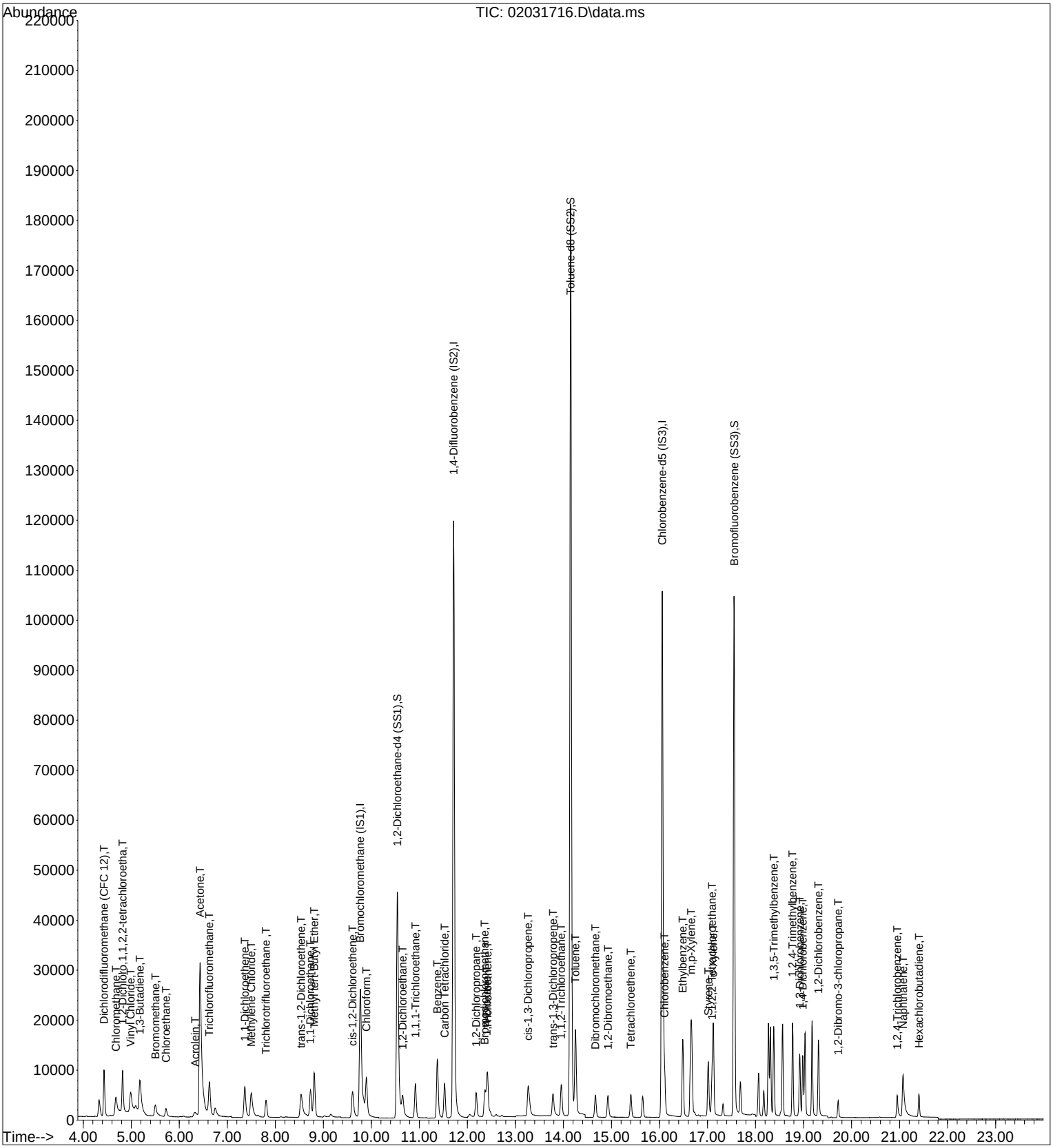
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	4534	73.395	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

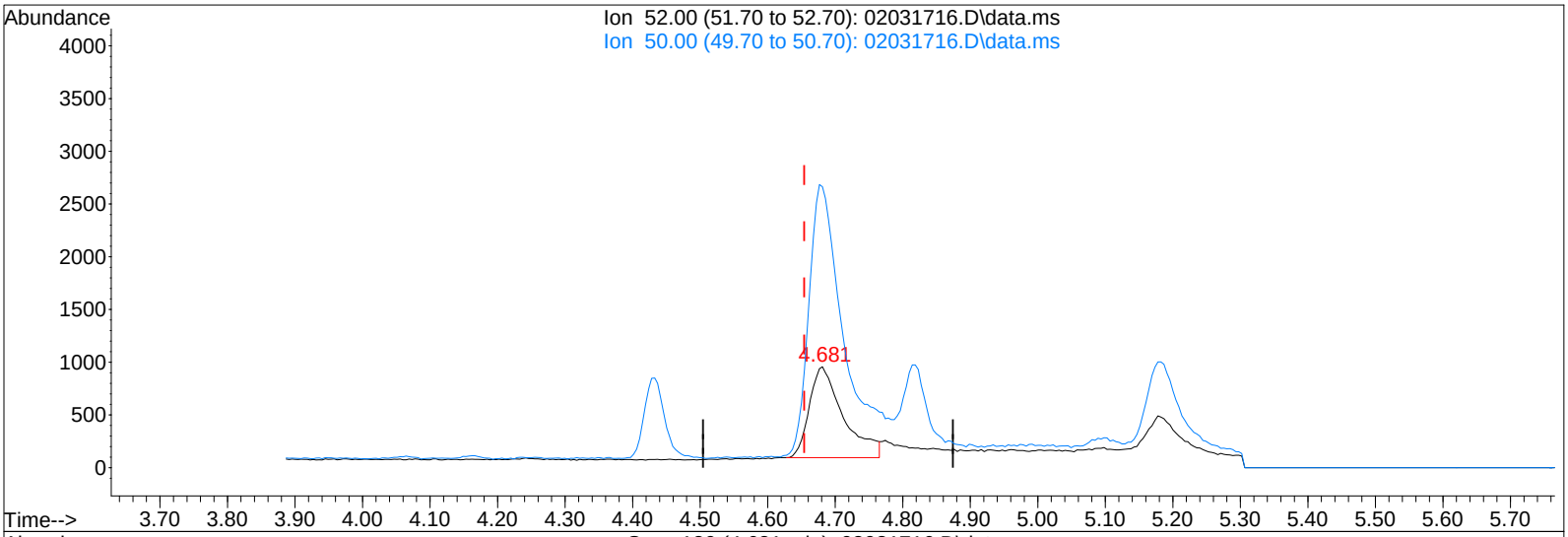
Quant Time: Feb 04 07:16:44 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

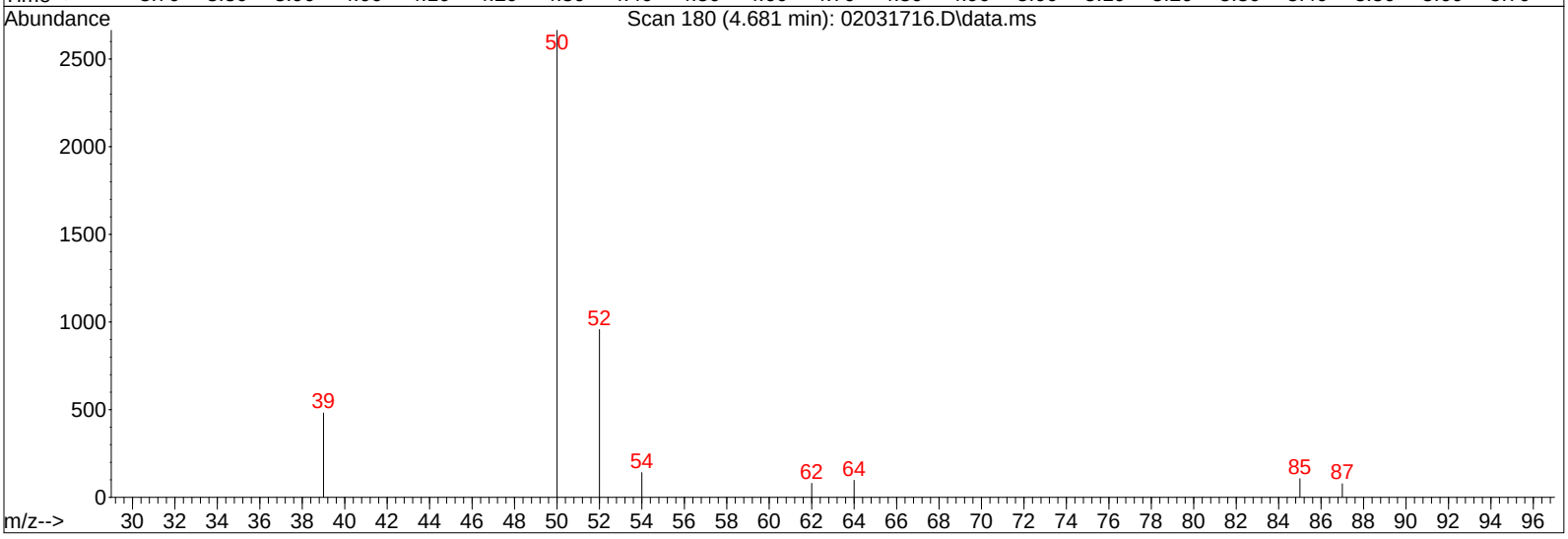


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031716.D\data.ms

(3) Chloromethane (T)

4.681min (+0.027) 113.29pg

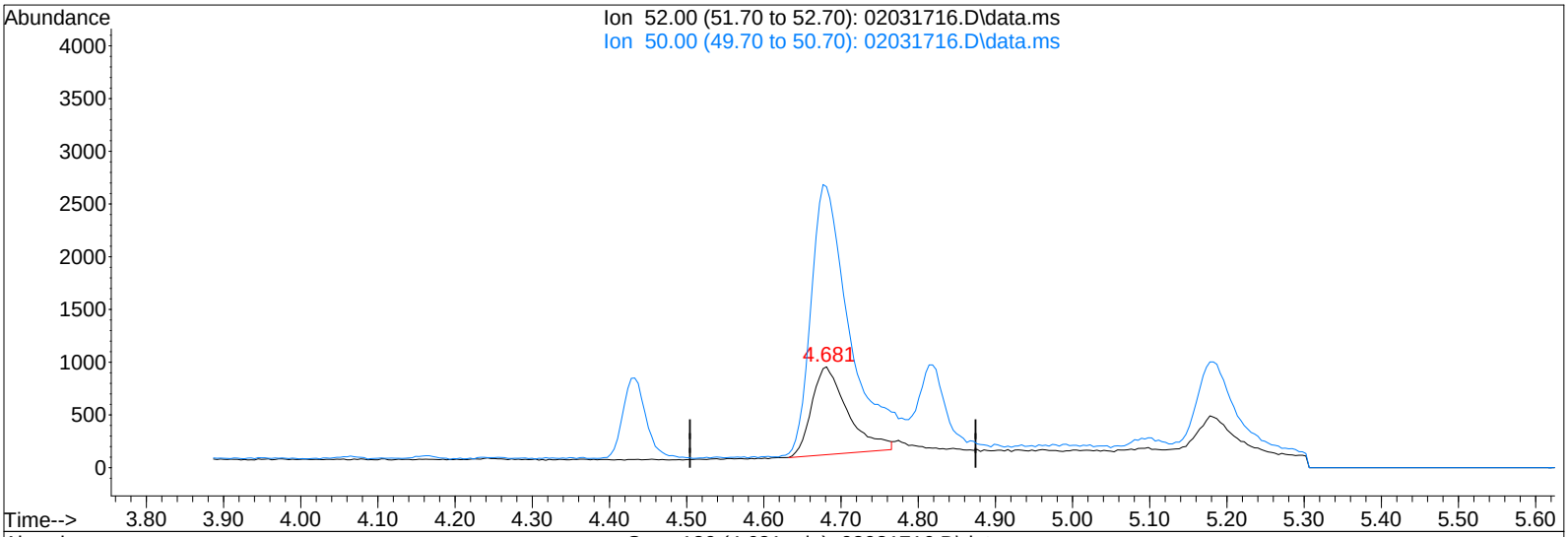
response 3011

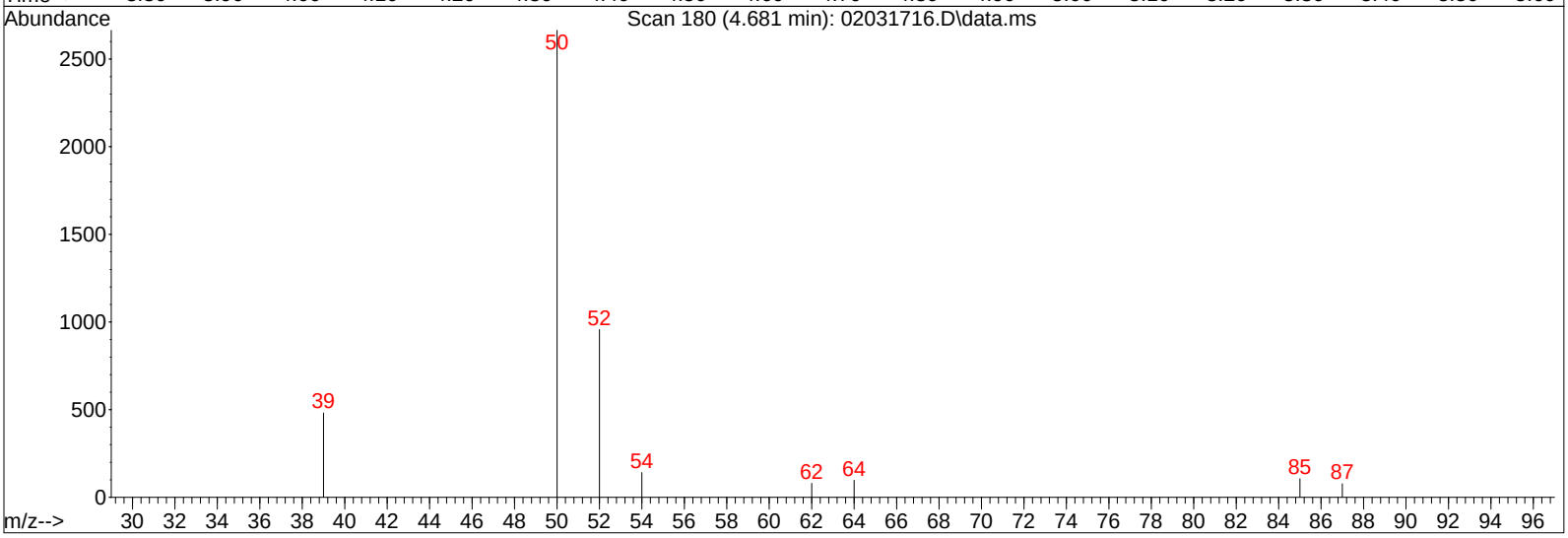
Ion	Exp%	Act%
52.00	100	100
50.00	289.00	316.77#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2017 02\03\02031716.D Vial: 13
Acq On : 3 Feb 2017 16:25 Operator: CL
Sample : 100pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301707 (2/28)

Quant Time: Feb 04 07:09:23 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 02031716.D\data.ms

(3) Chloromethane (T)

4.681min (+0.027) 102.00pg m

response 2711

Ion	Exp%	Act%
52.00	100	100
50.00	289.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

CL 2/4/17

WA 2/7/17

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	50348	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	251786	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	45586	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	88670	1123.290	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.33%			
33) Toluene-d8 (SS2)	14.15	98	259046	1023.436	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.34%			
45) Bromofluorobenzene (SS3)	17.55	174	81767	839.346	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.94%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	65472	550.777	pg	100
3) Chloromethane	4.65	52	15167	570.436	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	58942	525.220	pg	100
5) Vinyl Chloride	4.96	62	55387	527.978	pg	100
6) 1,3-Butadiene	5.14	54	40759	637.759	pg	97
7) Bromomethane	5.48	94	21263	511.251	pg	99
8) Chloroethane	5.70	64	16920	511.346	pg	100
9) Acrolein	6.27	56	12899	474.184	pg	99
10) Acetone	6.40	58	88916	2633.464	pg	100
11) Trichlorofluoromethane	6.61	101	48615	531.413	pg	100
12) 1,1-Dichloroethene	7.35	96	27624	514.891	pg	100
13) Methylene Chloride	7.48	84	28895	522.528	pg	100
14) Trichlorotrifluoroethane	7.80	151	26124	474.203	pg	100
15) trans-1,2-Dichloroethene	8.52	96	29680	547.361	pg	100
16) 1,1-Dichloroethane	8.72	63	50010	531.533	pg	100
17) Methyl tert-Butyl Ether	8.79	73	92370	534.369	pg	100
18) cis-1,2-Dichloroethene	9.59	96	31187	533.882	pg	100
19) Chloroform	9.89	83	53909	530.088	pg	100
21) 1,2-Dichloroethane	10.64	62	41894	559.795	pg	99
22) 1,1,1-Trichloroethane	10.91	97	51096	533.291	pg	100
23) Benzene	11.37	78	115967	524.809	pg	100
24) Carbon Tetrachloride	11.52	117	44175	495.033	pg	100
26) 1,2-Dichloropropane	12.18	63	28496	508.472	pg	100
27) Bromodichloromethane	12.36	83	40701	498.258	pg	100
28) Trichloroethene	12.41	130	30814	478.861	pg	100
29) 1,4-Dioxane	12.38	88	24563	500.604	pg	100
30) cis-1,3-Dichloropropene	13.26	75	46599	511.570	pg	100
31) trans-1,3-Dichloropropene	13.77	75	38634	490.444	pg	100
32) 1,1,2-Trichloroethane	13.95	83	23911	503.944	pg	100
34) Toluene	14.25	91	116685	483.774	pg	100
35) Dibromochloromethane	14.66	129	31100	444.161	pg	100
36) 1,2-Dibromoethane	14.92	107	30296	480.819	pg	100
37) Tetrachloroethene	15.40	166	31258	454.599	pg	100
39) Chlorobenzene	16.10	112	77315	449.124	pg	100
40) Ethylbenzene	16.48	91	133736	464.343	pg	100
41) m,p-Xylene	16.66	91	206142	917.948	pg	100
42) Styrene	17.01	104	74237	431.476	pg	100
43) o-Xylene	17.12	106	49638	444.630	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	48442	454.260	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	109890	453.671	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	110612	453.603	pg	100
48) 1,3-Dichlorobenzene	18.92	146	58838	439.344	pg	100
49) 1,4-Dichlorobenzene	18.98	146	58652	414.985	pg	100
50) 1,2-Dichlorobenzene	19.31	146	57412	425.033	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18164	373.724	pg	100
52) 1,2,4-Trichlorobenzene	20.95	182	34937	364.313	pg	100
53) Naphthalene	21.07	128	123772	403.382	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

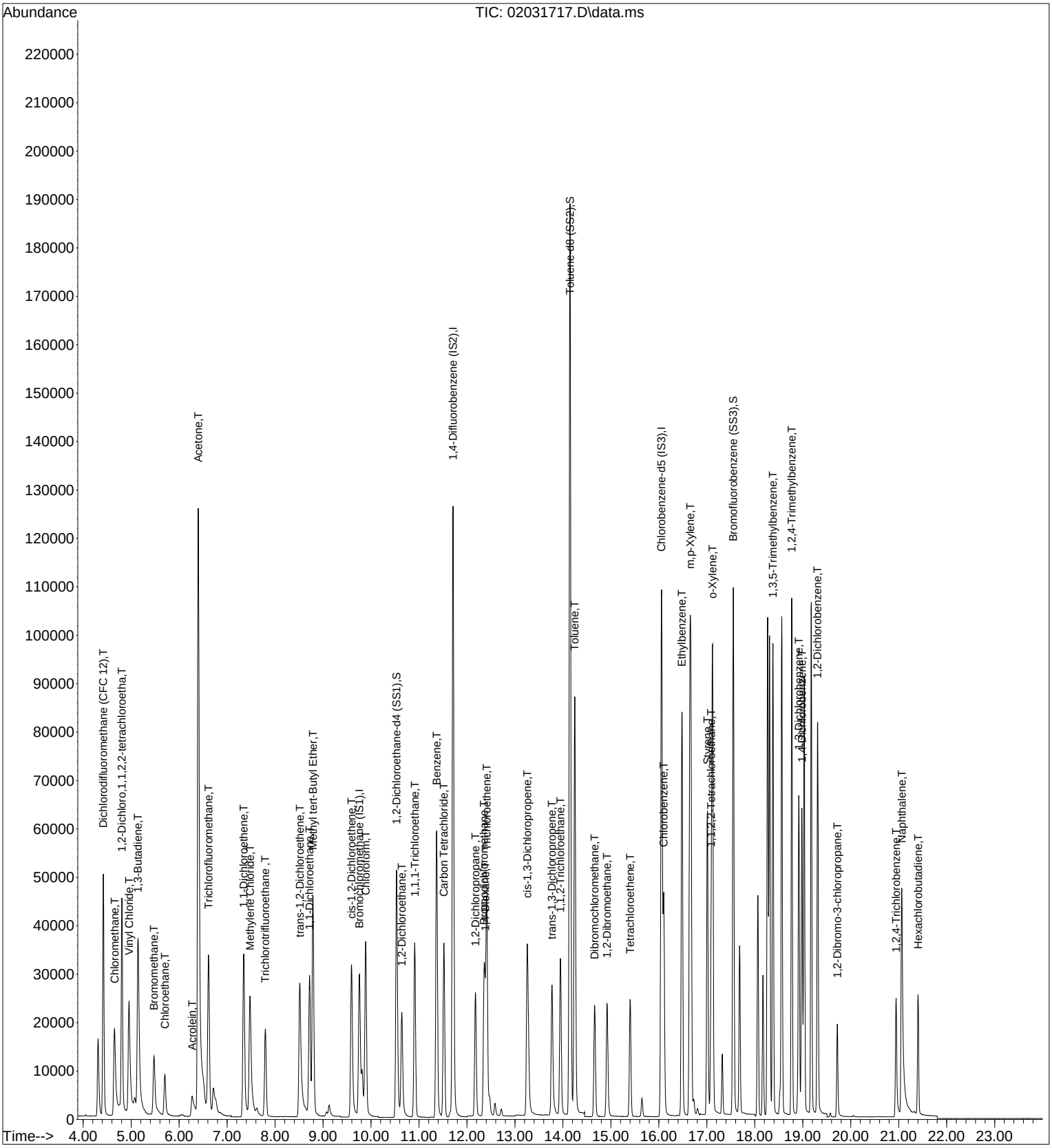
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	24248	388.035	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031717.D Vial: 16
Acq On : 3 Feb 2017 16:57 Operator: CL
Sample : 500pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 04 07:09:24 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	46127	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	230585	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	41847	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	81012	1120.189	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.02%			
33) Toluene-d8 (SS2)	14.15	98	237052	1022.653	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.27%			
45) Bromofluorobenzene (SS3)	17.55	174	76263	852.794	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.28%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	138788	1274.380	pg	100
3) Chloromethane	4.64	52	33901	1391.703	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	123094	1197.238	pg	100
5) Vinyl Chloride	4.94	62	116631	1213.526	pg	100
6) 1,3-Butadiene	5.13	54	89727	1532.440	pg	99
7) Bromomethane	5.47	94	44650	1171.812	pg	99
8) Chloroethane	5.70	64	36419	1201.349	pg	99
9) Acrolein	6.26	56	28207	1131.813	pg	88
10) Acetone	6.39	58	182995	5915.802	pg	100
11) Trichlorofluoromethane	6.61	101	102523	1223.235	pg	100
12) 1,1-Dichloroethene	7.34	96	59130	1202.995	pg	100
13) Methylene Chloride	7.47	84	60909	1202.253	pg	99
14) Trichlorotrifluoroethane	7.80	151	56734	1124.075	pg	100
15) trans-1,2-Dichloroethene	8.51	96	63269	1273.585	pg	99
16) 1,1-Dichloroethane	8.72	63	106379	1234.117	pg	99
17) Methyl tert-Butyl Ether	8.79	73	196065	1238.047	pg	100
18) cis-1,2-Dichloroethene	9.59	96	66613	1244.680	pg	99
19) Chloroform	9.89	83	113774	1221.115	pg	100
21) 1,2-Dichloroethane	10.64	62	90515	1320.154	pg	100
22) 1,1,1-Trichloroethane	10.91	97	109441	1246.765	pg	100
23) Benzene	11.37	78	246065	1215.469	pg	100
24) Carbon Tetrachloride	11.52	117	94793	1159.473	pg	100
26) 1,2-Dichloropropane	12.18	63	61527	1198.807	pg	100
27) Bromodichloromethane	12.36	83	89007	1189.799	pg	100
28) Trichloroethene	12.41	130	66384	1126.484	pg	100
29) 1,4-Dioxane	12.38	88	53073	1181.100	pg	100
30) cis-1,3-Dichloropropene	13.25	75	104069	1247.529	pg	100
31) trans-1,3-Dichloropropene	13.77	75	87787	1216.888	pg	100
32) 1,1,2-Trichloroethane	13.95	83	51922	1194.913	pg	100
34) Toluene	14.25	91	252283	1142.130	pg	100
35) Dibromochloromethane	14.66	129	69437	1082.857	pg	100
36) 1,2-Dibromoethane	14.92	107	66833	1158.212	pg	99
37) Tetrachloroethene	15.40	166	68053	1080.726	pg	100
39) Chlorobenzene	16.10	112	170321	1077.800	pg	100
40) Ethylbenzene	16.48	91	294223	1112.845	pg	100
41) m,p-Xylene	16.66	91	453535	2200.036	pg	100
42) Styrene	17.01	104	172756	1093.798	pg	100
43) o-Xylene	17.12	106	109339	1066.908	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	106874	1091.746	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	244198	1098.228	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	250812	1120.441	pg	100
48) 1,3-Dichlorobenzene	18.92	146	135518	1102.327	pg	100
49) 1,4-Dichlorobenzene	18.98	146	135953	1047.866	pg	100
50) 1,2-Dichlorobenzene	19.31	146	132484	1068.441	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	44607	999.793	pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	86260	979.863	pg	100
53) Naphthalene	21.06	128	309990	1100.549	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

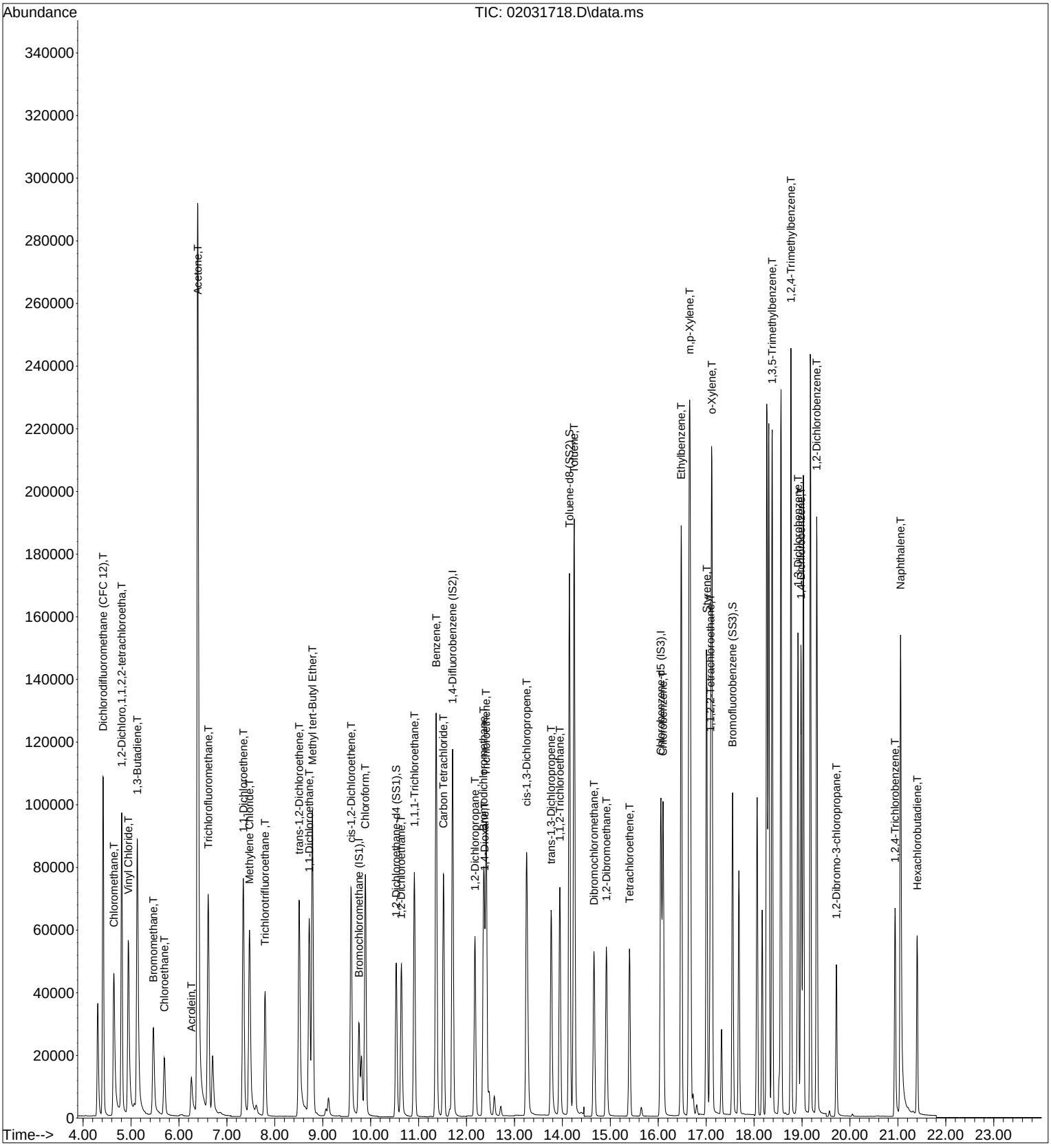
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	55196	962.211	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031718.D Vial: 14
Acq On : 3 Feb 2017 17:28 Operator: CL
Sample : 1000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:25 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	47524	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	238738	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	43162	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	83367	1118.867	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.89%			
33) Toluene-d8 (SS2)	14.15	98	243978	1016.587	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.66%			
45) Bromofluorobenzene (SS3)	17.55	174	82236	891.569	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	262900	2343.041	pg	100
3) Chloromethane	4.63	52	60567	2413.305	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	228680	2158.808	pg	100
5) Vinyl Chloride	4.93	62	220662	2228.460	pg	99
6) 1,3-Butadiene	5.12	54	172462	2858.880	pg	99
7) Bromomethane	5.46	94	84847	2161.301	pg	99
8) Chloroethane	5.68	64	69331	2219.785	pg	99
9) Acrolein	6.25	56	56233	2190.036	pg	91
10) Acetone	6.39	58	344291	10802.949	pg	99
11) Trichlorofluoromethane	6.61	101	192848	2233.295	pg	100
12) 1,1-Dichloroethene	7.34	96	113296	2237.240	pg	99
13) Methylene Chloride	7.47	84	116385	2229.736	pg	98
14) Trichlorotrifluoroethane	7.80	151	109229	2100.546	pg	100
15) trans-1,2-Dichloroethene	8.50	96	122707	2397.445	pg	99
16) 1,1-Dichloroethane	8.72	63	202053	2275.138	pg	99
17) Methyl tert-Butyl Ether	8.78	73	373032	2286.258	pg	100
18) cis-1,2-Dichloroethene	9.59	96	130250	2362.211	pg	100
19) Chloroform	9.89	83	217545	2266.234	pg	100
21) 1,2-Dichloroethane	10.64	62	175076	2478.408	pg	100
22) 1,1,1-Trichloroethane	10.91	97	211082	2333.984	pg	100
23) Benzene	11.36	78	469839	2252.607	pg	100
24) Carbon Tetrachloride	11.52	117	183822	2182.348	pg	100
26) 1,2-Dichloropropane	12.18	63	119606	2250.846	pg	100
27) Bromodichloromethane	12.36	83	174545	2253.546	pg	100
28) Trichloroethene	12.41	130	128553	2106.946	pg	99
29) 1,4-Dioxane	12.37	88	103515	2224.979	pg	100
30) cis-1,3-Dichloropropene	13.25	75	207840	2406.400	pg	100
31) trans-1,3-Dichloropropene	13.77	75	178914	2395.379	pg	100
32) 1,1,2-Trichloroethane	13.95	83	100733	2239.062	pg	99
34) Toluene	14.25	91	490232	2143.576	pg	99
35) Dibromochloromethane	14.66	129	139504	2101.244	pg	100
36) 1,2-Dibromoethane	14.92	107	133212	2229.719	pg	99
37) Tetrachloroethene	15.40	166	134391	2061.332	pg	99
39) Chlorobenzene	16.10	112	333959	2048.925	pg	100
40) Ethylbenzene	16.48	91	573628	2103.541	pg	99
41) m,p-Xylene	16.66	91	882068	4148.430	pg	99
42) Styrene	17.01	104	352391	2163.174	pg	100
43) o-Xylene	17.12	106	214590	2030.132	pg	98
44) 1,1,2,2-Tetrachloroethane	17.09	83	211167	2091.406	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	485519	2116.993	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	502124	2174.775	pg	99
48) 1,3-Dichlorobenzene	18.92	146	277340	2187.202	pg	100
49) 1,4-Dichlorobenzene	18.98	146	277005	2069.985	pg	99
50) 1,2-Dichlorobenzene	19.31	146	269435	2106.706	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	96771	2102.883	pg	92
52) 1,2,4-Trichlorobenzene	20.94	182	181384	1997.642	pg	99
53) Naphthalene	21.06	128	647832	2229.908	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

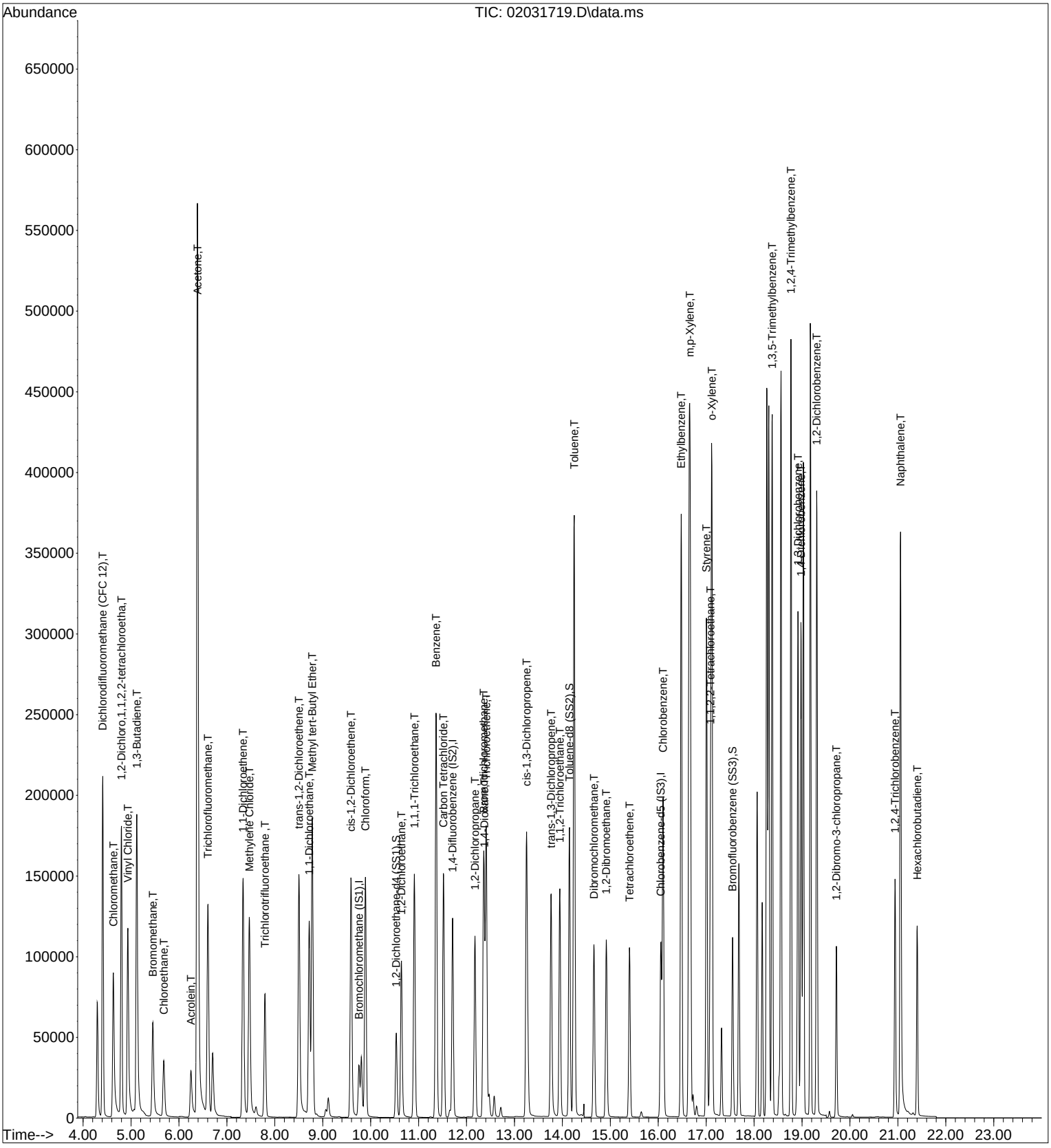
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	113538	1918.963	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031719.D Vial: 14
Acq On : 3 Feb 2017 17:59 Operator: CL
Sample : 2000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:26 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	49244	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	250982	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	45061	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	85715	1110.199	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.02%			
33) Toluene-d8 (SS2)	14.15	98	254643	1009.264	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.93%			
45) Bromofluorobenzene (SS3)	17.55	174	89728	931.798	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.18%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.40	85	621163	5342.623	pg	100
3) Chloromethane	4.62	52	122419	4707.439	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	550802	5018.121	pg	100
5) Vinyl Chloride	4.92	62	532611	5190.953	pg	100
6) 1,3-Butadiene	5.11	54	425148	6801.464	pg	99
7) Bromomethane	5.44	94	217640	5350.289	pg	99
8) Chloroethane	5.67	64	170280	5261.465	pg	100
9) Acrolein	6.24	56	145386	5464.396	pg	92
10) Acetone	6.39	58	840600	25454.566	pg	97
11) Trichlorofluoromethane	6.60	101	477020	5331.228	pg	100
12) 1,1-Dichloroethene	7.33	96	283032	5393.781	pg	98
13) Methylene Chloride	7.47	84	288520	5334.480	pg	97
14) Trichlorotrifluoroethane	7.79	151	272815	5063.165	pg	100
15) trans-1,2-Dichloroethene	8.50	96	303790	5728.124	pg	98
16) 1,1-Dichloroethane	8.72	63	493636	5364.250	pg	99
17) Methyl tert-Butyl Ether	8.78	73	915773	5416.599	pg	100
18) cis-1,2-Dichloroethene	9.59	96	324720	5683.420	pg	100
19) Chloroform	9.89	83	531905	5347.484	pg	100
21) 1,2-Dichloroethane	10.64	62	431962	5901.351	pg	99
22) 1,1,1-Trichloroethane	10.91	97	517958	5527.146	pg	100
23) Benzene	11.37	78	1155650	5347.150	pg	100
24) Carbon Tetrachloride	11.52	117	460160	5272.240	pg	100
26) 1,2-Dichloropropane	12.17	63	300328	5376.105	pg	100
27) Bromodichloromethane	12.35	83	439298	5395.073	pg	100
28) Trichloroethene	12.41	130	320311	4993.696	pg	99
29) 1,4-Dioxane	12.37	88	258974	5294.899	pg	100
30) cis-1,3-Dichloropropene	13.25	75	535242	5894.783	pg	100
31) trans-1,3-Dichloropropene	13.76	75	470941	5997.572	pg	100
32) 1,1,2-Trichloroethane	13.95	83	252644	5341.734	pg	98
34) Toluene	14.25	91	1225067	5095.373	pg	99
35) Dibromochloromethane	14.66	129	365510	5236.825	pg	100
36) 1,2-Dibromoethane	14.91	107	342139	5447.388	pg	99
37) Tetrachloroethene	15.40	166	346260	5051.950	pg	98
39) Chlorobenzene	16.10	112	845751	4970.225	pg	100
40) Ethylbenzene	16.48	91	1432672	5032.320	pg	98
41) m,p-Xylene	16.66	91	2223117	10014.856	pg	98
42) Styrene	17.01	104	932447	5482.662	pg	100
43) o-Xylene	17.12	106	550003	4984.028	pg	96
44) 1,1,2,2-Tetrachloroethane	17.09	83	538560	5109.132	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	1251479	5226.819	pg	97
47) 1,2,4-Trimethylbenzene	18.77	105	1304220	5410.720	pg	98
48) 1,3-Dichlorobenzene	18.92	146	737200	5568.809	pg	99
49) 1,4-Dichlorobenzene	18.98	146	731197	5233.770	pg	100
50) 1,2-Dichlorobenzene	19.31	146	713040	5340.287	pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	267867	5575.578	pg	88
52) 1,2,4-Trichlorobenzene	20.94	182	480019	5063.815	pg	99
53) Naphthalene	21.06	128	1681801	5544.978	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

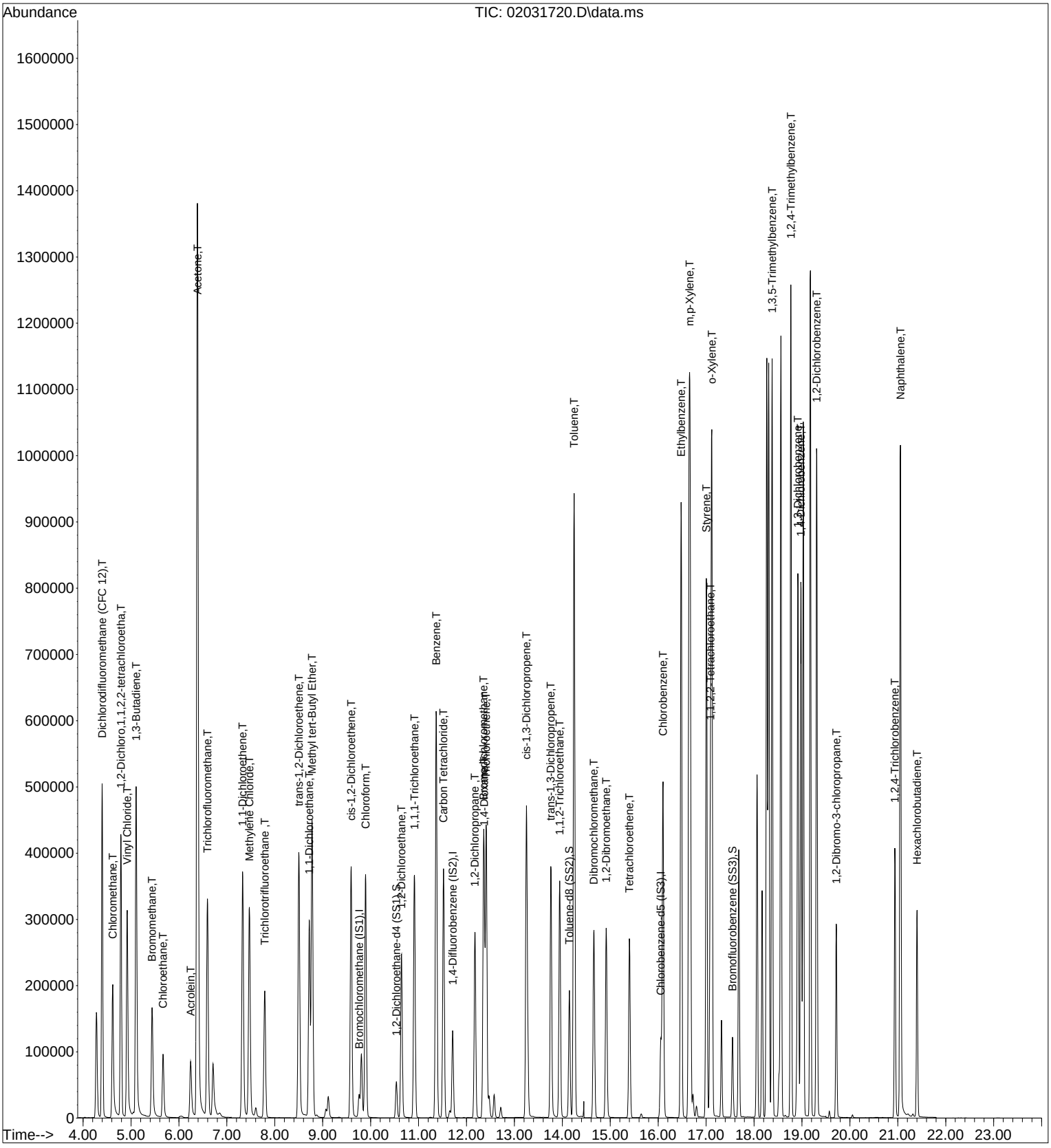
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	297468	4815.777	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031720.D Vial: 14
Acq On : 3 Feb 2017 18:30 Operator: CL
Sample : 5000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:27 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	51177	1000.000 pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	262540	1000.000 pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	47306	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.54	65	88470	1102.601 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.26%		
33) Toluene-d8 (SS2)	14.15	98	264917	1003.760 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.38%		
45) Bromofluorobenzene (SS3)	17.55	174	95400	943.684 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.37%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.39	85	1215961	10063.455 pg	99
3) Chloromethane	4.61	52	154773	5726.767 pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	1102638	9666.228 pg	99
5) Vinyl Chloride	4.92	62	1077522	10105.123 pg	100
6) 1,3-Butadiene	5.10	54	855209	13164.762 pg	99
7) Bromomethane	5.44	94	533640	12623.081 pg	98
8) Chloroethane	5.67	64	350713	10427.337 pg	100
9) Acrolein	6.25	56	302274	10931.982 pg	93
10) Acetone	6.39	58	1707166	49742.837 pg	93
11) Trichlorofluoromethane	6.59	101	966069	10389.084 pg	99
12) 1,1-Dichloroethene	7.33	96	574134	10528.088 pg	98
13) Methylene Chloride	7.48	84	585588	10418.060 pg	97
14) Trichlorotrifluoroethane	7.79	151	542590	9689.562 pg	99
15) trans-1,2-Dichloroethene	8.51	96	610288	11072.667 pg	97
16) 1,1-Dichloroethane	8.73	63	992285	10375.692 pg	99
17) Methyl tert-Butyl Ether	8.78	73	1858590	10577.936 pg	100
18) cis-1,2-Dichloroethene	9.60	96	655601	11041.264 pg	99
19) Chloroform	9.90	83	1066895	10320.853 pg	100
21) 1,2-Dichloroethane	10.64	62	867186	11399.786 pg	99
22) 1,1,1-Trichloroethane	10.92	97	1039690	10675.512 pg	99
23) Benzene	11.37	78	2330466	10375.697 pg	100
24) Carbon Tetrachloride	11.52	117	932913	10285.039 pg	99
26) 1,2-Dichloropropane	12.18	63	610391	10445.449 pg	100
27) Bromodichloromethane	12.35	83	891064	10461.502 pg	100
28) Trichloroethene	12.42	130	648523	9665.465 pg	99
29) 1,4-Dioxane	12.37	88	525504	10271.282 pg	99
30) cis-1,3-Dichloropropene	13.25	75	1100154	11582.924 pg	99
31) trans-1,3-Dichloropropene	13.76	75	978461	11912.409 pg	99
32) 1,1,2-Trichloroethane	13.95	83	512329	10355.457 pg	98
34) Toluene	14.25	91	2489082	9896.974 pg	98
35) Dibromochloromethane	14.66	129	763245	10453.937 pg	99
36) 1,2-Dibromoethane	14.92	107	702683	10695.284 pg	98
37) Tetrachloroethene	15.40	166	716553	9994.295 pg	97
39) Chlorobenzene	16.10	112	1726053	9662.117 pg	99
40) Ethylbenzene	16.48	91	2900180	9703.558 pg	97
41) m,p-Xylene	16.66	91	4569420	19607.765 pg	96
42) Styrene	17.01	104	1956671	10958.970 pg	99
43) o-Xylene	17.12	106	1145204	9885.142 pg	94
44) 1,1,2,2-Tetrachloroethane	17.09	83	1109802	10028.666 pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	2625354	10444.468 pg	95
47) 1,2,4-Trimethylbenzene	18.77	105	2748808	10862.585 pg	96
48) 1,3-Dichlorobenzene	18.92	146	1560654	11229.703 pg	99
49) 1,4-Dichlorobenzene	18.98	146	1533759	10457.358 pg	99
50) 1,2-Dichlorobenzene	19.31	146	1496849	10678.574 pg	99
51) 1,2-Dibromo-3-chloropr...	19.72	157	578263	11465.174 pg	85
52) 1,2,4-Trichlorobenzene	20.94	182	1006015	10109.006 pg	98
53) Naphthalene	21.06	128	3553258	11159.291 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

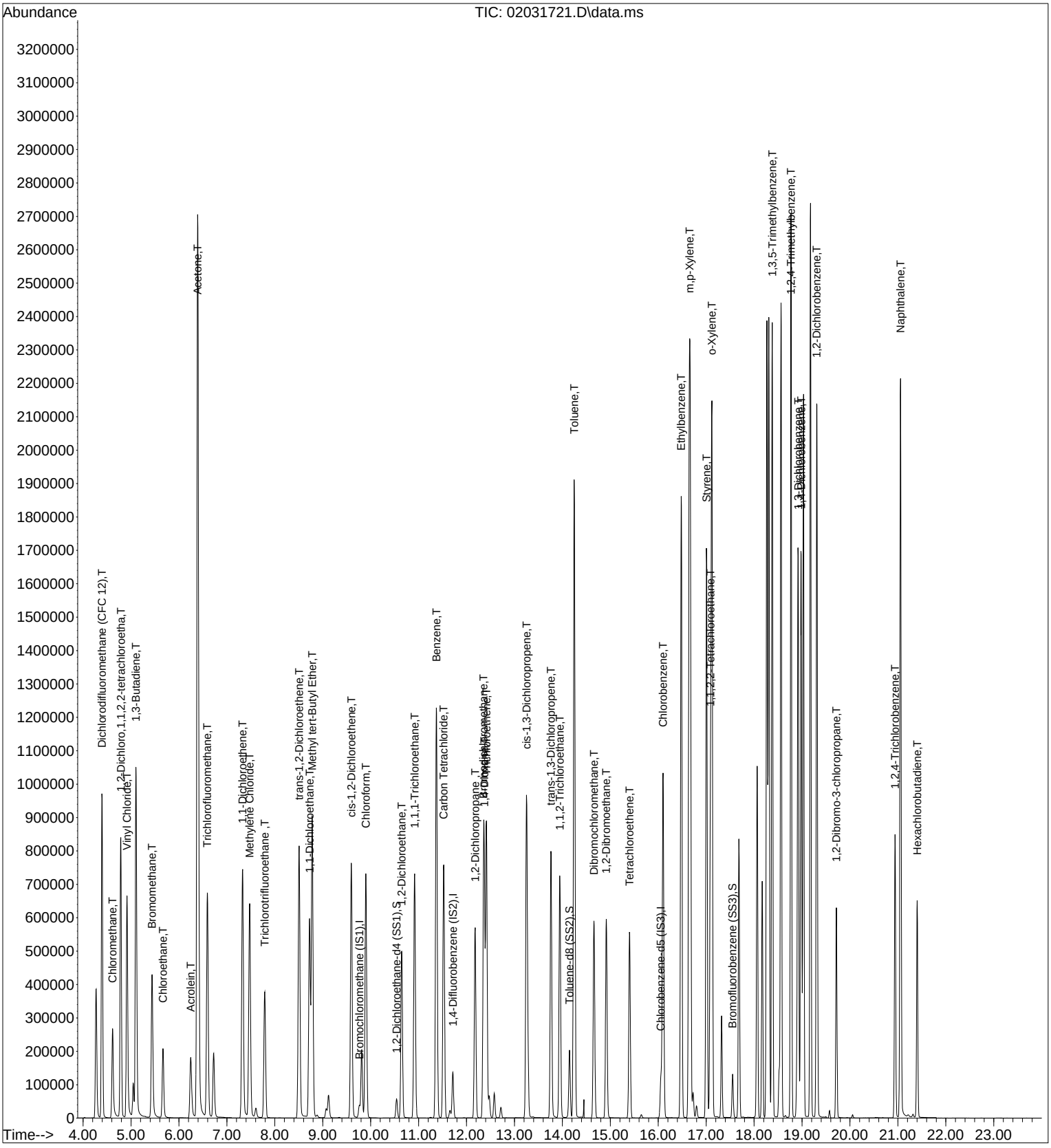
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	620599	9570.217	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031721.D Vial: 14
Acq On : 3 Feb 2017 19:01 Operator: CL
Sample : 10000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01301702 (2/28)

Quant Time: Feb 04 07:09:28 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	57143	1000.000	pg		0.02
25) 1,4-Difluorobenzene (IS2)	11.72	114	287880	1000.000	pg		0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	59542	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.55	65	95188	1062.470	pg		0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.25%				
33) Toluene-d8 (SS2)	14.15	98	291193	1006.202	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%				
45) Bromofluorobenzene (SS3)	17.55	174	105472	828.912	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.89%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.40	85	5785852	42885.113	pg		97
3) Chloromethane	4.62	52	1398966	46358.918	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.79	85	5739405	45061.199	pg		97
5) Vinyl Chloride	4.92	62	5611305	47129.314	pg		98
6) 1,3-Butadiene	5.11	54	4972791	68557.146	pg		97
7) Bromomethane	5.45	94	2242432	47505.956	pg		98
8) Chloroethane	5.68	64	1823357	48551.766	pg		99
9) Acrolein	6.26	56	1584820	51332.195	pg		95
10) Acetone	6.42	58	11074045	288983.384	pg	#	68
11) Trichlorofluoromethane	6.60	101	5154084	49640.073	pg		98
12) 1,1-Dichloroethene	7.33	96	3100490	50918.824	pg		96
13) Methylene Chloride	7.49	84	3197690	50949.839	pg		94
14) Trichlorotrifluoroethane	7.80	151	3143237	50271.434	pg		98
15) trans-1,2-Dichloroethene	8.52	96	3284229	53365.751	pg		96
16) 1,1-Dichloroethane	8.74	63	5286862	49509.714	pg		97
17) Methyl tert-Butyl Ether	8.79	73	10215229	52068.761	pg		98
18) cis-1,2-Dichloroethene	9.61	96	3530359	53248.804	pg		98
19) Chloroform	9.92	83	5755905	49867.696	pg		98
21) 1,2-Dichloroethane	10.66	62	4591713	54059.366	pg		98
22) 1,1,1-Trichloroethane	10.93	97	5614278	51628.624	pg		98
23) Benzene	11.38	78	12742886	50810.575	pg		99
24) Carbon Tetrachloride	11.53	117	5114307	50496.742	pg		98
26) 1,2-Dichloropropane	12.19	63	3317899	51780.486	pg		99
27) Bromodichloromethane	12.37	83	5066866	54251.102	pg		98
28) Trichloroethene	12.42	130	3706139	50373.607	pg		98
29) 1,4-Dioxane	12.38	88	3023747	53898.669	pg		100
30) cis-1,3-Dichloropropene	13.26	75	6387384	61329.827	pg		97
31) trans-1,3-Dichloropropene	13.77	75	5429946	60288.651	pg		98
32) 1,1,2-Trichloroethane	13.95	83	2864504	52802.413	pg		98
34) Toluene	14.25	91	13484447	48896.791	pg		91
35) Dibromochloromethane	14.66	129	4334489	54142.439	pg		98
36) 1,2-Dibromoethane	14.92	107	3863171	53624.195	pg		97
37) Tetrachloroethene	15.41	166	4118777	52390.929	pg		95
39) Chlorobenzene	16.10	112	9535266	42407.607	pg		95
40) Ethylbenzene	16.49	91	15733577	41824.074	pg		89
41) m,p-Xylene	16.66	91	25730893	87723.242	pg		86
42) Styrene	17.02	104	10905490	48527.726	pg		100
43) o-Xylene	17.12	106	7113888	48786.525	pg	#	85
44) 1,1,2,2-Tetrachloroethane	17.09	83	6555121	47062.087	pg		96
46) 1,3,5-Trimethylbenzene	18.38	105	14355154	45373.172	pg		86
47) 1,2,4-Trimethylbenzene	18.77	105	15836347	49720.625	pg	#	83
48) 1,3-Dichlorobenzene	18.92	146	9217533	52694.967	pg		96
49) 1,4-Dichlorobenzene	18.99	146	8766449	47487.726	pg		96
50) 1,2-Dichlorobenzene	19.31	146	9516818	53941.107	pg		96
51) 1,2-Dibromo-3-chloropr...	19.72	157	3123646	49205.071	pg		87
52) 1,2,4-Trichlorobenzene	20.94	182	5596696	44681.578	pg		98
53) Naphthalene	21.05	128	17298313	43162.481	pg		87

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

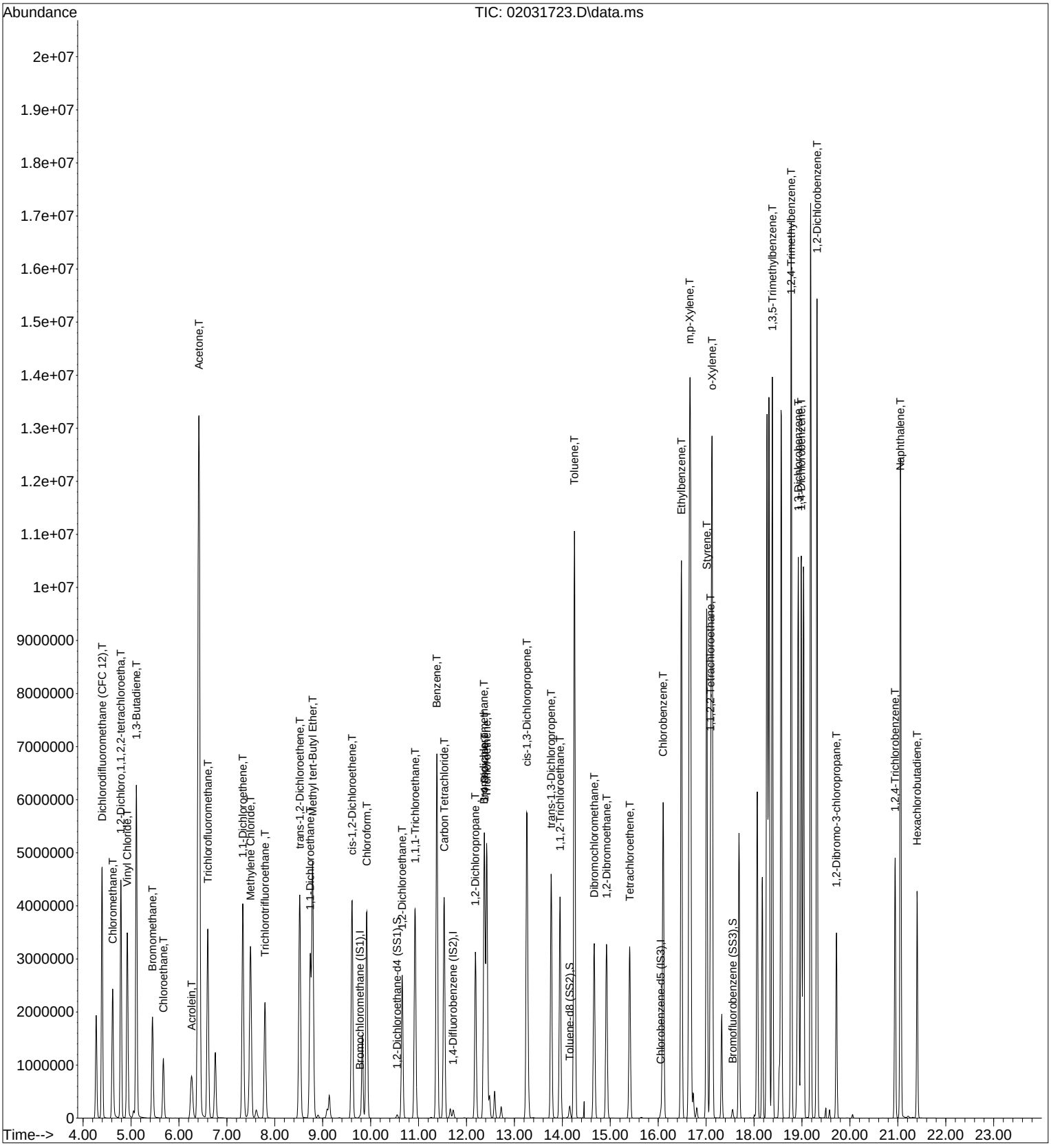
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	3759798	46064.678	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031723.D Vial: 15
Acq On : 3 Feb 2017 20:04 Operator: CL
Sample : 50000pg TO15SIM ICAL STD Inst : MS19
Misc : S29-01241701/S29-01241705 (2/22)

Quant Time: Feb 04 07:09:30 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:09:01 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/4/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	48649	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	243981	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	43674	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	85172	1002.745	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.27%			
33) Toluene-d8 (SS2)	14.15	98	249815	1004.516	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.45%			
45) Bromofluorobenzene (SS3)	17.55	174	79948	1001.382	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.14%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.41	85	74191	608.866	pg	100
3) Chloromethane	4.65	52	18992	672.459	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.80	85	65609	564.993	pg	100
5) Vinyl Chloride	4.95	62	64487	608.290	pg	100
6) 1,3-Butadiene	5.14	54	47807	632.471	pg	96
7) Bromomethane	5.47	94	25386	588.321	pg	99
8) Chloroethane	5.69	64	20334	604.378	pg	98
9) Acrolein	6.26	56	14183	514.149	pg	89
10) Acetone	6.39	58	132546	3674.155	pg	95
11) Trichlorofluoromethane	6.61	101	55317	595.753	pg	100
12) 1,1-Dichloroethene	7.34	96	31319	602.580	pg	100
13) Methylene Chloride	7.47	84	32790	578.656	pg	100
14) Trichlorotrifluoroethane	7.79	151	30453	591.818	pg	99
15) trans-1,2-Dichloroethene	8.51	96	33770	625.703	pg	100
16) 1,1-Dichloroethane	8.71	63	58745	608.625	pg	99
17) Methyl tert-Butyl Ether	8.79	73	105598	612.528	pg	99
18) cis-1,2-Dichloroethene	9.59	96	35529	614.797	pg	99
19) Chloroform	9.89	83	60519	579.070	pg	100
21) 1,2-Dichloroethane	10.64	62	47917	610.409	pg	99
22) 1,1,1-Trichloroethane	10.91	97	56941	598.022	pg	100
23) Benzene	11.36	78	140166	622.726	pg	100
24) Carbon Tetrachloride	11.52	117	49812	578.829	pg	100
26) 1,2-Dichloropropane	12.18	63	32322	594.001	pg	100
27) Bromodichloromethane	12.36	83	46329	589.802	pg	100
28) Trichloroethene	12.41	130	35149	596.086	pg	100
29) 1,4-Dioxane	12.38	88	27518	588.664	pg	99
30) cis-1,3-Dichloropropene	13.25	75	50858	589.870	pg	99
31) trans-1,3-Dichloropropene	13.77	75	45180	599.600	pg	99
32) 1,1,2-Trichloroethane	13.95	83	27109	598.192	pg	100
34) Toluene	14.25	91	134232	571.789	pg	100
35) Dibromochloromethane	14.66	129	35101	564.417	pg	100
36) 1,2-Dibromoethane	14.92	107	34779	593.252	pg	99
37) Tetrachloroethene	15.40	166	35907	583.652	pg	99
39) Chlorobenzene	16.10	112	89152	594.856	pg	100
40) Ethylbenzene	16.48	91	153915	607.214	pg	100
41) m,p-Xylene	16.66	91	237278	1203.145	pg	100
42) Styrene	17.01	104	85349	589.297	pg	99
43) o-Xylene	17.12	106	56834	585.325	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	53922	573.055	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	124481	579.543	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	125829	588.525	pg	100
48) 1,3-Dichlorobenzene	18.92	146	68341	590.369	pg	100
49) 1,4-Dichlorobenzene	18.98	146	69385	577.791	pg	100
50) 1,2-Dichlorobenzene	19.31	146	66540	573.135	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	20455	546.093	pg	99
52) 1,2,4-Trichlorobenzene	20.94	182	39982	525.010	pg	100
53) Naphthalene	21.06	128	144250	569.655	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

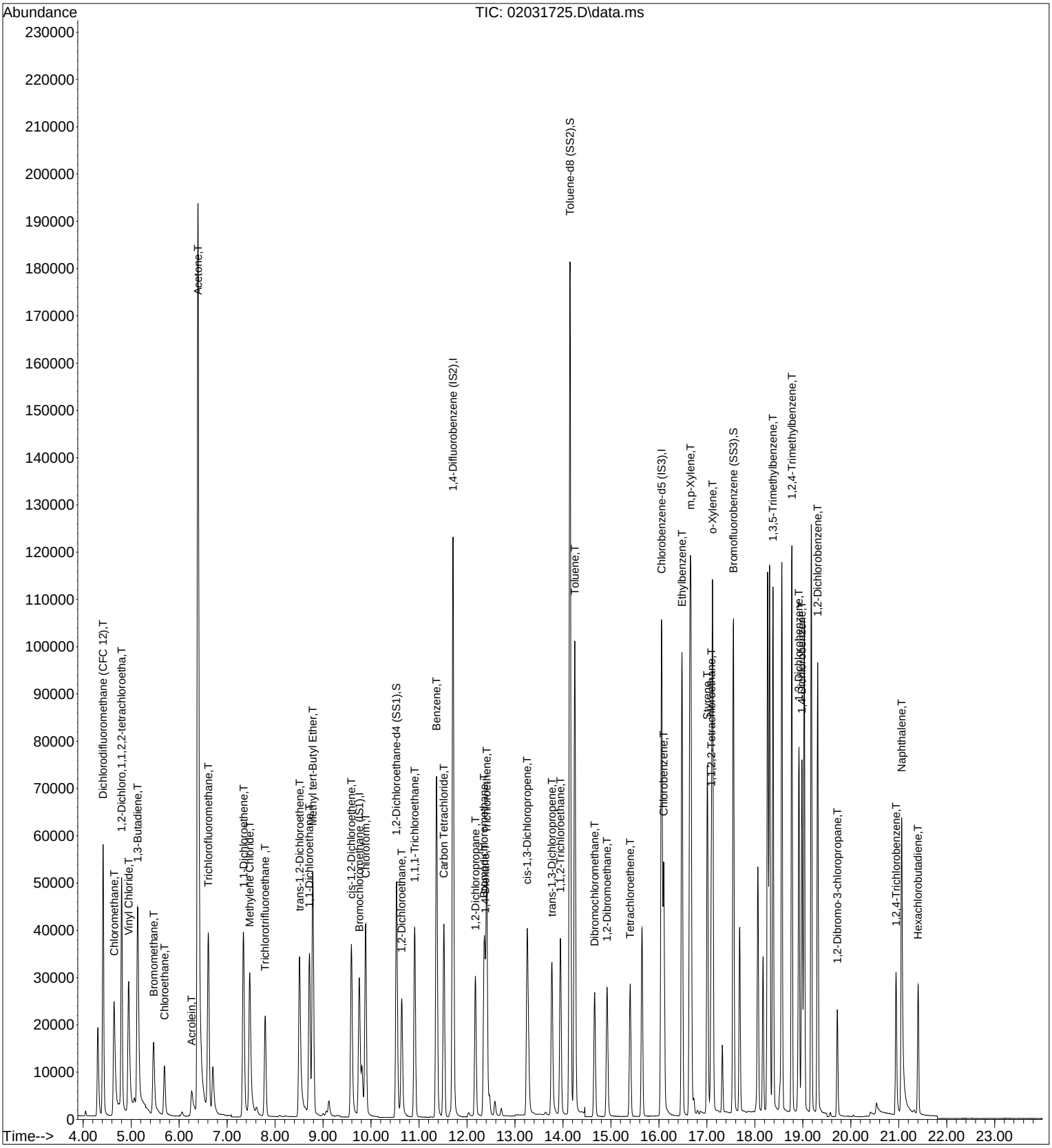
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	27038	556.826	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\03\02031725.D Vial: 2
Acq On : 3 Feb 2017 21:06 Operator: CL
Sample : 500pg TO15SIM ICV Inst : MS19
Misc : S29-01241701/S29-01271703 (2/25)

Quant Time: Feb 04 07:33:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data File Name: 02031725.D
Data File Path: I:\MS19\DATA\2017_02\03\
Operator: CL
Instrument Name: MS19
Sample Name: 500pg TO15SIM ICV
Misc Info: S29-01241701/S29-01271703 (2/25)
Date Acquired: 2/3/17 21:06
Acq. Method File: TO15SIM.M

CL 2/13/17

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag
2)	Dichlorodifluoromethane (CFC 12)	4.41	525	608.9	116.0	70	130	*
3)	Chloromethane	4.65	524.5	672.5	128.2	70	130	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	4.80	527.5	565.0	107.1	70	130	*
5)	Vinyl Chloride	4.95	525	608.3	115.9	70	130	*
6)	*1,3-Butadiene*	5.14	525	632.5	120.5	70	130	*
7)	Bromomethane	5.47	525	588.3	112.1	70	130	*
8)	Chloroethane	5.69	524.5	604.4	115.2	70	130	*
9)	*Acrolein*	6.26	530.5	514.1	96.9	70	130	*
10)	Acetone	6.39	2661	3674.2	138.1	70	130	Fail
11)	Trichlorofluoromethane	6.61	525.5	595.8	113.4	70	130	*
12)	1,1-Dichloroethene	7.34	531.5	602.6	113.4	70	130	*
13)	Methylene Chloride	7.47	531	578.7	109.0	70	130	*
14)	Trichlorotrifluoroethane	7.79	529	591.8	111.9	70	130	*
15)	trans-1,2-Dichloroethene	8.51	533.5	625.7	117.3	70	130	*
16)	1,1-Dichloroethane	8.71	531	608.6	114.6	70	130	*
17)	Methyl tert-Butyl Ether	8.79	532	612.5	115.1	70	130	*
18)	cis-1,2-Dichloroethene	9.59	529.5	614.8	116.1	70	130	*
19)	Chloroform	9.89	529.5	579.1	109.4	70	130	*
21)	1,2-Dichloroethane	10.64	530	610.4	115.2	70	130	*
22)	1,1,1-Trichloroethane	10.91	529.5	598.0	112.9	70	130	*
25)	Benzene	11.36	530.5	622.7	117.4	70	130	*
24)	Carbon Tetrachloride	11.52	532	578.8	108.8	70	130	*
26)	1,2-Dichloropropane	12.18	530.5	594.0	112.0	70	130	*
27)	Bromodichloromethane	12.36	534	589.8	110.4	70	130	*
28)	Trichloroethene	12.41	531	596.1	112.3	70	130	*
29)	1,4-Dioxane	12.38	532	588.7	110.7	70	130	*
30)	cis-1,3-Dichloropropene	13.25	525.5	589.9	112.2	70	130	*
31)	trans-1,3-Dichloropropene	13.77	533.5	599.6	112.4	70	130	*
32)	1,1,2-Trichloroethane	13.95	530.5	598.2	112.8	70	130	*
34)	Toluene	14.15	529	571.8	108.1	70	130	*
35)	*Dibromochloromethane*	14.66	532	564.4	106.1	70	130	*
36)	1,2-Dibromoethane	14.92	529	593.3	112.1	70	130	*
37)	Tetrachloroethene	15.40	531.5	495.0	93.1	70	130	*
39)	Chlorobenzene	16.10	530	594.9	112.2	70	130	*
40)	Ethylbenzene	16.48	529	607.2	114.8	70	130	*
41)	m,p-Xylene	16.66	1060.5	1203.1	113.5	70	130	*
42)	*Styrene*	17.01	529.5	589.3	111.3	70	130	*
43)	o-Xylene	17.12	529	585.3	110.6	70	130	*
44)	1,1,2,2-Tetrachloroethane	17.09	530	573.1	108.1	70	130	*
46)	*1,3,5-Trimethylbenzene*	18.38	530.5	579.5	109.2	70	130	*
47)	*1,2,4-Trimethylbenzene*	18.77	530.5	588.5	110.9	70	130	*
48)	1,3-Dichlorobenzene	18.92	529.5	590.4	111.5	70	130	*
49)	1,4-Dichlorobenzene	18.98	533	577.8	108.4	70	130	*
50)	1,2-Dichlorobenzene	19.31	531	573.1	107.9	70	130	*
51)	*1,2-Dibromo-3-chloropropane*	19.72	529.5	546.1	103.1	70	130	*
52)	1,2,4-Trichlorobenzene	20.94	530	525.0	99.1	70	130	*
53)	Naphthalene	19.31	534	569.7	106.7	70	130	*
54)	Hexachlorobutadiene	21.40	531.5	556.8	104.8	70	130	*

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	108	-0.02
2	T	Dichlorodifluoromethane (CF	2.505	2.381	5.0	104	0.03
3	T	Chloromethane	0.581	0.521	10.3	94	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.387	2.250	5.7	104	0.03
5	T	Vinyl Chloride	2.179	2.004	8.0	101	0.04
6	T	1,3-Butadiene	1.554	1.470	5.4	104	0.04
7	T	Bromomethane	0.887	0.804	9.4	102	0.03
8	T	Chloroethane	0.692	0.626	9.5	102	0.03
9	T	Acrolein	0.567	0.449	20.8	99	0.01
10	T	Acetone	0.742	0.625	15.8	102	-0.01
11	T	Trichlorofluoromethane	1.909	1.780	6.8	105	0.01
12	T	1,1-Dichloroethene	1.068	0.991	7.2	103	0.02
13	T	Methylene Chloride	1.165	1.033	11.3	103	-0.01
14	T	Trichlorotrifluoroethane	1.058	0.966	8.7	106	0.00
15	T	trans-1,2-Dichloroethene	1.109	1.061	4.3	104	0.00
16	T	1,1-Dichloroethane	1.984	1.830	7.8	102	-0.02
17	T	Methyl tert-Butyl Ether	3.544	3.300	6.9	104	0.00
18	T	cis-1,2-Dichloroethene	1.188	1.132	4.7	105	-0.02
19	T	Chloroform	2.148	1.977	8.0	106	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.746	1.735	0.6	107	-0.02
21	T	1,2-Dichloroethane	1.614	1.477	8.5	101	-0.02
22	T	1,1,1-Trichloroethane	1.957	1.830	6.5	105	-0.02
23	T	Benzene	4.627	4.147	10.4	102	-0.01
24	T	Carbon Tetrachloride	1.769	1.633	7.7	106	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	105	-0.01
26	T	1,2-Dichloropropane	0.223	0.205	8.1	101	-0.01
27	T	Bromodichloromethane	0.322	0.301	6.5	104	-0.01
28	T	Trichloroethene	0.242	0.232	4.1	106	-0.01
29	T	1,4-Dioxane	0.192	0.181	5.7	104	0.00
30	T	cis-1,3-Dichloropropene	0.353	0.327	7.4	104	0.00
31	T	trans-1,3-Dichloropropene	0.309	0.286	7.4	104	0.00
32	T	1,1,2-Trichloroethane	0.186	0.177	4.8	104	0.00
33	S	Toluene-d8 (SS2)	1.019	1.021	-0.2	104	0.00
34	T	Toluene	0.962	0.865	10.1	103	0.00
35	T	Dibromochloromethane	0.255	0.236	7.5	106	0.00
36	T	1,2-Dibromoethane	0.240	0.228	5.0	105	0.00
37	T	Tetrachloroethene	0.252	0.236	6.3	106	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	100	0.00
39	T	Chlorobenzene	3.432	3.317	3.4	104	0.00
40	T	Ethylbenzene	5.804	5.732	1.2	104	0.00
41	T	m,p-Xylene	4.516	4.383	2.9	103	0.00
42	T	Styrene	3.316	3.159	4.7	103	0.00
43	T	o-Xylene	2.223	2.136	3.9	104	0.00
44	T	1,1,2,2-Tetrachloroethane	2.155	2.070	3.9	103	0.00
45	S	Bromofluorobenzene (SS3)	1.828	1.870	-2.3	105	0.00
46	T	1,3,5-Trimethylbenzene	4.918	4.725	3.9	103	0.00
47	T	1,2,4-Trimethylbenzene	4.895	4.757	2.8	104	0.00
48	T	1,3-Dichlorobenzene	2.651	2.517	5.1	104	0.00
49	T	1,4-Dichlorobenzene	2.750	2.498	9.2	103	0.00
50	T	1,2-Dichlorobenzene	2.658	2.471	7.0	104	0.00
51	T	1,2-Dibromo-3-chloropropane	0.858	0.812	5.4	108	0.00
52	T	1,2,4-Trichlorobenzene	1.744	1.523	12.7	104	0.00
53	T	Naphthalene	5.798	4.996	13.8	100	0.01
54	T	Hexachlorobutadiene	1.112	1.065	4.2	106	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/6/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	54422	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	264473	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	45785	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	94439	993.904	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.39%			
33) Toluene-d8 (SS2)	14.15	98	269916	1001.248	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.13%			
45) Bromofluorobenzene (SS3)	17.55	174	85620	1022.980	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	67839	497.679	pg	100
3) Chloromethane	4.66	52	14248	450.971	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	61541	473.744	pg	100
5) Vinyl Chloride	4.96	62	55786	470.395	pg	100
6) 1,3-Butadiene	5.15	54	42266	499.850	pg	93
7) Bromomethane	5.48	94	21730	450.173	pg	98
8) Chloroethane	5.71	64	17195	456.864	pg	100
9) Acrolein	6.27	56	12730	412.524	pg	91
10) Acetone	6.40	58	90420	2240.550	pg	98
11) Trichlorofluoromethane	6.62	101	50821	489.272	pg	100
12) 1,1-Dichloroethene	7.35	96	28549	491.018	pg	97
13) Methylene Chloride	7.48	84	29704	468.590	pg	96
14) Trichlorotrifluoroethane	7.80	151	27563	478.833	pg	99
15) trans-1,2-Dichloroethene	8.52	96	30814	510.369	pg	100
16) 1,1-Dichloroethane	8.72	63	50790	470.388	pg	100
17) Methyl tert-Butyl Ether	8.79	73	95734	496.405	pg	99
18) cis-1,2-Dichloroethene	9.59	96	32762	506.779	pg	99
19) Chloroform	9.89	83	56903	486.714	pg	100
21) 1,2-Dichloroethane	10.64	62	42280	481.466	pg	100
22) 1,1,1-Trichloroethane	10.91	97	53485	502.138	pg	100
23) Benzene	11.37	78	118718	471.488	pg	100
24) Carbon Tetrachloride	11.52	117	46879	486.961	pg	100
26) 1,2-Dichloropropane	12.18	63	28763	487.639	pg	99
27) Bromodichloromethane	12.36	83	42377	497.689	pg	100
28) Trichloroethene	12.41	130	32541	509.098	pg	99
29) 1,4-Dioxane	12.38	88	25484	502.913	pg	97
30) cis-1,3-Dichloropropene	13.26	75	48313	516.935	pg	100
31) trans-1,3-Dichloropropene	13.77	75	40232	492.563	pg	100
32) 1,1,2-Trichloroethane	13.95	83	24777	504.372	pg	99
34) Toluene	14.25	91	120409	473.166	pg	100
35) Dibromochloromethane	14.66	129	33102	491.032	pg	100
36) 1,2-Dibromoethane	14.92	107	31777	500.046	pg	99
37) Tetrachloroethene	15.40	166	33146	497.028	pg	100
39) Chlorobenzene	16.10	112	80571	512.813	pg	100
40) Ethylbenzene	16.48	91	138432	520.952	pg	100
41) m,p-Xylene	16.66	91	212998	1030.234	pg	99
42) Styrene	17.01	104	76738	505.412	pg	99
43) o-Xylene	17.12	106	51530	506.231	pg	99
44) 1,1,2,2-Tetrachloroethane	17.09	83	50051	507.391	pg	100
46) 1,3,5-Trimethylbenzene	18.38	105	113465	503.900	pg	100
47) 1,2,4-Trimethylbenzene	18.77	105	114562	511.122	pg	100
48) 1,3-Dichlorobenzene	18.92	146	60971	502.418	pg	100
49) 1,4-Dichlorobenzene	18.98	146	60513	480.677	pg	100
50) 1,2-Dichlorobenzene	19.31	146	59838	491.645	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	19563	498.198	pg	96
52) 1,2,4-Trichlorobenzene	20.94	182	36358	455.411	pg	99
53) Naphthalene	21.06	128	123870	466.619	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

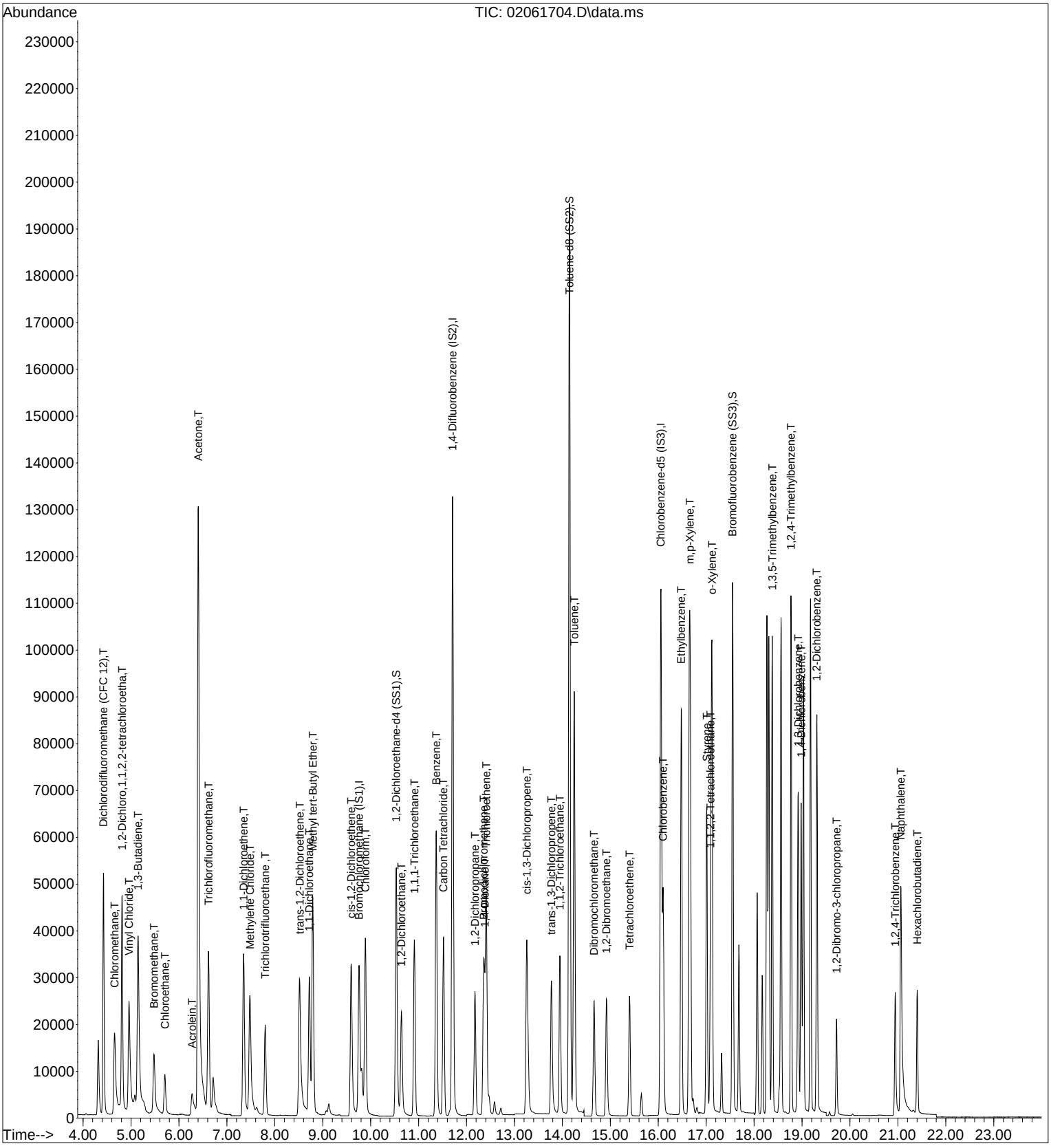
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	25824	507.304	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\06\02061704.D Vial: 16
Acq On : 6 Feb 2017 8:28 Operator: CL
Sample : CCV S19020617 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 06 09:06:59 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	109	-0.02
2	T	Dichlorodifluoromethane (CF	2.505	2.192	12.5	96	0.02
3	T	Chloromethane	0.581	0.479	17.6	87	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.387	2.144	10.2	100	0.02
5	T	Vinyl Chloride	2.179	1.909	12.4	96	0.03
6	T	1,3-Butadiene	1.554	1.348	13.3	96	0.03
7	T	Bromomethane	0.887	0.807	9.0	103	0.03
8	T	Chloroethane	0.692	0.602	13.0	98	0.02
9	T	Acrolein	0.567	0.424	25.2	93	0.00
10	T	Acetone	0.742	0.592	20.2	97	-0.02
11	T	Trichlorofluoromethane	1.909	1.711	10.4	101	0.01
12	T	1,1-Dichloroethene	1.068	0.957	10.4	100	0.01
13	T	Methylene Chloride	1.165	0.984	15.5	98	-0.02
14	T	Trichlorotrifluoroethane	1.058	0.964	8.9	106	0.00
15	T	trans-1,2-Dichloroethene	1.109	1.018	8.2	100	0.00
16	T	1,1-Dichloroethane	1.984	1.703	14.2	95	-0.02
17	T	Methyl tert-Butyl Ether	3.544	3.088	12.9	97	0.00
18	T	cis-1,2-Dichloroethene	1.188	1.082	8.9	101	-0.02
19	T	Chloroform	2.148	1.823	15.1	98	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.746	1.583	9.3	98	-0.02
21	T	1,2-Dichloroethane	1.614	1.362	15.6	93	-0.02
22	T	1,1,1-Trichloroethane	1.957	1.710	12.6	98	-0.02
23	T	Benzene	4.627	3.916	15.4	97	-0.02
24	T	Carbon Tetrachloride	1.769	1.542	12.8	101	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	107	-0.01
26	T	1,2-Dichloropropane	0.223	0.190	14.8	95	-0.01
27	T	Bromodichloromethane	0.322	0.271	15.8	95	-0.01
28	T	Trichloroethene	0.242	0.227	6.2	105	-0.01
29	T	1,4-Dioxane	0.192	0.171	10.9	100	0.00
30	T	cis-1,3-Dichloropropene	0.353	0.300	15.0	97	0.00
31	T	trans-1,3-Dichloropropene	0.309	0.261	15.5	97	0.00
32	T	1,1,2-Trichloroethane	0.186	0.163	12.4	97	0.00
33	S	Toluene-d8 (SS2)	1.019	1.002	1.7	104	0.00
34	T	Toluene	0.962	0.819	14.9	99	0.00
35	T	Dibromochloromethane	0.255	0.219	14.1	101	0.00
36	T	1,2-Dibromoethane	0.240	0.214	10.8	100	0.00
37	T	Tetrachloroethene	0.252	0.239	5.2	109	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	3.432	3.362	2.0	102	0.00
40	T	Ethylbenzene	5.804	5.654	2.6	98	0.00
41	T	m,p-Xylene	4.516	4.343	3.8	99	0.00
42	T	Styrene	3.316	3.159	4.7	100	0.00
43	T	o-Xylene	2.223	2.164	2.7	101	0.00
44	T	1,1,2,2-Tetrachloroethane	2.155	1.982	8.0	95	0.00
45	S	Bromofluorobenzene (SS3)	1.828	2.087	-14.2	113	0.00
46	T	1,3,5-Trimethylbenzene	4.918	4.748	3.5	100	0.00
47	T	1,2,4-Trimethylbenzene	4.895	4.763	2.7	100	0.00
48	T	1,3-Dichlorobenzene	2.651	2.617	1.3	104	0.00
49	T	1,4-Dichlorobenzene	2.750	2.590	5.8	103	0.00
50	T	1,2-Dichlorobenzene	2.658	2.553	4.0	104	0.00
51	T	1,2-Dibromo-3-chloropropane	0.858	0.805	6.2	103	0.00
52	T	1,2,4-Trichlorobenzene	1.744	1.569	10.0	103	0.00
53	T	Naphthalene	5.798	5.093	12.2	98	0.02
54	T	Hexachlorobutadiene	1.112	1.118	-0.5	108	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/7/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.75	130	54654	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	268758	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	44086	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	86520	906.697	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.67%			
33) Toluene-d8 (SS2)	14.15	98	269390	983.364	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.34%			
45) Bromofluorobenzene (SS3)	17.55	174	92007	1141.656	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 114.17%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	62711	458.107	pg	100
3) Chloromethane	4.65	52	13148	414.388	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	58891	451.420	pg	100
5) Vinyl Chloride	4.95	62	53357	448.004	pg	100
6) 1,3-Butadiene	5.14	54	38938	458.537	pg	99
7) Bromomethane	5.48	94	21888	451.521	pg	98
8) Chloroethane	5.70	64	16604	439.289	pg	100
9) Acrolein	6.27	56	12048	388.766	pg	99
10) Acetone	6.40	58	86014	2122.325	pg	95
11) Trichlorofluoromethane	6.61	101	49034	470.064	pg	100
12) 1,1-Dichloroethene	7.35	96	27689	474.205	pg	94
13) Methylene Chloride	7.48	84	28411	446.290	pg	95
14) Trichlorotrifluoroethane	7.80	151	27633	478.011	pg	99
15) trans-1,2-Dichloroethene	8.52	96	29695	489.748	pg	100
16) 1,1-Dichloroethane	8.72	63	47474	437.811	pg	100
17) Methyl tert-Butyl Ether	8.79	73	89961	464.490	pg	99
18) cis-1,2-Dichloroethene	9.59	96	31450	484.419	pg	100
19) Chloroform	9.89	83	52720	449.021	pg	100
21) 1,2-Dichloroethane	10.64	62	39159	444.033	pg	100
22) 1,1,1-Trichloroethane	10.91	97	50177	469.082	pg	100
23) Benzene	11.36	78	112580	445.213	pg	100
24) Carbon Tetrachloride	11.52	117	44450	459.769	pg	100
26) 1,2-Dichloropropane	12.18	63	27060	451.452	pg	100
27) Bromodichloromethane	12.36	83	38806	448.484	pg	100
28) Trichloroethene	12.41	130	32331	497.748	pg	99
29) 1,4-Dioxane	12.38	88	24458	474.970	pg	96
30) cis-1,3-Dichloropropene	13.25	75	45035	474.179	pg	100
31) trans-1,3-Dichloropropene	13.77	75	37345	449.927	pg	99
32) 1,1,2-Trichloroethane	13.95	83	23258	465.902	pg	98
34) Toluene	14.25	91	115868	448.062	pg	99
35) Dibromochloromethane	14.66	129	31323	457.234	pg	100
36) 1,2-Dibromoethane	14.92	107	30431	471.230	pg	100
37) Tetrachloroethene	15.40	166	34072	502.768	pg	97
39) Chlorobenzene	16.10	112	78618	519.667	pg	100
40) Ethylbenzene	16.48	91	131497	513.924	pg	98
41) m,p-Xylene	16.66	91	203241	1020.926	pg	98
42) Styrene	17.01	104	73880	505.341	pg	100
43) o-Xylene	17.12	106	50281	512.997	pg	96
44) 1,1,2,2-Tetrachloroethane	17.09	83	46145	485.822	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	109790	506.370	pg	98
47) 1,2,4-Trimethylbenzene	18.77	105	110450	511.766	pg	98
48) 1,3-Dichlorobenzene	18.92	146	61039	522.363	pg	100
49) 1,4-Dichlorobenzene	18.98	146	60408	498.335	pg	100
50) 1,2-Dichlorobenzene	19.31	146	59533	507.989	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	18690	494.309	pg	89
52) 1,2,4-Trichlorobenzene	20.95	182	36067	469.176	pg	98
53) Naphthalene	21.07	128	121585	475.662	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

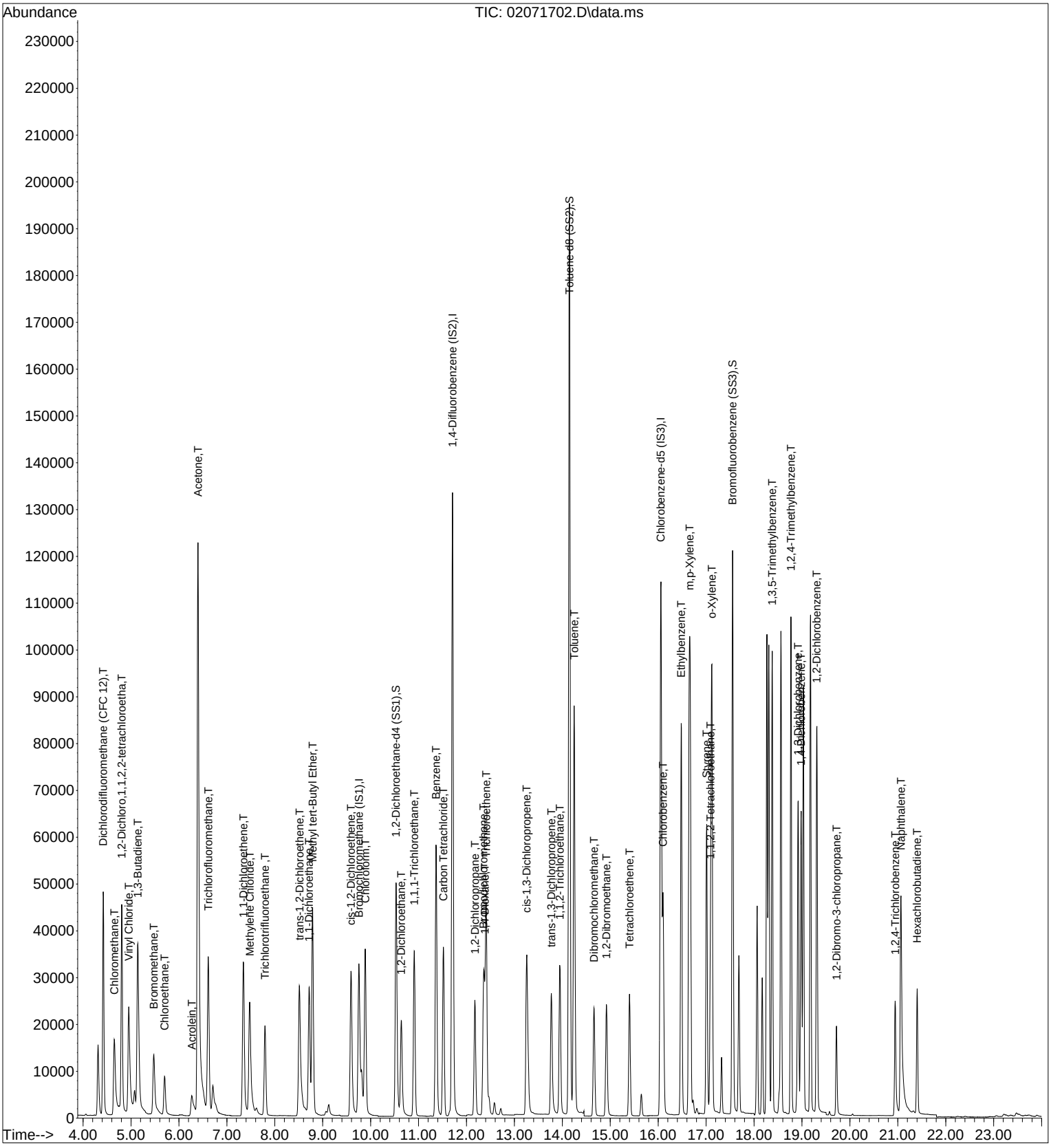
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	26094	532.363	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02071702.D Vial: 16
Acq On : 7 Feb 2017 2:54 Operator: CL
Sample : CCV S19020717 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 07 07:21:06 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02081702.D Vial: 16
Acq On : 8 Feb 2017 00:54 Operator: CL
Sample : CCV S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 08 07:14:19 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	93	-0.02
2	T	Dichlorodifluoromethane (CF	2.505	2.323	7.3	87	0.03
3	T	Chloromethane	0.581	0.436	25.0	67	0.04
4	T	1,2-Dichloro,1,1,2,2-tetrac	2.387	2.203	7.7	88	0.02
5	T	Vinyl Chloride	2.179	1.961	10.0	84	0.04
6	T	1,3-Butadiene	1.554	1.340	13.8	81	0.04
7	T	Bromomethane	0.887	0.787	11.3	86	0.03
8	T	Chloroethane	0.692	0.612	11.6	85	0.03
9	T	Acrolein	0.567	0.427	24.7	80	0.00
10	T	Acetone	0.742	0.604	18.6	84	-0.02
11	T	Trichlorofluoromethane	1.909	1.744	8.6	88	0.01
12	T	1,1-Dichloroethene	1.068	0.949	11.1	85	0.01
13	T	Methylene Chloride	1.165	1.012	13.1	86	-0.02
14	T	Trichlorotrifluoroethane	1.058	0.885	16.4	83	0.00
15	T	trans-1,2-Dichloroethene	1.109	1.039	6.3	87	0.00
16	T	1,1-Dichloroethane	1.984	1.772	10.7	84	-0.02
17	T	Methyl tert-Butyl Ether	3.544	3.166	10.7	85	0.00
18	T	cis-1,2-Dichloroethene	1.188	1.078	9.3	86	-0.02
19	T	Chloroform	2.148	1.931	10.1	88	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.746	1.738	0.5	91	-0.02
21	T	1,2-Dichloroethane	1.614	1.474	8.7	86	-0.02
22	T	1,1,1-Trichloroethane	1.957	1.777	9.2	87	-0.02
23	T	Benzene	4.627	3.992	13.7	84	-0.01
24	T	Carbon Tetrachloride	1.769	1.569	11.3	87	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	91	-0.01
26	T	1,2-Dichloropropane	0.223	0.196	12.1	83	-0.01
27	T	Bromodichloromethane	0.322	0.284	11.8	85	-0.01
28	T	Trichloroethene	0.242	0.222	8.3	87	-0.01
29	T	1,4-Dioxane	0.192	0.173	9.9	86	0.00
30	T	cis-1,3-Dichloropropene	0.353	0.305	13.6	84	0.00
31	T	trans-1,3-Dichloropropene	0.309	0.264	14.6	83	0.00
32	T	1,1,2-Trichloroethane	0.186	0.168	9.7	86	0.00
33	S	Toluene-d8 (SS2)	1.019	1.024	-0.5	90	0.00
34	T	Toluene	0.962	0.826	14.1	85	0.00
35	T	Dibromochloromethane	0.255	0.214	16.1	83	0.00
36	T	1,2-Dibromoethane	0.240	0.216	10.0	86	0.00
37	T	Tetrachloroethene	0.252	0.223	11.5	87	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	89	0.00
39	T	Chlorobenzene	3.432	3.074	10.4	86	0.00
40	T	Ethylbenzene	5.804	5.271	9.2	85	0.00
41	T	m,p-Xylene	4.516	4.050	10.3	85	0.00
42	T	Styrene	3.316	2.796	15.7	81	0.00
43	T	o-Xylene	2.223	1.968	11.5	85	0.00
44	T	1,1,2,2-Tetrachloroethane	2.155	1.905	11.6	85	0.00
45	S	Bromofluorobenzene (SS3)	1.828	1.830	-0.1	91	0.00
46	T	1,3,5-Trimethylbenzene	4.918	4.351	11.5	85	0.00
47	T	1,2,4-Trimethylbenzene	4.895	4.357	11.0	84	0.00
48	T	1,3-Dichlorobenzene	2.651	2.296	13.4	84	0.00
49	T	1,4-Dichlorobenzene	2.750	2.266	17.6	83	0.00
50	T	1,2-Dichlorobenzene	2.658	2.252	15.3	85	0.00
51	T	1,2-Dibromo-3-chloropropane	0.858	0.680	20.7	80	0.00
52	T	1,2,4-Trichlorobenzene	1.744	1.337	23.3	81	0.00
53	T	Naphthalene	5.798	4.392	24.2	78	0.02
54	T	Hexachlorobutadiene	1.112	0.967	13.0	86	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2017 02\07\02081702.D Vial: 16
Acq On : 8 Feb 2017 00:54 Operator: CL
Sample : CCV S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 08 07:14:19 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081702.D Vial: 16
Acq On : 8 Feb 2017 00:54 Operator: CL
Sample : CCV S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 08 07:14:19 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 2/8/17

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	46667	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.71	114	228741	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	40782	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.53	65	81113	995.515	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.55%			
33) Toluene-d8 (SS2)	14.15	98	234132	1004.179	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.42%			
45) Bromofluorobenzene (SS3)	17.55	174	74619	1000.912	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.09%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.42	85	56763	485.624	pg	100
3) Chloromethane	4.66	52	10225	377.418	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.81	85	51669	463.846	pg	100
5) Vinyl Chloride	4.96	62	46802	460.222	pg	98
6) 1,3-Butadiene	5.15	54	33056	455.893	pg	96
7) Bromomethane	5.48	94	18231	440.448	pg	99
8) Chloroethane	5.70	64	14416	446.678	pg	99
9) Acrolein	6.27	56	10368	391.814	pg	90
10) Acetone	6.40	58	74834	2162.489	pg	100
11) Trichlorofluoromethane	6.62	101	42698	479.379	pg	100
12) 1,1-Dichloroethene	7.35	96	23452	470.382	pg	98
13) Methylene Chloride	7.48	84	24964	459.258	pg	97
14) Trichlorotrifluoroethane	7.80	151	21659	438.794	pg	99
15) trans-1,2-Dichloroethene	8.52	96	25876	499.802	pg	99
16) 1,1-Dichloroethane	8.72	63	42165	455.402	pg	99
17) Methyl tert-Butyl Ether	8.79	73	78758	476.244	pg	99
18) cis-1,2-Dichloroethene	9.59	96	26772	482.940	pg	99
19) Chloroform	9.89	83	47673	475.527	pg	100
21) 1,2-Dichloroethane	10.64	62	36181	480.481	pg	99
22) 1,1,1-Trichloroethane	10.91	97	44534	487.582	pg	100
23) Benzene	11.37	78	97988	453.828	pg	100
24) Carbon Tetrachloride	11.52	117	38622	467.859	pg	100
26) 1,2-Dichloropropane	12.18	63	23788	466.293	pg	99
27) Bromodichloromethane	12.36	83	34570	469.423	pg	100
28) Trichloroethene	12.41	130	26902	486.623	pg	100
29) 1,4-Dioxane	12.38	88	21057	480.462	pg	97
30) cis-1,3-Dichloropropene	13.26	75	38985	482.289	pg	100
31) trans-1,3-Dichloropropene	13.77	75	32137	454.917	pg	99
32) 1,1,2-Trichloroethane	13.95	83	20444	481.177	pg	99
34) Toluene	14.25	91	99494	452.052	pg	100
35) Dibromochloromethane	14.66	129	25959	445.226	pg	100
36) 1,2-Dibromoethane	14.92	107	26111	475.070	pg	100
37) Tetrachloroethene	15.40	166	27094	469.743	pg	99
39) Chlorobenzene	16.10	112	66505	475.214	pg	100
40) Ethylbenzene	16.48	91	113386	479.044	pg	100
41) m,p-Xylene	16.66	91	175338	952.118	pg	100
42) Styrene	17.01	104	60498	447.333	pg	100
43) o-Xylene	17.12	106	42303	466.568	pg	100
44) 1,1,2,2-Tetrachloroethane	17.09	83	41029	466.956	pg	99
46) 1,3,5-Trimethylbenzene	18.38	105	93059	463.976	pg	99
47) 1,2,4-Trimethylbenzene	18.77	105	93456	468.107	pg	99
48) 1,3-Dichlorobenzene	18.92	146	49531	458.220	pg	100
49) 1,4-Dichlorobenzene	18.98	146	48883	435.930	pg	99
50) 1,2-Dichlorobenzene	19.31	146	48575	448.066	pg	100
51) 1,2-Dibromo-3-chloropr...	19.72	157	14610	417.707	pg	99
52) 1,2,4-Trichlorobenzene	20.95	182	28442	399.961	pg	99
53) Naphthalene	21.07	128	96997	410.213	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081702.D Vial: 16
Acq On : 8 Feb 2017 00:54 Operator: CL
Sample : CCV S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 08 07:14:19 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

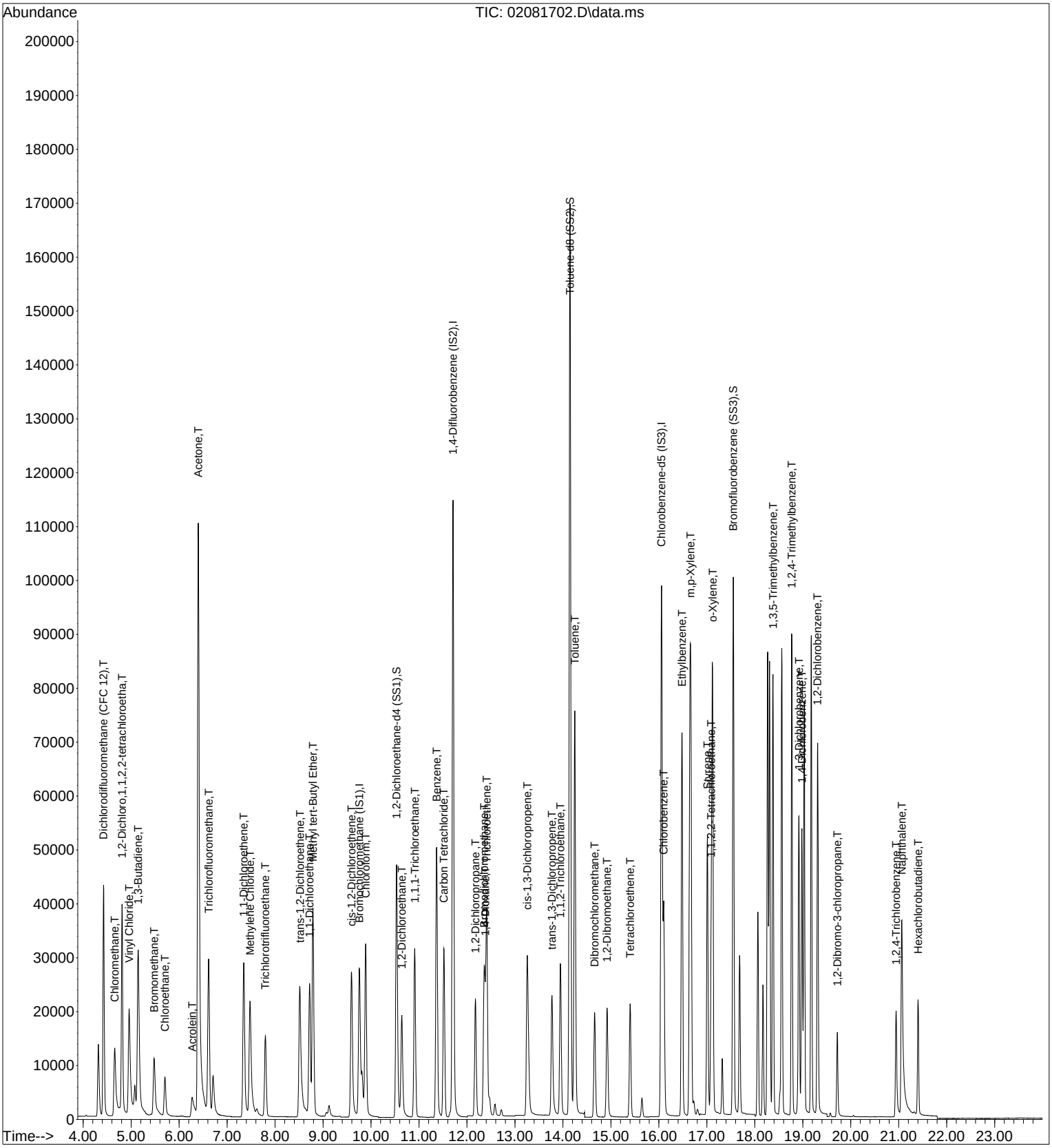
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.40	225	20881	460.522	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 02\07\02081702.D Vial: 16
Acq On : 8 Feb 2017 00:54 Operator: CL
Sample : CCV S19020817 500pg Inst : MS19
Misc : S29-01241701/S29-01301704 (2/28)

Quant Time: Feb 08 07:14:19 2017
Quant Method : I:\MS19\METHODS\S19020317.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Feb 04 07:30:51 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

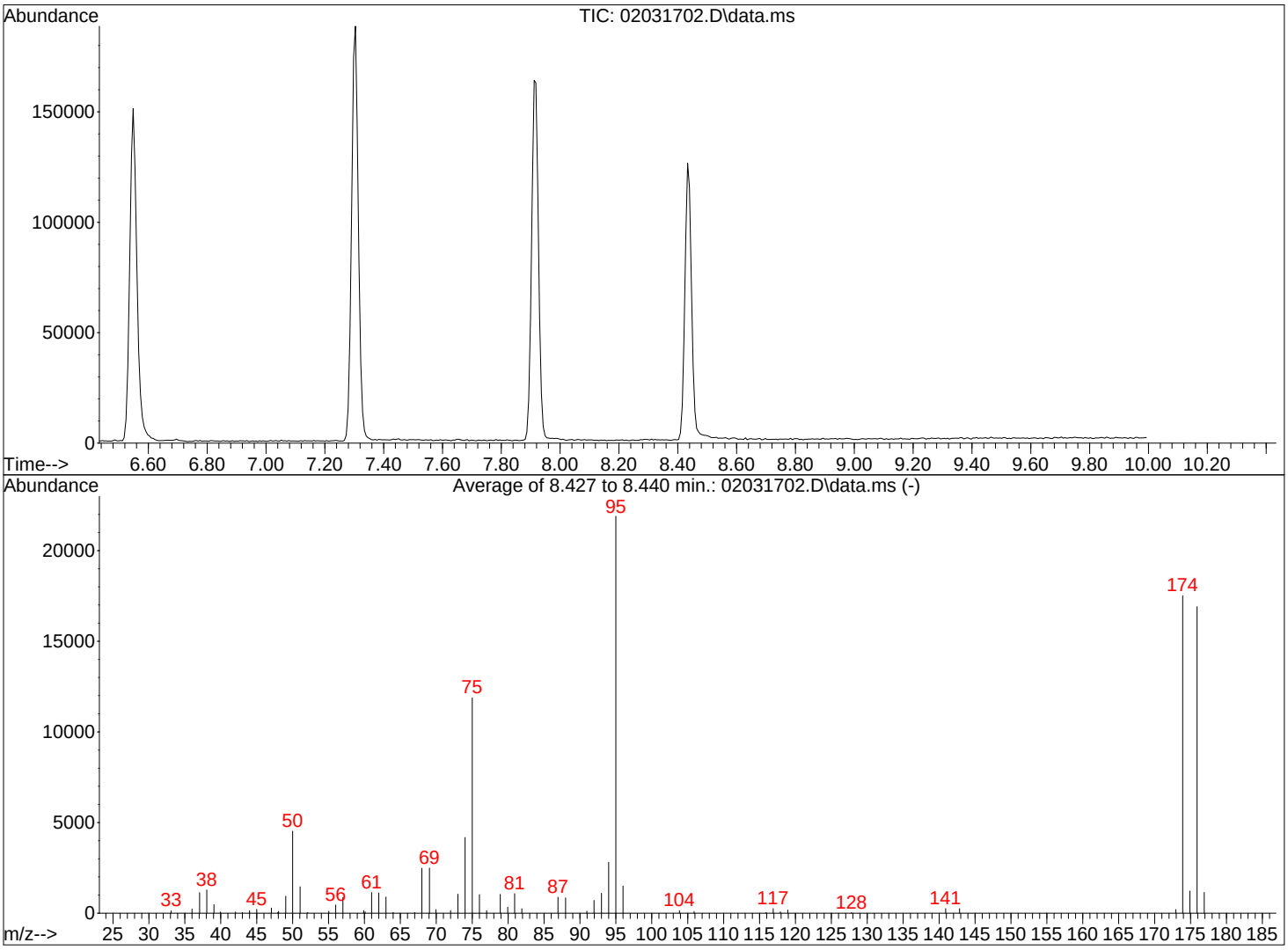


Data Path : I:\MS19\DATA\2017 02\03\
Data File : 02031702.D
Acq On : 3 Feb 2017 7:59
Operator : CL
Sample : BFB S19020317
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19013117.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Feb 01 07:44:10 2017

CL 2/3/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

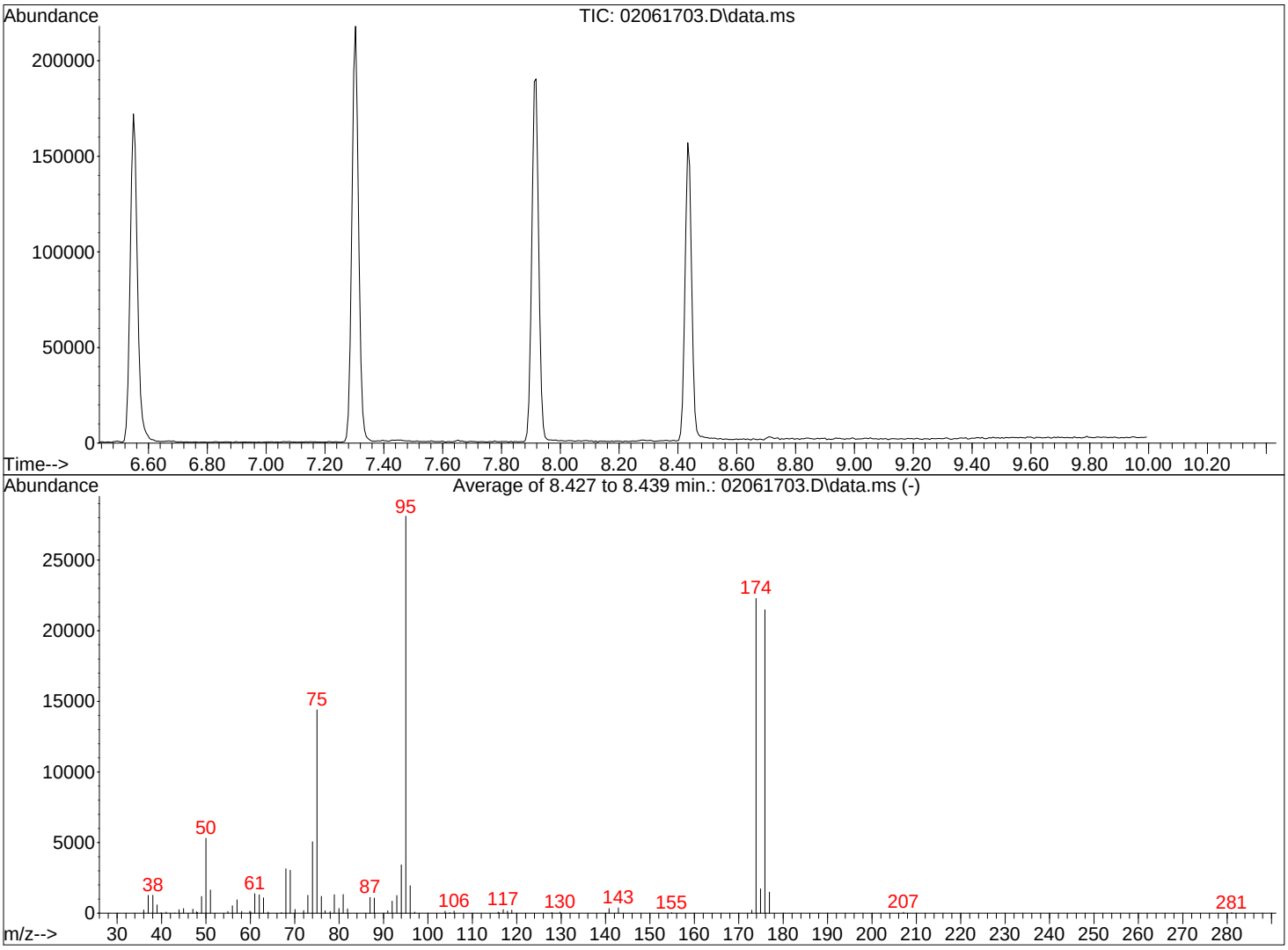
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.7	4524	PASS
75	95	30	66	54.3	11881	PASS
95	95	100	100	100.0	21899	PASS
96	95	5	9	6.8	1500	PASS
173	174	0.00	2	1.1	201	PASS
174	95	50	120	80.0	17513	PASS
175	174	4	9	7.0	1228	PASS
176	174	93	101	96.5	16905	PASS
177	176	5	9	6.8	1146	PASS

Data Path : I:\MS19\DATA\2017 02\06\
Data File : 02061703.D
Acq On : 6 Feb 2017 8:10
Operator : CL
Sample : BFB S19020617
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017

CL 2/6/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.9	5302	PASS
75	95	30	66	51.2	14405	PASS
95	95	100	100	100.0	28112	PASS
96	95	5	9	6.9	1948	PASS
173	174	0.00	2	1.0	216	PASS
174	95	50	120	79.3	22285	PASS
175	174	4	9	7.7	1727	PASS
176	174	93	101	96.4	21487	PASS
177	176	5	9	7.0	1496	PASS

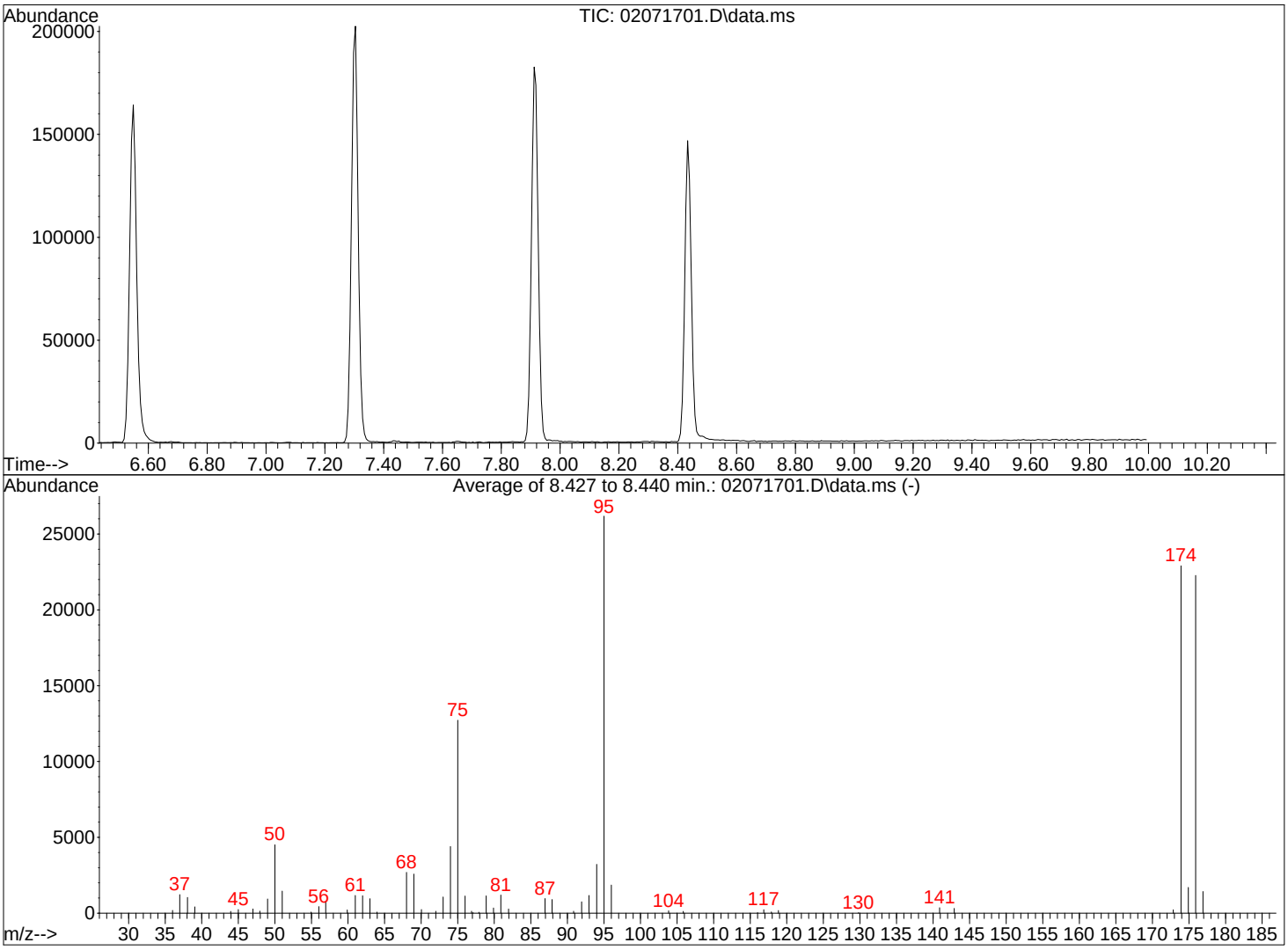
BFB

Data Path : I:\MS19\DATA\2017 02\07\
Data File : 02071701.D
Acq On : 7 Feb 2017 2:36
Operator : CL
Sample : BFB S19020717
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017

CL 2/7/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

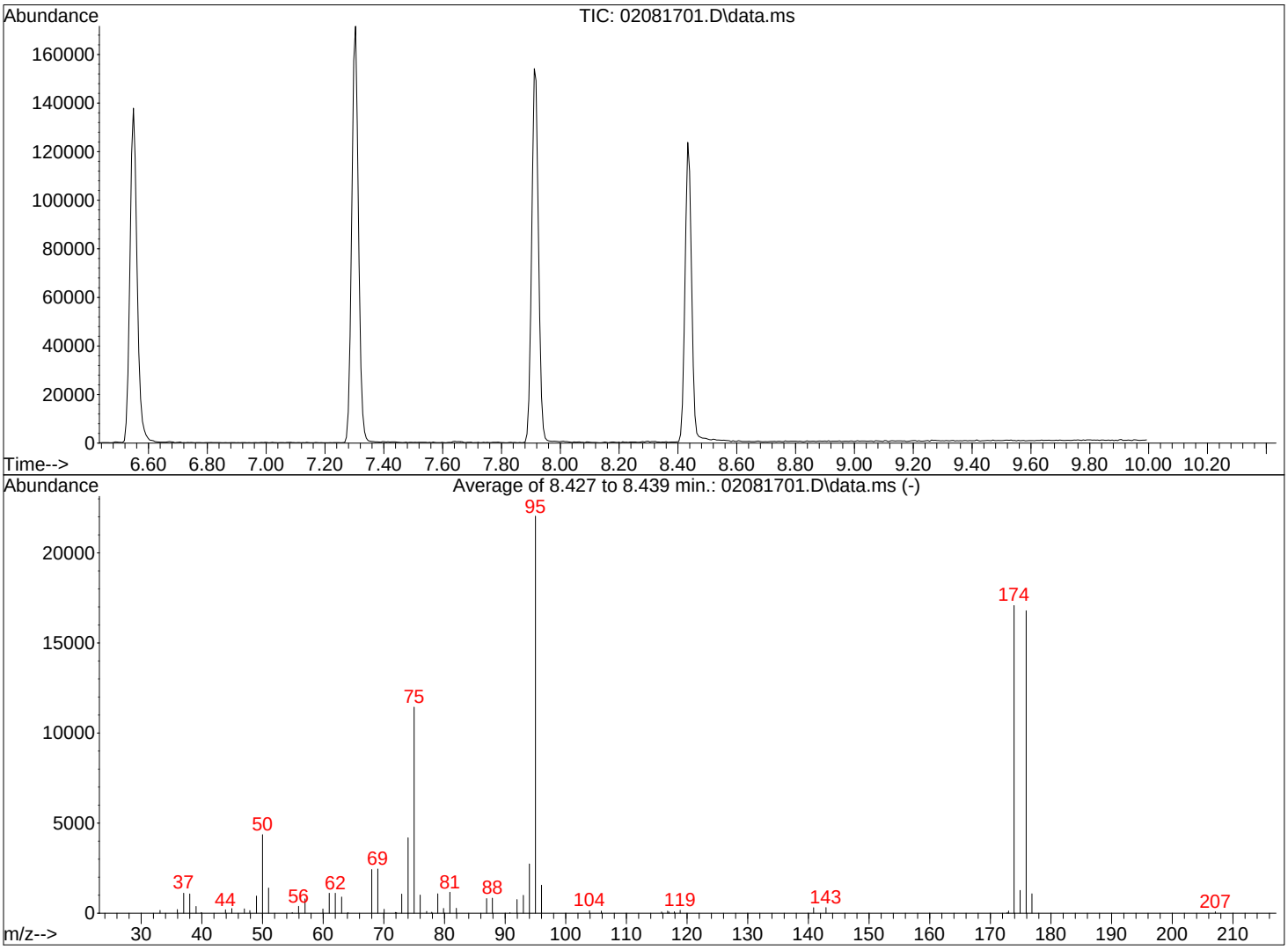
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.2	4513	PASS
75	95	30	66	48.6	12726	PASS
95	95	100	100	100.0	26176	PASS
96	95	5	9	7.1	1858	PASS
173	174	0.00	2	1.0	223	PASS
174	95	50	120	87.5	22904	PASS
175	174	4	9	7.4	1702	PASS
176	174	93	101	97.3	22275	PASS
177	176	5	9	6.4	1431	PASS

Data Path : I:\MS19\DATA\2017 02\07\
Data File : 02081701.D
Acq On : 8 Feb 2017 00:35
Operator : CL
Sample : BFB S19020817
Misc : S29-01241701
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19020317.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Feb 04 07:30:51 2017

CL 2/8/17



AutoFind: Scans 707, 708, 709; Background Corrected with Scan 701

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.8	4358	PASS
75	95	30	66	51.9	11436	PASS
95	95	100	100	100.0	22035	PASS
96	95	5	9	7.1	1558	PASS
173	174	0.00	2	0.7	126	PASS
174	95	50	120	77.5	17077	PASS
175	174	4	9	7.4	1265	PASS
176	174	93	101	98.3	16784	PASS
177	176	5	9	6.4	1081	PASS

Injection Log

Directory: I:\MS19\DATA\2017_02\04\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/3/17 7:59	02031701.D	BFB S19020317	S29-01241701	CL	2	Pass
2	2/3/17 14:51	02031713.D	10pg TO15SIM ICAL STD	S29-01241701/S29-01171712 (2/15)	CL	12	
3	2/3/17 15:22	02031714.D	20pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
4	2/3/17 15:54	02031715.D	50pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
5	2/3/17 16:25	02031716.D	100pg TO15SIM ICAL STD	S29-01241701/S29-01301707 (2/28)	CL	13	
6	2/3/17 16:57	02031717.D	500pg TO15SIM ICAL STD	S29-01241701/S29-01301704 (2/28)	CL	16	
7	2/3/17 17:28	02031718.D	1000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
8	2/3/17 17:59	02031719.D	2000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
9	2/3/17 18:30	02031720.D	5000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
10	2/3/17 19:01	02031721.D	10000pg TO15SIM ICAL STD	S29-01241701/S29-01301702 (2/28)	CL	14	
11	2/3/17 19:33	02031722.D	blank	S29-01241701	CL	2	
12	2/3/17 20:04	02031723.D	50000pg TO15SIM ICAL STD	S29-01241701/S29-01241705 (2/22)	CL	15	
13	2/3/17 20:35	02031724.D	blank	S29-01241701	CL	2	
14	2/3/17 21:06	02031725.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
15	2/3/17 21:38	02031726.D	500pg TO15SIM ICV	S29-01241701/S29-01271703 (2/25)	CL	2	

CL 2/4/17

Injection Log

Directory: I:\MS19\DATA\2017_02\06\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
2	2/6/17 8:10	02061701.D	xxBFB S19020617xx	S29-01241701	CL	2	Autocan Failure
1	2/6/17 7:39	02061702.D	CCV Test	S29-01241701/S29-01301704 (2/28)	CL	16	
2	2/6/17 8:10	02061703.D	BFB S19020617	S29-01241701	CL	2	Pass
3	2/6/17 8:28	02061704.D	CCV S19020617_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
4	2/6/17 8:59	02061705.D	MB S19020617_1000mL	S29-01241701/AC01205	CL	2	Pass
5	2/6/17 9:31	02061706.D	LCS S19020617_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/6/17 10:02	02061707.D	LCSD S19020617_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
7	2/6/17 10:39	02061708.D	P1700288-005 (1000mL)	S29-01241701	CL	1	
8	2/6/17 11:10	02061709.D	P1700288-006 (1000mL)	S29-01241701	CL	3	
9	2/6/17 11:41	02061710.D	P1700288-007 (1000mL)	S29-01241701	CL	4	
10	2/6/17 12:12	02061711.D	P1700288-008 (1000mL)	S29-01241701	CL	5	
11	2/6/17 12:44	02061712.D	P1700288-009 (1000mL)	S29-01241701	CL	6	
12	2/6/17 13:15	02061713.D	P1700288-010 (1000mL)	S29-01241701	CL	7	
13	2/6/17 13:46	02061714.D	blank	S29-01241701	CL	2	
14	2/6/17 14:17	02061715.D	P1700288-011 PF2 (1000mL)	S29-01241701	CL	8	
15	2/6/17 14:48	02061716.D	P1700288-012 (1000mL)	S29-01241701	CL	9	
16	2/6/17 15:31	02061717.D	CCV2 S19020617_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	
17	2/6/17 16:02	02061718.D	P1700288-013 (1000mL)	S29-01241701	CL	10	
18	2/6/17 16:33	02061719.D	P1700288-014 (1000mL)	S29-01241701	CL	11	
19	2/6/17 17:05	02061720.D	P1700288-015 (1000mL)	S29-01241701	CL	12	
20	2/6/17 17:36	02061721.D	P1700288-015dup (1000mL)	S29-01241701	CL	12	Dup Fail, use LCS/LCSD
21	2/6/17 18:07	02061722.D	P1700288-016 (1000mL)	S29-01241701	CL	13	Re-run
22	2/6/17 18:39	02061723.D	P1700288-017 (1000mL)	S29-01241701	CL	14	
23	2/6/17 19:10	02061724.D	blank	S29-01241701	CL	2	
24	2/6/17 19:41	02061725.D	P1700288-018 (1000mL)	S29-01241701	CL	15	
25	2/6/17 20:13	02061726.D	P1700288-019 (1000mL)	S29-01241701	CL	1	
26	2/6/17 20:44	02061727.D	P1700288-020 (1000mL)	S29-01241701	CL	3	
27	2/6/17 21:15	02061728.D	P1700289-001 (1000mL)	S29-01241701	CL	4	
28	2/6/17 21:46	02061729.D	P1700289-002 (1000mL)	S29-01241701	CL	5	
29	2/6/17 22:17	02061730.D	P1700289-003 (1000mL)	S29-01241701	CL	6	
30	2/6/17 22:48	02061731.D	CCV S19020617_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
31	2/6/17 23:19	02061732.D	blank	S29-01241701	CL	2	
32	2/7/17 2:04	02061733.D	blank	S29-01241701	CL	2	

CL 2/7/17

Injection Log

Directory: I:\MS19\DATA\2017_02\07\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/7/17 2:36	02071701.D	BFB S19020717	S29-012417	CL	2	Pass
2	2/7/17 2:54	02071702.D	CCV S19020717_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
3	2/7/17 3:25	02071703.D	MB S19020717_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/7/17 3:57	02071704.D	LCS S19020717_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/7/17 4:28	02071705.D	LCSD S19020717_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/7/17 5:00	02071706.D	P1700289-004 (1000mL)	S29-01241701	CL	7	
7	2/7/17 5:31	02071707.D	P1700289-005 (1000mL)	S29-01241701	CL	8	
8	2/7/17 8:42	02071708.D	xxP1700288-016 (1000mL)xx	S29-01241701	CL	1	Carry over
9	2/7/17 9:13	02071709.D	P1700289-006 PF2 (1000mL)	S29-01241701	CL	3	
10	2/7/17 9:45	02071710.D	P1700288-016 PF2 (1000mL)	S29-01241701	CL	1	
11	2/7/17 10:16	02071711.D	P1700289-007 (1000mL)	S29-01241701	CL	4	
12	2/7/17 10:48	02071712.D	P1700289-007dup (1000mL)	S29-01241701	CL	4	Pass for Dup
13	2/7/17 11:19	02071713.D	P1700289-008 (1000mL)	S29-01241701	CL	5	
14	2/7/17 11:50	02071714.D	blank	S29-01241701	CL	2	
15	2/7/17 12:22	02071715.D	P1700289-009 (1000mL)	S29-01241701	CL	6	
16	2/7/17 12:54	02071716.D	P1700289-010 (1000mL)	S29-01241701	CL	7	
17	2/7/17 13:25	02071717.D	P1700289-011 (1000mL)	S29-01241701	CL	8	
18	2/7/17 13:56	02071718.D	P1700289-012 (1000mL)	S29-01241701	CL	9	
19	2/7/17 14:27	02071719.D	P1700289-013 (1000mL)	S29-01241701	CL	10	
20	2/7/17 14:59	02071720.D	P1700289-014 (1000mL)	S29-01241701	CL	11	
21	2/7/17 15:30	02071721.D	P1700289-015 (1000mL)	S29-01241701	CL	12	
22	2/7/17 16:10	02071722.D	CCV2 S19020717_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Not needed
23	2/7/17 16:41	02071723.D	blank	S29-01241701	CL	2	
24	2/7/17 17:12	02071724.D	P1700324-001 (1000mL)	S29-01241701	CL	1	Surr3 Fail
25	2/7/17 17:43	02071725.D	P1700324-002 PF2 (1000mL)	S29-01241701	CL	3	
26	2/7/17 18:15	02071726.D	P1700324-003 (1000mL)	S29-01241701	CL	4	
27	2/7/17 18:46	02071727.D	P1700324-004 (1000mL)	S29-01241701	CL	5	
28	2/7/17 19:17	02071728.D	blank	S29-01241701	CL	2	
29	2/7/17 19:49	02071729.D	P1700289-016 (1000mL)	S29-01241701	CL	13	
30	2/7/17 20:20	02071730.D	P1700289-017 (1000mL)	S29-01241701	CL	14	
31	2/7/17 20:51	02071731.D	CCV S19020717_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
32	2/7/17 21:23	02071732.D	blank	S29-01241701	CL	2	
33	2/8/17 0:04	02071733.D	blank	S29-01241701	CL	2	

CL 2/8/17

Injection Log

Directory: I:\MS19\DATA\2017_02\08\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/8/17 0:35	02081701.D	BFB S19020817	S29-01241701	CL	2	Pass
2	2/8/17 0:54	02081702.D	CCV S19020817_500pg	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
3	2/8/17 1:27	02081703.D	MB S19020817_1000mL	S29-01241701/AC01205	CL	2	Pass
4	2/8/17 1:59	02081704.D	LCS S19020817_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
5	2/8/17 2:30	02081705.D	LCSD S19020817_500pg	S29-01241701/S29-01271703 (2/25)	CL	2	Pass
6	2/8/17 3:01	02081706.D	P1700289-018 (1000mL)	S29-01241701	CL	15	
7	2/8/17 3:33	02081707.D	P1700289-019 (1000mL)	S29-01241701	CL	6	
8	2/8/17 4:04	02081708.D	P1700289-020 (1000mL)	S29-01241701	CL	7	
9	2/8/17 4:35	02081709.D	P1700289-021 (1000mL)	S29-01241701	CL	8	
10	2/8/17 5:06	02081710.D	P1700289-022 (1000mL)	S29-01241701	CL	9	
11	2/8/17 5:38	02081711.D	P1700289-023 (1000mL)	S29-01241701	CL	10	
12	2/8/17 6:09	02081712.D	P1700289-024 (1000mL)	S29-01241701	CL	11	
13	2/8/17 6:40	02081713.D	CCV S19020817_500pg_End	S29-01241701/S29-01301704 (2/28)	CL	16	Pass
14	2/8/17 8:33	02081714.D	blank	S29-01241701	CL	2	
15	2/8/17 9:04	02081715.D	P1700374-001 (1000mL)	S29-01241701	CL	1	
16	2/8/17 9:35	02081716.D	P1700374-002 (1000mL)	S29-01241701	CL	3	
17	2/8/17 10:07	02081717.D	P1700374-003 (1000mL)	S29-01241701	CL	4	
18	2/8/17 10:38	02081718.D	P1700374-004 (1000mL)	S29-01241701	CL	5	
19	2/8/17 11:10	02081719.D	P1700374-005 (1000mL)	S29-01241701	CL	6	
20	2/8/17 11:42	02081720.D	P1700374-005dup (1000mL)	S29-01241701	CL	6	Pass for Dup, IS3 Fail
21	2/8/17 12:13	02081721.D	P1700374-006 (1000mL)	S29-01241701	CL	7	IS3 Fail
22	2/8/17 12:45	02081722.D	blank	S29-01241701	CL	2	
23	2/8/17 13:16	02081723.D	P1700374-007 (1000mL)	S29-01241701	CL	8	
24	2/8/17 13:47	02081724.D	blank	S29-01241701	CL	2	
25	2/8/17 14:39	02081725.D	P1700394-001 (1000mL)	S29-01241701	CL	9	
26	2/8/17 15:10	02081726.D	P1700435-002 (1000mL)	S29-01241701	CL	1	IS3 Fail
27	2/8/17 15:41	02081727.D	blank	S29-01241701	CL	2	
28	2/8/17 16:13	02081728.D	P1700394-002 (1000mL)	S29-01241701	CL	10	
29	2/8/17 16:44	02081729.D	P1700394-003 (1000mL)	S29-01241701	CL	11	
30	2/8/17 17:15	02081730.D	P1700394-004 (1000mL)	S29-01241701	CL	12	
31	2/8/17 17:47	02081731.D	blank	S29-01241701	CL	2	
32	2/8/17 18:18	02081732.D	blank	S29-01241701	CL	2	

CL 2/9/17

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091731.D
Acq On : 10 Jan 2017 6:50
Operator : JM
Sample : AS00885 FCR00223
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

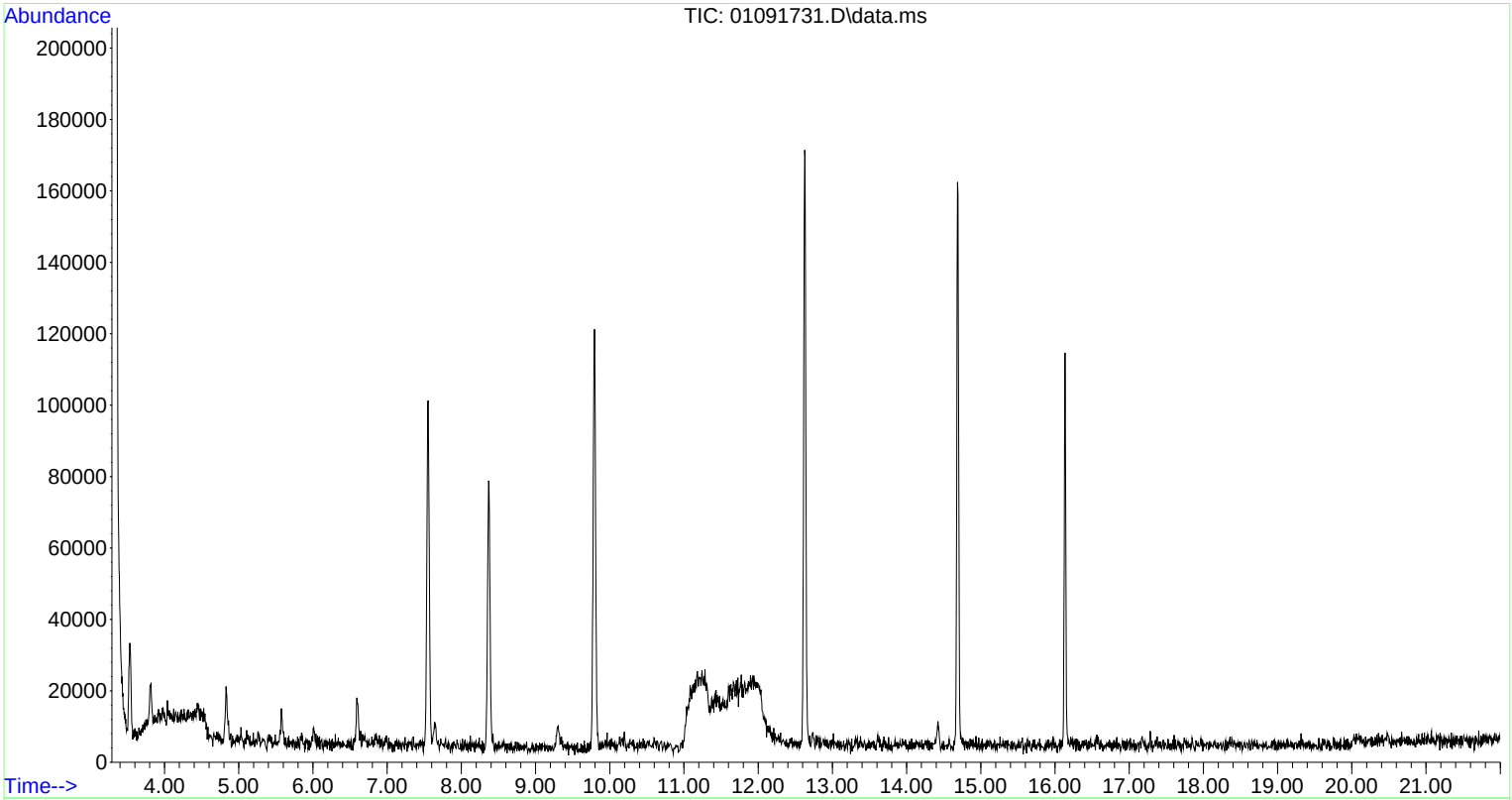
Quant Time: Jan 10 07:51:53 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

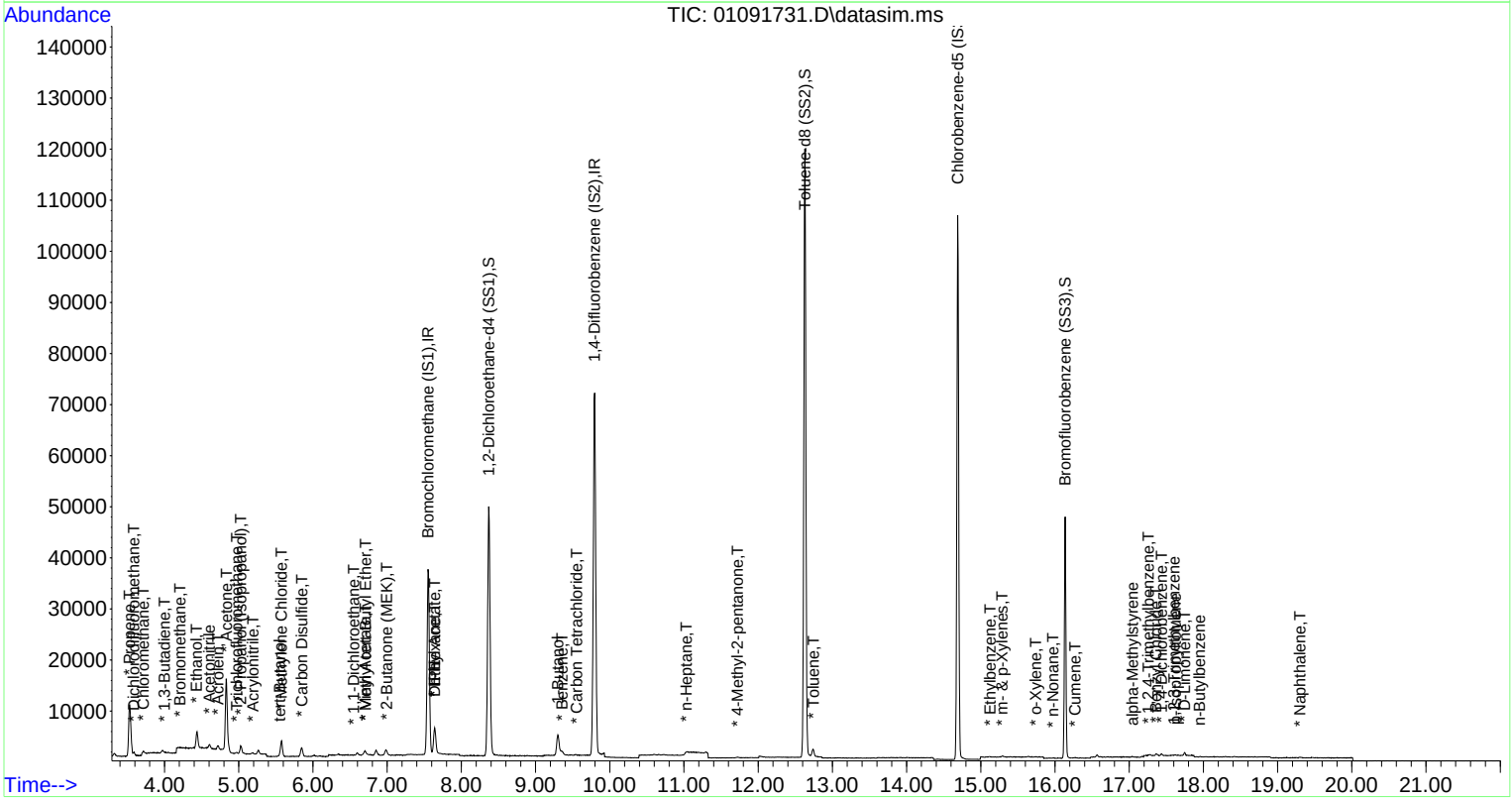
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44626	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	131422	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	102909	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72527	825.220	pg		0.00
Spiked Amount 1000.000			Recovery = 82.52%				
57) Toluene-d8 (SS2)	12.63	98	131996	1049.663	pg		0.00
Spiked Amount 1000.000			Recovery = 104.97%				
74) Bromofluorobenzene (SS3)	16.14	174	33408	806.649	pg		0.00
Spiked Amount 1000.000			Recovery = 80.66%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5014	55.979	pg	#	70
3) * Dichlorodifluoromethane	3.59	85	778	4.078	pg		96
4) * Chloromethane	3.71	50	600	4.207	pg	#	82
7) * 1,3-Butadiene	4.00	54	39	0.385	pg	#	1
8) * Bromomethane	4.21	94	65	0.750	pg		93
10) * Ethanol	4.43	45	3742	61.254	pg		90
11) * Acetonitrile	4.60	41	864	5.641	pg	#	14
12) * Acrolein	4.72	56	627	12.251	pg	#	79
13) * Acetone	4.84	58	7364	127.623	pg	#	61
14) * Trichlorofluoromethane	4.97	101	223	1.750	pg	#	69
15) * 2-Propanol (Isopropa...	5.03	45	2075	13.272	pg	#	72
16) * Acrylonitrile	5.19	53	192	2.113	pg		85
18) tert-Butanol	5.55	59	256	2.717	pg	#	67
19) * Methylene Chloride	5.58	84	3535	54.999	pg		95
22) * Carbon Disulfide	5.85	76	3209	13.619	pg		99
24) * 1,1-Dichloroethane	6.55	63	65	0.597	pg	#	18
25) * Methyl tert-Butyl Ether	6.71	73	52	0.459	pg	#	50
26) * Vinyl Acetate	6.71	86	191	15.784	pg	#	20
27) * 2-Butanone (MEK)	6.99	72	423	12.214	pg		78
29) DIPE	7.64	45	1083	5.365	pg	#	53
30) * Ethyl Acetate	7.64	61	1169	66.024	pg		86
31) * n-Hexane	7.64	57	145	1.593	pg	#	60
39) * Benzene	9.36	78	1011	6.670	pg	#	77
41) 1-Butanol	9.30	56	3598	126.641	pg	#	48
42) * Carbon Tetrachloride	9.55	117	67	1.136	pg	#	74
51) * n-Heptane	11.03	71	281	3.611	pg	#	86
53) * 4-Methyl-2-pentanone	11.72	58	50	1.826	pg	#	47
58) * Toluene	12.74	91	1738	11.949	pg		96
66) * Ethylbenzene	15.12	91	130	1.060	pg	#	79
67) * m- & p-Xylenes	15.29	91	270	2.833	pg		95
71) * o-Xylene	15.74	91	77	0.826	pg	#	18
72) * n-Nonane	15.97	57	98	2.333	pg	#	42
75) * Cumene	16.27	105	95	0.715	pg	#	49
81) alpha-Methylstyrene	17.05	118	76	2.238	pg	#	20
84) * 1,2,4-Trimethylbenzene	17.26	105	85	1.121	pg	#	24
85) * Benzyl Chloride	17.36	126	77	10.075	pg	#	53
87) * 1,4-Dichlorobenzene	17.43	146	277	8.011	pg		86
90) 1,2,3-Trimethylbenzene	17.61	105	66	0.830	pg	#	27
91) p-Isopropyltoluene	17.62	134	58	2.411	pg	#	1
93) * D-Limonene	17.75	68	333	9.976	pg	#	82
94) n-Butylbenzene	17.95	134	59	4.192	pg	#	1
98) * Naphthalene	19.30	128	54	1.669	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091731.D
Acq On : 10 Jan 2017 6:50
Operator : JM
Sample : AS00885 FCR00223
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Jan 10 07:51:53 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051718.D Vial: 14
Acq On : 5 Jan 2017 22:16 Operator: CL
Sample : AS00974-FCR00228 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

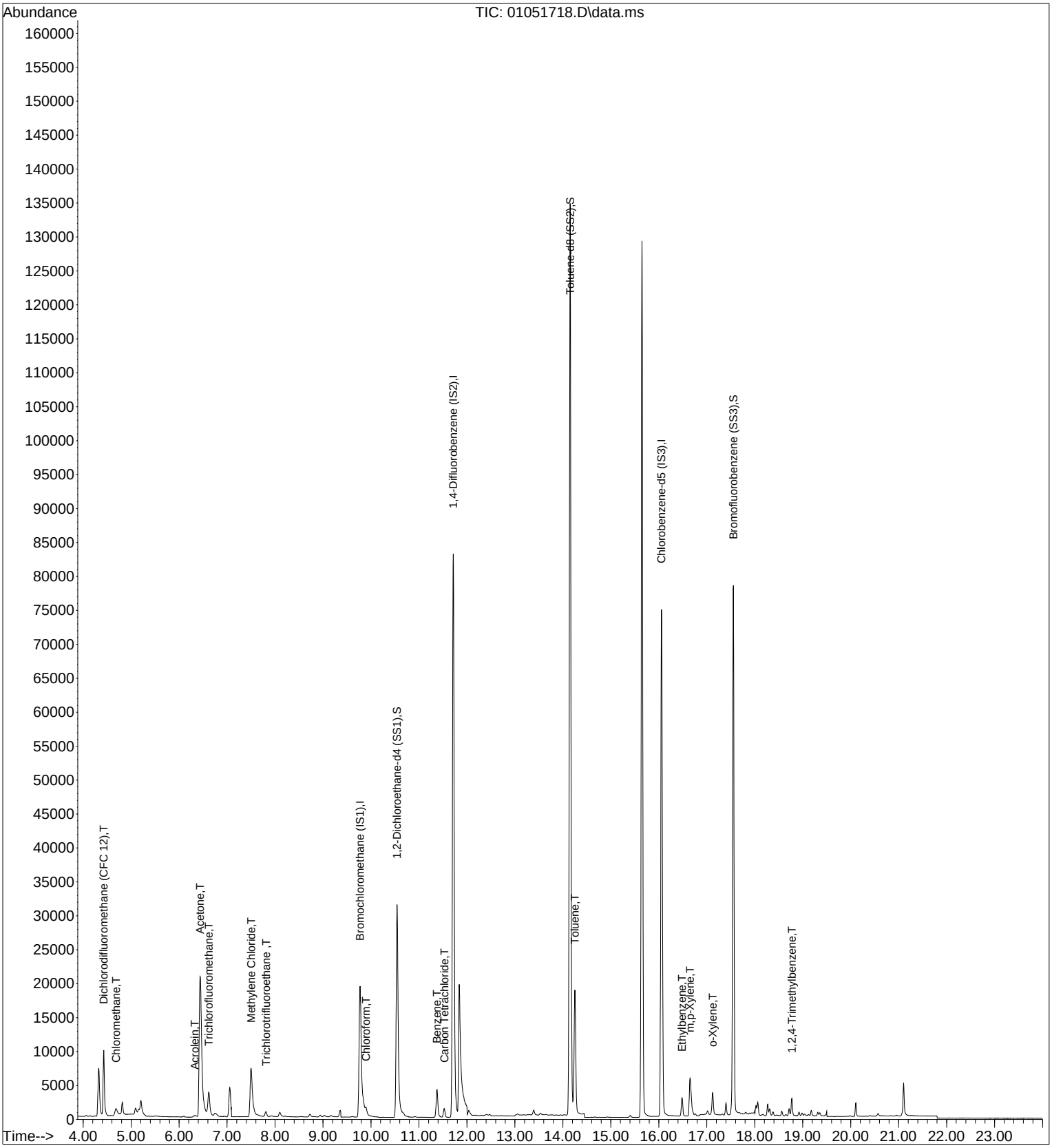
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	38252	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.71	114	177650	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	27639	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	60671	990.228	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.02%				
33) Toluene-d8 (SS2)	14.15	98	179941	1036.993	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.70%				
45) Bromofluorobenzene (SS3)	17.56	174	61338	1119.846	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 111.99%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.43	85	13088	141.008	pg		100
3) Chloromethane	4.69	52	1044	42.020	pg		97
9) Acrolein	6.33	56	684	39.909	pg	#	53
10) Acetone	6.43	58	18370	803.355	pg	#	82
11) Trichlorofluoromethane	6.62	101	5289	77.840	pg		100
13) Methylene Chloride	7.50	84	9678	216.598	pg		91
14) Trichlorotrifluoroethane	7.81	151	1098	26.417	pg		99
19) Chloroform	9.90	83	1370	17.138	pg		95
23) Benzene	11.38	78	8547	45.294	pg		100
24) Carbon Tetrachloride	11.53	117	1570	25.096	pg		100
34) Toluene	14.25	91	25197	149.441	pg		100
40) Ethylbenzene	16.48	91	4458	23.378	pg		100
41) m,p-Xylene	16.65	91	10416	65.331	pg		100
43) o-Xylene	17.12	106	1755	23.762	pg		93
47) 1,2,4-Trimethylbenzene	18.77	105	2593	16.312	pg		89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051718.D Vial: 14
Acq On : 5 Jan 2017 22:16 Operator: CL
Sample : AS00974-FCR00228 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091732.D
Acq On : 10 Jan 2017 7:31
Operator : JM
Sample : AS00877 FCA01010
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

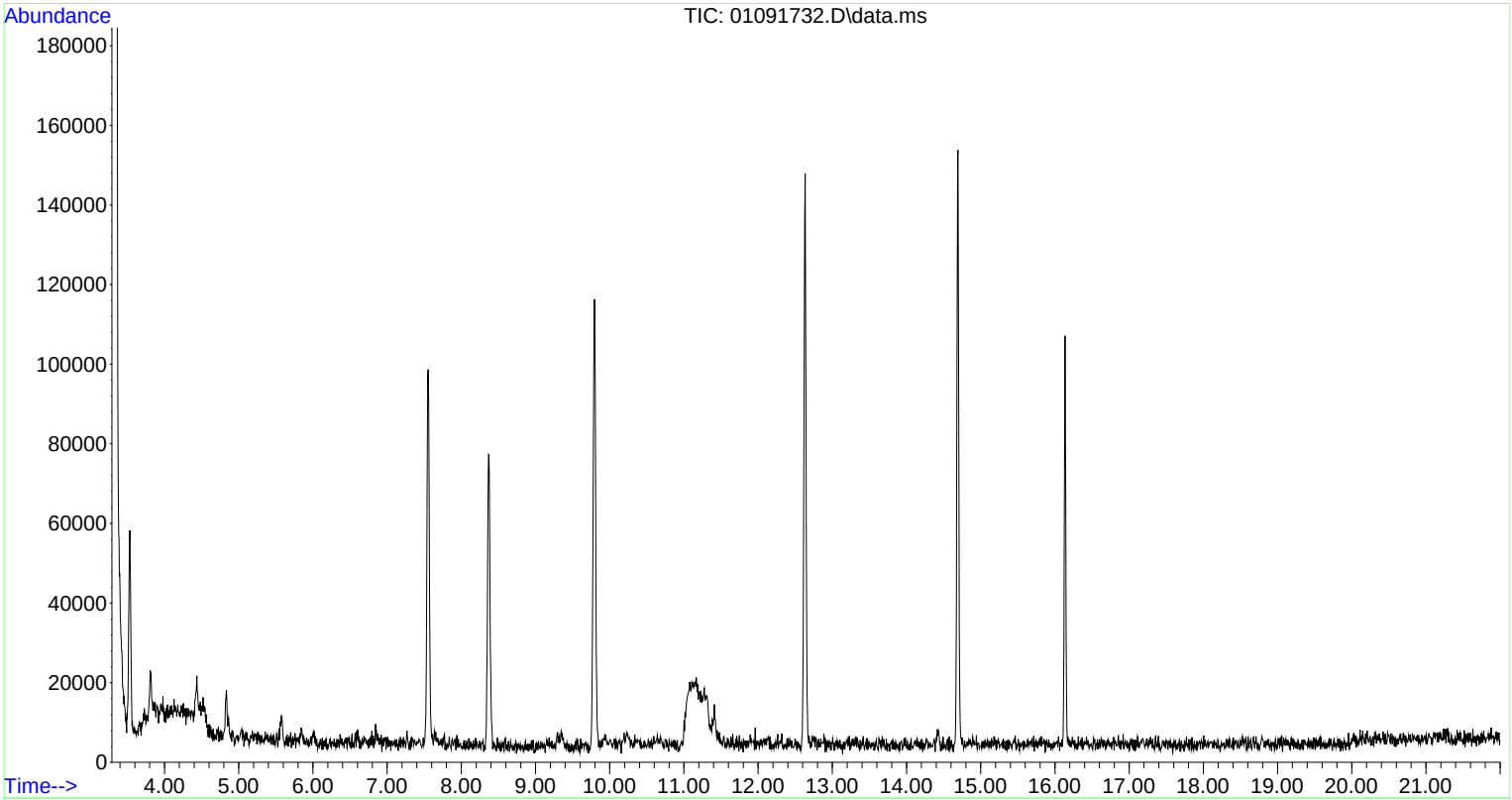
Quant Time: Jan 10 11:19:34 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

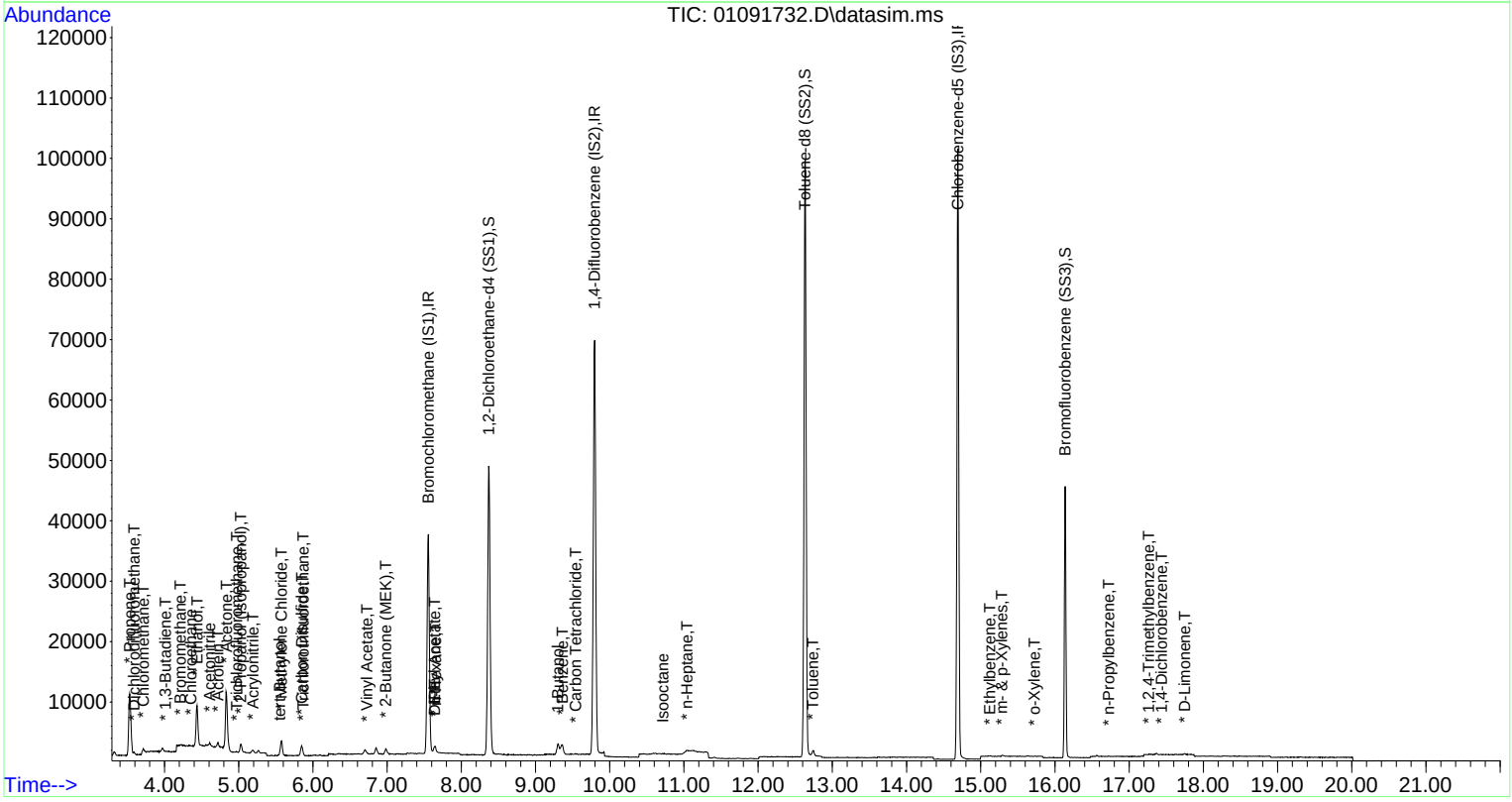
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44682	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	126549	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	96711	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	71371	811.049 pg		0.00
Spiked Amount 1000.000			Recovery = 81.10%			
57) Toluene-d8 (SS2)	12.63	98	112050	948.153 pg		0.00
Spiked Amount 1000.000			Recovery = 94.81%			
74) Bromofluorobenzene (SS3)	16.14	174	31612	812.202 pg		0.00
Spiked Amount 1000.000			Recovery = 81.22%			
Target Compounds						Qvalue
2) * Propene	3.53	42	4859	54.180 pg	#	71
3) * Dichlorodifluoromethane	3.59	85	443	2.319 pg		91
4) * Chloromethane	3.71	50	712	4.986 pg		96
7) * 1,3-Butadiene	4.01	54	42	0.414 pg	#	1
8) * Bromomethane	4.21	94	147	1.694 pg	#	45
9) * Chloroethane	4.35	64	57	0.920 pg	#	1
10) * Ethanol	4.44	45	7898	129.123 pg		97
11) * Acetonitrile	4.61	41	710	4.630 pg	#	11
12) * Acrolein	4.72	56	661	12.899 pg		92
13) * Acetone	4.84	58	5503	95.251 pg	#	50
14) * Trichlorofluoromethane	4.97	101	189	1.481 pg		96
15) * 2-Propanol (Isopropa...	5.03	45	1814	11.588 pg		90
16) * Acrylonitrile	5.19	53	505	5.550 pg		94
18) tert-Butanol	5.55	59	325	3.445 pg	#	49
19) * Methylene Chloride	5.58	84	2721	42.282 pg		99
21) * Trichlorotrifluoroet...	5.87	151	53	1.060 pg	#	19
22) * Carbon Disulfide	5.85	76	3100	13.140 pg	#	93
26) * Vinyl Acetate	6.73	86	98	8.088 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	241	6.950 pg		84
29) DIPE	7.64	45	266	1.316 pg	#	53
30) * Ethyl Acetate	7.64	61	275	15.512 pg	#	83
31) * n-Hexane	7.65	57	79	0.867 pg	#	60
39) * Benzene	9.36	78	2968	20.337 pg		96
41) 1-Butanol	9.30	56	1521	55.597 pg	#	54
42) * Carbon Tetrachloride	9.54	117	69	1.215 pg	#	1
49) Isooctane	10.71	56	69	0.989 pg	#	59
51) * n-Heptane	11.04	71	125	1.668 pg	#	43
58) * Toluene	12.74	91	1116	8.165 pg		99
66) * Ethylbenzene	15.12	91	109	0.946 pg	#	45
67) * m- & p-Xylenes	15.28	91	250	2.791 pg		98
71) * o-Xylene	15.72	91	116	1.324 pg	#	32
77) * n-Propylbenzene	16.73	91	65	0.565 pg	#	56
84) * 1,2,4-Trimethylbenzene	17.26	105	105	1.474 pg		99
87) * 1,4-Dichlorobenzene	17.43	146	67	2.062 pg	#	17
93) * D-Limonene	17.75	68	128	4.080 pg	#	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091732.D
Acq On : 10 Jan 2017 7:31
Operator : JM
Sample : AS00877 FCA01010
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Jan 10 11:19:34 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101733.D
Acq On : 11 Jan 2017 6:55
Operator : JM
Sample : AS00934 FCA01052
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 11 09:12:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	42748	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	119949	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	98677	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	68191	809.970	pg		0.00
Spiked Amount 1000.000			Recovery = 81.00%				
57) Toluene-d8 (SS2)	12.63	98	118258	980.747	pg		0.00
Spiked Amount 1000.000			Recovery = 98.08%				
74) Bromofluorobenzene (SS3)	16.14	174	31370	789.926	pg		0.00
Spiked Amount 1000.000			Recovery = 78.99%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5077	59.172	pg	#	70
3) * Dichlorodifluoromethane	3.59	85	872	4.771	pg		97
4) * Chloromethane	3.71	50	658	4.816	pg	#	84
7) * 1,3-Butadiene	4.01	54	34	0.350	pg	#	1
9) * Chloroethane	4.38	64	192	3.238	pg	#	41
10) * Ethanol	4.43	45	6311	107.846	pg		96
11) * Acetonitrile	4.60	41	1184	8.069	pg	#	42
12) * Acrolein	4.72	56	754	15.380	pg		99
13) * Acetone	4.83	58	11833	214.084	pg	#	64
14) * Trichlorofluoromethane	4.97	101	331	2.711	pg	#	81
15) * 2-Propanol (Isopropa...	5.03	45	4973	33.206	pg		96
16) * Acrylonitrile	5.19	53	678	7.789	pg		91
18) tert-Butanol	5.55	59	436	4.830	pg		84
19) * Methylene Chloride	5.58	84	3306	53.696	pg		97
22) * Carbon Disulfide	5.85	76	4443	19.684	pg	#	85
26) * Vinyl Acetate	6.71	86	256	22.084	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	643	19.382	pg		68
29) DIPE	7.64	45	1154	5.968	pg	#	53
30) * Ethyl Acetate	7.64	61	1084	63.913	pg		98
31) * n-Hexane	7.65	57	159	1.823	pg	#	60
32) * Chloroform	7.69	83	57	0.529	pg	#	16
39) * Benzene	9.35	78	966	6.983	pg		93
41) 1-Butanol	9.30	56	2100	80.985	pg	#	43
42) * Carbon Tetrachloride	9.54	117	61	1.133	pg	#	1
47) * Trichloroethene	10.63	130	57	1.292	pg	#	48
48) * 1,4-Dioxane	10.66	88	53	1.837	pg	#	9
51) * n-Heptane	11.04	71	211	2.971	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	145	5.802	pg	#	47
58) * Toluene	12.74	91	3991	28.616	pg		99
59) * 2-Hexanone	13.08	58	85	3.563	pg	#	68
62) * n-Butyl Acetate	13.80	56	94	5.510	pg	#	37
64) * Tetrachloroethene	14.01	166	211	4.549	pg	#	77
65) * Chlorobenzene	14.74	112	88	0.958	pg	#	1
66) * Ethylbenzene	15.13	91	288	2.449	pg		95
67) * m- & p-Xylenes	15.29	91	631	6.905	pg	#	84
70) * Styrene	15.63	104	349	7.173	pg		99
71) * o-Xylene	15.74	91	260	2.909	pg	#	86
72) * n-Nonane	15.98	57	88	2.184	pg	#	42
77) * n-Propylbenzene	16.72	91	90	0.766	pg	#	56
78) 3-Ethyltoluene	16.81	105	234	2.861	pg		100
79) * 4-Ethyltoluene	16.85	105	168	2.342	pg		92
80) * 1,3,5-Trimethylbenzene	16.91	105	71	0.883	pg	#	48
81) alpha-Methylstyrene	17.05	118	72	2.211	pg	#	20
82) 2-Ethyltoluene	17.08	105	82	0.840	pg	#	16
83) tert-Butylbenzene	17.28	134	315	17.434	pg	#	1

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101733.D
Acq On : 11 Jan 2017 6:55
Operator : JM
Sample : AS00934 FCA01052
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

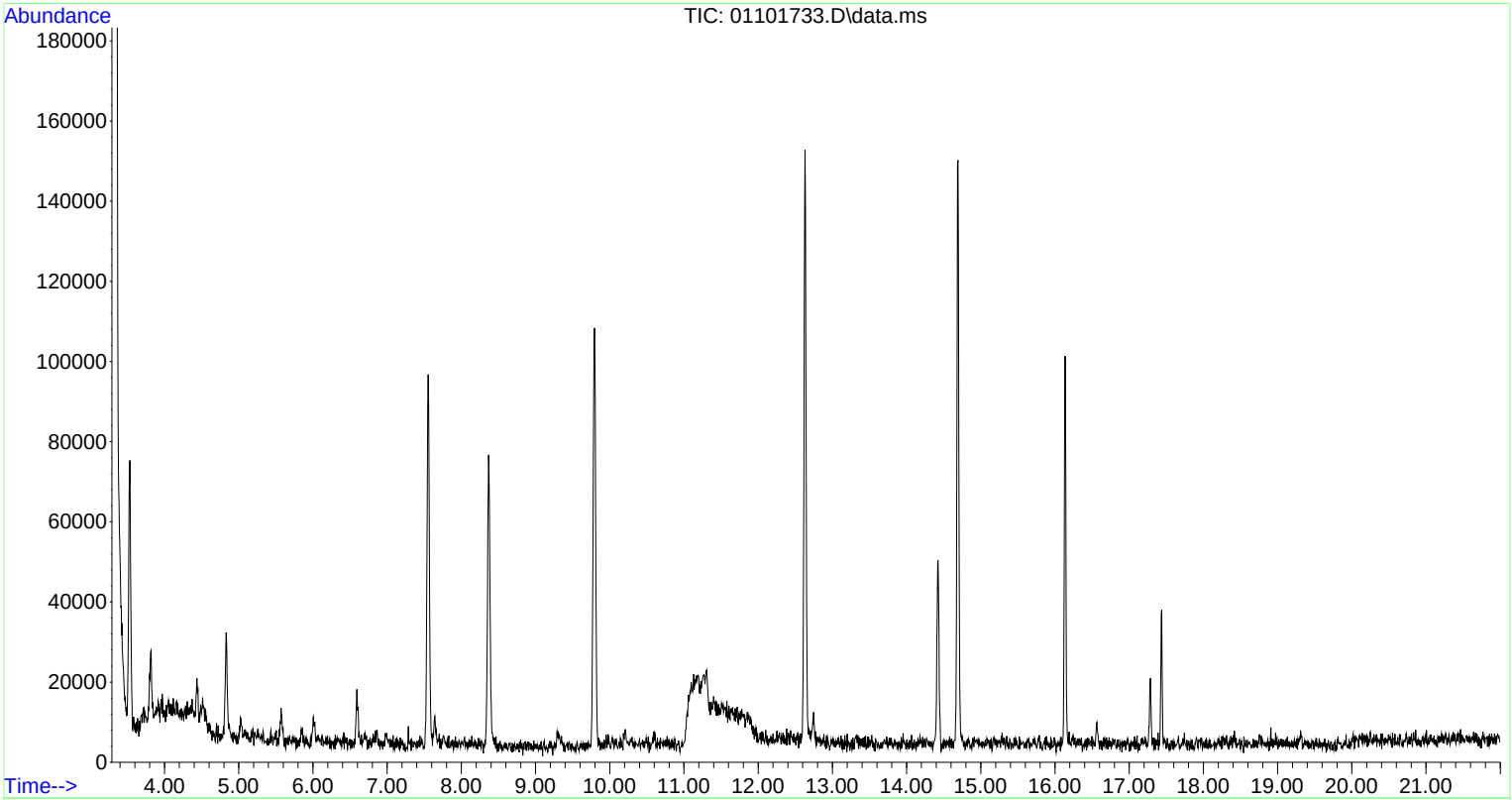
Quant Time: Jan 11 09:12:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

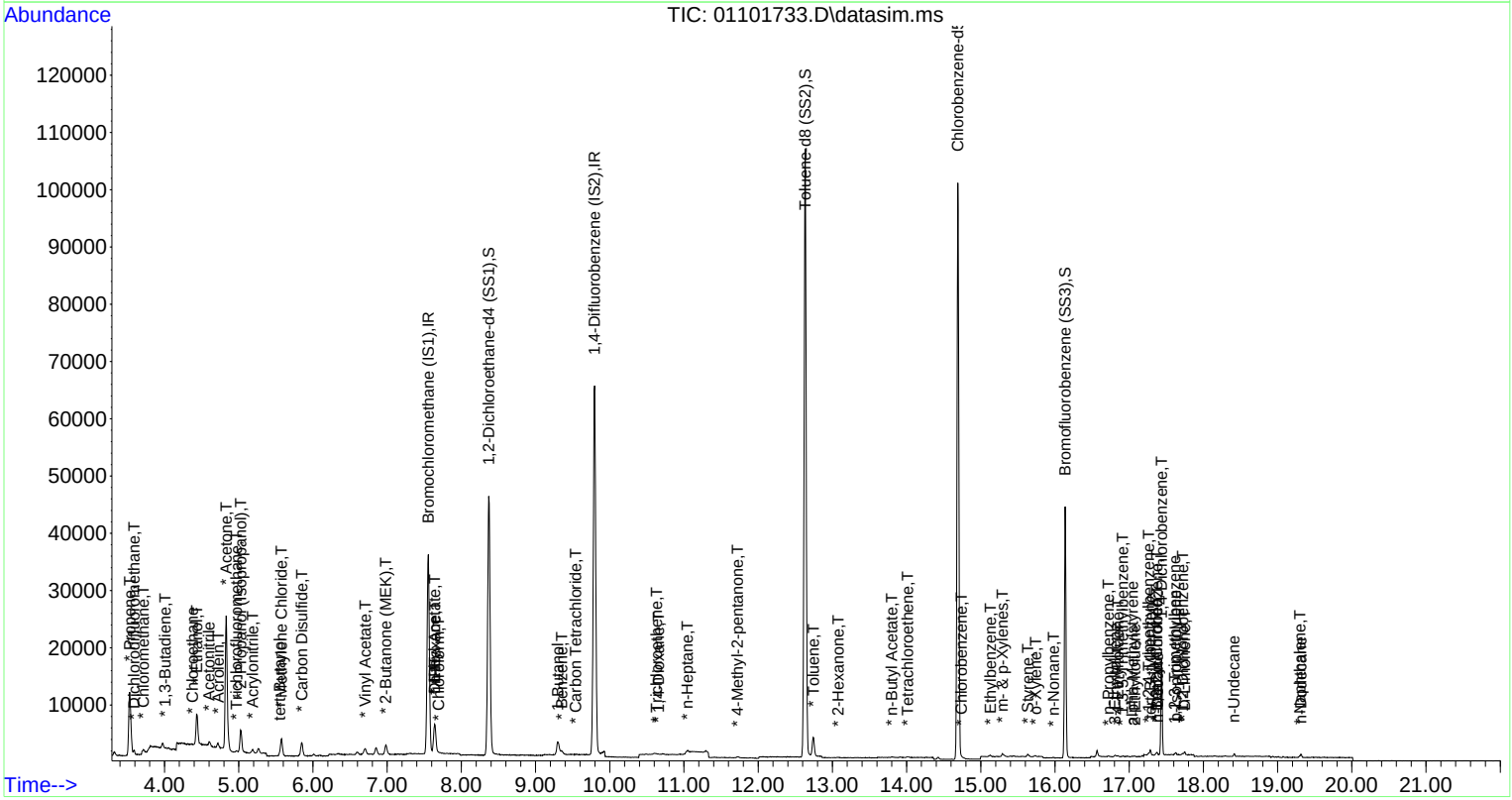
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
84) * 1,2,4-Trimethylbenzene	17.26	105	198	2.724	pg	#	79
85) * Benzyl Chloride	17.37	126	101	13.782	pg	#	11
86) * 1,3-Dichlorobenzene	17.37	146	130	3.330	pg		95
87) * 1,4-Dichlorobenzene	17.43	146	12408	374.243	pg		97
88) n-Decane	17.38	85	63	4.533	pg	#	25
90) 1,2,3-Trimethylbenzene	17.61	105	132	1.732	pg	#	27
91) p-Isopropyltoluene	17.63	134	65	2.818	pg		89
92) * 1,2-Dichlorobenzene	17.72	146	173	3.857	pg		90
93) * D-Limonene	17.75	68	313	9.779	pg		85
96) n-Undecane	18.41	85	122	15.351	pg		99
98) * Naphthalene	19.30	128	260	8.380	pg	#	55
99) n-Dodecane	19.31	85	135	27.046	pg		87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101733.D
Acq On : 11 Jan 2017 6:55
Operator : JM
Sample : AS00934 FCA01052
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 11 09:12:35 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101717.D Vial: 5
Acq On : 10 Jan 2017 17:53 Operator: CL
Sample : AC00988-FCA00458 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:10 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

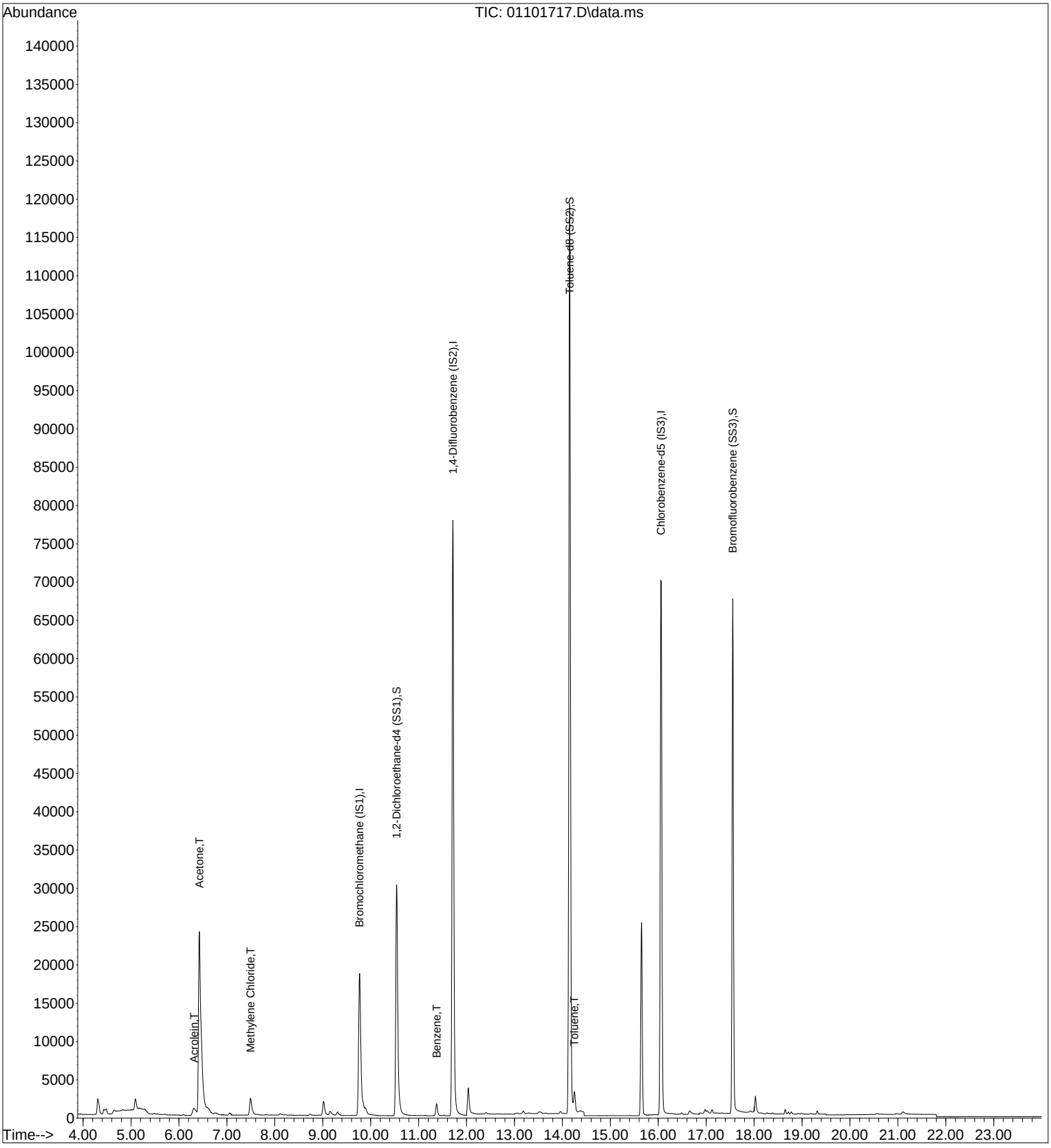
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	35099	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	163529	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	26999	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	58351	1042.360	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.24%				
33) Toluene-d8 (SS2)	14.15	98	166689	1080.330	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.03%				
45) Bromofluorobenzene (SS3)	17.56	174	52516	1015.739	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.57%				
Target Compounds							Qvalue
9) Acrolein	6.32	56	3016	188.214	pg		96
10) Acetone	6.43	58	32991	1488.858	pg	#	51
13) Methylene Chloride	7.49	84	2626	63.250	pg	#	80
23) Benzene	11.38	78	3259	18.565	pg		100
34) Toluene	14.25	91	3465	22.598	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101717.D Vial: 5
Acq On : 10 Jan 2017 17:53 Operator: CL
Sample : AC00988-FCA00458 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:10 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101716.D Vial: 4
Acq On : 10 Jan 2017 17:22 Operator: CL
Sample : AC01365-FCA00925 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:08 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

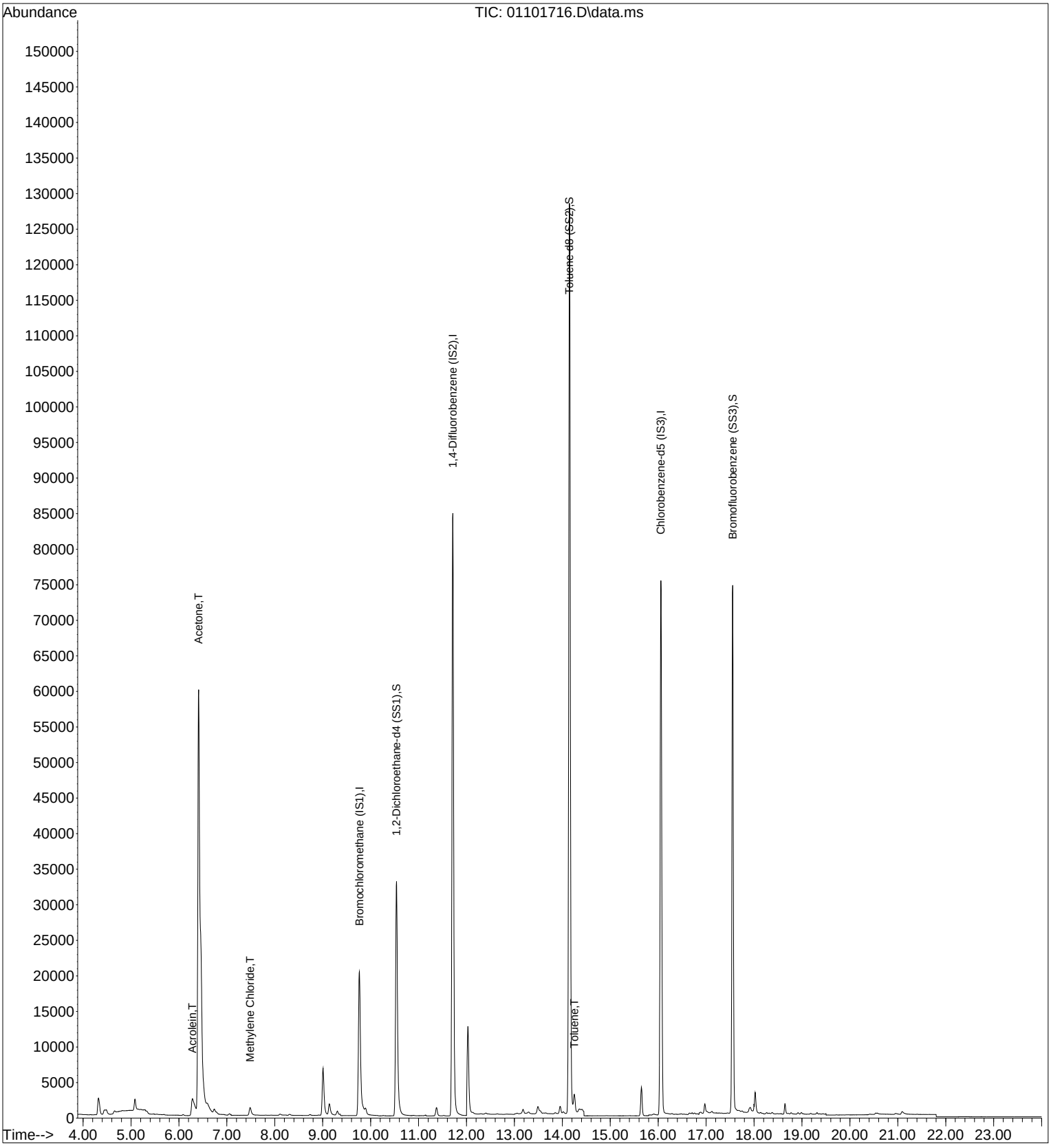
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	36334	1000.000	pg	-0.01
25) 1,4-Difluorobenzene (IS2)	11.72	114	174084	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	28670	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	60455	1043.238	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.32%			
33) Toluene-d8 (SS2)	14.15	98	178547	1087.021	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.70%			
45) Bromofluorobenzene (SS3)	17.56	174	57710	1051.142	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.11%			
Target Compounds						Qvalue
9) Acrolein	6.28	56	7710	464.789	pg	91
10) Acetone	6.41	58	34875	1520.385	pg	# 40
13) Methylene Chloride	7.48	84	1176	27.362	pg	87
34) Toluene	14.25	91	3355	20.554	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101716.D Vial: 4
Acq On : 10 Jan 2017 17:22 Operator: CL
Sample : AC01365-FCA00925 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:08 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111729.D
Acq On : 12 Jan 2017 4:25
Operator : JM
Sample : AS00799 FCA00824
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 12 08:23:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39356	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	105165	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	87796	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	61420	792.422 pg		0.00
Spiked Amount 1000.000			Recovery = 79.24%			
57) Toluene-d8 (SS2)	12.63	98	112390	1047.600 pg		0.00
Spiked Amount 1000.000			Recovery = 104.76%			
74) Bromofluorobenzene (SS3)	16.14	174	28618	809.939 pg		0.00
Spiked Amount 1000.000			Recovery = 80.99%			
Target Compounds						Qvalue
2) * Propene	3.53	42	7876	99.706 pg		81
3) * Dichlorodifluoromethane	3.59	85	5263	31.278 pg		100
4) * Chloromethane	3.72	50	2211	17.577 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	188	1.505 pg		95
6) * Vinyl Chloride	3.84	62	53	0.441 pg	#	42
7) * 1,3-Butadiene	4.00	54	83	0.929 pg	#	1
8) * Bromomethane	4.21	94	73	0.955 pg	#	1
9) * Chloroethane	4.35	64	111	2.033 pg	#	41
10) * Ethanol	4.43	45	4934	91.582 pg		94
11) * Acetonitrile	4.61	41	1926	14.258 pg	#	53
12) * Acrolein	4.72	56	892	19.763 pg		95
13) * Acetone	4.83	58	11194	219.978 pg		68
14) * Trichlorofluoromethane	4.97	101	2019	17.961 pg		95
15) * 2-Propanol (Isopropa...	5.03	45	5087	36.895 pg	#	88
16) * Acrylonitrile	5.19	53	361	4.505 pg		87
18) tert-Butanol	5.55	59	505	6.077 pg	#	78
19) * Methylene Chloride	5.58	84	8567	151.138 pg		98
20) * 3-Chloro-1-propene (...	5.72	41	62	0.819 pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	393	8.920 pg		99
22) * Carbon Disulfide	5.85	76	6166	29.673 pg		98
24) * 1,1-Dichloroethane	6.59	63	55	0.573 pg	#	42
26) * Vinyl Acetate	6.71	86	123	11.525 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	788	25.800 pg		71
29) DIPE	7.64	45	2066	11.606 pg	#	60
30) * Ethyl Acetate	7.64	61	2133	136.601 pg		96
31) * n-Hexane	7.65	57	489	6.090 pg	#	51
32) * Chloroform	7.68	83	58	0.584 pg	#	1
36) * 1,2-Dichloroethane	8.49	62	91	1.083 pg	#	42
39) * Benzene	9.36	78	1740	14.347 pg		91
41) 1-Butanol	9.31	56	2164	95.184 pg	#	48
42) * Carbon Tetrachloride	9.54	117	538	11.402 pg		98
48) * 1,4-Dioxane	10.66	88	190	7.512 pg	#	42
49) Isooctane	10.73	56	106	1.828 pg	#	13
51) * n-Heptane	11.02	71	100	1.606 pg	#	1
53) * 4-Methyl-2-pentanone	11.72	58	184	8.397 pg	#	76
58) * Toluene	12.74	91	6707	54.050 pg		99
59) * 2-Hexanone	13.07	58	564	26.571 pg	#	84
62) * n-Butyl Acetate	13.81	56	155	10.211 pg	#	37
64) * Tetrachloroethene	14.02	166	189	4.580 pg	#	53
66) * Ethylbenzene	15.12	91	544	5.198 pg	#	74
67) * m- & p-Xylenes	15.29	91	1396	17.170 pg	#	86
70) * Styrene	15.64	104	207	4.782 pg	#	69
71) * o-Xylene	15.73	91	353	4.439 pg	#	78
72) * n-Nonane	15.99	57	83	2.316 pg	#	42
76) * alpha-Pinene	16.61	93	154	2.987 pg	#	73

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111729.D
Acq On : 12 Jan 2017 4:25
Operator : JM
Sample : AS00799 FCA00824
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

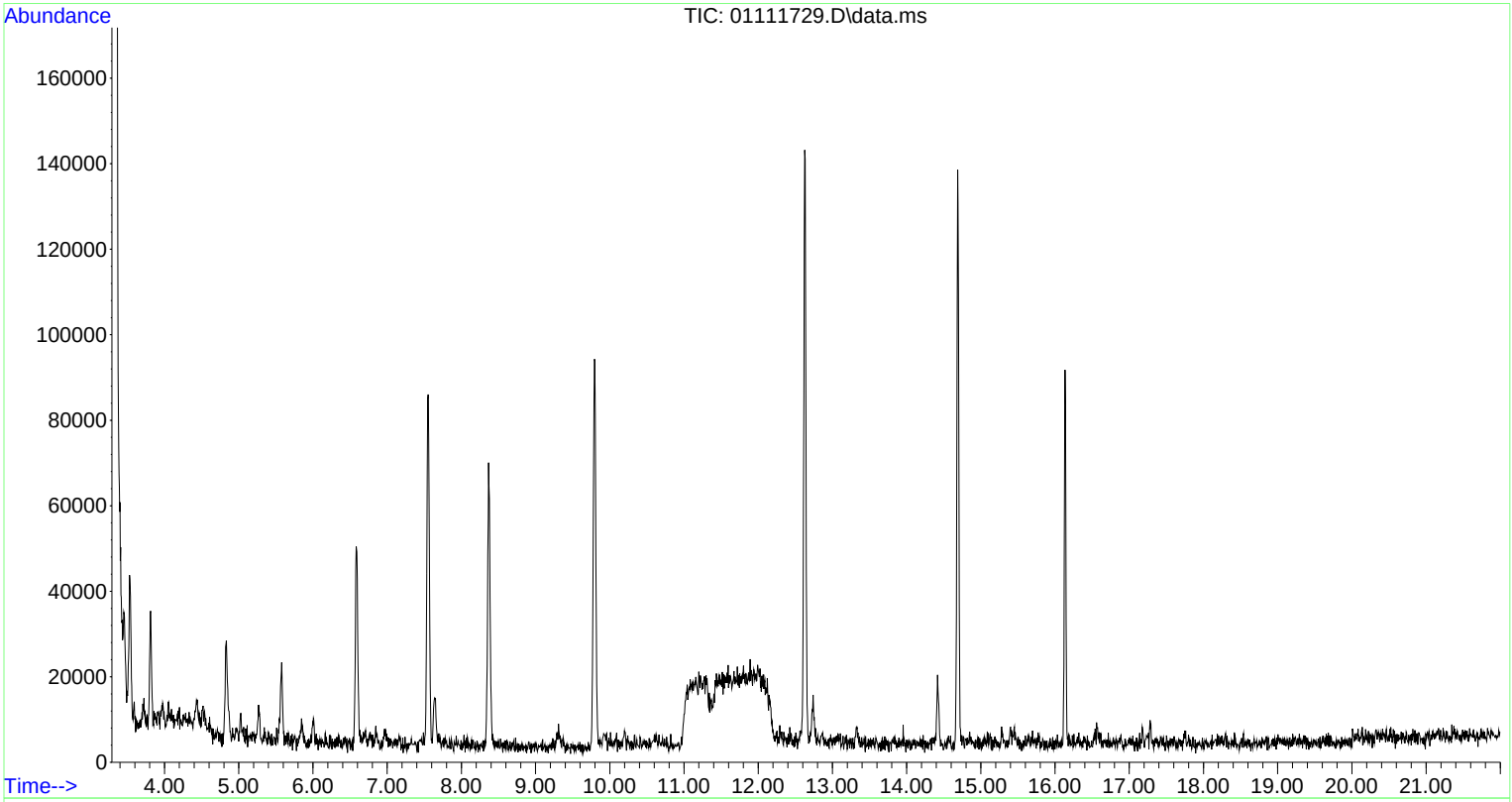
Quant Time: Jan 12 08:23:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

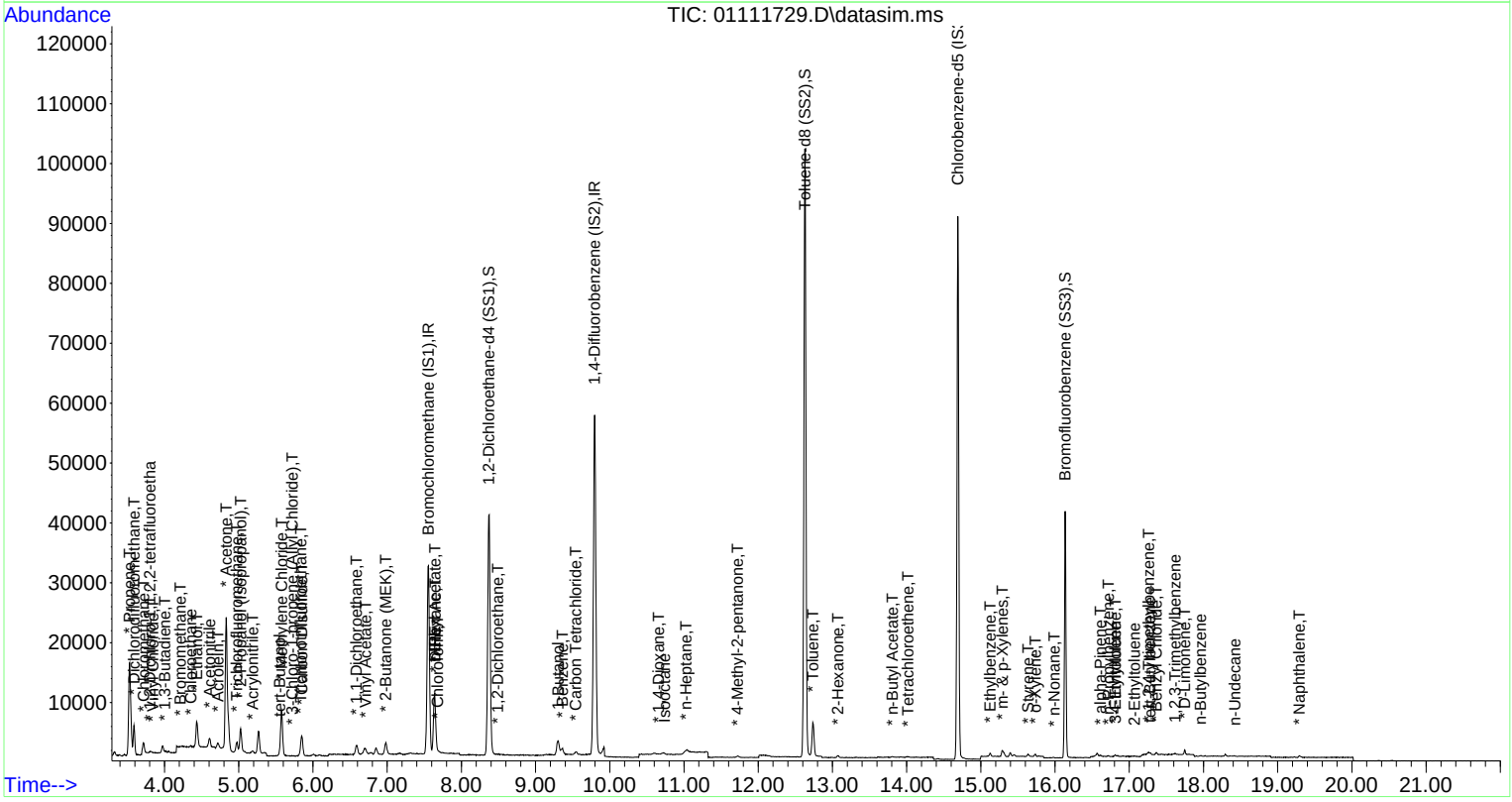
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
77) * n-Propylbenzene	16.72	91	122	1.168	pg	#	56
78) 3-Ethyltoluene	16.81	105	177	2.432	pg		98
79) * 4-Ethyltoluene	16.81	105	177	2.774	pg		99
82) 2-Ethyltoluene	17.07	105	68	0.783	pg	#	45
83) tert-Butylbenzene	17.28	134	139	8.647	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	323	4.994	pg		99
85) * Benzyl Chloride	17.36	126	93	14.263	pg	#	53
90) 1,2,3-Trimethylbenzene	17.62	105	125	1.843	pg		90
93) * D-Limonene	17.75	68	380	13.343	pg	#	81
94) n-Butylbenzene	17.96	134	67	5.580	pg	#	1
96) n-Undecane	18.43	85	69	9.758	pg	#	1
98) * Naphthalene	19.29	128	377	13.657	pg		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111729.D
Acq On : 12 Jan 2017 4:25
Operator : JM
Sample : AS00799 FCA00824
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jan 12 08:23:20 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051731.D
Acq On : 6 Jan 2017 5:41
Operator : JM
Sample : AS00581 FCR00182
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 06 08:16:54 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

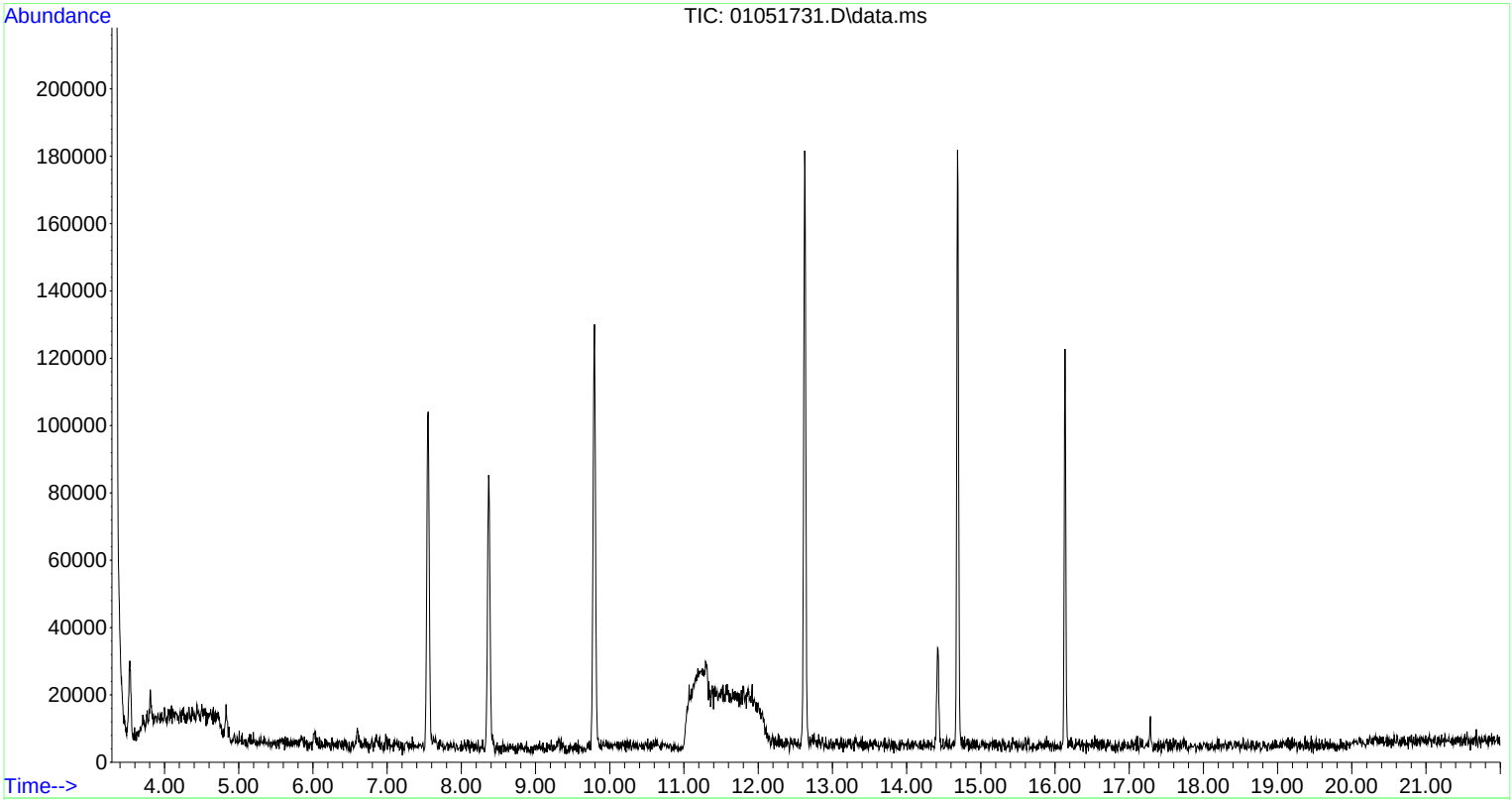
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	46324	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	142860	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	113870	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	76498	838.498 pg		0.00
Spiked Amount 1000.000			Recovery = 83.85%			
57) Toluene-d8 (SS2)	12.63	98	140492	1009.683 pg		0.00
Spiked Amount 1000.000			Recovery = 100.97%			
74) Bromofluorobenzene (SS3)	16.14	174	36610	798.874 pg		0.00
Spiked Amount 1000.000			Recovery = 79.89%			
Target Compounds						Qvalue
2) * Propene	3.53	42	6138	66.016 pg		78
3) * Dichlorodifluoromethane	3.59	85	272	1.373 pg	#	75
4) * Chloromethane	3.71	50	268	1.810 pg		89
7) * 1,3-Butadiene	4.00	54	24	0.228 pg	#	1
10) * Ethanol	4.43	45	1110	17.504 pg		100
11) * Acetonitrile	4.61	41	456	2.868 pg		94
12) * Acrolein	4.72	56	666	12.536 pg		86
13) * Acetone	4.84	58	4342	72.492 pg	#	51
14) * Trichlorofluoromethane	4.97	101	113	0.854 pg	#	74
15) * 2-Propanol (Isopropa...	5.03	45	1394	8.590 pg	#	84
16) * Acrylonitrile	5.19	53	193	2.046 pg		83
17) * 1,1-Dichloroethene	5.49	96	57	1.064 pg	#	17
18) tert-Butanol	5.55	59	165	1.687 pg	#	43
19) * Methylene Chloride	5.58	84	559	8.378 pg		90
22) * Carbon Disulfide	5.84	76	1888	7.719 pg		95
26) * Vinyl Acetate	6.71	86	180	14.329 pg	#	24
27) * 2-Butanone (MEK)	6.99	72	272	7.566 pg		84
29) DIPE	7.63	45	208	0.993 pg	#	53
30) * Ethyl Acetate	7.65	61	212	11.535 pg		87
39) * Benzene	9.36	78	744	4.516 pg	#	88
41) 1-Butanol	9.30	56	1103	35.715 pg	#	55
53) * 4-Methyl-2-pentanone	11.72	58	52	1.747 pg	#	47
58) * Toluene	12.74	91	1451	9.016 pg		100
66) * Ethylbenzene	15.12	91	211	1.555 pg	#	70
67) * m- & p-Xylenes	15.29	91	558	5.291 pg		88
70) * Styrene	15.64	104	116	2.066 pg	#	28
71) * o-Xylene	15.73	91	129	1.251 pg		87
77) * n-Propylbenzene	16.72	91	55	0.406 pg	#	56
78) 3-Ethyltoluene	16.82	105	106	1.123 pg	#	45
79) * 4-Ethyltoluene	16.82	105	106	1.281 pg	#	46
82) 2-Ethyltoluene	17.06	105	66	0.586 pg	#	45
83) tert-Butylbenzene	17.28	134	170	8.154 pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	226	2.694 pg	#	70
85) * Benzyl Chloride	17.36	126	72	8.514 pg	#	37
90) 1,2,3-Trimethylbenzene	17.61	105	60	0.682 pg	#	27
93) * D-Limonene	17.75	68	143	3.872 pg	#	79
98) * Naphthalene	19.30	128	82	2.290 pg	#	66

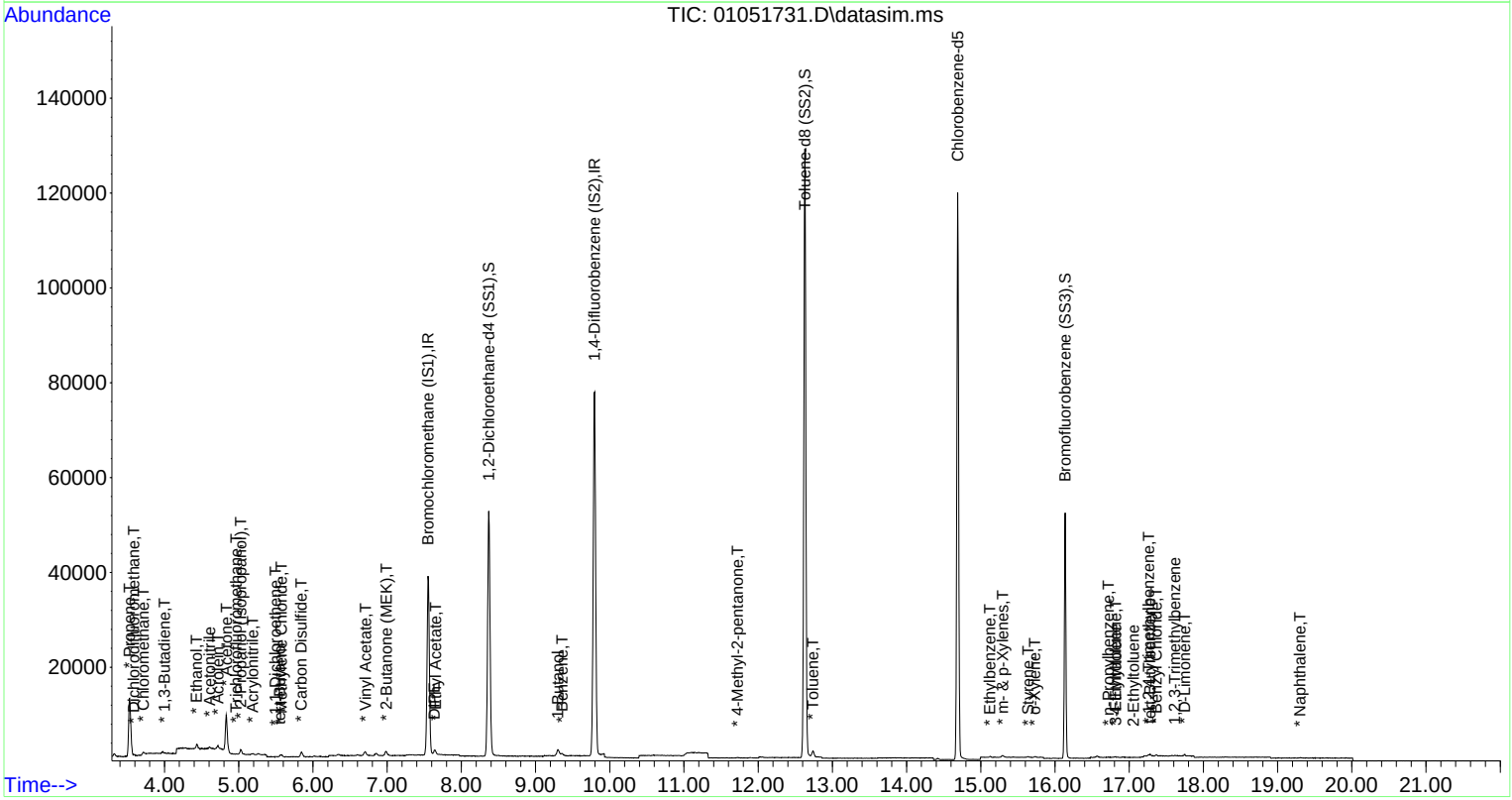
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051731.D
Acq On : 6 Jan 2017 5:41
Operator : JM
Sample : AS00581 FCR00182
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 06 08:16:54 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101709.D
Acq On : 10 Jan 2017 13:40
Operator : JM
Sample : AC02065 FCR00264
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Jan 11 09:10:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	45561	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	134713	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	107735	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72911	812.564	pg		0.00
Spiked Amount 1000.000			Recovery = 81.26%				
57) Toluene-d8 (SS2)	12.63	98	137619	1045.356	pg		0.00
Spiked Amount 1000.000			Recovery = 104.54%				
74) Bromofluorobenzene (SS3)	16.14	174	36644	845.150	pg		0.00
Spiked Amount 1000.000			Recovery = 84.52%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5534	60.516	pg		80
3) * Dichlorodifluoromethane	3.59	85	716	3.676	pg		99
4) * Chloromethane	3.72	50	561	3.853	pg	#	85
7) * 1,3-Butadiene	4.01	54	27	0.261	pg	#	1
8) * Bromomethane	4.22	94	89	1.006	pg	#	80
10) * Ethanol	4.44	45	5635	90.348	pg		99
11) * Acetonitrile	4.61	41	1023	6.542	pg	#	27
12) * Acrolein	4.72	56	2327	44.534	pg		97
13) * Acetone	4.84	58	33883	575.166	pg	#	21
14) * Trichlorofluoromethane	4.98	101	323	2.482	pg	#	83
15) * 2-Propanol (Isopropa...	5.03	45	4609	28.876	pg		92
16) * Acrylonitrile	5.19	53	355	3.827	pg		82
17) * 1,1-Dichloroethene	5.47	96	83	1.575	pg	#	17
18) tert-Butanol	5.55	59	2938	30.539	pg		94
19) * Methylene Chloride	5.58	84	3250	49.527	pg		97
22) * Carbon Disulfide	5.85	76	3669	15.252	pg		98
26) * Vinyl Acetate	6.71	86	1535	124.245	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	2444	69.120	pg		75
29) DIPE	7.65	45	458	2.222	pg	#	53
30) * Ethyl Acetate	7.64	61	514	28.434	pg		99
31) * n-Hexane	7.65	57	126	1.355	pg	#	60
39) * Benzene	9.36	78	990	6.372	pg		95
41) 1-Butanol	9.30	56	2551	87.595	pg	#	51
47) * Trichloroethene	10.67	130	59	1.191	pg	#	3
48) * 1,4-Dioxane	10.66	88	124	3.827	pg	#	74
49) Isooctane	10.72	56	129	1.737	pg		71
51) * n-Heptane	11.03	71	104	1.304	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	368	13.111	pg	#	42
58) * Toluene	12.74	91	1563	10.265	pg		99
59) * 2-Hexanone	13.07	58	830	31.865	pg	#	87
66) * Ethylbenzene	15.13	91	254	1.978	pg	#	85
67) * m- & p-Xylenes	15.29	91	885	8.870	pg		95
69) Cyclohexanone	15.44	98	215	19.295	pg		94
70) * Styrene	15.63	104	58	1.092	pg	#	28
71) * o-Xylene	15.73	91	346	3.545	pg		97
72) * n-Nonane	15.98	57	69	1.569	pg	#	42
77) * n-Propylbenzene	16.72	91	63	0.491	pg	#	56
78) 3-Ethyltoluene	16.81	105	67	0.750	pg	#	4
79) * 4-Ethyltoluene	16.81	105	67	0.856	pg	#	1
80) * 1,3,5-Trimethylbenzene	16.92	105	88	1.002	pg	#	29
81) alpha-Methylstyrene	17.04	118	470	13.218	pg	#	80
84) * 1,2,4-Trimethylbenzene	17.26	105	123	1.550	pg	#	24
86) * 1,3-Dichlorobenzene	17.38	146	52	1.220	pg	#	17
89) sec-Butylbenzene	17.46	105	60	0.476	pg	#	59
93) * D-Limonene	17.75	68	440	12.591	pg		95

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101709.D
Acq On : 10 Jan 2017 13:40
Operator : JM
Sample : AC02065 FCR00264
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

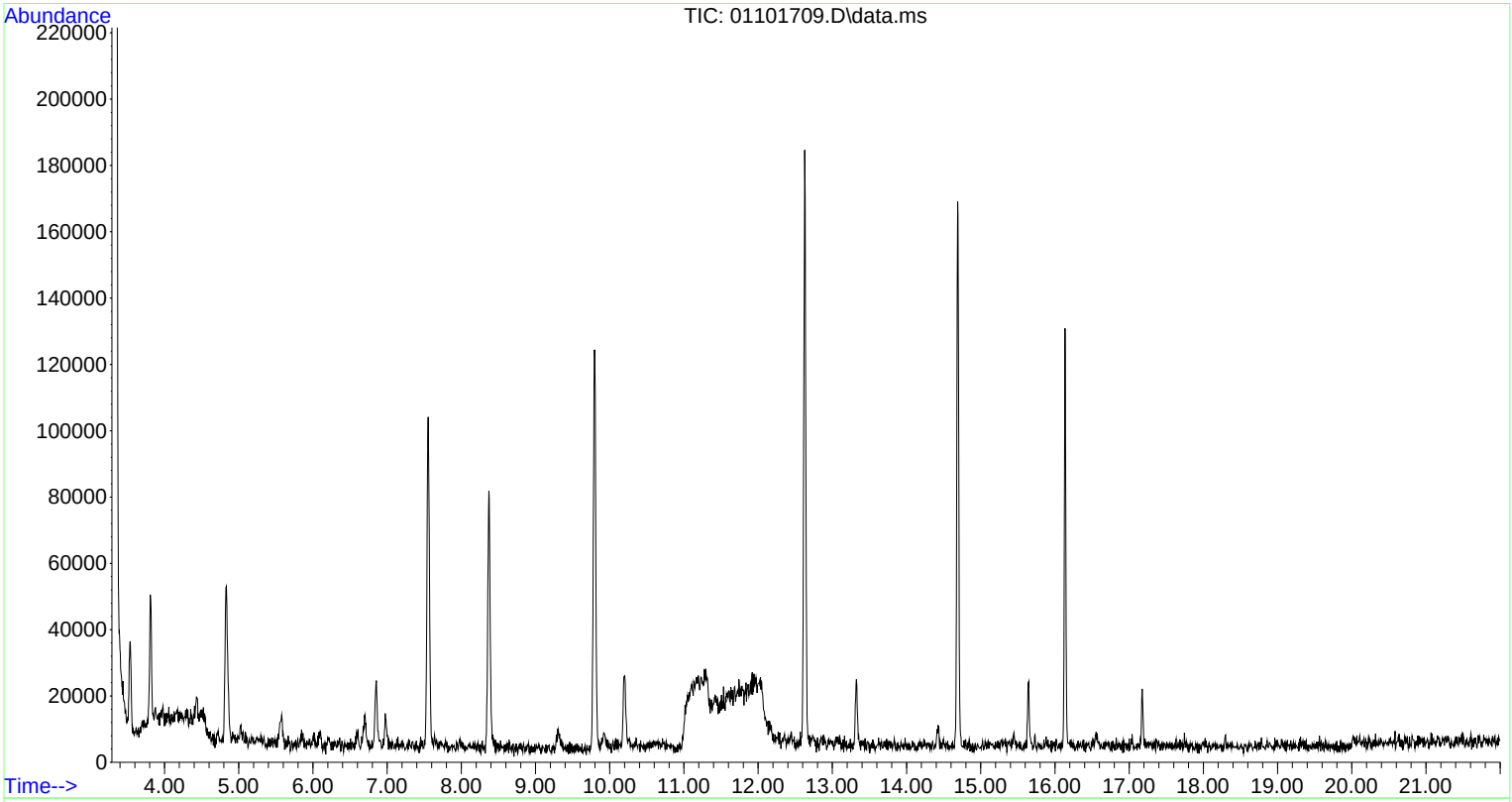
Quant Time: Jan 11 09:10:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

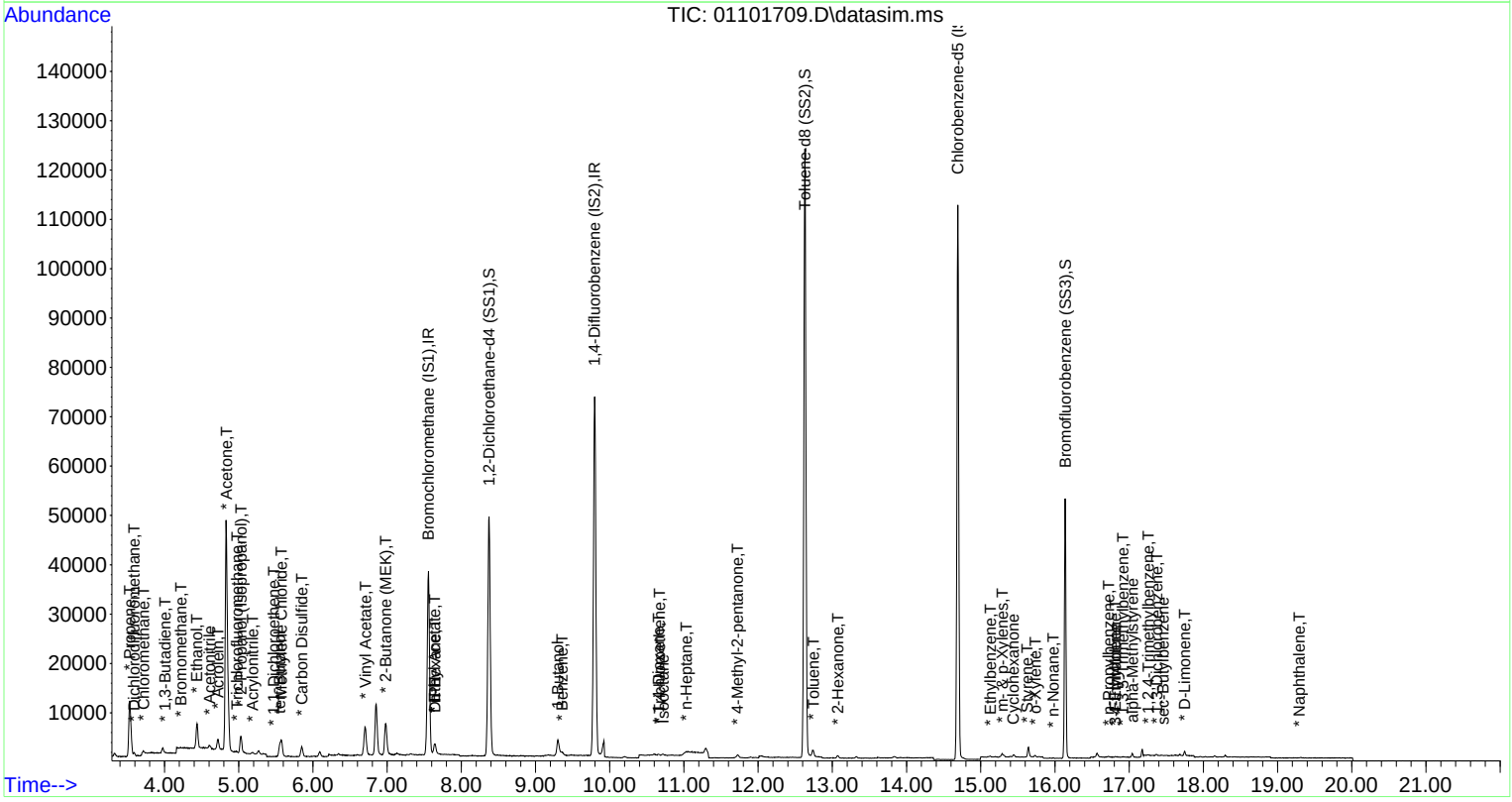
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
98) * Naphthalene	19.29	128	78	2.303	pg	# 66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101709.D
Acq On : 10 Jan 2017 13:40
Operator : JM
Sample : AC02065 FCR00264
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Jan 11 09:10:11 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101710.D
Acq On : 10 Jan 2017 14:21
Operator : JM
Sample : AS01221 FCR00256
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 11 09:10:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44908	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	132637	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104517	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	73019	825.601	pg		0.00
Spiked Amount 1000.000			Recovery = 82.56%				
57) Toluene-d8 (SS2)	12.63	98	124708	976.450	pg		0.00
Spiked Amount 1000.000			Recovery = 97.65%				
74) Bromofluorobenzene (SS3)	16.14	174	33743	802.203	pg		0.00
Spiked Amount 1000.000			Recovery = 80.22%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5300	58.800	pg		79
3) * Dichlorodifluoromethane	3.59	85	734	3.823	pg		97
4) * Chloromethane	3.72	50	575	4.006	pg	#	70
7) * 1,3-Butadiene	4.00	54	39	0.383	pg	#	1
8) * Bromomethane	4.22	94	145	1.663	pg	#	3
9) * Chloroethane	4.40	64	57	0.915	pg	#	41
10) * Ethanol	4.44	45	4191	68.173	pg		95
11) * Acetonitrile	4.61	41	992	6.436	pg	#	1
12) * Acrolein	4.72	56	839	16.290	pg		98
13) * Acetone	4.84	58	8006	137.878	pg	#	53
14) * Trichlorofluoromethane	4.97	101	284	2.214	pg		95
15) * 2-Propanol (Isopropa...	5.03	45	1735	11.028	pg		93
16) * Acrylonitrile	5.19	53	272	2.974	pg		91
18) tert-Butanol	5.55	59	578	6.095	pg	#	81
19) * Methylene Chloride	5.58	84	3389	52.397	pg		100
20) * 3-Chloro-1-propene (...	5.66	41	57	0.660	pg	#	43
22) * Carbon Disulfide	5.85	76	4286	18.076	pg		98
24) * 1,1-Dichloroethane	6.59	63	84	0.766	pg	#	1
25) * Methyl tert-Butyl Ether	6.74	73	53	0.464	pg	#	50
26) * Vinyl Acetate	6.71	86	245	20.119	pg	#	3
27) * 2-Butanone (MEK)	6.99	72	462	13.256	pg		87
29) DIPE	7.65	45	598	2.944	pg	#	53
30) * Ethyl Acetate	7.64	61	495	27.781	pg		94
31) * n-Hexane	7.63	57	64	0.698	pg	#	60
39) * Benzene	9.36	78	1017	6.649	pg	#	76
41) 1-Butanol	9.31	56	1570	54.754	pg	#	47
45) * 1,2-Dichloropropane	10.39	63	51	0.899	pg	#	32
49) Isooctane	10.72	56	64	0.875	pg	#	24
51) * n-Heptane	11.05	71	56	0.713	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	277	10.023	pg	#	69
58) * Toluene	12.74	91	1617	10.946	pg		98
59) * 2-Hexanone	13.07	58	53	2.097	pg	#	68
63) * n-Octane	13.91	85	67	2.907	pg	#	1
65) * Chlorobenzene	14.74	112	57	0.586	pg	#	42
66) * Ethylbenzene	15.12	91	306	2.456	pg		90
67) * m- & p-Xylenes	15.29	91	771	7.966	pg	#	69
70) * Styrene	15.63	104	54	1.048	pg	#	28
71) * o-Xylene	15.73	91	306	3.232	pg		98
72) * n-Nonane	15.98	57	72	1.687	pg	#	42
77) * n-Propylbenzene	16.73	91	59	0.474	pg	#	56
81) alpha-Methylstyrene	17.04	118	623	18.060	pg		100
83) tert-Butylbenzene	17.28	134	200	10.451	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	54	0.701	pg	#	24
93) * D-Limonene	17.75	68	311	9.173	pg		89
98) * Naphthalene	19.29	128	101	3.073	pg	#	66

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101710.D
Acq On : 10 Jan 2017 14:21
Operator : JM
Sample : AS01221 FCR00256
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

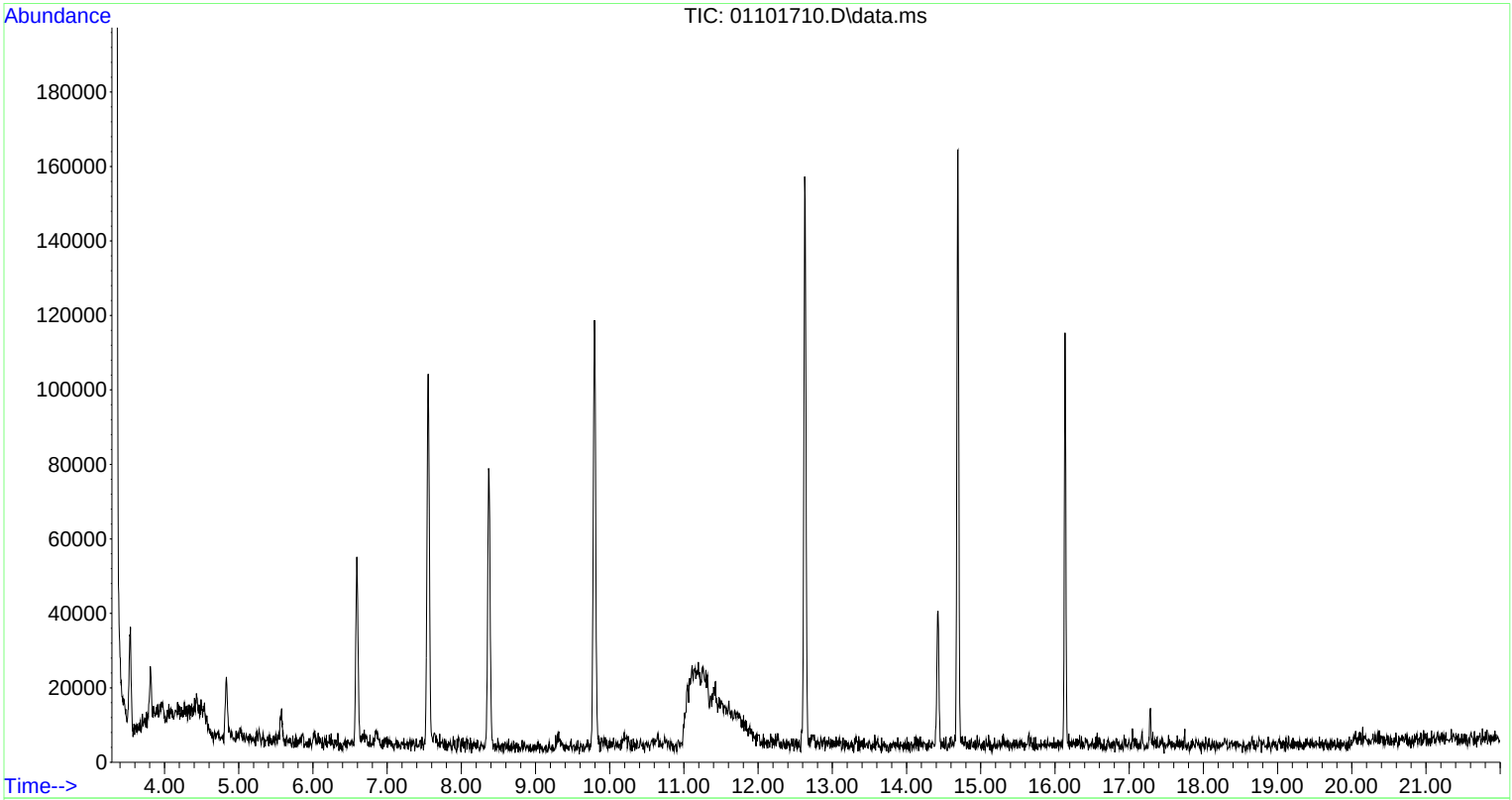
Quant Time: Jan 11 09:10:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

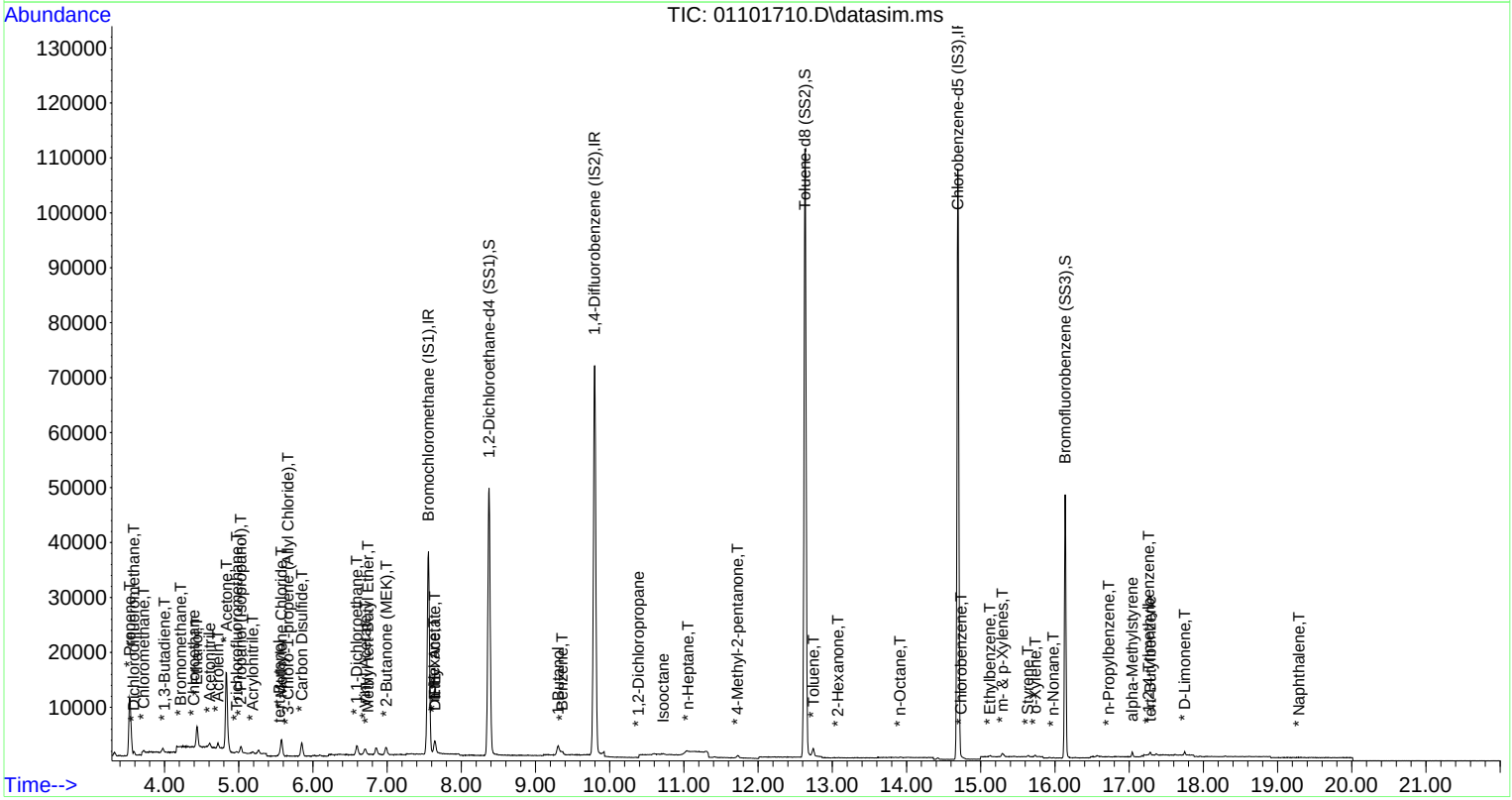
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101710.D
Acq On : 10 Jan 2017 14:21
Operator : JM
Sample : AS01221 FCR00256
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 212 Sample Multiplier: 1

Quant Time: Jan 11 09:10:17 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091729.D
Acq On : 10 Jan 2017 5:28
Operator : JM
Sample : AC02125 FCR00258
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 10 07:51:41 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	44868	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	129658	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104240	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	71762	812.112	pg		0.00
Spiked Amount 1000.000			Recovery = 81.21%				
57) Toluene-d8 (SS2)	12.63	98	114264	897.052	pg		0.00
Spiked Amount 1000.000			Recovery = 89.70%				
74) Bromofluorobenzene (SS3)	16.14	174	33896	807.982	pg		0.00
Spiked Amount 1000.000			Recovery = 80.80%				
Target Compounds							Qvalue
2) * Propene	3.53	42	5302	58.875	pg	#	76
3) * Dichlorodifluoromethane	3.59	85	635	3.310	pg	#	63
4) * Chloromethane	3.71	50	619	4.317	pg	#	70
7) * 1,3-Butadiene	4.01	54	20	0.196	pg	#	1
8) * Bromomethane	4.22	94	55	0.631	pg	#	76
10) * Ethanol	4.43	45	11273	183.537	pg		95
11) * Acetonitrile	4.60	41	730	4.740	pg	#	14
12) * Acrolein	4.72	56	2300	44.697	pg		98
13) * Acetone	4.83	58	48336	833.179	pg	#	30
14) * Trichlorofluoromethane	4.97	101	262	2.044	pg	#	77
15) * 2-Propanol (Isopropa...	5.03	45	6780	43.133	pg		88
16) * Acrylonitrile	5.19	53	249	2.725	pg		97
18) tert-Butanol	5.55	59	3678	38.822	pg		85
19) * Methylene Chloride	5.58	84	3088	47.786	pg		99
22) * Carbon Disulfide	5.84	76	3773	15.926	pg		98
26) * Vinyl Acetate	6.71	86	1656	136.109	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	3012	86.500	pg		78
29) DIPE	7.63	45	711	3.503	pg	#	53
30) * Ethyl Acetate	7.63	61	656	36.850	pg		97
31) * n-Hexane	7.63	57	51	0.557	pg	#	1
32) * Chloroform	7.69	83	78	0.689	pg	#	16
34) * Tetrahydrofuran	8.14	71	85	3.046	pg	#	1
39) * Benzene	9.36	78	641	4.287	pg	#	81
41) 1-Butanol	9.30	56	1997	71.246	pg	#	49
47) * Trichloroethene	10.67	130	54	1.133	pg	#	3
49) Isooctane	10.72	56	140	1.959	pg	#	53
50) * Methyl Methacrylate	10.87	69	84	2.240	pg	#	42
51) * n-Heptane	11.02	71	267	3.477	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	307	11.364	pg	#	86
58) * Toluene	12.74	91	1317	8.939	pg		97
59) * 2-Hexanone	13.07	58	492	19.522	pg	#	68
66) * Ethylbenzene	15.12	91	381	3.066	pg	#	70
67) * m- & p-Xylenes	15.29	91	1286	13.322	pg		90
69) Cyclohexanone	15.44	98	162	15.026	pg		84
70) * Styrene	15.63	104	68	1.323	pg	#	28
71) * o-Xylene	15.73	91	463	4.903	pg		99
72) * n-Nonane	15.93	57	74	1.739	pg	#	42
73) * 1,1,2,2-Tetrachloroe...	15.71	83	54	0.668	pg	#	19
77) * n-Propylbenzene	16.72	91	56	0.451	pg	#	56
78) 3-Ethyltoluene	16.80	105	62	0.718	pg	#	45
79) * 4-Ethyltoluene	16.84	105	70	0.924	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	55	0.647	pg	#	29
81) alpha-Methylstyrene	17.04	118	611	17.759	pg		89
83) tert-Butylbenzene	17.28	134	106	5.554	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	93	1.211	pg	#	24

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091729.D
Acq On : 10 Jan 2017 5:28
Operator : JM
Sample : AC02125 FCR00258
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

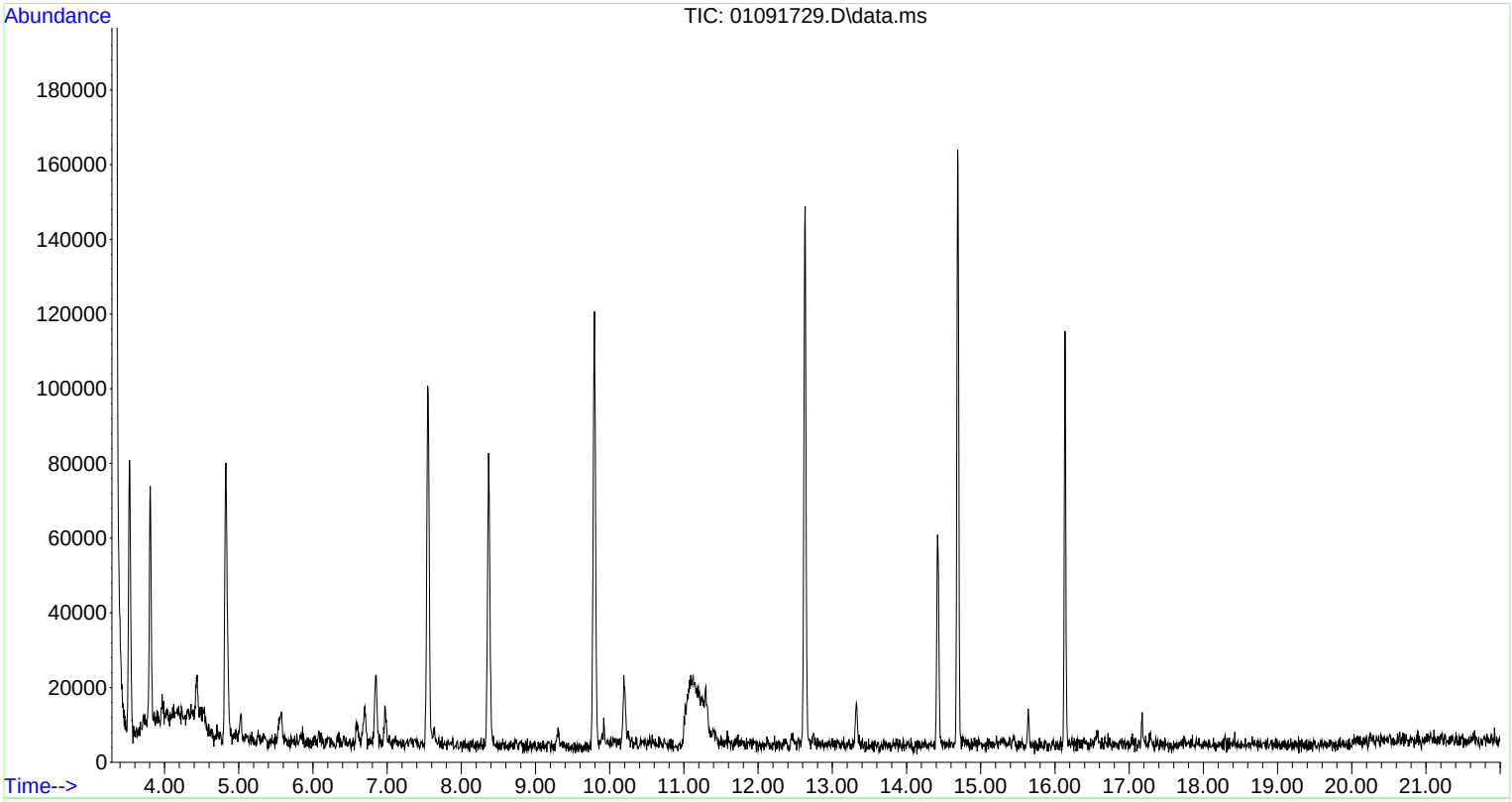
Quant Time: Jan 10 07:51:41 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

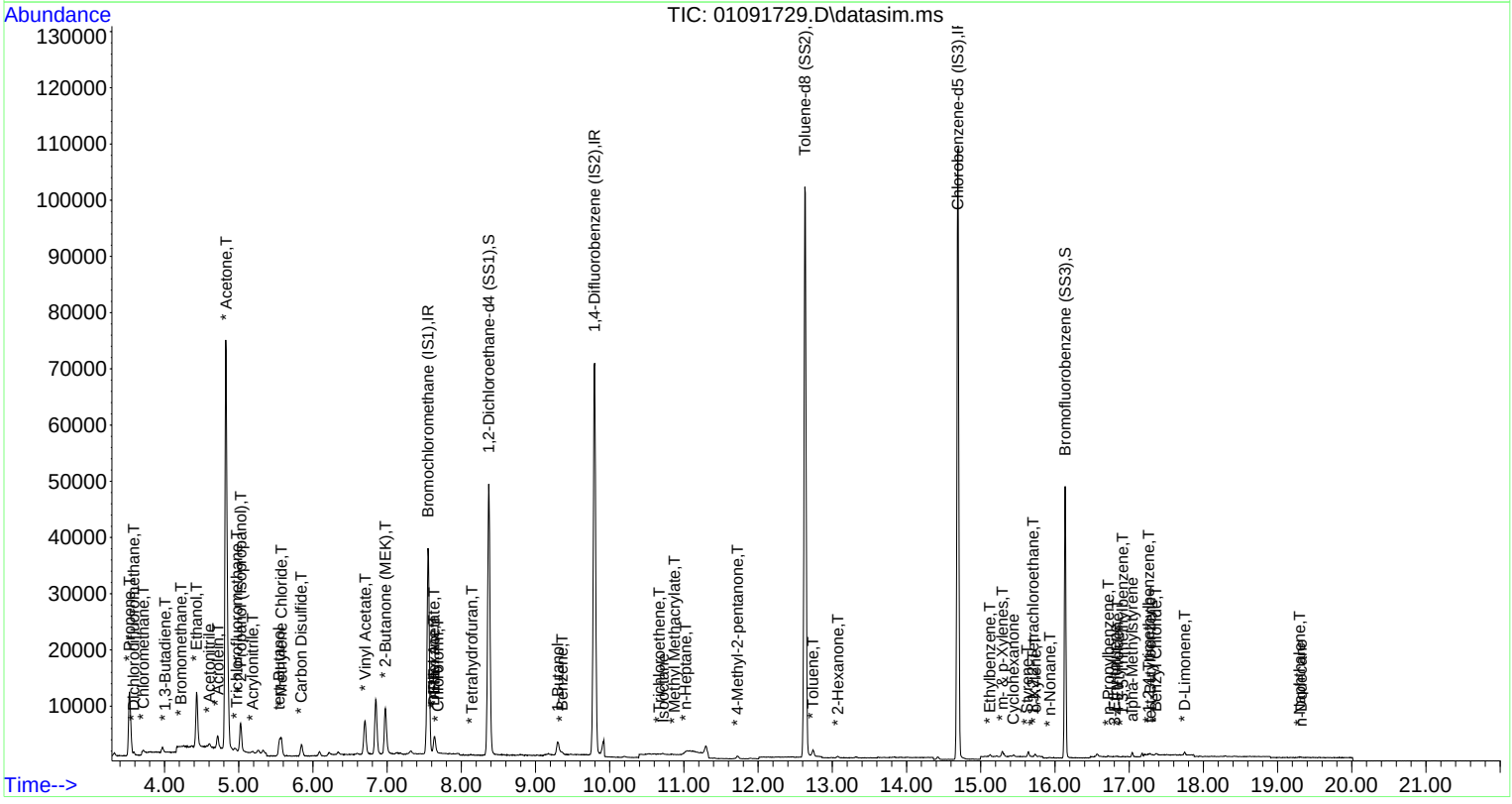
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
85) * Benzyl Chloride	17.36	126	81	10.463	pg	#	36
93) * D-Limonene	17.75	68	302	8.932	pg		96
98) * Naphthalene	19.30	128	84	2.563	pg	#	66
99) n-Dodecane	19.32	85	70	13.275	pg	#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\09\
Data File : 01091729.D
Acq On : 10 Jan 2017 5:28
Operator : JM
Sample : AC02125 FCR00258
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 10 07:51:41 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071720.D
Acq On : 8 Jan 2017 4:25 am
Operator : JM
Sample : AS01170 FCR00032
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 09 09:40:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	47025	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	152784	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	116128	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	78001	842.227	pg		0.00
Spiked Amount 1000.000			Recovery = 84.22%				
57) Toluene-d8 (SS2)	12.63	98	137372	968.064	pg		0.00
Spiked Amount 1000.000			Recovery = 96.81%				
74) Bromofluorobenzene (SS3)	16.14	174	39266	840.170	pg		0.00
Spiked Amount 1000.000			Recovery = 84.02%				
Target Compounds							Qvalue
2) * Propene	3.53	42	9895	104.837	pg	#	60
3) * Dichlorodifluoromethane	3.59	85	14868	73.949	pg		99
4) * Chloromethane	3.71	50	5390	35.862	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	559	3.746	pg	#	81
7) * 1,3-Butadiene	4.00	54	219	2.052	pg	#	1
8) * Bromomethane	4.22	94	358	3.920	pg		98
9) * Chloroethane	4.35	64	68	1.043	pg	#	41
10) * Ethanol	4.43	45	11895	184.780	pg		96
11) * Acetonitrile	4.60	41	5752	35.637	pg		91
12) * Acrolein	4.71	56	2446	45.354	pg		87
13) * Acetone	4.83	58	26684	438.860	pg		72
14) * Trichlorofluoromethane	4.97	101	5489	40.866	pg		100
15) * 2-Propanol (Isopropa...	5.03	45	15772	95.737	pg		98
16) * Acrylonitrile	5.19	53	268	2.799	pg		97
18) tert-Butanol	5.55	59	870	8.762	pg	#	5
19) * Methylene Chloride	5.58	84	14501	214.104	pg		99
21) * Trichlorotrifluoroet...	5.82	151	1045	19.851	pg		98
22) * Carbon Disulfide	5.84	76	6434	25.913	pg		98
26) * Vinyl Acetate	6.70	86	711	55.757	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1276	34.964	pg		70
29) DIPE	7.64	45	1464	6.883	pg	#	53
30) * Ethyl Acetate	7.64	61	1417	75.948	pg		94
31) * n-Hexane	7.65	57	1727	18.000	pg		99
32) * Chloroform	7.69	83	526	4.435	pg		100
34) * Tetrahydrofuran	8.15	71	136	4.649	pg		91
36) * 1,2-Dichloroethane	8.50	62	151	1.504	pg	#	42
39) * Benzene	9.36	78	5527	31.368	pg		97
41) 1-Butanol	9.30	56	4727	143.116	pg	#	47
42) * Carbon Tetrachloride	9.54	117	1450	21.153	pg		97
43) * Cyclohexane	9.70	84	239	4.264	pg		91
45) * 1,2-Dichloropropane	10.34	63	73	1.117	pg	#	32
48) * 1,4-Dioxane	10.66	88	442	12.028	pg		100
49) Isooctane	10.71	56	1463	17.371	pg		81
51) * n-Heptane	11.03	71	974	10.765	pg		90
52) * cis-1,3-Dichloropropene	11.63	75	76	1.274	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	335	10.524	pg		90
58) * Toluene	12.74	91	12447	75.835	pg		98
59) * 2-Hexanone	13.07	58	138	4.915	pg	#	68
63) * n-Octane	13.92	85	67	2.617	pg	#	8
64) * Tetrachloroethene	14.01	166	268	4.910	pg		82
65) * Chlorobenzene	14.73	112	80	0.740	pg	#	42
66) * Ethylbenzene	15.12	91	1239	8.951	pg		93
67) * m- & p-Xylenes	15.29	91	2839	26.399	pg		95
68) * Bromoform	15.32	173	62	1.804	pg	#	26
69) Cyclohexanone	15.44	98	108	8.992	pg	#	49

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071720.D
Acq On : 8 Jan 2017 4:25 am
Operator : JM
Sample : AS01170 FCR00032
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

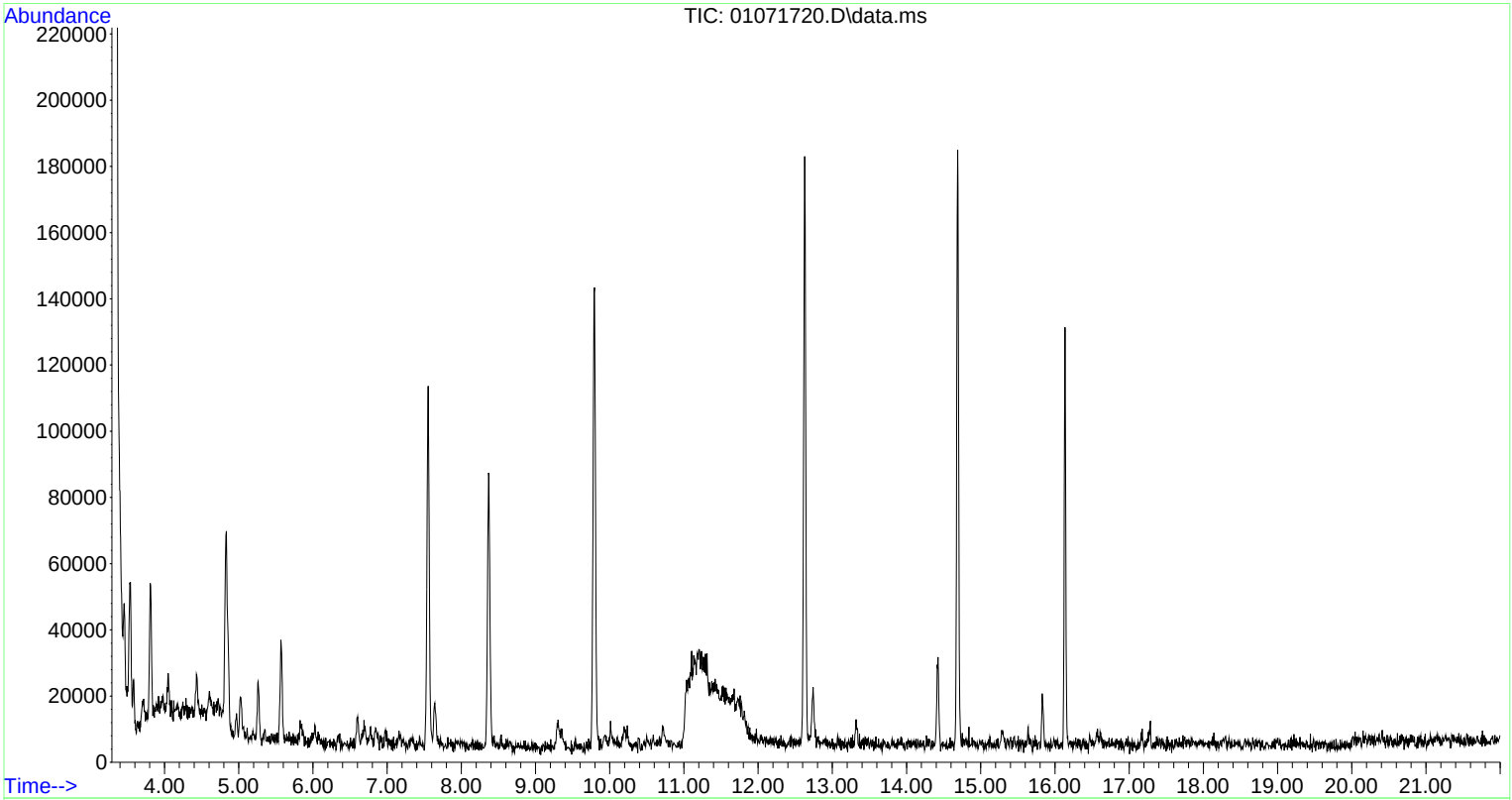
Quant Time: Jan 09 09:40:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

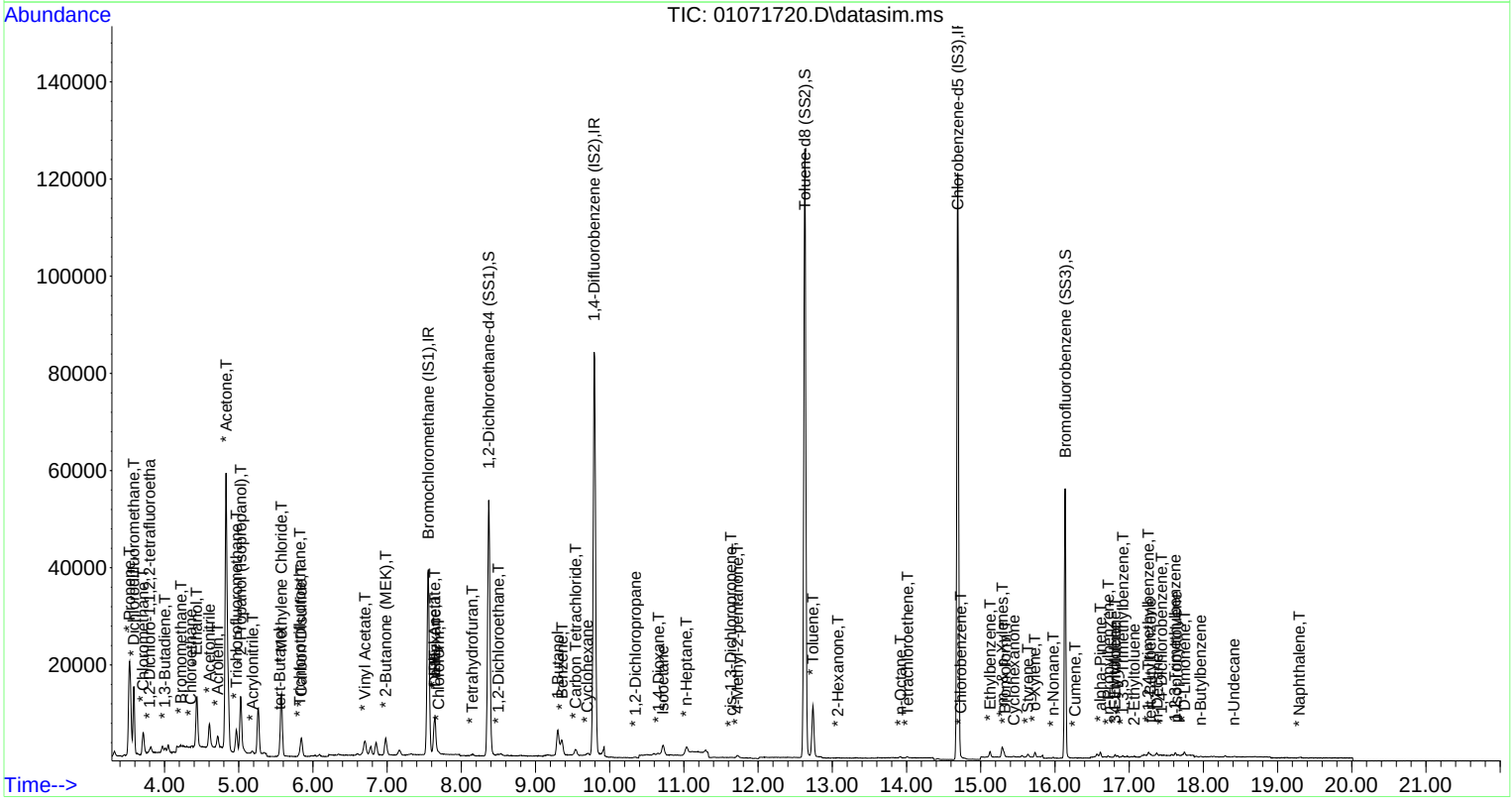
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
70) * Styrene	15.63	104	393	6.864	pg		99
71) * o-Xylene	15.73	91	962	9.145	pg		95
72) * n-Nonane	15.98	57	197	4.155	pg	#	69
75) * Cumene	16.27	105	109	0.727	pg	#	49
76) * alpha-Pinene	16.61	93	736	10.794	pg		93
77) * n-Propylbenzene	16.72	91	243	1.758	pg	#	87
78) 3-Ethyltoluene	16.81	105	454	4.717	pg		94
79) * 4-Ethyltoluene	16.81	105	454	5.379	pg		97
80) * 1,3,5-Trimethylbenzene	16.92	105	234	2.472	pg		86
82) 2-Ethyltoluene	17.07	105	194	1.689	pg	#	77
83) tert-Butylbenzene	17.28	134	148	6.960	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	559	6.534	pg		99
87) * 1,4-Dichlorobenzene	17.43	146	89	2.281	pg		95
88) n-Decane	17.38	85	120	7.337	pg	#	37
90) 1,2,3-Trimethylbenzene	17.62	105	201	2.241	pg		97
91) p-Isopropyltoluene	17.63	134	118	4.347	pg	#	61
93) * D-Limonene	17.75	68	366	9.716	pg	#	63
94) n-Butylbenzene	17.96	134	80	5.037	pg	#	19
96) n-Undecane	18.41	85	96	10.264	pg	#	1
98) * Naphthalene	19.29	128	156	4.272	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\07\
Data File : 01071720.D
Acq On : 8 Jan 2017 4:25 am
Operator : JM
Sample : AS01170 FCR00032
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 213 Sample Multiplier: 1

Quant Time: Jan 09 09:40:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051706.D Vial: 4
Acq On : 5 Jan 2017 16:01 Operator: CL
Sample : AS00758-FCA01039 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:03 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

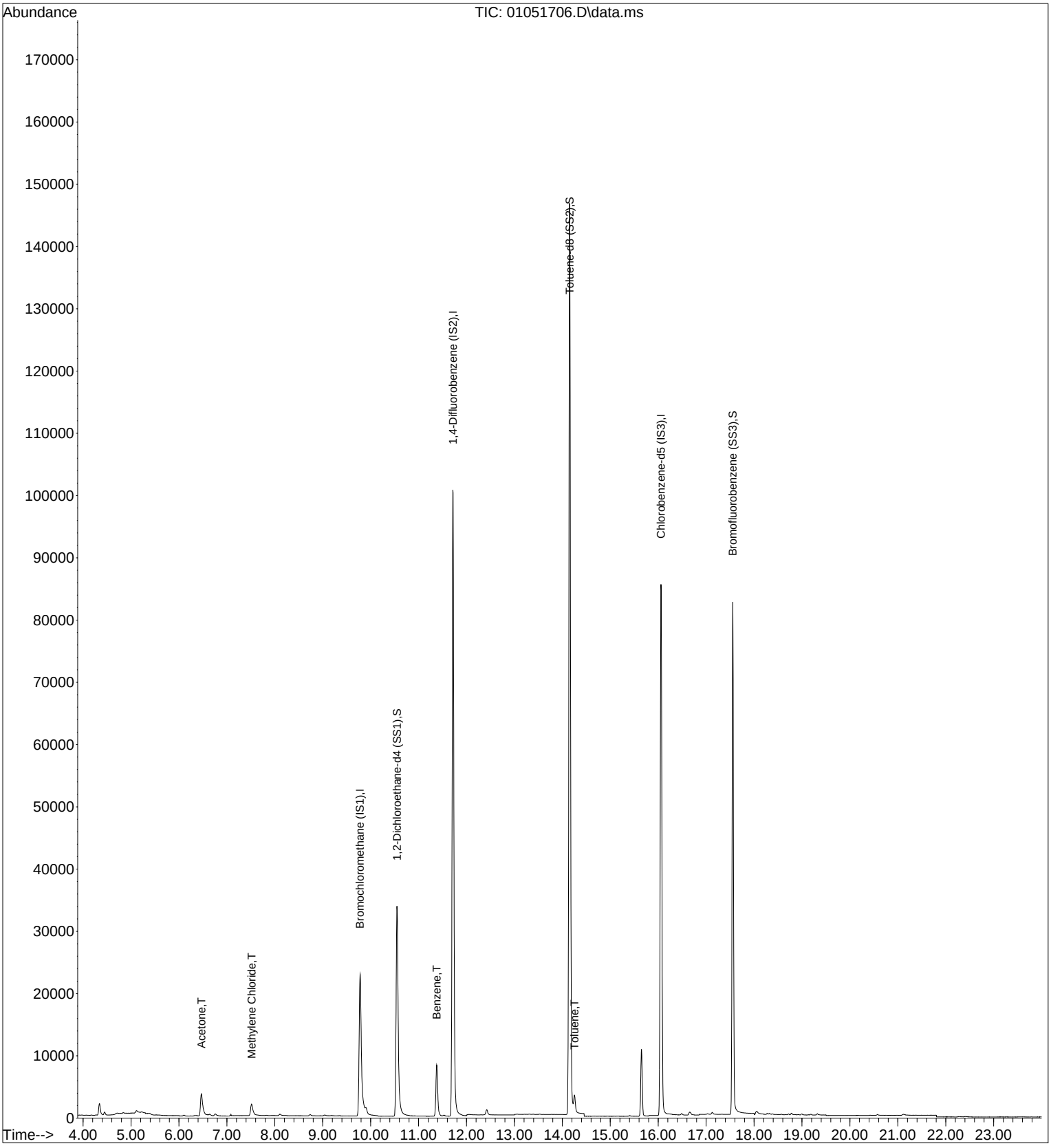
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	44043	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	214326	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	30731	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	66984	949.516	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.95%			
33) Toluene-d8 (SS2)	14.15	98	202849	968.967	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.90%			
45) Bromofluorobenzene (SS3)	17.56	174	65735	1079.371	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.94%			
Target Compounds						Qvalue
10) Acetone	6.47	58	3302	125.416	pg	99
13) Methylene Chloride	7.52	84	2487	48.342	pg	100
23) Benzene	11.38	78	17322	79.726	pg	100
34) Toluene	14.26	91	3600	17.698	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051706.D Vial: 4
Acq On : 5 Jan 2017 16:01 Operator: CL
Sample : AS00758-FCA01039 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:03 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061707.D
Acq On : 6 Jan 2017 12:42 pm
Operator : JM
Sample : AC01300 FCA1072
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 09 08:36:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	48224	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	158304	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	125514	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	78221	823.603 pg		0.00
Spiked Amount 1000.000			Recovery = 82.36%			
57) Toluene-d8 (SS2)	12.63	98	142996	932.340 pg		0.00
Spiked Amount 1000.000			Recovery = 93.23%			
74) Bromofluorobenzene (SS3)	16.14	174	47425	938.864 pg		0.00
Spiked Amount 1000.000			Recovery = 93.89%			
Target Compounds						Qvalue
2) * Propene	3.53	42	9442	97.550 pg		83
3) * Dichlorodifluoromethane	3.59	85	3099	15.030 pg		97
4) * Chloromethane	3.71	50	1868	12.120 pg		97
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	177	1.157 pg	#	42
7) * 1,3-Butadiene	4.01	54	155	1.416 pg	#	1
8) * Bromomethane	4.22	94	319	3.406 pg		91
9) * Chloroethane	4.36	64	216	3.229 pg		99
10) * Ethanol	4.43	45	22585	342.119 pg		100
11) * Acetonitrile	4.60	41	2371	14.324 pg		89
12) * Acrolein	4.71	56	12920	233.609 pg		97
13) * Acetone	4.85	58	168250	2698.336 pg	#	1
14) * Trichlorofluoromethane	4.97	101	1162	8.436 pg		91
15) * 2-Propanol (Isopropa...	5.02	45	12340	73.042 pg	#	85
16) * Acrylonitrile	5.19	53	519	5.285 pg		87
18) tert-Butanol	5.55	59	5605	55.044 pg		88
19) * Methylene Chloride	5.58	84	5420	78.035 pg		99
20) * 3-Chloro-1-propene (...	5.63	41	57	0.614 pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	230	4.260 pg		98
22) * Carbon Disulfide	5.85	76	3047	11.967 pg		95
25) * Methyl tert-Butyl Ether	6.69	73	87	0.710 pg	#	1
26) * Vinyl Acetate	6.70	86	3374	258.015 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	14313	382.440 pg		86
29) DIPE	7.64	45	566	2.595 pg	#	53
30) * Ethyl Acetate	7.64	61	691	36.115 pg		97
31) * n-Hexane	7.65	57	963	9.787 pg		100
32) * Chloroform	7.71	83	54	0.444 pg	#	16
34) * Tetrahydrofuran	8.16	71	125	4.167 pg	#	69
36) * 1,2-Dichloroethane	8.51	62	51	0.495 pg	#	42
39) * Benzene	9.36	78	1876	10.276 pg		98
41) 1-Butanol	9.30	56	6740	196.946 pg	#	49
43) * Cyclohexane	9.66	84	70	1.205 pg	#	1
48) * 1,4-Dioxane	10.65	88	275	7.223 pg		91
49) Isooctane	10.72	56	563	6.452 pg		91
50) * Methyl Methacrylate	10.89	69	109	2.380 pg	#	42
51) * n-Heptane	11.03	71	804	8.577 pg	#	83
53) * 4-Methyl-2-pentanone	11.72	58	570	17.281 pg	#	85
58) * Toluene	12.74	91	4868	27.441 pg		99
59) * 2-Hexanone	13.07	58	2395	78.924 pg	#	87
62) * n-Butyl Acetate	13.85	56	57	2.627 pg	#	1
63) * n-Octane	13.92	85	53	1.915 pg	#	1
64) * Tetrachloroethene	14.01	166	59	1.000 pg	#	8
66) * Ethylbenzene	15.12	91	446	2.981 pg	#	84
67) * m- & p-Xylenes	15.29	91	1054	9.068 pg		88
69) Cyclohexanone	15.44	98	495	38.130 pg		91
70) * Styrene	15.64	104	164	2.650 pg		98

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061707.D
Acq On : 6 Jan 2017 12:42 pm
Operator : JM
Sample : AC01300 FCA1072
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

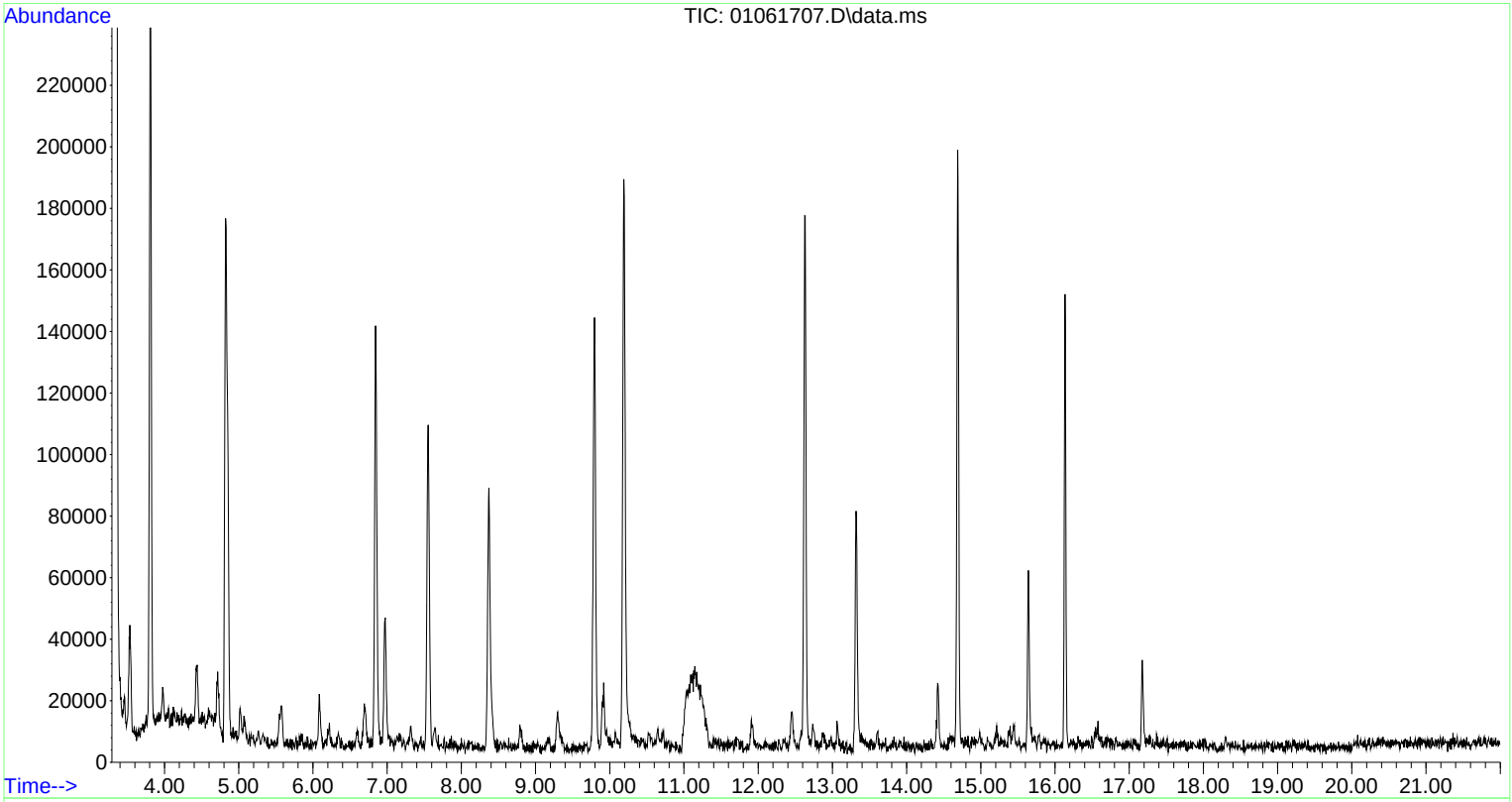
Quant Time: Jan 09 08:36:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

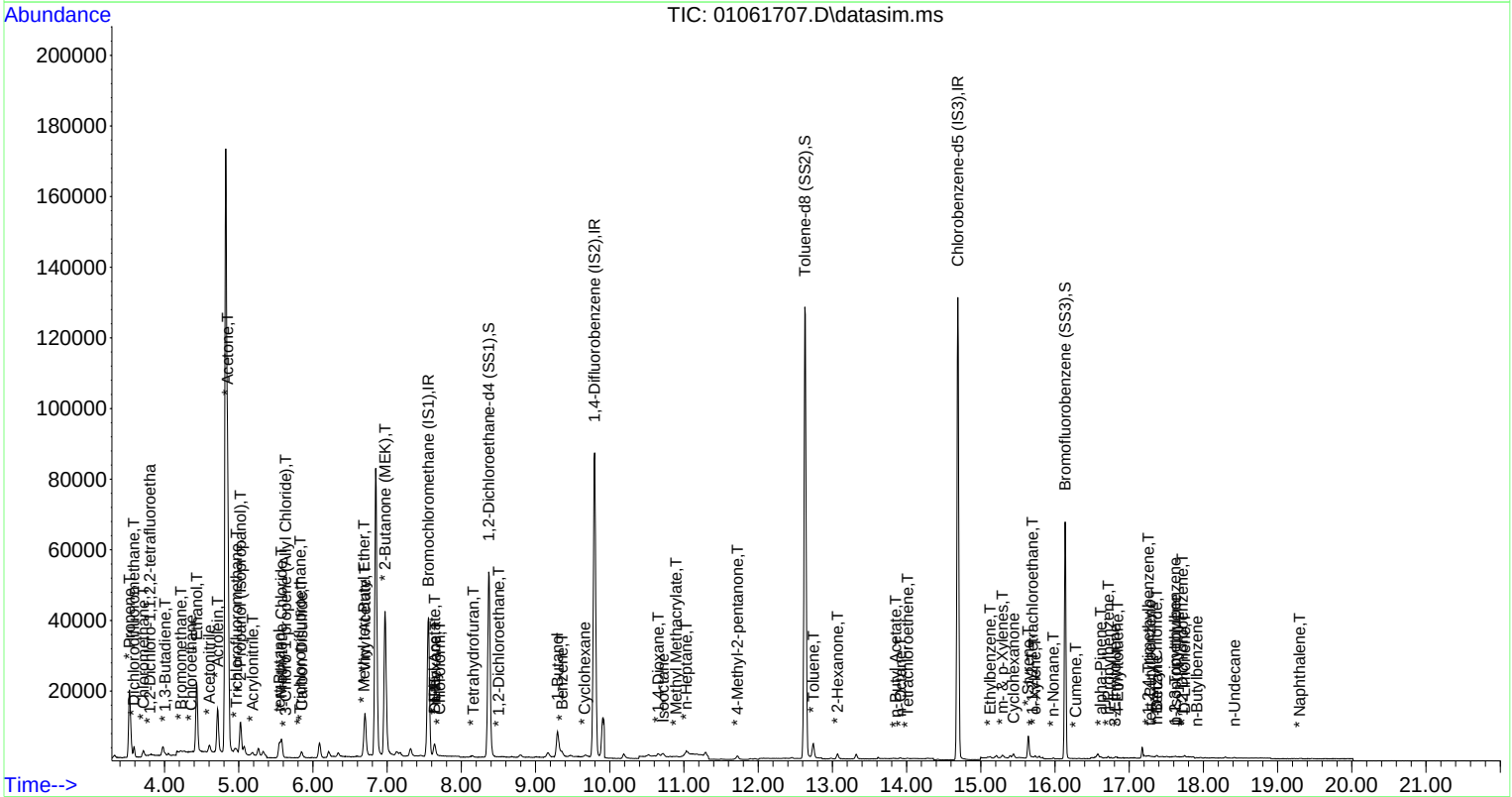
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
71) * o-Xylene	15.73	91	545	4.793	pg		94
72) * n-Nonane	15.98	57	271	5.289	pg	#	84
73) * 1,1,2,2-Tetrachloroe...	15.69	83	71	0.730	pg	#	19
75) * Cumene	16.28	105	82	0.506	pg	#	49
76) * alpha-Pinene	16.62	93	131	1.778	pg	#	71
77) * n-Propylbenzene	16.72	91	109	0.730	pg	#	56
78) 3-Ethyltoluene	16.81	105	220	2.115	pg	#	45
79) * 4-Ethyltoluene	16.84	105	68	0.745	pg	#	46
83) tert-Butylbenzene	17.28	134	87	3.786	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	195	2.109	pg		89
85) * Benzyl Chloride	17.37	126	59	6.330	pg	#	54
88) n-Decane	17.38	85	101	5.713	pg	#	39
90) 1,2,3-Trimethylbenzene	17.62	105	88	0.908	pg	#	27
91) p-Isopropyltoluene	17.62	134	54	1.840	pg	#	19
92) * 1,2-Dichlorobenzene	17.72	146	52	0.911	pg	#	18
93) * D-Limonene	17.75	68	199	4.888	pg		89
94) n-Butylbenzene	17.91	134	55	3.204	pg	#	16
96) n-Undecane	18.42	85	72	7.123	pg	#	7
98) * Naphthalene	19.29	128	102	2.585	pg	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\06\
Data File : 01061707.D
Acq On : 6 Jan 2017 12:42 pm
Operator : JM
Sample : AC01300 FCA1072
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Jan 09 08:36:37 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051735.D
Acq On : 6 Jan 2017 8:25 am
Operator : JM
Sample : AS00487 FCA00079
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

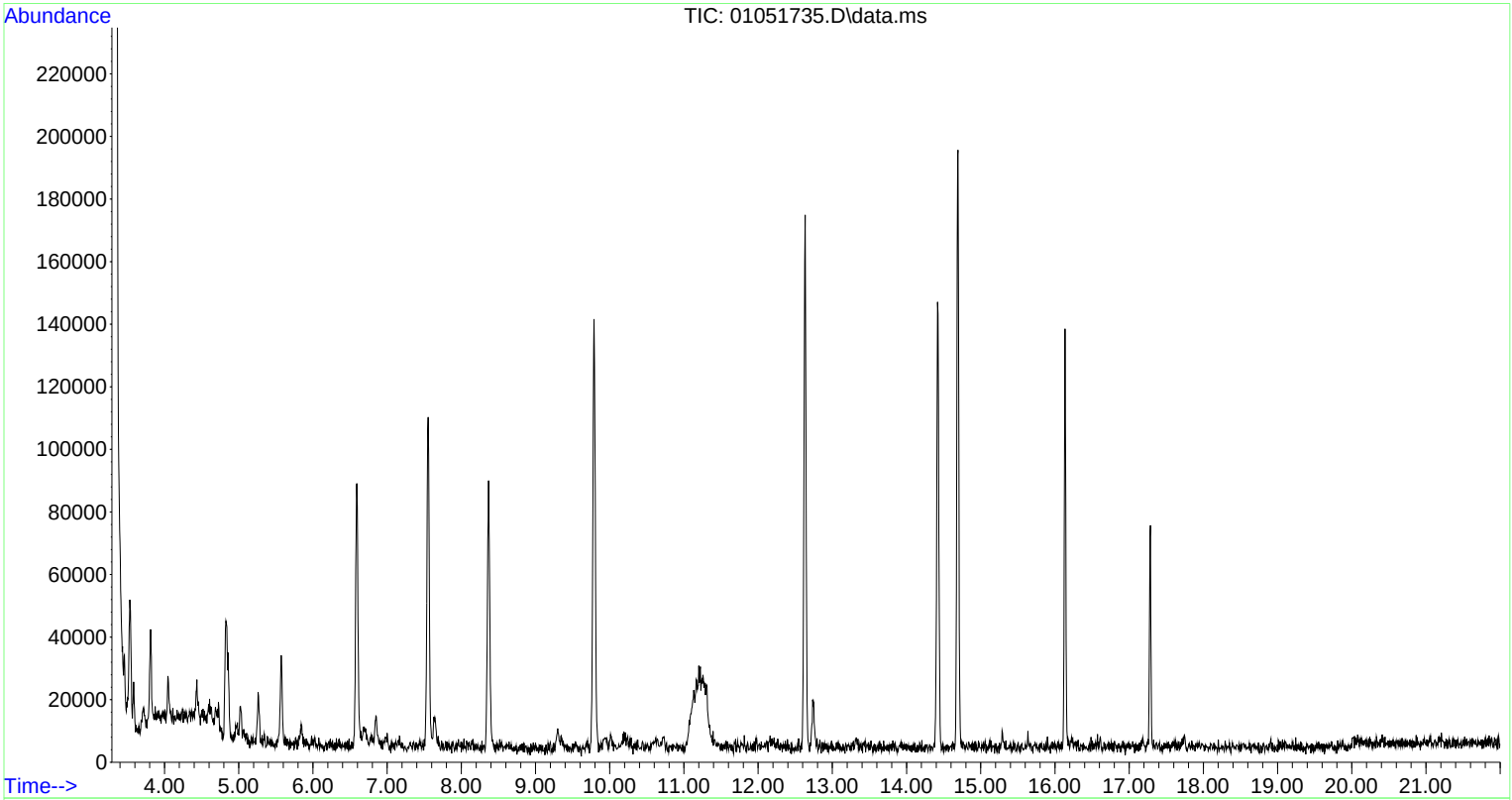
Quant Time: Jan 06 09:52:51 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

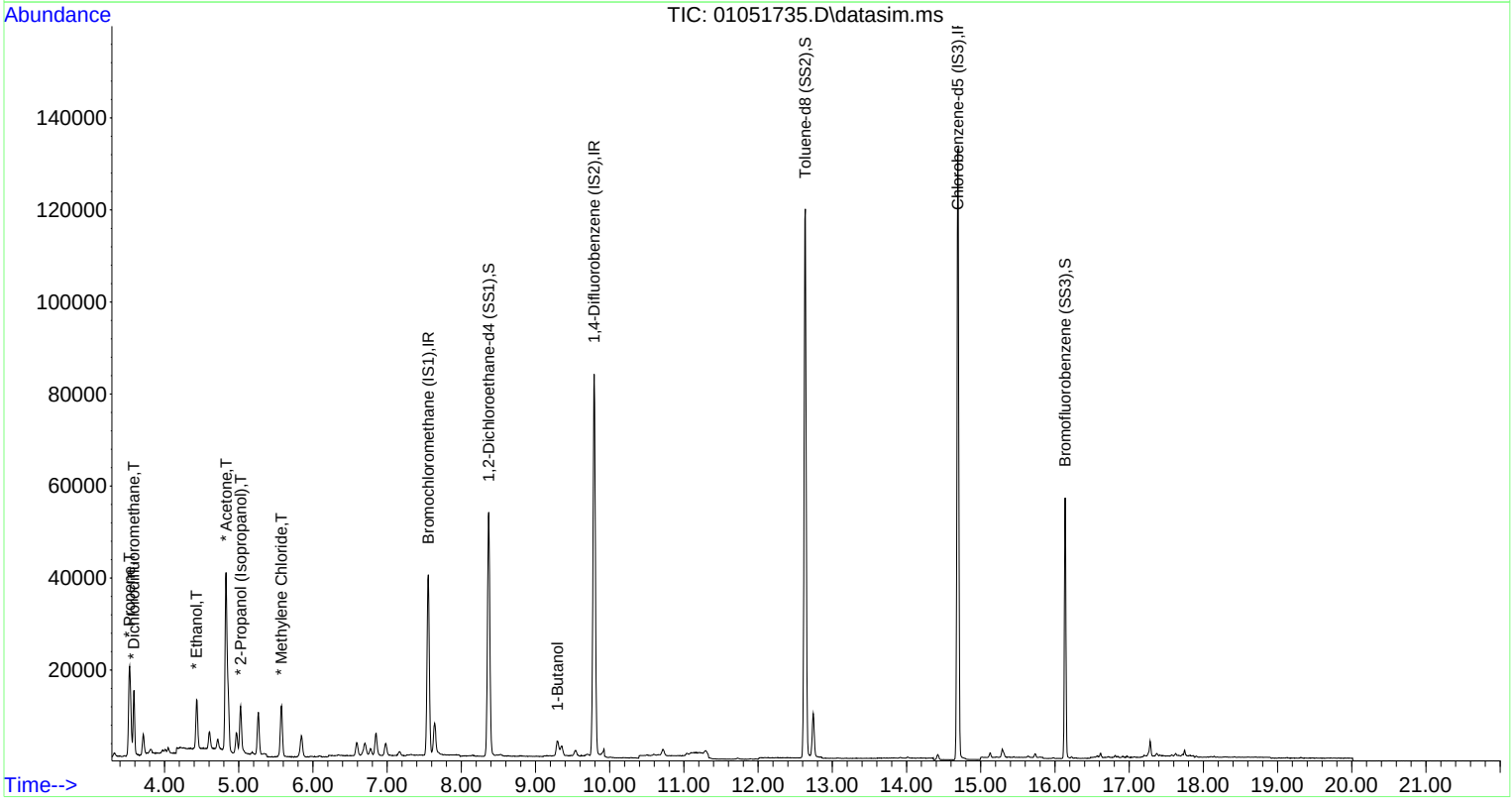
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	48335	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.79	114	153016	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	127715	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	79557	835.746	pg		0.00
Spiked Amount 1000.000			Recovery = 83.58%				
57) Toluene-d8 (SS2)	12.64	98	134006	858.667	pg		0.00
Spiked Amount 1000.000			Recovery = 85.87%				
74) Bromofluorobenzene (SS3)	16.14	174	39956	777.370	pg		0.00
Spiked Amount 1000.000			Recovery = 77.74%				
Target Compounds							Qvalue
2) * Propene	3.53	42	10058	103.676	pg	#	71
3) * Dichlorodifluoromethane	3.59	85	14566	70.484	pg		100
10) * Ethanol	4.43	45	12158	183.747	pg		98
13) * Acetone	4.83	58	19129	306.080	pg		79
15) * 2-Propanol (Isopropa...	5.03	45	14044	82.937	pg		98
19) * Methylene Chloride	5.58	84	13017	186.984	pg		99
41) 1-Butanol	9.30	56	3030	91.598	pg	#	51

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\05\
Data File : 01051735.D
Acq On : 6 Jan 2017 8:25 am
Operator : JM
Sample : AS00487 FCA00079
Misc : 75130 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Jan 06 09:52:51 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051716.D Vial: 12
Acq On : 5 Jan 2017 21:14 Operator: CL
Sample : AS00871-FCR00113 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:13 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/6/17

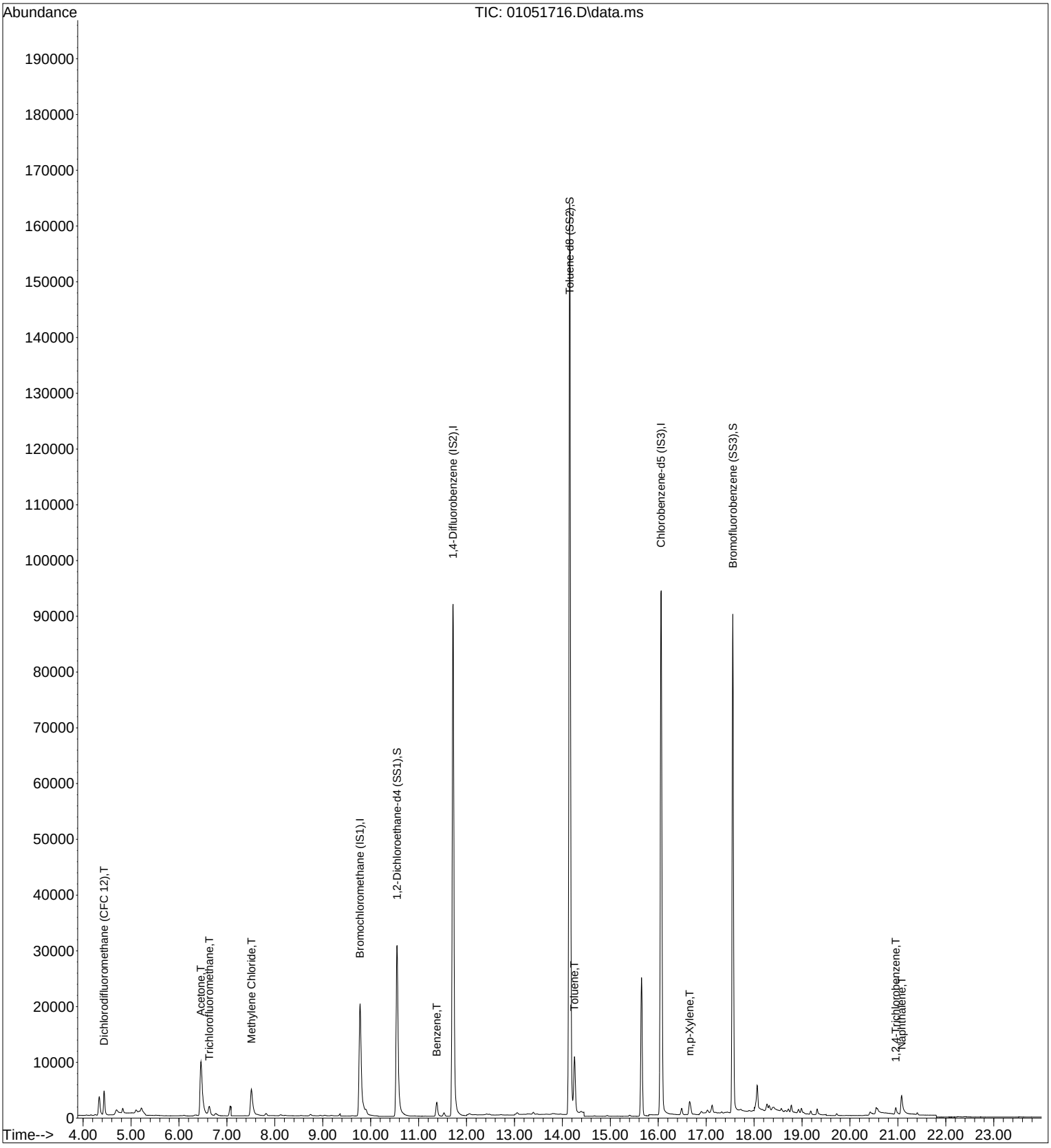
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	38678	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	197392	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	36699	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	61239	988.490	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.85%			
33) Toluene-d8 (SS2)	14.15	98	229239	1188.967	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 118.90%			
45) Bromofluorobenzene (SS3)	17.56	174	70087	963.683	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.37%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.44	85	6109	65.092	pg	99
10) Acetone	6.46	58	9202	397.989	pg	99
11) Trichlorofluoromethane	6.63	101	2467	35.908	pg	99
13) Methylene Chloride	7.51	84	6526	144.446	pg	92
23) Benzene	11.38	78	5228	27.400	pg	98
34) Toluene	14.25	91	13807	73.698	pg	100
41) m,p-Xylene	16.66	91	4788	22.617	pg	96
52) 1,2,4-Trichlorobenzene	20.96	182	1613	24.302	pg	99
53) Naphthalene	21.08	128	9434	47.168	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\05\01051716.D Vial: 12
Acq On : 5 Jan 2017 21:14 Operator: CL
Sample : AS00871-FCR00113 (1000mL) Inst : MS19
Misc : 75130

Quant Time: Jan 06 07:31:13 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Dec 28 07:38:07 2016
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111708.D Vial: 13
Acq On : 11 Jan 2017 10:45 Operator: CL
Sample : AS00896-FCA00760 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

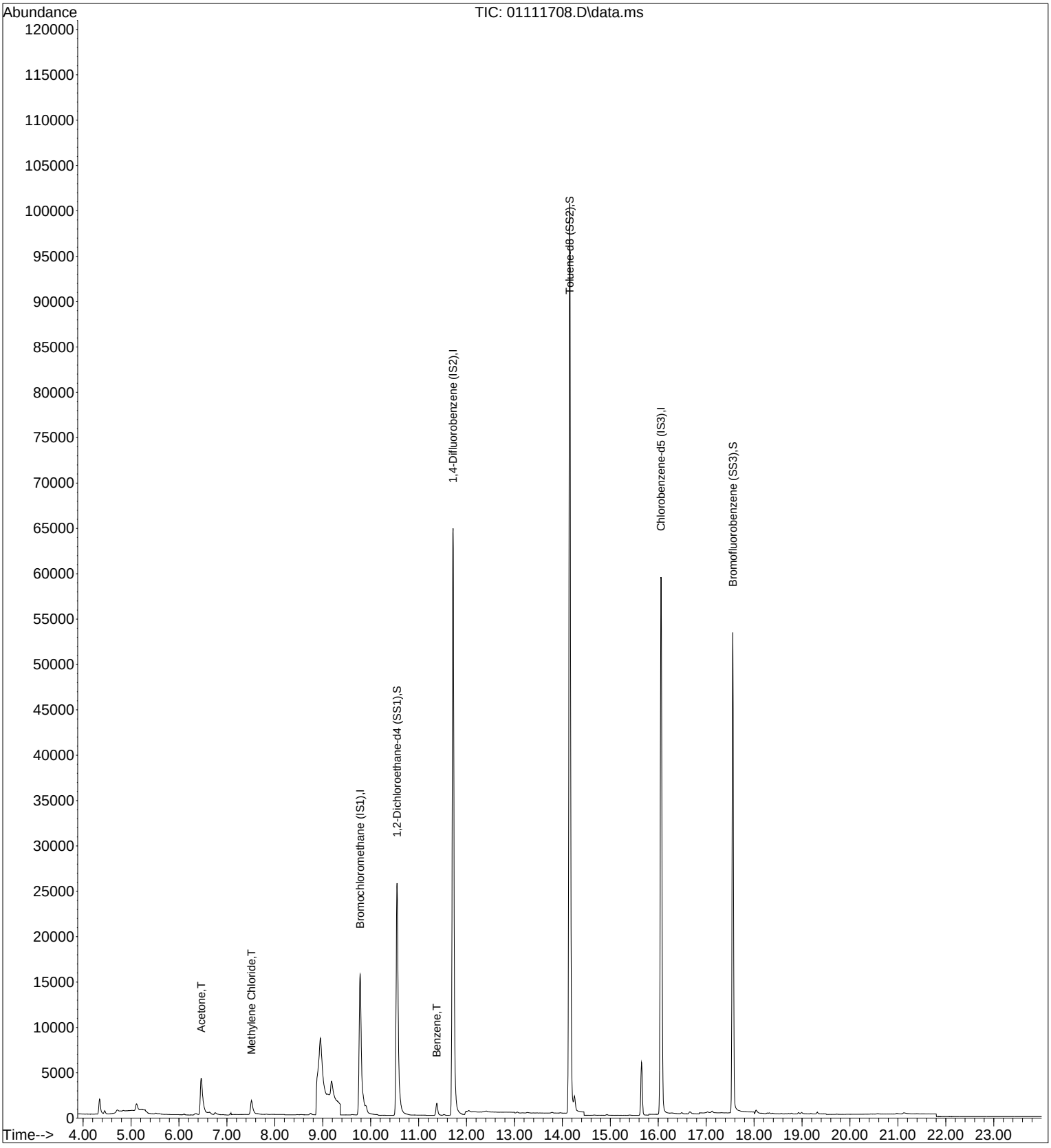
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.78	130	30626	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.72	114	139108	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	23191	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.55	65	51549	1055.345	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.53%			
33) Toluene-d8 (SS2)	14.15	98	141419	1077.457	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.75%			
45) Bromofluorobenzene (SS3)	17.56	174	41911	943.727	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.37%			
Target Compounds						Qvalue
10) Acetone	6.47	58	4259	220.277	pg	96
13) Methylene Chloride	7.51	84	2022	55.815	pg	81
23) Benzene	11.38	78	2817	18.391	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\11\01111708.D Vial: 13
Acq On : 11 Jan 2017 10:45 Operator: CL
Sample : AS00896-FCA00760 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 12:34:15 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111731.D
Acq On : 12 Jan 2017 5:47
Operator : JM
Sample : AC01913 FCA00220
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 12 08:23:32 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	39149	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	112413	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	94143	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	60839	789.077 pg		0.00
Spiked Amount 1000.000			Recovery = 78.91%			
57) Toluene-d8 (SS2)	12.63	98	119550	1039.212 pg		0.00
Spiked Amount 1000.000			Recovery = 103.92%			
74) Bromofluorobenzene (SS3)	16.14	174	28769	759.319 pg		0.00
Spiked Amount 1000.000			Recovery = 75.93%			
Target Compounds						Qvalue
2) * Propene	3.53	42	6210	79.031 pg	#	74
3) * Dichlorodifluoromethane	3.59	85	2786	16.645 pg		98
4) * Chloromethane	3.71	50	1310	10.470 pg		91
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	132	1.062 pg	#	42
6) * Vinyl Chloride	3.88	62	71	0.594 pg	#	42
7) * 1,3-Butadiene	4.01	54	11	0.124 pg	#	1
8) * Bromomethane	4.22	94	134	1.763 pg		94
9) * Chloroethane	4.38	64	57	1.050 pg	#	41
10) * Ethanol	4.44	45	3263	60.886 pg		92
11) * Acetonitrile	4.61	41	1928	14.348 pg		89
12) * Acrolein	4.72	56	763	16.994 pg		94
13) * Acetone	4.84	58	8746	172.780 pg	#	65
14) * Trichlorofluoromethane	4.97	101	1094	9.784 pg		98
15) * 2-Propanol (Isopropa...	5.03	45	2840	20.707 pg	#	84
16) * Acrylonitrile	5.19	53	1252	15.705 pg		92
18) tert-Butanol	5.55	59	399	4.827 pg	#	79
19) * Methylene Chloride	5.58	84	5161	91.531 pg		99
21) * Trichlorotrifluoroet...	5.83	151	276	6.298 pg	#	65
22) * Carbon Disulfide	5.85	76	4714	22.805 pg		96
26) * Vinyl Acetate	6.71	86	173	16.296 pg	#	1
27) * 2-Butanone (MEK)	6.99	72	578	19.024 pg		83
28) * cis-1,2-Dichloroethene	7.39	96	52	1.064 pg	#	17
29) DIPE	7.64	45	1849	10.442 pg	#	53
30) * Ethyl Acetate	7.64	61	2048	131.851 pg		95
31) * n-Hexane	7.66	57	427	5.346 pg	#	82
32) * Chloroform	7.69	83	533	5.398 pg		89
36) * 1,2-Dichloroethane	8.50	62	52	0.622 pg	#	42
39) * Benzene	9.36	78	2485	19.168 pg		97
41) 1-Butanol	9.29	56	12960	533.296 pg	#	48
42) * Carbon Tetrachloride	9.56	117	95	1.884 pg	#	80
47) * Trichloroethene	10.62	130	174	4.210 pg		83
48) * 1,4-Dioxane	10.67	88	63	2.330 pg	#	9
49) Isooctane	10.74	56	81	1.307 pg	#	26
51) * n-Heptane	11.04	71	204	3.065 pg		96
53) * 4-Methyl-2-pentanone	11.73	58	232	9.905 pg	#	47
58) * Toluene	12.74	91	5059	38.021 pg		99
59) * 2-Hexanone	13.07	58	208	9.138 pg	#	68
62) * n-Butyl Acetate	13.80	56	17152	1053.729 pg		94
63) * n-Octane	13.91	85	85	4.095 pg		86
65) * Chlorobenzene	14.73	112	79	0.901 pg	#	42
66) * Ethylbenzene	15.12	91	1492	13.296 pg	#	85
67) * m- & p-Xylenes	15.29	91	4642	53.244 pg		92
69) Cyclohexanone	15.44	98	64	6.573 pg		89
70) * Styrene	15.63	104	395	8.510 pg		89
71) * o-Xylene	15.73	91	1531	17.953 pg		93

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111731.D
Acq On : 12 Jan 2017 5:47
Operator : JM
Sample : AC01913 FCA00220
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

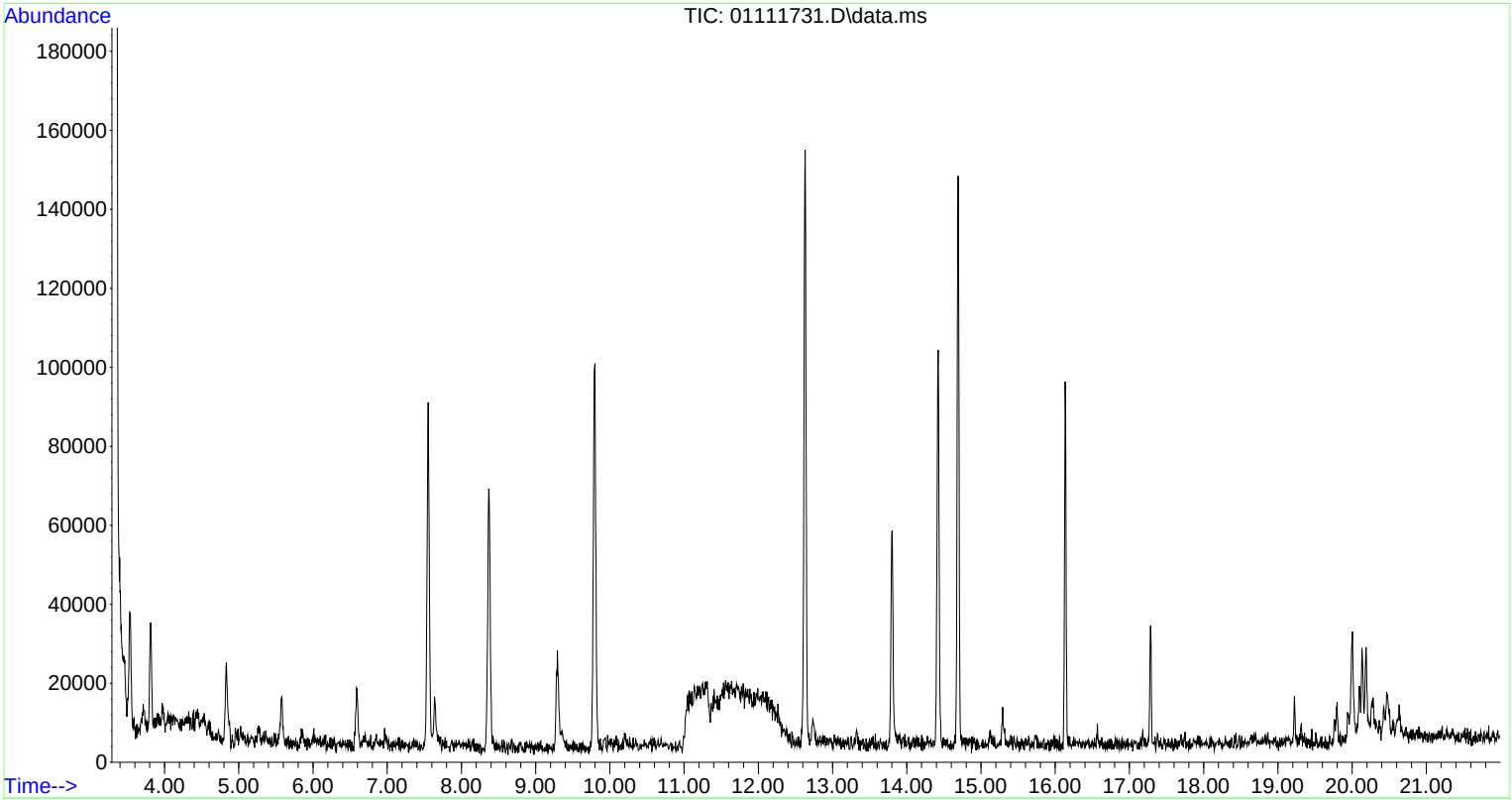
Quant Time: Jan 12 08:23:32 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

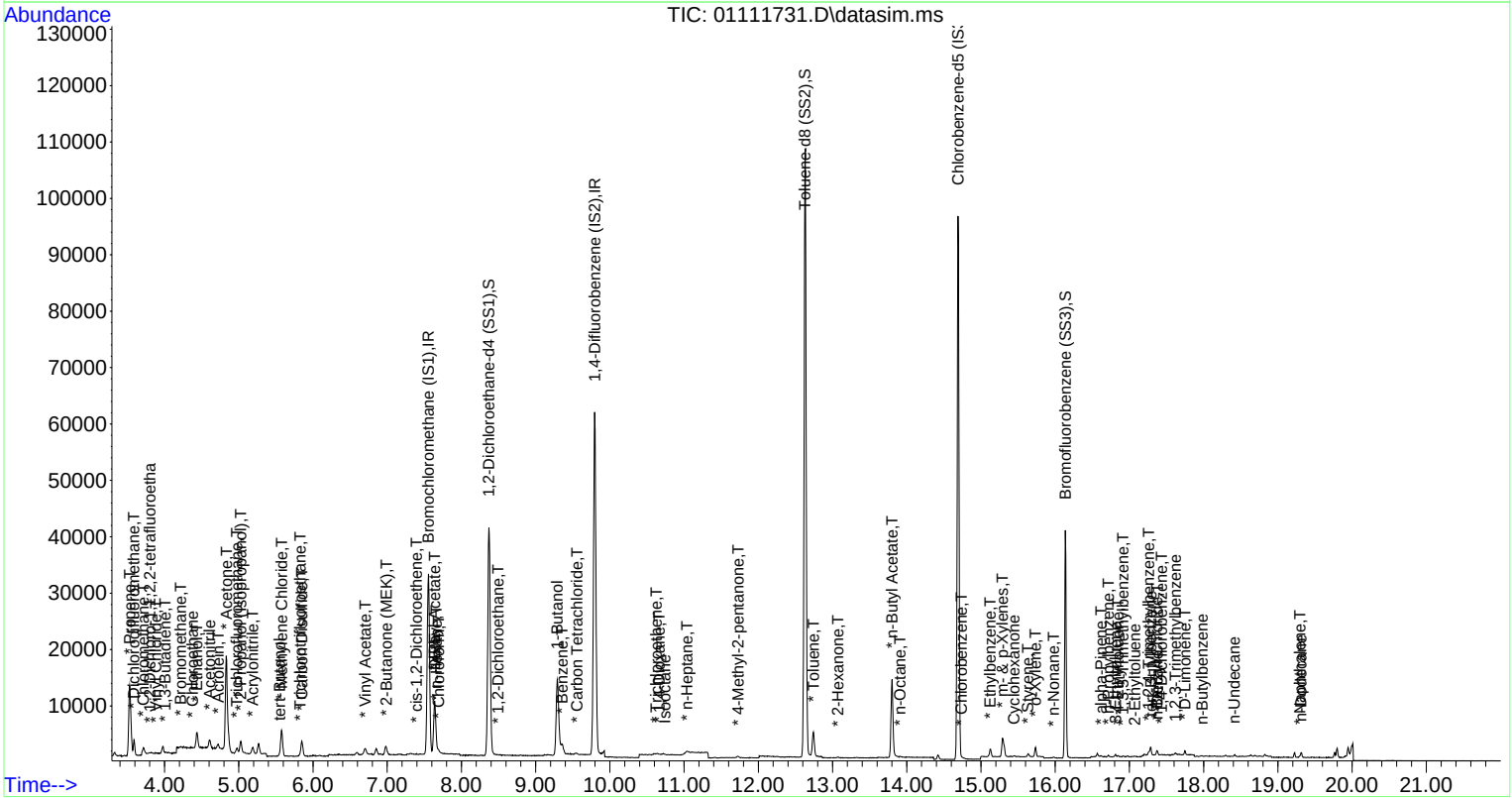
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
72) * n-Nonane	15.98	57	163	4.241	pg	#	58
76) * alpha-Pinene	16.61	93	136	2.460	pg	#	80
77) * n-Propylbenzene	16.72	91	243	2.169	pg	#	56
78) 3-Ethyltoluene	16.81	105	277	3.550	pg	#	83
79) * 4-Ethyltoluene	16.85	105	140	2.046	pg	#	81
80) * 1,3,5-Trimethylbenzene	16.91	105	91	1.186	pg	#	29
82) 2-Ethyltoluene	17.07	105	102	1.095	pg	#	45
83) tert-Butylbenzene	17.29	134	509	29.528	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	440	6.344	pg		91
85) * Benzyl Chloride	17.37	126	65	9.297	pg		69
87) * 1,4-Dichlorobenzene	17.43	146	65	2.055	pg	#	17
88) n-Decane	17.37	85	154	11.614	pg		94
90) 1,2,3-Trimethylbenzene	17.62	105	241	3.314	pg	#	78
93) * D-Limonene	17.75	68	389	12.738	pg	#	78
94) n-Butylbenzene	17.98	134	73	5.669	pg	#	28
96) n-Undecane	18.41	85	117	15.431	pg	#	51
98) * Naphthalene	19.30	128	386	13.040	pg	#	66
99) n-Dodecane	19.31	85	149	31.288	pg		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111731.D
Acq On : 12 Jan 2017 5:47
Operator : JM
Sample : AC01913 FCA00220
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jan 12 08:23:32 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111725.D
Acq On : 12 Jan 2017 1:41
Operator : JM
Sample : AS00537 FCA00954
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 08:22:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39872	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	105074	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	87502	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	61692	785.631	pg		0.00
Spiked Amount 1000.000			Recovery = 78.56%				
57) Toluene-d8 (SS2)	12.63	98	189550	1772.754	pg		0.00
Spiked Amount 1000.000			Recovery = 177.28%				
74) Bromofluorobenzene (SS3)	16.14	174	27762	788.353	pg		0.00
Spiked Amount 1000.000			Recovery = 78.83%				
Target Compounds							Qvalue
2) * Propene	3.53	42	7402	92.493	pg		82
3) * Dichlorodifluoromethane	3.59	85	1867	10.952	pg		98
4) * Chloromethane	3.71	50	1167	9.158	pg		91
6) * Vinyl Chloride	3.90	62	50	0.411	pg	#	1
7) * 1,3-Butadiene	3.99	54	59	0.652	pg	#	1
8) * Bromomethane	4.21	94	53	0.685	pg		95
9) * Chloroethane	4.35	64	50	0.904	pg	#	41
10) * Ethanol	4.44	45	3739	68.503	pg		93
11) * Acetonitrile	4.61	41	1258	9.192	pg	#	40
12) * Acrolein	4.72	56	887	19.398	pg		98
13) * Acetone	4.83	58	8202	159.095	pg	#	52
14) * Trichlorofluoromethane	4.98	101	775	6.805	pg		93
15) * 2-Propanol (Isopropa...	5.03	45	3642	26.073	pg		89
16) * Acrylonitrile	5.19	53	351	4.323	pg		88
18) tert-Butanol	5.55	59	398	4.727	pg	#	42
19) * Methylene Chloride	5.58	84	2715	47.278	pg		95
21) * Trichlorotrifluoroet...	5.82	151	192	4.302	pg	#	61
22) * Carbon Disulfide	5.85	76	5280	25.080	pg		98
25) * Methyl tert-Butyl Ether	6.69	73	52	0.513	pg	#	50
26) * Vinyl Acetate	6.71	86	255	23.585	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	506	16.352	pg		97
29) DIPE	7.64	45	1217	6.748	pg	#	53
30) * Ethyl Acetate	7.64	61	1110	70.166	pg		88
31) * n-Hexane	7.65	57	282	3.466	pg	#	60
32) * Chloroform	7.70	83	99	0.985	pg	#	16
39) * Benzene	9.36	78	1237	10.208	pg		97
41) 1-Butanol	9.30	56	1873	82.456	pg	#	47
42) * Carbon Tetrachloride	9.54	117	165	3.500	pg	#	45
48) * 1,4-Dioxane	10.66	88	102	4.036	pg		87
49) Isooctane	10.73	56	83	1.433	pg		100
50) * Methyl Methacrylate	10.90	69	55	1.810	pg	#	42
51) * n-Heptane	11.04	71	155	2.491	pg	#	43
53) * 4-Methyl-2-pentanone	11.72	58	123	5.618	pg	#	47
58) * Toluene	12.74	91	3718	30.063	pg		98
59) * 2-Hexanone	13.07	58	223	10.541	pg	#	68
66) * Ethylbenzene	15.13	91	275	2.637	pg	#	50
67) * m- & p-Xylenes	15.29	91	613	7.565	pg	#	81
70) * Styrene	15.64	104	73	1.692	pg	#	33
71) * o-Xylene	15.74	91	176	2.220	pg		91
72) * n-Nonane	15.99	57	58	1.624	pg	#	42
76) * alpha-Pinene	16.61	93	75	1.460	pg	#	18
77) * n-Propylbenzene	16.72	91	90	0.864	pg	#	56
78) 3-Ethyltoluene	16.81	105	130	1.792	pg	#	45
79) * 4-Ethyltoluene	16.81	105	130	2.044	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.91	105	50	0.701	pg	#	29

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111725.D
Acq On : 12 Jan 2017 1:41
Operator : JM
Sample : AS00537 FCA00954
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 08:22:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

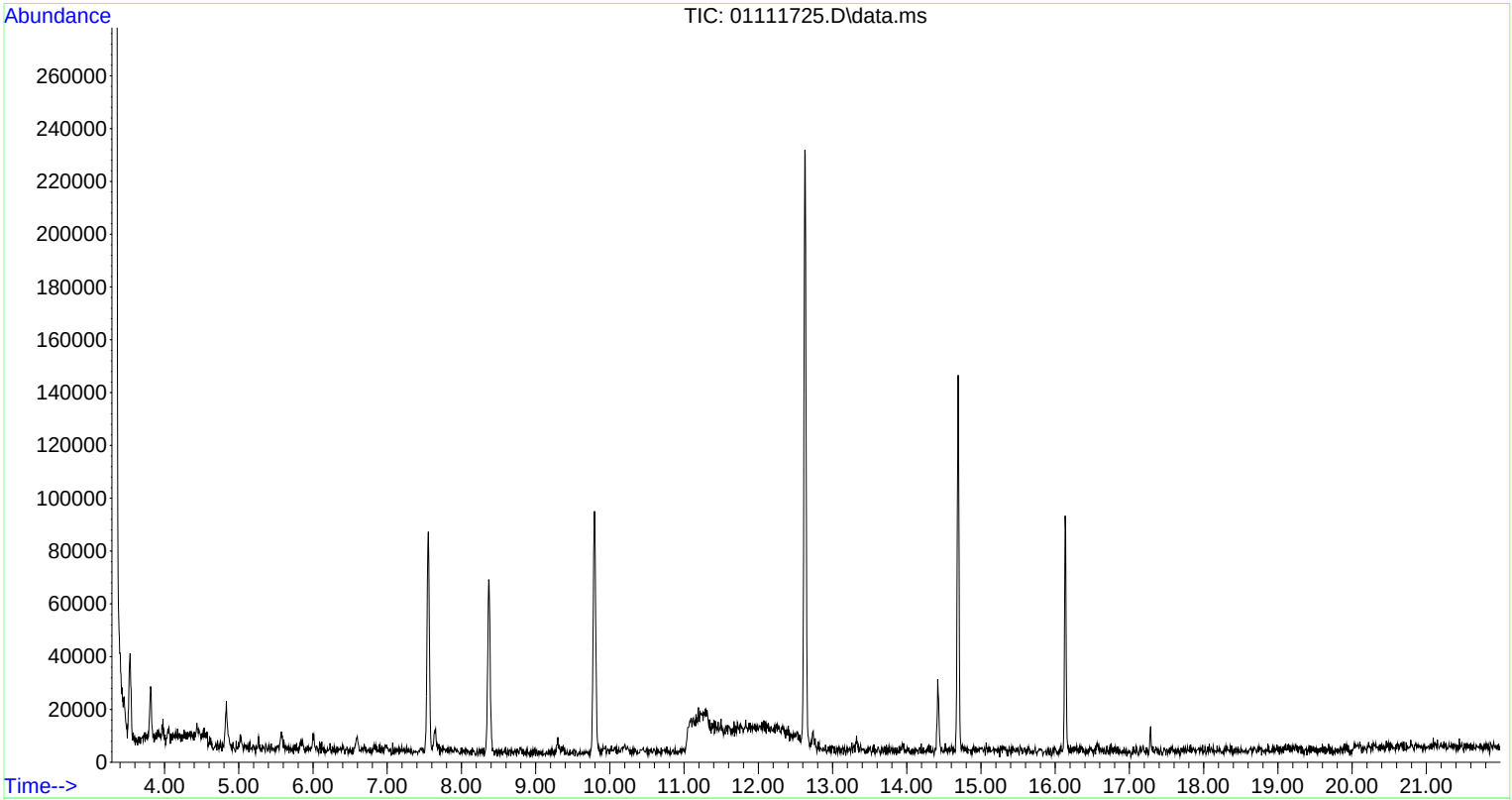
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
82) 2-Ethyltoluene	17.07	105	68	0.786	pg	#	45
83) tert-Butylbenzene	17.28	134	174	10.860	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.27	105	169	2.622	pg	#	81
85) * Benzyl Chloride	17.36	126	125	19.235	pg	#	2
90) 1,2,3-Trimethylbenzene	17.61	105	63	0.932	pg	#	27
93) * D-Limonene	17.75	68	306	10.781	pg		96
98) * Naphthalene	19.29	128	146	5.307	pg	#	66

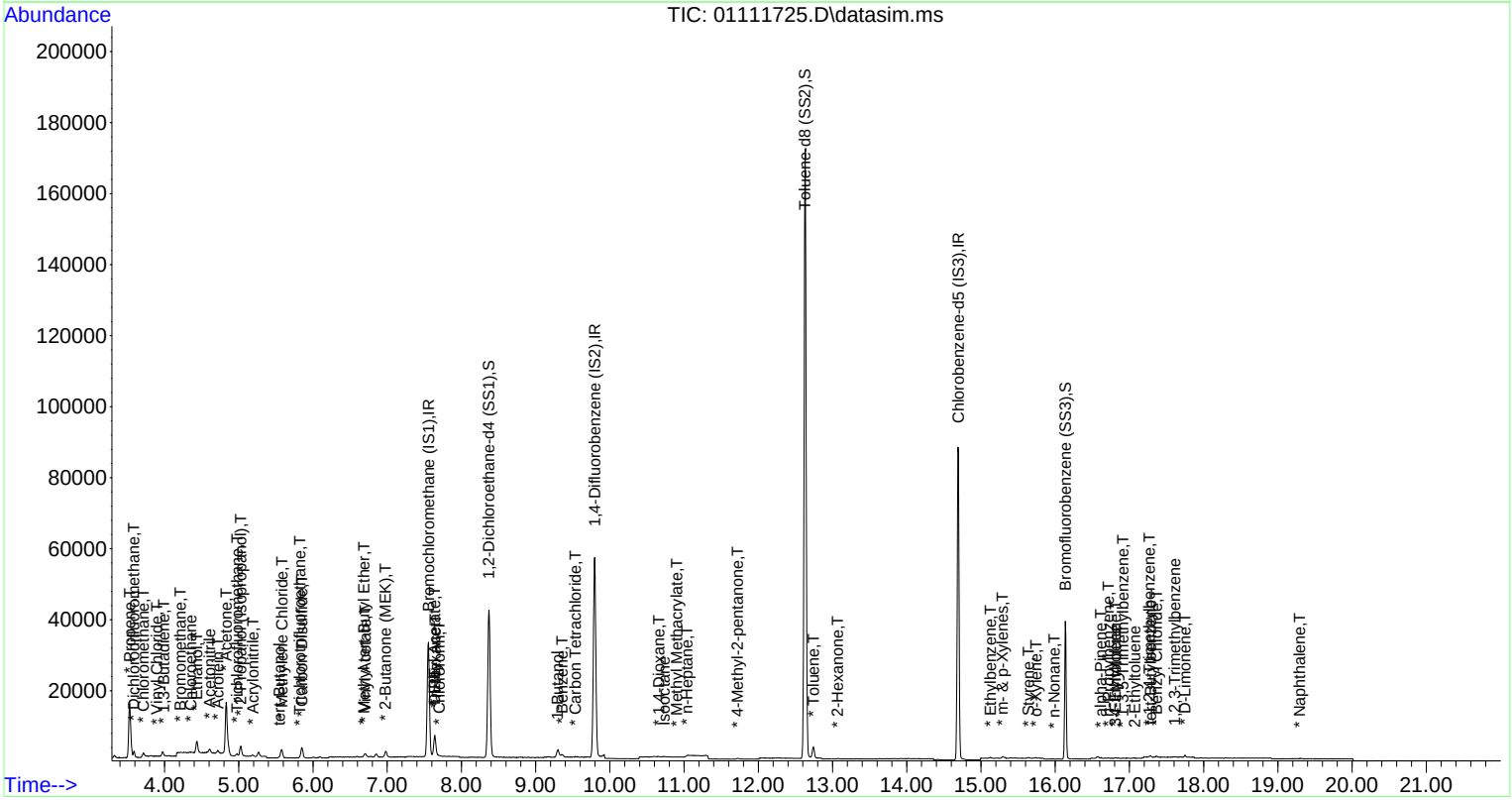
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111725.D
Acq On : 12 Jan 2017 1:41
Operator : JM
Sample : AS00537 FCA00954
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 12 08:22:56 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111730.D
Acq On : 12 Jan 2017 5:06
Operator : JM
Sample : AC00835 FCA00546
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 12 08:23:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	39855	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	108040	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	92804	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	61650	785.431 pg		0.00
Spiked Amount 1000.000			Recovery = 78.54%			
57) Toluene-d8 (SS2)	12.63	98	115494	1018.440 pg		0.00
Spiked Amount 1000.000			Recovery = 101.84%			
74) Bromofluorobenzene (SS3)	16.14	174	29402	787.223 pg		0.00
Spiked Amount 1000.000			Recovery = 78.72%			
Target Compounds						Qvalue
2) * Propene	3.53	42	8695	108.696 pg		81
3) * Dichlorodifluoromethane	3.59	85	6355	37.294 pg		98
4) * Chloromethane	3.71	50	2789	21.895 pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	232	1.834 pg	#	86
7) * 1,3-Butadiene	4.00	54	52	0.575 pg	#	1
8) * Bromomethane	4.21	94	57	0.736 pg		96
10) * Ethanol	4.44	45	9518	174.455 pg		98
11) * Acetonitrile	4.60	41	2767	20.227 pg	#	82
12) * Acrolein	4.72	56	1979	43.297 pg		94
13) * Acetone	4.83	58	22461	435.864 pg	#	56
14) * Trichlorofluoromethane	4.97	101	2441	21.443 pg		99
15) * 2-Propanol (Isopropa...	5.03	45	10112	72.423 pg		92
16) * Acrylonitrile	5.19	53	444	5.471 pg		98
18) tert-Butanol	5.56	59	1234	14.663 pg	#	69
19) * Methylene Chloride	5.58	84	11098	193.338 pg		99
20) * 3-Chloro-1-propene (...	5.64	41	52	0.678 pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	484	10.848 pg		90
22) * Carbon Disulfide	5.85	76	5307	25.219 pg		100
24) * 1,1-Dichloroethane	6.61	63	72	0.740 pg	#	42
25) * Methyl tert-Butyl Ether	6.71	73	56	0.553 pg	#	50
26) * Vinyl Acetate	6.71	86	1717	158.873 pg	#	1
27) * 2-Butanone (MEK)	6.98	72	1405	45.424 pg		75
29) DIPE	7.63	45	3466	19.227 pg	#	56
30) * Ethyl Acetate	7.64	61	3538	223.742 pg		99
31) * n-Hexane	7.65	57	757	9.309 pg		93
32) * Chloroform	7.68	83	115	1.144 pg	#	11
36) * 1,2-Dichloroethane	8.50	62	184	2.163 pg	#	42
39) * Benzene	9.36	78	2099	16.846 pg		93
41) 1-Butanol	9.30	56	3036	129.986 pg	#	55
42) * Carbon Tetrachloride	9.54	117	200	4.126 pg	#	53
48) * 1,4-Dioxane	10.60	88	55	2.117 pg	#	77
49) Isooctane	10.71	56	292	4.903 pg	#	70
51) * n-Heptane	11.04	71	390	6.096 pg		93
53) * 4-Methyl-2-pentanone	11.73	58	223	9.906 pg	#	54
58) * Toluene	12.74	91	9142	69.698 pg		98
59) * 2-Hexanone	13.07	58	497	22.151 pg		96
62) * n-Butyl Acetate	13.80	56	88	5.484 pg	#	37
63) * n-Octane	13.91	85	60	2.932 pg	#	1
64) * Tetrachloroethene	14.01	166	130	2.980 pg		86
65) * Chlorobenzene	14.73	112	55	0.636 pg	#	42
66) * Ethylbenzene	15.12	91	505	4.565 pg		94
67) * m- & p-Xylenes	15.29	91	1196	13.916 pg		94
69) Cyclohexanone	15.45	98	121	12.606 pg	#	46
70) * Styrene	15.64	104	188	4.109 pg		88
71) * o-Xylene	15.73	91	403	4.794 pg		90

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111730.D
Acq On : 12 Jan 2017 5:06
Operator : JM
Sample : AC00835 FCA00546
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

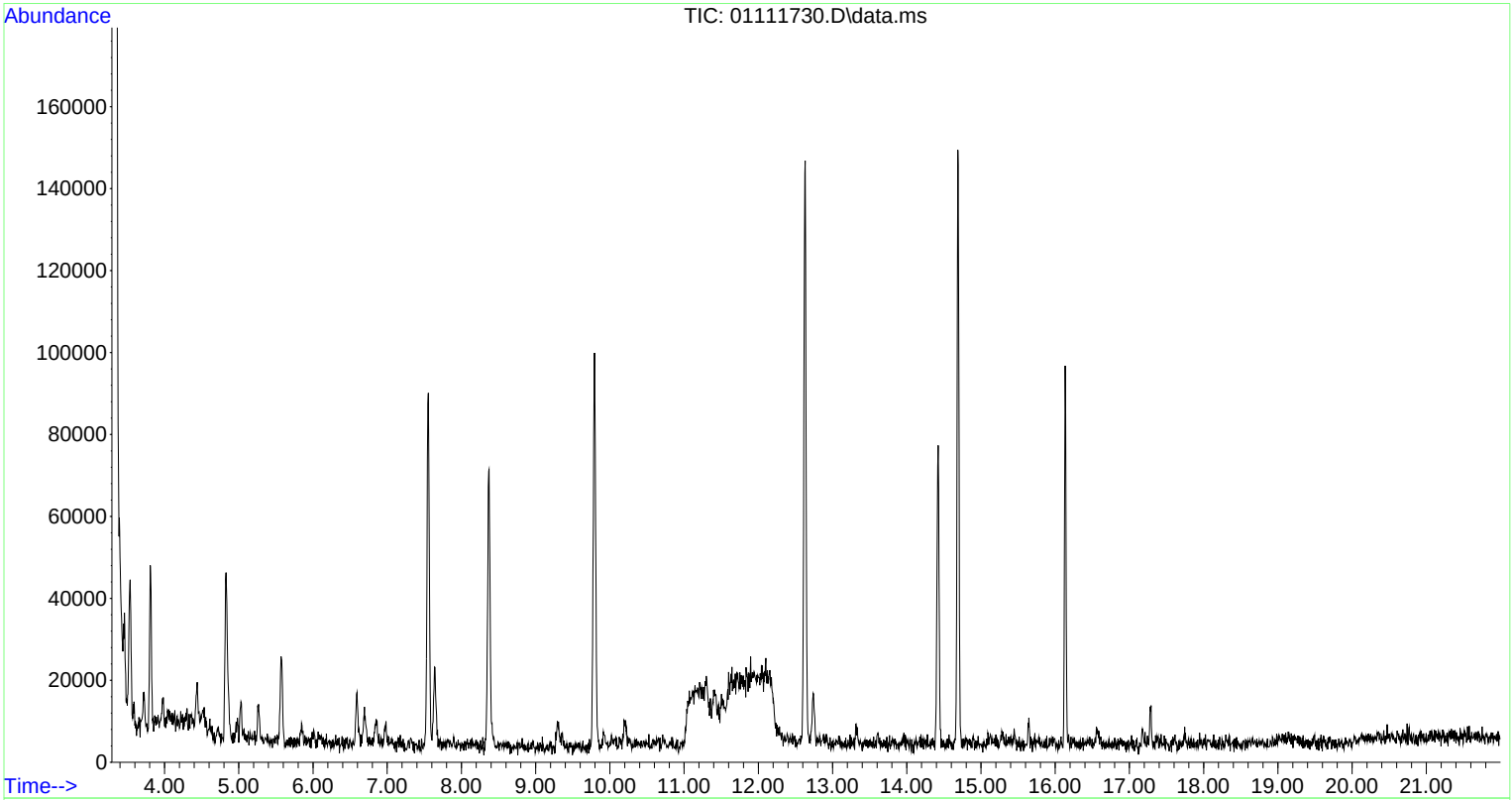
Quant Time: Jan 12 08:23:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

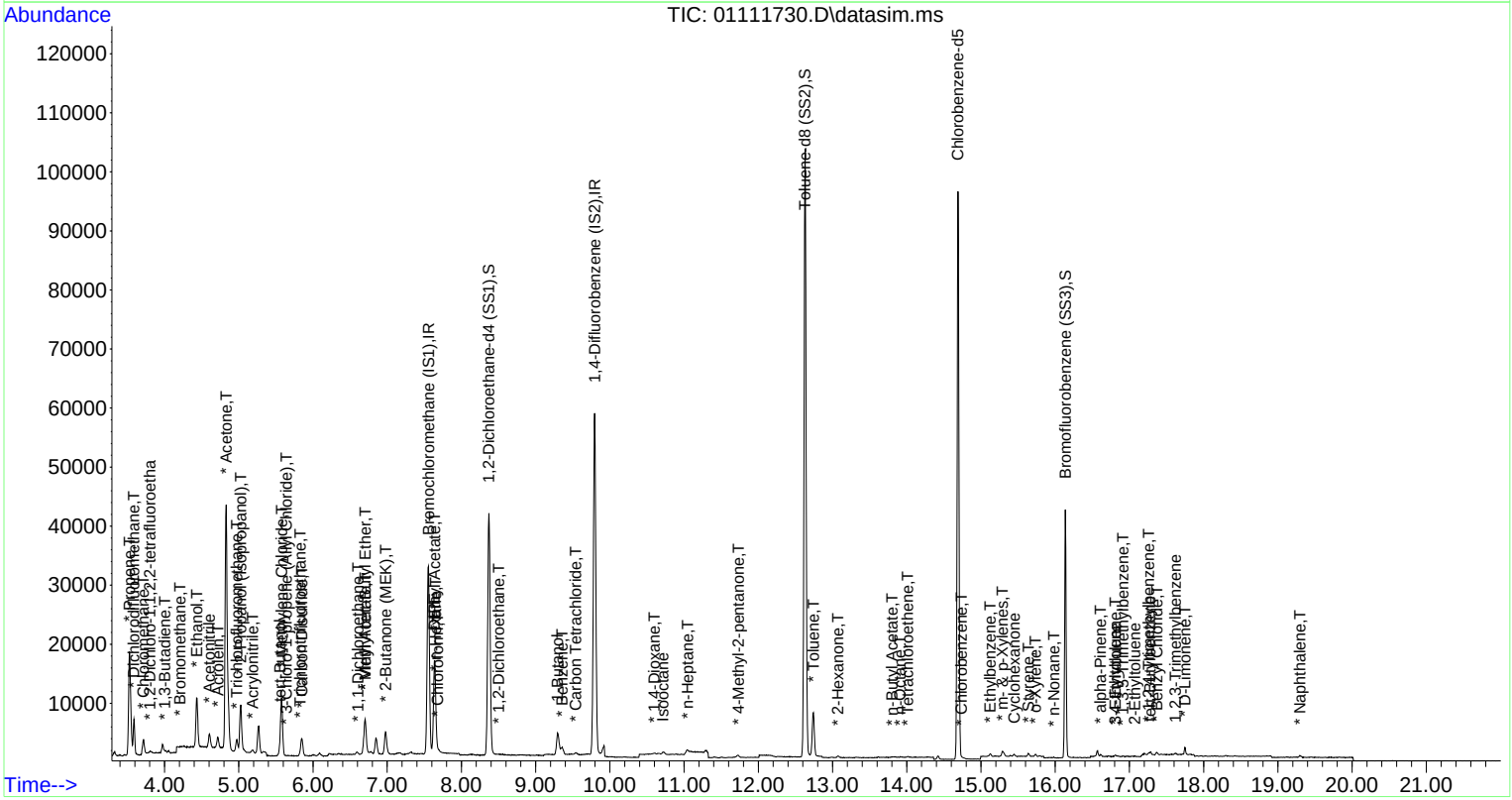
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
72) * n-Nonane	15.98	57	75	1.980	pg	#	42
76) * alpha-Pinene	16.61	93	239	4.386	pg		90
78) 3-Ethyltoluene	16.81	105	205	2.665	pg		98
79) * 4-Ethyltoluene	16.81	105	205	3.039	pg		95
80) * 1,3,5-Trimethylbenzene	16.91	105	79	1.044	pg	#	29
82) 2-Ethyltoluene	17.07	105	86	0.937	pg	#	45
83) tert-Butylbenzene	17.28	134	247	14.536	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	328	4.798	pg	#	73
85) * Benzyl Chloride	17.37	126	83	12.043	pg		77
90) 1,2,3-Trimethylbenzene	17.62	105	72	1.004	pg	#	32
93) * D-Limonene	17.75	68	541	17.972	pg	#	72
98) * Naphthalene	19.30	128	361	12.372	pg	#	33

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\11\
Data File : 01111730.D
Acq On : 12 Jan 2017 5:06
Operator : JM
Sample : AC00835 FCA00546
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jan 12 08:23:26 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101708.D
Acq On : 10 Jan 2017 12:59
Operator : JM
Sample : AS01138 FCR00125
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 11 09:10:05 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.55	130	45215	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	133545	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	103002	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.37	65	72724	816.682	pg		0.00
Spiked Amount 1000.000			Recovery = 81.67%				
57) Toluene-d8 (SS2)	12.63	98	118618	942.427	pg		0.00
Spiked Amount 1000.000			Recovery = 94.24%				
74) Bromofluorobenzene (SS3)	16.14	174	33853	816.656	pg		0.00
Spiked Amount 1000.000			Recovery = 81.67%				
Target Compounds							Qvalue
2) * Propene	3.54	42	5676	62.544	pg	#	76
3) * Dichlorodifluoromethane	3.59	85	1196	6.187	pg		97
4) * Chloromethane	3.71	50	706	4.885	pg	#	79
7) * 1,3-Butadiene	3.99	54	23	0.224	pg	#	1
9) * Chloroethane	4.36	64	57	0.909	pg	#	41
10) * Ethanol	4.44	45	6580	106.307	pg		95
11) * Acetonitrile	4.61	41	932	6.005	pg	#	1
12) * Acrolein	4.72	56	1237	23.855	pg		99
13) * Acetone	4.84	58	12111	207.158	pg	#	56
14) * Trichlorofluoromethane	4.97	101	427	3.306	pg		96
15) * 2-Propanol (Isopropa...	5.03	45	19979	126.128	pg		97
16) * Acrylonitrile	5.19	53	302	3.280	pg	#	68
18) tert-Butanol	5.56	59	463	4.849	pg	#	76
19) * Methylene Chloride	5.58	84	4416	67.811	pg		95
22) * Carbon Disulfide	5.85	76	6749	28.270	pg		98
26) * Vinyl Acetate	6.71	86	290	23.653	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	705	20.091	pg		92
29) DIPE	7.65	45	575	2.812	pg	#	53
30) * Ethyl Acetate	7.65	61	712	39.689	pg		96
31) * n-Hexane	7.64	57	205	2.222	pg	#	60
32) * Chloroform	7.68	83	82	0.719	pg	#	16
39) * Benzene	9.35	78	960	6.233	pg	#	78
40) Isopropyl Acetate	9.34	61	55	3.452	pg	#	28
41) 1-Butanol	9.30	56	1922	66.574	pg	#	51
47) * Trichloroethene	10.63	130	78	1.589	pg	#	3
49) Isooctane	10.73	56	70	0.951	pg	#	36
51) * n-Heptane	11.03	71	208	2.630	pg	#	43
53) * 4-Methyl-2-pentanone	11.73	58	92	3.306	pg	#	47
58) * Toluene	12.74	91	2451	16.836	pg		96
59) * 2-Hexanone	13.08	58	239	9.597	pg	#	75
65) * Chlorobenzene	14.73	112	60	0.626	pg	#	11
66) * Ethylbenzene	15.13	91	393	3.201	pg		97
67) * m- & p-Xylenes	15.29	91	1007	10.557	pg		94
70) * Styrene	15.64	104	298	5.868	pg		93
71) * o-Xylene	15.73	91	356	3.815	pg		99
72) * n-Nonane	15.98	57	59	1.403	pg	#	42
77) * n-Propylbenzene	16.71	91	68	0.555	pg	#	56
78) 3-Ethyltoluene	16.81	105	113	1.324	pg	#	45
79) * 4-Ethyltoluene	16.81	105	113	1.509	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	57	0.679	pg	#	29
82) 2-Ethyltoluene	17.08	105	115	1.129	pg	#	45
83) tert-Butylbenzene	17.28	134	69	3.659	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	223	2.939	pg	#	81
85) * Benzyl Chloride	17.35	126	57	7.451	pg	#	61
86) * 1,3-Dichlorobenzene	17.37	146	111	2.724	pg		88

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101708.D
Acq On : 10 Jan 2017 12:59
Operator : JM
Sample : AS01138 FCR00125
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

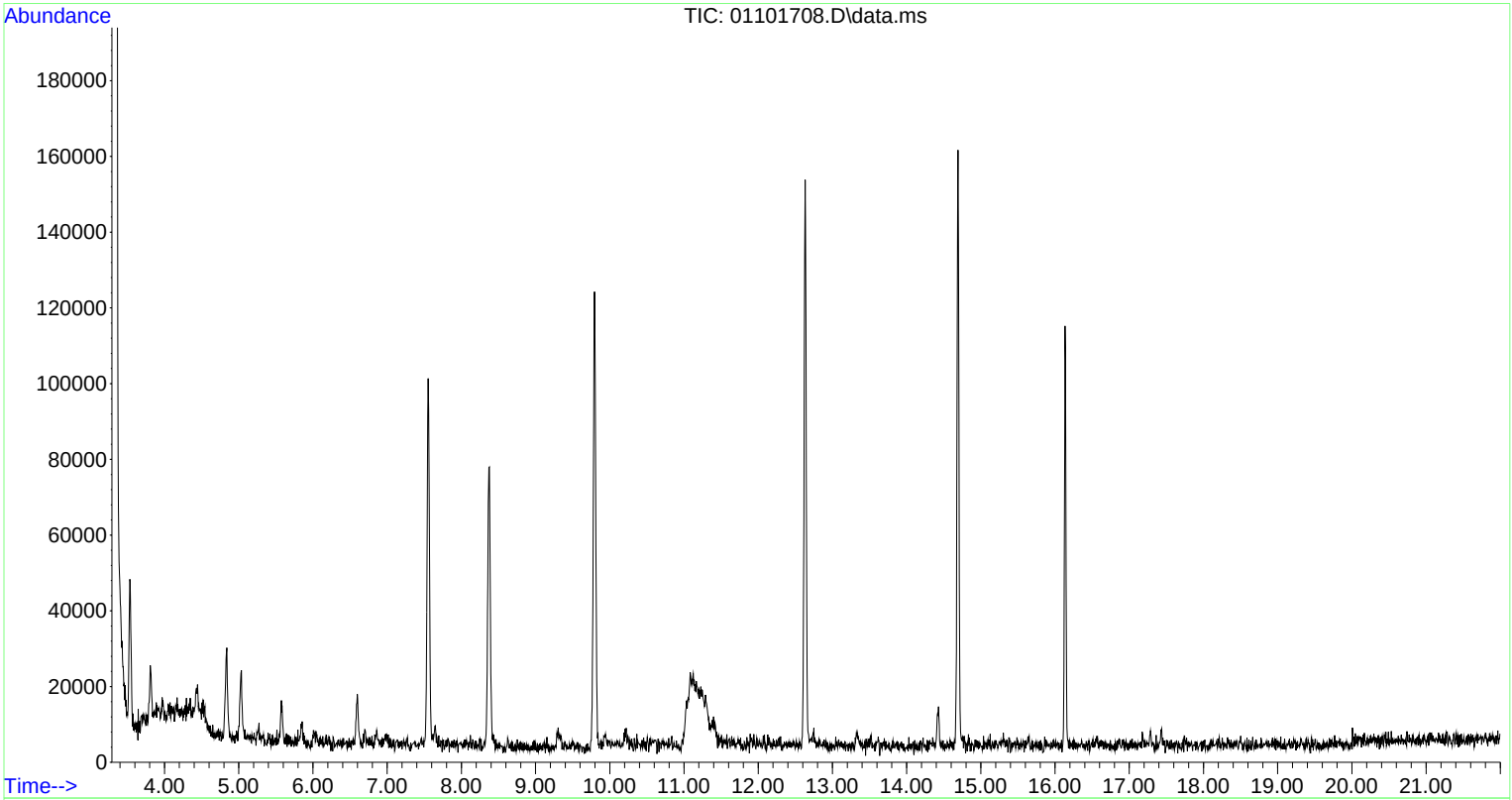
Quant Time: Jan 11 09:10:05 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

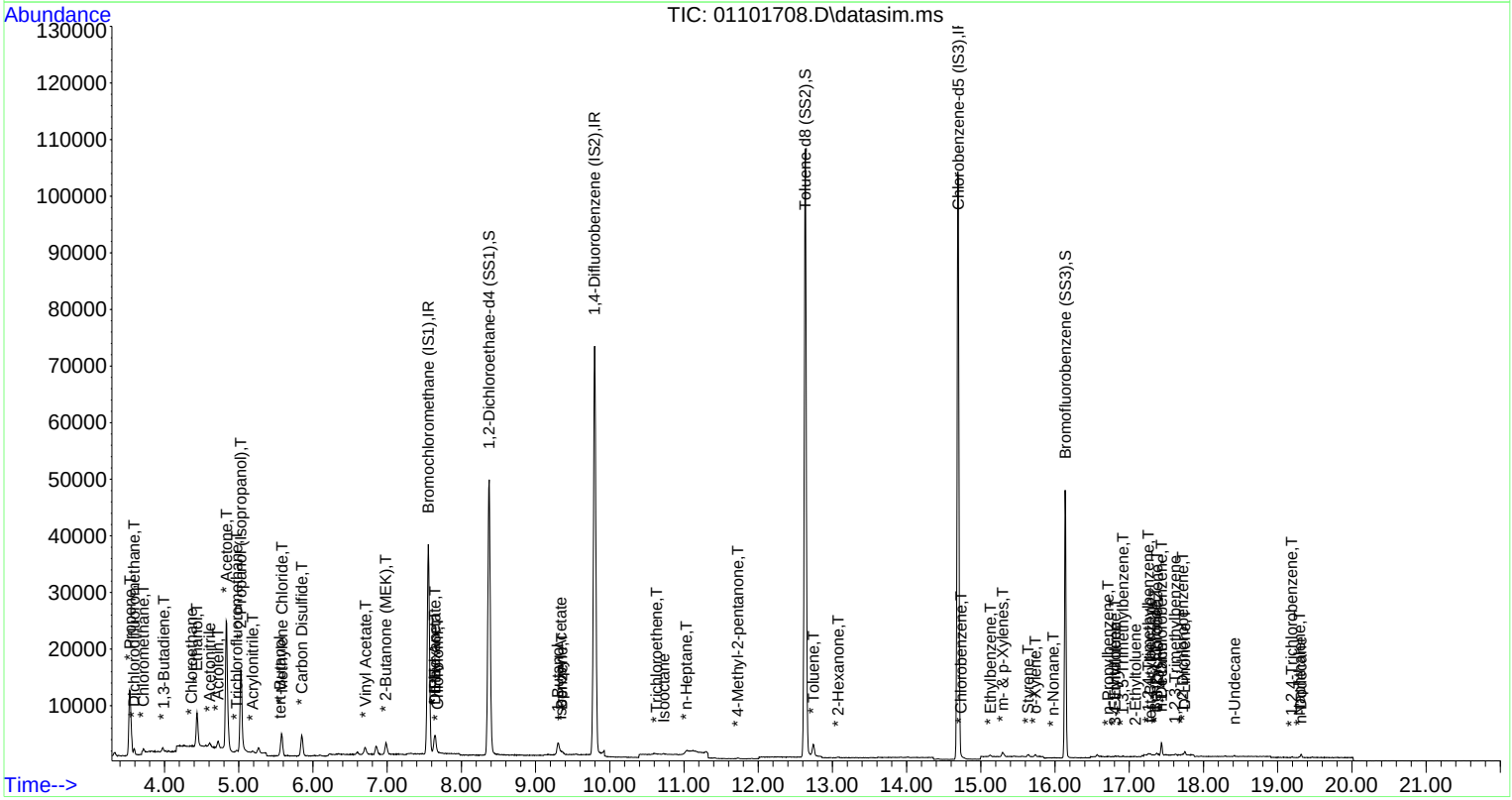
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
87) * 1,4-Dichlorobenzene	17.43	146	1636	47.272	pg		98
88) n-Decane	17.43	85	77	5.308	pg	#	1
90) 1,2,3-Trimethylbenzene	17.62	105	60	0.754	pg	#	27
92) * 1,2-Dichlorobenzene	17.72	146	105	2.242	pg		85
93) * D-Limonene	17.75	68	340	10.176	pg		87
96) n-Undecane	18.42	85	96	11.572	pg	#	14
97) * 1,2,4-Trichlorobenzene	19.19	180	80	7.905	pg		98
98) * Naphthalene	19.29	128	158	4.879	pg	#	66
99) n-Dodecane	19.31	85	147	28.213	pg		79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101708.D
Acq On : 10 Jan 2017 12:59
Operator : JM
Sample : AS01138 FCR00125
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 210 Sample Multiplier: 1

Quant Time: Jan 11 09:10:05 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101715.D Vial: 3
Acq On : 10 Jan 2017 16:50 Operator: CL
Sample : AC00641-FCA00466 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:07 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

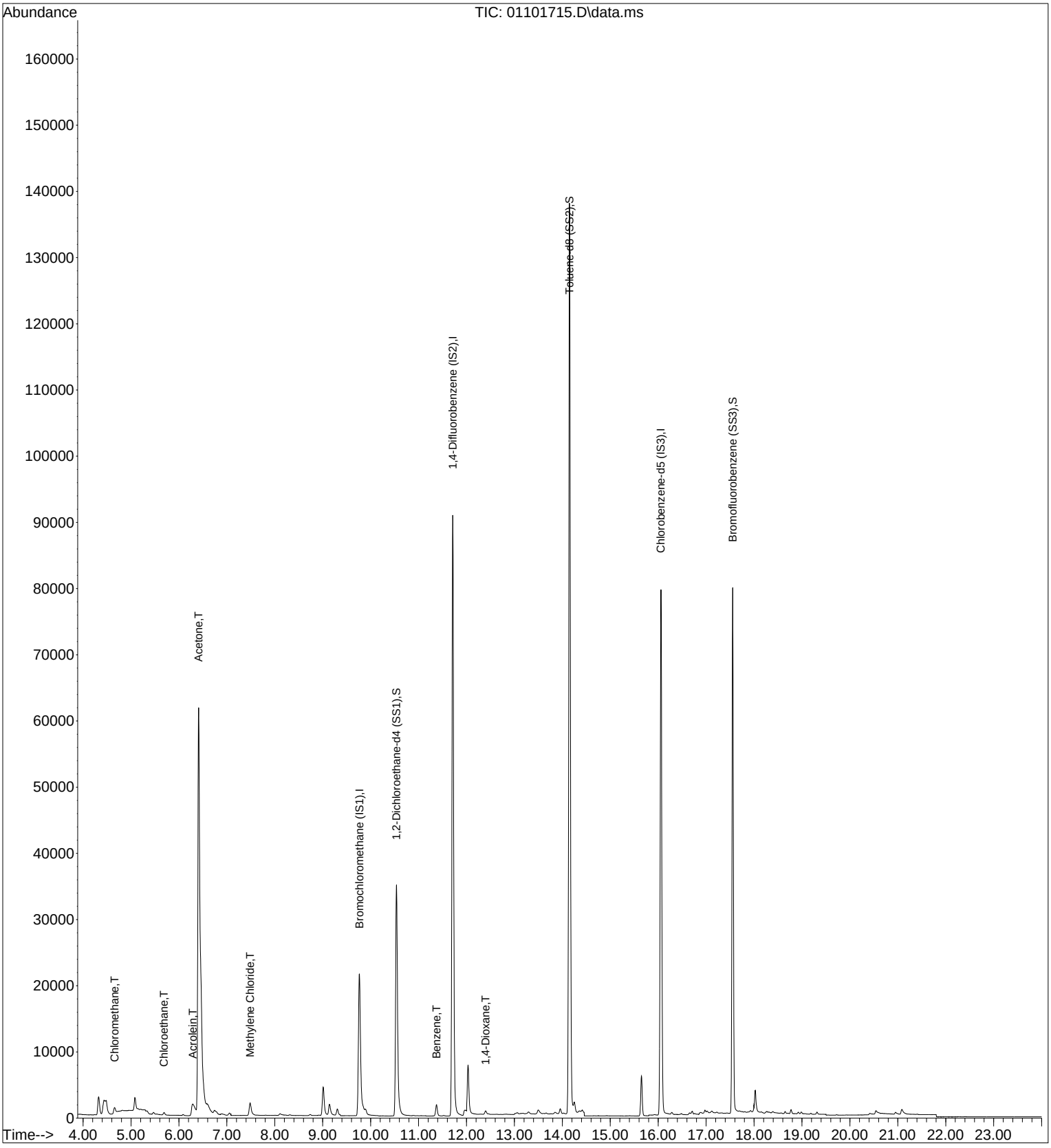
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	39132	1000.000	pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	188799	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	16.05	54	30320	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.54	65	64856	1039.160	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.92%				
33) Toluene-d8 (SS2)	14.15	98	191057	1072.525	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.25%				
45) Bromofluorobenzene (SS3)	17.55	174	61038	1051.257	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.13%				
Target Compounds							Qvalue
3) Chloromethane	4.66	52	713	27.587	pg	#	88
8) Chloroethane	5.69	64	728	28.059	pg		97
9) Acrolein	6.29	56	6147	344.069	pg		96
10) Acetone	6.41	58	77788	3148.714	pg	#	50
13) Methylene Chloride	7.48	84	2154	46.534	pg		85
23) Benzene	11.37	78	3419	17.469	pg		97
29) 1,4-Dioxane	12.40	88	832	23.266	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101715.D Vial: 3
Acq On : 10 Jan 2017 16:50 Operator: CL
Sample : AC00641-FCA00466 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:07 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101721.D Vial: 8
Acq On : 10 Jan 2017 19:59 Operator: CL
Sample : AC01179-FCA00907 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

CL 1/11/17

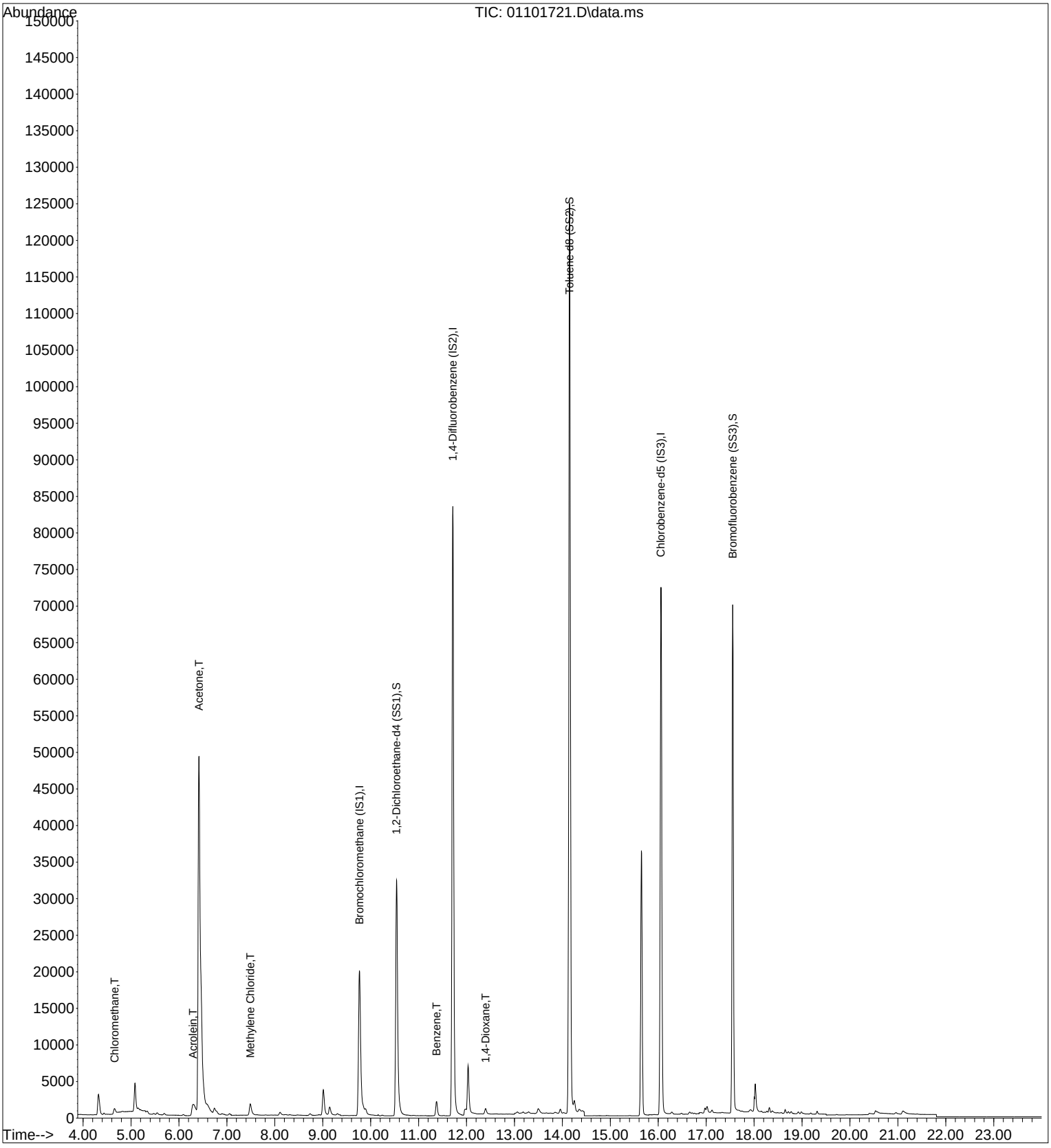
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.77	130	36363	1000.000	pg	-0.01
25) 1,4-Difluorobenzene (IS2)	11.72	114	171994	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.05	54	27637	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.54	65	60368	1040.906	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.09%			
33) Toluene-d8 (SS2)	14.15	98	174136	1073.049	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.31%			
45) Bromofluorobenzene (SS3)	17.55	174	54096	1022.144	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.21%			
Target Compounds						Qvalue
3) Chloromethane	4.66	52	582	24.233	pg	92
9) Acrolein	6.29	56	5424	326.719	pg	96
10) Acetone	6.42	58	61715	2688.337	pg	# 53
13) Methylene Chloride	7.49	84	1822	42.359	pg	88
23) Benzene	11.37	78	4038	22.203	pg	98
29) 1,4-Dioxane	12.40	88	1146	35.177	pg	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2017 01\10\01101721.D Vial: 8
Acq On : 10 Jan 2017 19:59 Operator: CL
Sample : AC01179-FCA00907 (1000mL) Inst : MS19
Misc : 75131

Quant Time: Jan 11 08:20:16 2017
Quant Method : I:\MS19\METHODS\S19122716.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jan 09 14:50:02 2017
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101722.D
Acq On : 10 Jan 2017 23:23
Operator : JM
Sample : SC02017 FCR00078
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 11 09:11:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	7.56	130	44692	1000.000 pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.80	114	132905	1000.000 pg		0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	104581	1000.000 pg		0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.37	65	70764	803.971 pg		0.00
Spiked Amount 1000.000			Recovery = 80.40%			
57) Toluene-d8 (SS2)	12.63	98	123269	964.592 pg		0.00
Spiked Amount 1000.000			Recovery = 96.46%			
74) Bromofluorobenzene (SS3)	16.14	174	37415	888.957 pg		0.00
Spiked Amount 1000.000			Recovery = 88.90%			
Target Compounds						Qvalue
2) * Propene	3.53	42	20871	232.670 pg		86
3) * Dichlorodifluoromethane	3.59	85	31481	164.751 pg		100
4) * Chloromethane	3.71	50	9914	69.406 pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.81	85	1090	7.685 pg		94
7) * 1,3-Butadiene	3.98	54	189	1.863 pg	#	1
8) * Bromomethane	4.22	94	272	3.134 pg		89
9) * Chloroethane	4.36	64	180	2.904 pg		89
10) * Ethanol	4.43	45	25847	422.474 pg		98
11) * Acetonitrile	4.60	41	7841	51.115 pg		89
12) * Acrolein	4.72	56	5432	105.979 pg		99
13) * Acetone	4.82	58	113265	1960.064 pg	#	34
14) * Trichlorofluoromethane	4.97	101	11945	93.574 pg		99
15) * 2-Propanol (Isopropa...	5.03	45	16989	108.507 pg		100
16) * Acrylonitrile	5.18	53	358	3.934 pg		96
18) tert-Butanol	5.55	59	4404	46.668 pg	#	81
19) * Methylene Chloride	5.58	84	25912	402.557 pg		99
20) * 3-Chloro-1-propene (...	5.64	41	168	1.954 pg	#	43
21) * Trichlorotrifluoroet...	5.83	151	2372	47.411 pg		95
22) * Carbon Disulfide	5.85	76	17519	74.241 pg		99
26) * Vinyl Acetate	6.71	86	3036	250.515 pg	#	1
27) * 2-Butanone (MEK)	6.97	72	10981	316.598 pg		75
28) * cis-1,2-Dichloroethene	7.41	96	53	0.950 pg	#	17
29) DIPE	7.63	45	1339	6.624 pg	#	61
30) * Ethyl Acetate	7.63	61	1380	77.826 pg		91
31) * n-Hexane	7.65	57	1583	17.360 pg	#	91
32) * Chloroform	7.69	83	739	6.557 pg		86
34) * Tetrahydrofuran	8.15	71	119	4.281 pg	#	71
36) * 1,2-Dichloroethane	8.49	62	583	6.112 pg	#	83
39) * Benzene	9.36	78	4802	31.330 pg		99
41) 1-Butanol	9.30	56	3988	138.801 pg	#	47
42) * Carbon Tetrachloride	9.55	117	2960	49.640 pg		100
43) * Cyclohexane	9.70	84	299	6.132 pg		99
45) * 1,2-Dichloropropane	10.35	63	100	1.758 pg	#	32
46) * Bromodichloromethane	10.51	83	108	1.565 pg	#	19
47) * Trichloroethene	10.63	130	93	1.903 pg		98
48) * 1,4-Dioxane	10.66	88	324	10.136 pg		94
49) Isooctane	10.72	56	1632	22.276 pg		83
51) * n-Heptane	11.04	71	1122	14.256 pg	#	86
53) * 4-Methyl-2-pentanone	11.73	58	886	31.996 pg		92
58) * Toluene	12.74	91	27542	186.332 pg		100
59) * 2-Hexanone	13.07	58	1039	41.092 pg	#	89
62) * n-Butyl Acetate	13.80	56	68	3.761 pg	#	39
63) * n-Octane	13.91	85	175	7.590 pg		89
64) * Tetrachloroethene	14.02	166	351	7.141 pg		90
65) * Chlorobenzene	14.73	112	71	0.729 pg	#	24

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101722.D
Acq On : 10 Jan 2017 23:23
Operator : JM
Sample : SC02017 FCR00078
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

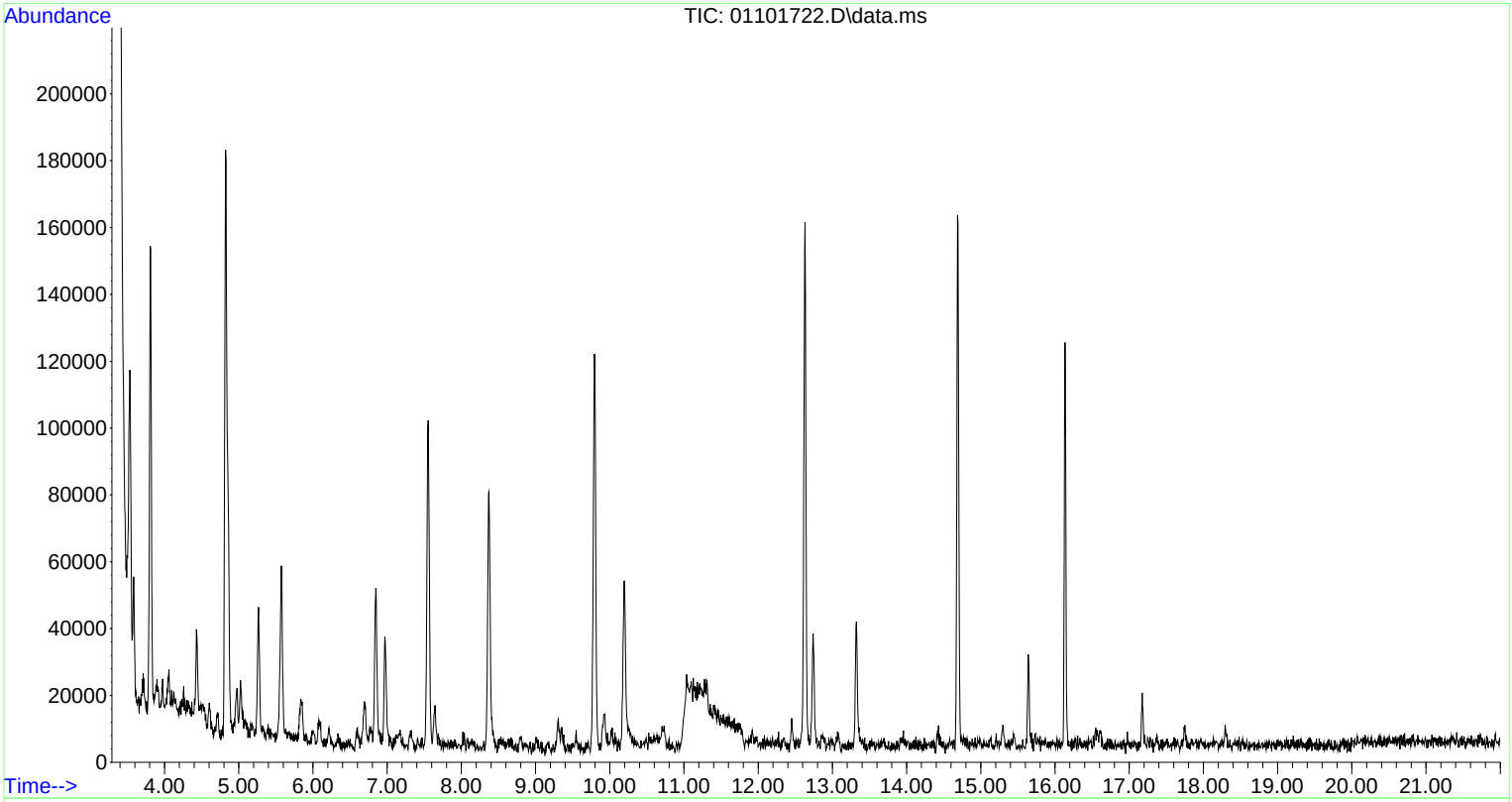
Quant Time: Jan 11 09:11:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration

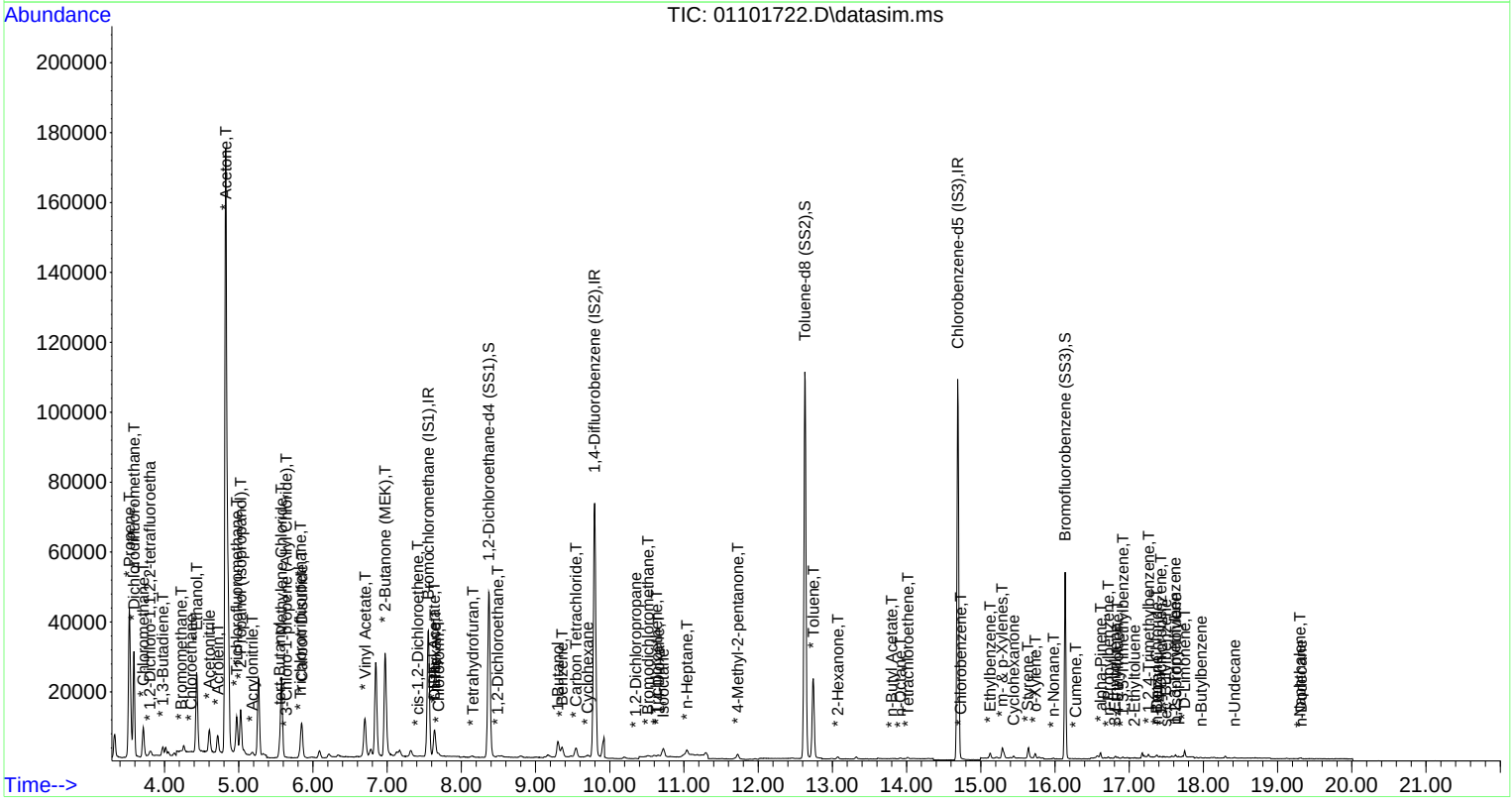
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
66) * Ethylbenzene	15.12	91	1595	12.795	pg		98
67) * m- & p-Xylenes	15.29	91	3802	39.257	pg		92
69) Cyclohexanone	15.44	98	244	22.557	pg		88
70) * Styrene	15.63	104	237	4.596	pg		97
71) * o-Xylene	15.73	91	1178	12.435	pg		100
72) * n-Nonane	15.98	57	232	5.434	pg	#	42
75) * Cumene	16.28	105	97	0.718	pg	#	49
76) * alpha-Pinene	16.61	93	986	16.057	pg		98
77) * n-Propylbenzene	16.72	91	234	1.880	pg	#	56
78) 3-Ethyltoluene	16.81	105	429	4.949	pg	#	85
79) * 4-Ethyltoluene	16.84	105	192	2.526	pg	#	46
80) * 1,3,5-Trimethylbenzene	16.92	105	230	2.698	pg		89
82) 2-Ethyltoluene	17.07	105	159	1.537	pg	#	51
84) * 1,2,4-Trimethylbenzene	17.26	105	594	7.710	pg		88
85) * Benzyl Chloride	17.37	126	94	12.103	pg	#	48
87) * 1,4-Dichlorobenzene	17.43	146	64	1.821	pg	#	17
88) n-Decane	17.37	85	100	6.789	pg	#	68
89) sec-Butylbenzene	17.49	105	64	0.523	pg	#	59
90) 1,2,3-Trimethylbenzene	17.62	105	174	2.154	pg	#	65
91) p-Isopropyltoluene	17.63	134	88	3.600	pg		91
93) * D-Limonene	17.75	68	898	26.472	pg		95
94) n-Butylbenzene	17.97	134	74	5.174	pg	#	23
96) n-Undecane	18.42	85	98	11.635	pg	#	1
98) * Naphthalene	19.30	128	232	7.055	pg	#	66
99) n-Dodecane	19.32	85	96	18.147	pg	#	16

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2017 01\10\
Data File : 01101722.D
Acq On : 10 Jan 2017 23:23
Operator : JM
Sample : SC02017 FCR00078
Misc : 75131 (Sig #1); S29-12081611 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 11 09:11:29 2017
Quant Method : I:\MS21\Methods\F21122116.M
Quant Title : EPA TO-15
QLast Update : Thu Dec 22 08:22:36 2016
Response via : Initial Calibration





APPENDIX D

DATA VALIDATION REPORTS

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element DVR# 17B001

Data Validation Report

Project Name: Indoor Air Monitoring Services at Former NAS Moffett Field

Project Site: Installation Restoration Program (IRP) Site 28, Former NAS Moffett Field, Moffett Field, California

Delivery Order#: 0000

PO #: 16107

Attn: Ms. Sevda Aleckson

February 20, 2017

Dear Ms. Aleckson:

Element Consulting Service, Inc. (Element) is pleased to submit this data validation report in support of the Indoor Air Monitoring project performed at IRP Site 28 at the Former Naval Air Station (NAS) Moffett Field, located in Moffett Field, California, under Contract No. N62473-16-C-2003 (Delivery Order# 0000). This cover letter and the attached documents describe the process and findings of the data validation performed on the analytical data submitted for this project. Data validation was performed for the following analytical parameters as presented in Table 1 below.

Table 1 - Analytical Parameters and Methods

Analytical Parameter	Analytical Method
VOCs[1]	USEPA TO-15 SIM

Notes:

[1] = VOCs analysis included vinyl chloride, 1,1-DCE, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, TCE, and PCE

VOCs – volatile organic compounds
USEPA – United States Environmental Protection Agency
SIM – selective ion monitoring

Sample Information

The project samples were validated as discussed and reported in this data validation report. Data validation was performed at USEPA Stage 3 (Standard) on 80 percent of the project samples and USEPA Stage 4 (Full) on 20 percent of the project samples. Samples that were validated at Stage 4 are identified as **bolded** and *italicized* under the "Summary of Data Validation Findings" for each analytical method that was requested to undergo data validation. A summary of the qualified analytical results is presented in the "Qualified Analyte Summary Table", which is included in **Attachment C** and the result recalcualtions are provided in the "Level IV Calculation Verification Sheets", which are included in **Attachment D**. Table 2 below summarizes the sample delivery groups (SDGs) validated and included in this data validation

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report. The EDDs also underwent a limited verification with the hardcopy report and no issues or discrepancies were noted.

Table 2 - Validated Laboratory Reports by SDG

SDG	Sample Matrix
P1700163 P1700173 P1700183 P1700234 P1700259 P1700260 P1700261 P1700262 P1700288 P1700289	Air

Procedures

Data validation was performed on the analytical laboratory data consistent with the measurement performance and validation criteria presented in the *Final Sampling and Analysis Plan Vapor Intrusion Air Monitoring, Installation Restoration 28, Former Naval Air Station Moffett Field* [Noreas, 2016] and under the general guidance of the following documents:

- *Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories (QSM), Version 5.0* (DoD, 2013)
- *Compendium Method TO-15, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, *Determination of Volatile Organic Compounds in Ambient Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry* (USEPA, 1999)
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, 2014)
- *Environmental Work Instruction #1, Chemical Data Validation* (NAVFAC Southwest, 2001).

The USEPA CLP National Functional Guidelines data validation qualifiers were applied to sample results, if necessary, during the data validation process, including the following:

- **J** - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **R** - The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **U** - The analyte was analyzed for, but was not detected above the sample reporting limit.

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- **A –** Validation finding is based upon technical validation criteria.
- **P** - Validation finding is based upon a protocol/contractual deviation.
- **NQ** - No qualification, the result was not significantly impacted by the validation finding; therefore, no qualification was applied.

Data Validation Summary

Data validation was performed by a qualified data validator, independent of project activities, on the definitive analytical laboratory data at Stage 3 (Standard) and Stage 4 (Full) data validation consistent with the Final SAP (Noreas, 2016) and Delivery Order #0000 Statement of Work (PO# 16107).

The parameters assessed during the data validation process consist of the following:

- CoC records and sample condition (e.g. preservation and temperature)
- Technical holding time for sample preparation and analysis
- Reporting limits
- Laboratory and field blanks
- Surrogate recoveries
- Laboratory control sample (LCS) and LCS duplicate (LCSD) spike recoveries and relative percent difference (RPD), if applicable
- Laboratory and field duplicate samples and RPDs
- Internal standards
- Instrument tuning and performance checks
- Initial and continuing calibration
- Compound identification and quantification
- Sample detection and quantitation limits.

This data validation report consists of this cover letter and subsequent ***Summary of Data Validation Findings***, as well as the following attachments:

- **Attachment A** presents the ***Sample Summary Table*** that presents the field samples included in this SDG, collection dates, and analytical methods assigned.
- **Attachment B** presents the ***Validation Reason Codes*** that are used to categorize the reason for the validation qualifiers applied.
- **Attachment C** includes the ***Qualified Compound Summary*** that presents a qualified compound/compound summary table along with the Sample Result Summary forms with the noted qualified target compound/compound results with associated reason codes.
- **Attachment D** includes the ***Calculation Verification Sheets*** presents the re-calculations performed on raw data for the Level IV samples to verify calibration and sample results reported by the laboratory.
- **Attachment E** includes the ***Qualified Sample Result Summary Forms (Form Is)*** that presents the sample-specific qualified compound/compound results as reported on the sample summary forms (Form Is), if applicable.

Sincerely,

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1.1. Summary of Data Validation Findings – SDG P1700163

1.1.1. VOCs by USEPA Method TO-15 SIM

A total of 25 air samples, collected on January 10, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1-dichloroethene (DCE), 1,2-dichloroethane (DCA), *cis*-1,2-DCE, *trans*-1,2-DCE, trichloroethene (TCE), and tetrachloroethene (PCE). The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M003-1-01-N	P1700163-01	1/10/2017	Air
17M003-1-02-N	P1700163-02	1/10/2017	Air
17M003-1-03-N	***P1700163-03***	***1/10/2017***	***Air***
17M003-1-04-N	P1700163-04	1/10/2017	Air
17M003-1-07-N	***P1700163-05***	***1/10/2017***	***Air***
17M003-1-08-N	P1700163-06	1/10/2017	Air
17M003-1-09-N	P1700163-07	1/10/2017	Air
17M303-1-07-N	P1700163-08	1/10/2017	Field QC
17M003-A-01-N	P1700163-09	1/10/2017	Air
17M012-1-01-N	P1700163-10	1/10/2017	Air
17M012-A-01-N	P1700163-11	1/10/2017	Air
17M012-1-03-N	P1700163-12	1/10/2017	Air
17N239A-B-01-N	P1700163-13	1/10/2017	Air
17N239A-1-09-N	P1700163-14	1/10/2017	Air
17N239A-1-03-N	***P1700163-15***	***1/10/2017***	***Air***
17N239A-1-05-N	P1700163-16	1/10/2017	Air
17N239A-1-06-N	P1700163-17	1/10/2017	Air
17N239A-1-08-N	P1700163-18	1/10/2017	Air
17N239A-1-10-N	***P1700163-19***	***1/10/2017***	***Air***
17N239A-1-11-N	P1700163-20	1/10/2017	Air
17M339A-1-10-N	P1700163-21	1/10/2017	Field QC
17M015-1-01-N	P1700163-22	1/10/2017	Air
17M015-1-03-N	P1700163-23	1/10/2017	Air
17M015-1-06-N	P1700163-24	1/10/2017	Air
17M015-1-02-N	***P1700163-25***	***1/10/2017***	***Air***

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding

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times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

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Laboratory and Field Duplicate Samples

Two field duplicate samples, 17M303-1-07-N and 17M339A-1-10-N, were submitted with associated parent samples, 17M003-1-07-N and 17N239A-1-10-N, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016).

The laboratory also prepared a laboratory duplicate using project sample 17M012-1-03-N and reported detected compounds below the laboratory RPD criteria of 25 percent.

Therefore, no validation qualifiers were applied.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

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Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for five project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.2. Summary of Data Validation Findings – SDG P1700173

1.1.2. VOCs by USEPA Method TO-15 SIM

A total of 5 air samples, collected on January 9, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M566-1-01-N	***P1700173-01***	***1/09/2017***	***Air***
17M566-1-02-N	P1700173-02	1/09/2017	Air
17M029-1-01	P1700173-03	1/09/2017	Air
17M029-B-01	P1700173-04	1/09/2017	Air
17M029-A-01	P1700173-05	1/09/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against

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the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

No field or laboratory duplicate samples were prepared or reported with this data set.

Therefore, no validation qualifiers were applied.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration

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standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for one project sample that was selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.3. Summary of Data Validation Findings – SDG P1700183

1.1.3. VOCs by USEPA Method TO-15 SIM

A total of 9 air samples, collected on January 11, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M567-1-01	***P1700183-01***	***1/11/2017***	***Air***
17M567-1-02	P1700183-02	1/11/2017	Air
17M567-1-03	P1700183-03	1/11/2017	Air
17M567-A-01	P1700183-04	1/11/2017	Air
17M126-1-01-N	P1700183-05	1/11/2017	Air
17M126-1-02-N	***P1700183-06***	***1/11/2017***	***Air***
17M126-1-04-N	P1700183-07	1/11/2017	Air
17M326-1-02-N	P1700183-08	1/11/2017	Field QC
17M126-A-01-N	P1700183-09	1/11/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

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Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

One field duplicate sample, 17M326-1-02-N, was submitted with associated parent sample, 17M126-1-02-N, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30 percent defined Final SAP (Noreas, 2016).

The laboratory also prepared a laboratory duplicate using project sample 17M567-1-03 and reported detected compounds below the laboratory RPD criteria of 25 percent.

Therefore, no validation qualifiers were applied.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

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Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for two project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

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Some analytical results were “J”-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the “J” flags retained as a result of data validation.

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1.4. Summary of Data Validation Findings – SDG P1700234

1.1.4. VOCs by USEPA Method TO-15 SIM

A total of 37 air samples, collected on January 12, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M010-1-01	P1700234-01	1/12/2017	Air
17M010-1-02	P1700234-02	1/12/2017	Air
17M010-1-03	***P1700234-03***	***1/12/2017***	***Air***
17M010-1-05	P1700234-04	1/12/2017	Air
17M010-1-06	P1700234-05	1/12/2017	Air
17M010-1-07	P1700234-06	1/12/2017	Air
17M010-1-10	***P1700234-07***	***1/12/2017***	***Air***
17M310-1-03	P1700234-08	1/12/2017	Air
17M310-1-10	P1700234-09	1/12/2017	Air
17M010-A-01	P1700234-10	1/12/2017	Air
17M012-1-02-N	***P1700234-11***	***1/12/2017***	***Air***
17M012-C-05-N	P1700234-12	1/12/2017	Air
17M015-A-01-N	P1700234-13	1/12/2017	Air
17N239-B-01-N	***P1700234-14***	***1/12/2017***	***Air***
17N239-B-02-N	P1700234-15	1/12/2017	Air
17N239-B-05-N	P1700234-16	1/12/2017	Air
17N239-B-06-N	P1700234-17	1/12/2017	Air
17N239-1-02-N	***P1700234-18***	***1/12/2017***	***Air***
17N239-1-03-N	P1700234-19	1/12/2017	Air
17N239-1-05-N	P1700234-20	1/12/2017	Air
17N239-1-07-N	***P1700234-21***	***1/12/2017***	***Air***
17N239-1-08-N	P1700234-22	1/12/2017	Air
17M339-B-01-N	P1700234-23	1/12/2017	Air
17N239-A-01-N	P1700234-24	1/12/2017	Air
17N243-B-02-N	P1700234-25	1/12/2017	Air
17N243-B-04-N	P1700234-26	1/12/2017	Air
17N243-B-06-N	***P1700234-27***	***1/12/2017***	***Air***
17N243-B-07-N	P1700234-28	1/12/2017	Air

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Sample ID	Laboratory ID	Sample Date	Sample Matrix
17N243-1-01-N	P1700234-29	1/12/2017	Air
17N243-1-02-N	P1700234-30	1/12/2017	Air
17N243-A-01-N	P1700234-31	1/12/2017	Air
17N243-A-02-N	P1700234-32	1/12/2017	Air
17N243A-B-01-N	***P1700234-33***	***1/12/2017***	***Air***
17N243A-1-01-N	P1700234-34	1/12/2017	Air
17N243A-1-02-N	P1700234-35	1/12/2017	Air
17M343A-1-01-N	P1700234-36	1/12/2017	Air
17N243A-A-01-N	P1700234-37	1/12/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

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Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Three field duplicate samples, 17M310-1-03-N, 17M310-1-10-N, 17M339-B-01-N, and 17M343A-1-01-N, were submitted with associated parent samples, 17M010-1-03-N, 17M010-1-10-N, 17N239-B-01-N, and 17N243A-1-01-N, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exception:

Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17M010-1-10-N	1,1-DCA	32.3% (30%)	17M010-1-10-N 17M310-1-10-N	0.18 0.13	J-qualify	A

The laboratory also prepared a laboratory duplicate using project sample 17N239-A-01-N and reported detected compounds below the laboratory RPD criteria of 25 percent.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards,

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blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for eight project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.5. Summary of Data Validation Findings – SDG P1700259

1.1.5. VOCs by USEPA Method TO-15 SIM

A total of 24 air samples, collected on January 15 and 16, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE.. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M003-1-01-F	P1700259-01	1/16/2017	Air
17M003-1-02-F	P1700259-02	1/16/2017	Air
17M003-1-03-F	P1700259-03	1/16/2017	Air
17M003-1-04-F	***P1700259-04***	***1/16/2017***	***Air***
17M003-1-06-F	P1700259-05	1/16/2017	Air
17M003-1-07-F	P1700259-06	1/16/2017	Air
17M003-1-08-F	***P1700259-07***	***1/16/2017***	***Air***
17M003-1-09-F	P1700259-08	1/16/2017	Air
17M303-1-06-F	P1700259-09	1/16/2017	Field QC
17M003-A-01-F	P1700259-10	1/16/2017	Air
17M012-1-01-F	P1700259-11	1/15/2017	Air
17M012-1-02-F	P1700259-12	1/15/2017	Air
17M012-1-03-F	***P1700259-13***	***1/15/2017***	***Air***
17M012-C-05-F	P1700259-14	1/15/2017	Air
17M312-1-03-F	P1700259-15	1/15/2017	Field QC
17M012-A-01-F	P1700259-16	1/15/2017	Air
17M014-C-01-F	P1700259-17	1/16/2017	Air
17M014-C-02-F	P1700259-18	1/16/2017	Air
17M014-1-03-F	P1700259-19	1/16/2017	Air
17M014-1-04-F	P1700259-20	1/16/2017	Air
17M014-1-05-F	***P1700259-21***	***1/15/2017***	***Air***
17M015-1-01-F	P1700259-22	1/15/2017	Air
17M015-1-02-F	P1700259-23	1/15/2017	Air
17M015-1-03-F	***P1700259-24***	***1/15/2017***	***Air***

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

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No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria, except for the following:

Surrogate	Affected Samples	%R (70-130%)	Validation Flag	Criteria
Bromofluorobenzene	17M003-1-04-F	133%	NQ	P
	17M003-A-01-F	138%		
	17M012-1-01-F	131%		
	17M012-1-02-F	134%		
	17M003-1-03-F	132%		
	17M012-C-05-F	134%		

NQ = no qualification. No qualifications applied because this surrogate is not associated with the target compound list for this project.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

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Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Two field duplicate samples, 17M303-1-06-F and 17M312-1-03-F, were submitted with associated parent samples, 17M003-1-06-F and 17M012-1-03-F, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exceptions

Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17M003-1-06-F	PCE	56.5% (30%)	17M003-1-06-F 17M303-1-06-F	0.084 0.047	J-qualify	A
17M012-1-03-F	*trans*-1,2-DCE	140.3% (30%)	17M012-1-03-F 17M312-1-03-F	0.079 0.45	J-qualify	A

The laboratory also prepared a laboratory duplicate using project sample 17M003-1-07-F and reported detected compounds below the laboratory RPD criteria of 25 percent.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set, except for the following:

Internal Standard	Affected Samples	Validation Flag	Criteria
Chlorobenzene-d5	17M312-1-03-F 17M012-A-01-F	NQ	P

NQ = no qualification. No qualifications applied because this internal standard is not associated with the target compound list for this project.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards,

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blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for four project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.6. Summary of Data Validation Findings – SDG P1700260

1.1.6. VOCs by USEPA Method TO-15 SIM

A total of 24 air samples, collected on January 15 and 16, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M015-1-06-F	P1700260-01	1/15/2017	Air
17M315-1-03-F	P1700260-02	1/15/2017	Field QC
17M015-A-01-F	P1700260-03	1/15/2017	Air
17M016-1-01-F	P1700260-04	1/16/2017	Air
17M016-1-02-F	P1700260-05	1/16/2017	Air
17M016-1-03-F	***P1700260-06***	***1/16/2017***	***Air***
17M016-1-04-F	P1700260-07	1/16/2017	Air
17M016-1-05-F	P1700260-08	1/16/2017	Air
17M016-1-06-F	P1700260-09	1/16/2017	Air
17M316-1-03-F	P1700260-10	1/16/2017	Field QC
17M016-A-01-F	P1700260-11	1/15/2017	Air
17M017-1-01-F	P1700260-12	1/16/2017	Air
17M017-1-02-F	***P1700260-13***	***1/16/2017***	***Air***
17M510-1-02-F	P1700260-14	1/15/2017	Air
17M510-1-03-F	P1700260-15	1/15/2017	Air
17M510-A-01-F	P1700260-16	1/15/2017	Air
17M555-1-01-F	***P1700260-17***	***1/16/2017***	***Air***
17M555-1-03-F	P1700260-18	1/16/2017	Air
17M555-A-01-F	P1700260-19	1/15/2017	Air
17M566-1-01-F	P1700260-20	1/16/2017	Air
17M566-1-02-F	P1700260-21	1/16/2017	Air
17N210-1-01-F	P1700260-22	1/16/2017	Air
17N210-1-02-F	P1700260-23	1/16/2017	Air
17N210-G-03-F	***P1700260-24***	***1/16/2017***	***Air***

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

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No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Two field duplicate samples, 17M315-1-03-F and 17M316-1-03-F, were submitted with associated parent samples, 17M015-1-03-N (reported in SDG 1700259) and 17M016-1-03-F, respectively, and were analyzed for the same analytical parameters. Analytical results for

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both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016).

The laboratory also prepared a laboratory duplicate using project sample 17M510-1-03-F and reported detected compounds below the laboratory RPD criteria of 25 percent.

Therefore, no validation qualifiers were applied.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

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Sample Quantitation

Sample quantitation included recalculation of result concentrations for four project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.7. Summary of Data Validation Findings – SDG P1700261

1.1.7. VOCs by USEPA Method TO-15 SIM

A total of 19 air samples, collected on January 15, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17N239A-B-01-F	***P1700261-01***	***1/15/2017***	***Air***
17N239A-1-09-F	P1700261-02	1/15/2017	Air
17N239A-1-03-F	P1700261-03	1/15/2017	Air
17N239A-1-05-F	P1700261-04	1/15/2017	Air
17N239A-1-06-F	P1700261-05	1/15/2017	Air
17N239A-1-08-F	P1700261-06	1/15/2017	Air
17N239A-1-10-F	***P1700261-07***	***1/15/2017***	***Air***
17N239A-1-11-F	P1700261-08	1/15/2017	Air
17M339A-1-01-F	P1700261-09	1/15/2017	Field QC
17N243-B-02-F	***P1700261-10***	***1/15/2017***	***Air***
17N243-B-03-F	P1700261-11	1/15/2017	Air
17N243-B-04-F	P1700261-12	1/15/2017	Air
17N243-B-06-F	P1700261-13	1/15/2017	Air
17N243-B-07-F	***P1700261-14***	***1/15/2017***	***Air***
17N243-1-01-F	P1700261-15	1/15/2017	Air
17N243-1-02-F	P1700261-16	1/15/2017	Air
17M343-B-07-F	P1700261-17	1/15/2017	Field QC
17N243-A-01-F	P1700261-18	1/15/2017	Air
17N243-A-02-F	P1700261-19	1/15/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

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Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Two field duplicate samples, 17M339A-1-10-F and 17M343-B-07-F, were submitted with associated parent samples, 17N239A-1-10-F and 17N243-B-07-F, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exception:

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Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results (µg/m³)	Validation Flag	Criteria
17N243-B-07-F	*trans*-1,2-DCE	45.4% (30%)	17N243-B-07-F 17M343-B-07-F	0.063 0.1	J-qualify	A

The laboratory also prepared a laboratory duplicates using project sample 17N239A-1-09-F and 17N243-1-01-F and reported detected compounds below the laboratory RPD criteria of 25 percent.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

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Sample Quantitation

Sample quantitation included recalculation of result concentrations for four project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.8. Summary of Data Validation Findings – SDG P1700262

1.1.8. VOCs by USEPA Method TO-15 SIM

A total of 24 air samples, collected on January 15 and 16, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17N210-1-04-F	P1700262-01	1/16/2017	Air
17N210-1-06-F	P1700262-02	1/16/2017	Air
17N210-1-07-F	***P1700262-03***	***1/16/2017***	***Air***
17N210-1-08-F	P1700262-04	1/16/2017	Air
17N210-1-10-F	***P1700262-05***	***1/16/2017***	***Air***
17N210-C-11-F	P1700262-06	1/16/2017	Air
17M310-1-10-F	P1700262-07	1/16/2017	Field QC
17N210-A-01-F	P1700262-08	1/15/2017	Air
17N243A-B-01-F	***P1700262-09***	***1/15/2017***	***Air***
17N243A-1-01-F	P1700262-10	1/15/2017	Air
17N243A-1-02-F	P1700262-11	1/15/2017	Air
17N243A-A-01-F	P1700262-12	1/15/2017	Air
17N239-B-01-F	P1700262-13	1/15/2017	Air
17N239-B-02-F	P1700262-14	1/15/2017	Air
17N239-G-04-F	***P1700262-15***	***1/16/2017***	***Air***
17N239-B-05-F	P1700262-16	1/15/2017	Air
17N239-B-06-F	P1700262-17	1/15/2017	Air
17N239-1-02-F	P1700262-18	1/15/2017	Air
17N239-1-03-F	P1700262-19	1/15/2017	Air
17N239-1-05-F	P1700262-20	1/15/2017	Air
17N239-1-07-F	***P1700262-21***	***1/15/2017***	***Air***
17N239-1-08-F	P1700262-22	1/15/2017	Air
17M339-1-07-F	P1700262-23	1/15/2017	Field QC
17N239-A-01-F	P1700262-24	1/15/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

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No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria, with the following exception:

Sample ID	Surrogate	RPD (QC Limits)	Affected Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17N210-1-04-F	Bromofluorobenzene	163% (70-130%)	Not applicable	NQ	P

NQ = no qualification. No qualifications applied to associated sample results because surrogate is not associated with the limited target compound list for this project.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

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Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Two field duplicate samples, 17M310-1-10-F and 17M339-1-07-F, were submitted with associated parent samples, 17N210-1-10-F and 17N239-1-07-F, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exception:

Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17N239-1-07-F	*trans*-1,2-DCE	80.7% (30%)	17N239-1-07-F 17M339-1-07-F	0.068 0.16	J-qualify	A

The laboratory also prepared a laboratory duplicates using project sample 17N239A-1-09-F and 17N243-1-01-F and reported detected compounds below the laboratory RPD criteria of 25 percent.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set, with the following exception:

Sample ID	Surrogate	Affected Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17M310-1-10-F	Chlorobenzene-d5	Not applicable	NQ	A

NQ = no qualification. No qualifications applied to associated sample results because internal standard is not associated with the limited target compound list for this project.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards,

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blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for five project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.9. Summary of Data Validation Findings – SDG P1700288

1.1.9. VOCs by USEPA Method TO-15 SIM

A total of 20 air samples, collected on January 18, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M013-1-01	P1700288-01	1/18/2017	Air
17M013-1-02	P1700288-02	1/18/2017	Air
17M313-1-02	P1700288-03	1/18/2017	Field QC
17M013-A-01	P1700288-04	1/18/2017	Air
17M126-1-05-N	P1700288-05	1/18/2017	Air
17M510-1-02-N	P1700288-06	1/18/2017	Air
17M510-1-03-N	P1700288-07	1/18/2017	Air
17M510-A-01-N	P1700288-08	1/18/2017	Air
17M555-1-01-N	***P1700288-09***	***1/18/2017***	***Air***
17M555-1-03-N	P1700288-10	1/18/2017	Air
17M355-1-01-N	P1700288-11	1/18/2017	Field QC
17M555-A-01-N	P1700288-12	1/18/2017	Air
17M016-1-01-N	P1700288-13	1/18/2017	Air
17M016-1-02-N	***P1700288-14***	***1/18/2017***	***Air***
17M016-1-03-N	P1700288-15	1/18/2017	Air
17M016-1-04-N	P1700288-16	1/18/2017	Air
17M016-1-05-N	***P1700288-17***	***1/18/2017***	***Air***
17M016-1-06-N	P1700288-18	1/18/2017	Air
17M316-1-02-N	P1700288-19	1/18/2017	Field QC
17M016-A-01-N	P1700288-20	1/18/2017	Air

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

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Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Three field duplicate samples, 17M313-1-02, 17M355-1-01-N, and 17M316-1-02-N, were submitted with associated parent samples, 17M013-1-02, 17M555-1-01-N, 17M016-1-02-N, respectively, and were analyzed for the same analytical parameters. Analytical results for both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exception:

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Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17M016-1-02-N	TCE	174.7% (30%)	17M016-1-02-N 17M316-1-02-N	0.029 J 0.43	J-qualify	A

No laboratory duplicate was prepared or reported with this data set.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for three project samples that were selected by the client for Level IV (Full) validation. No issues were

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encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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1.10. Summary of Data Validation Findings – SDG P1700289

1.1.10. VOCs by USEPA Method TO-15 SIM

A total of 24 air samples, collected on January 17, 2017, were analyzed for a limited target analyte list by USEPA Method TO-15 SIM. The VOCs included vinyl chloride, 1,1- DCE, 1,2- DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE. The project samples that underwent Level IV validation are identified as **bold** and *italicized.*

Sample ID	Laboratory ID	Sample Date	Sample Matrix
17M045-1-01	P1700289-01	1/17/2017	Air
17M045-1-02	P1700289-02	1/17/2017	Air
17M045-A-01	P1700289-03	1/17/2017	Air
17M002-1-02	P1700289-04	1/17/2017	Air
17M002-1-03	P1700289-05	1/17/2017	Air
17M002-1-04	***P1700289-06***	***1/17/2017***	***Air***
17M302-1-03	P1700289-07	1/17/2017	Field QC
17M302-1-04	P1700289-08	1/17/2017	Field QC
17M067-1-01	P1700289-09	1/17/2017	Air
17M067-A-01	P1700289-10	1/17/2017	Air
17M076-1-01	P1700289-11	1/17/2017	Air
17M126-1-01-F	***P1700289-12***	***1/17/2017***	***Air***
17M126-1-02-F	P1700289-13	1/17/2017	Air
17M126-1-04-F	P1700289-14	1/17/2017	Air
17M126-1-05-F	P1700289-15	1/17/2017	Air
17M126-A-01-F	P1700289-16	1/17/2017	Air
17M014-C-01-F	P1700289-17	1/17/2017	Air
17M014-C-02-F	***P1700289-18***	***1/17/2017***	***Air***
17M014-1-03-F	P1700289-19	1/17/2017	Air
17M014-1-04-F	P1700289-20	1/17/2017	Air
17M014-1-05-F	***P1700289-21***	***1/17/2017***	***Air***
17M314-1-05-F	P1700289-22	1/17/2017	Field QC
17M107-1-01-F	P1700289-23	1/17/2017	Air
17M107-1-02-F	***P1700289-24***	***1/17/2017***	***Air***

Chain-of-Custody, Sample Condition, and Technical Holding Times

The project samples reportedly arrived intact at the analytical laboratory using proper COC documentation as recorded on the laboratory sample receipt forms. The technical holding times were reviewed for each sample analysis. Each of the air samples were analyzed within the method-specific holding time (30 days).

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No analytical data were qualified during data validation due to sample receipt, sample condition, or holding time exceedances.

Field Blank, Trip Blank and Laboratory Blank Samples

Laboratory blank samples (i.e., method blanks, initial calibration blanks, and continuing calibration blanks) were reviewed during data validation. No field blank samples were submitted with the project samples for VOCs analysis.

The laboratory-prepared blanks (i.e., method blanks) associated with the analytical batch(es) in this data set were prepared and analyzed at the proper frequency and did not contain the project-specific target analytes at concentrations above the laboratory reporting limits.

Therefore, no validation qualifiers were applied.

Surrogate Spikes

Surrogate spike compounds were included in the samples consistent with the method-specific and project-specific requirements. Surrogate recoveries were reviewed for each field and laboratory sample analyzed for VOCs. Surrogate recoveries were evaluated against the laboratory in-house QC limits (70-130 percent recovery). All field and laboratory sample surrogate percent recoveries were within the laboratory in-house QC criteria.

Therefore, no validation qualifiers were applied.

Laboratory Control Samples

The VOC LCS recoveries (as %R) were reviewed during data validation. The batch LCS samples met the DoD QSM-defined QC acceptance criteria (DoD QSM v5.0, Table 43) associated with this data set.

Therefore, no validation qualifiers were applied.

Matrix Spike and Matrix Spike Duplicate Samples

No MS/MSD samples were prepared or reported with this data set consistent with the Final SAP (Noreas, 2016) and USEPA Method TO-15.

Therefore, no validation qualifiers were applied.

Laboratory and Field Duplicate Samples

Three field duplicate samples, 17M302-1-03, 17M302-1-04, and 17M314-1-05-N, were submitted with associated parent samples, 17M002-1-03, 17M002-1-04, 17M014-1-05-N, respectively, and were analyzed for the same analytical parameters. Analytical results for

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both parent and field duplicate samples were reported in this data set. Both the parent and field duplicate samples reported VOC target analyte concentrations above the laboratory reporting limits. The RPD for each detected analyte was below the RPD criteria of 30% defined Final SAP (Noreas, 2016), with the following exception:

Parent Sample ID	Compound	RPD (QC Limits)	Affected Samples	Sample Results ($\mu g/m^3$)	Validation Flag	Criteria
17M002-1-03	Vinyl chloride	32.3% (30%)	17M002-1-03 17M302-1-03	0.072 0.052	J-qualify	A
17M002-1-04	TCE	36.4% (30%)	17M002-1-04 17M302-1-04	0.063 J 0.091	J-qualify	A

The laboratory also prepared a laboratory duplicates using project sample 17M302-1-03 and reported detected compounds below the laboratory RPD criteria of 25 percent.

Internal Standards

The internal standard areas and retention times were within the defined QC criteria (DoD QSM, 2013) for the field and laboratory samples reported in this data set.

Therefore, no validation qualifiers were applied.

Instrument Tuning and Performance

The frequency and ion abundances for GC/MS instrument tuning checks, using bromofluorobenzene (BFB) for volatile analysis, met the method-specific requirements, including analysis of tuning checks prior to initial or continuing calibration standards, blanks, and sample analysis, as well as once every 12-hours of operation (per USEPA Method TO-15). The BFB criteria were met for sample analyzed in this data set.

Therefore, no validation qualifiers were applied.

Initial and Continuing Calibration

The relative response factors (RRFs), percent relative standard deviations (%RSDs), and percent differences (%D) of the select target analytes were evaluated for the calibration standards associated with the samples in this SDG. The initial and continuing calibration verification (CCVs) standards met the defined QC criteria.

Therefore, no validation qualifiers were applied.

Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

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Compound Identification and Quantitation

Compound identification was verified for samples that contained target analyte concentrations above the laboratory reporting limits. The sample concentrations were reported within the calibration range of the instrument used for VOCs analysis.

Therefore, no validation qualifiers were applied.

Sample Quantitation

Sample quantitation included recalculation of result concentrations for five project samples that were selected by the client for Level IV (Full) validation. No issues were encountered with the sample quantitation from the raw data recalculations performed during data validation.

Attachment D presents the the data validation checklist for LIII/LIV data validation, as well as LIV forms that are used to verify the selected calibration and sample concentration recalculations. The project samples selected for LIV data validation are identified as **bold** and *italicized* in the Sample Summary Table provided in **Attachment A**.

Sample Reporting Limits

Sample reporting limits were reported as the method detection limits (MDLs) and method reporting limits (MRLs). The actual sample volumes may have resulted in adjustments to the final sample-specific reporting limits.

Some analytical results were "J"-flagged because the results are estimated concentrations that are less than the MRLs but greater than or equal to the MDLs. These qualified results remain estimated values with the "J" flags retained as a result of data validation.

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ATTACHMENT A
SAMPLE SUMMARY TABLE

Sample Summary Table

Sample ID	Laboratory ID	Sample Date	Sample Matrix	Analysis
SDG 1700163				
17M003-1-01-N	P1700163-01	1/10/2017	Air	VOCs [a]
17M003-1-02-N	P1700163-02	1/10/2017	Air	VOCs [a]
17M003-1-03-N	P1700163-03	1/10/2017	Air	VOCs [a]
17M003-1-04-N	P1700163-04	1/10/2017	Air	VOCs [a]
17M003-1-07-N	P1700163-05	1/10/2017	Air	VOCs [a]
17M003-1-08-N	P1700163-06	1/10/2017	Air	VOCs [a]
17M003-1-09-N	P1700163-07	1/10/2017	Air	VOCs [a]
17M303-1-07-N	P1700163-08	1/10/2017	Field QC	VOCs [a]
17M003-A-01-N	P1700163-09	1/10/2017	Air	VOCs [a]
17M012-1-01-N	P1700163-10	1/10/2017	Air	VOCs [a]
17M012-A-01-N	P1700163-11	1/10/2017	Air	VOCs [a]
17M012-1-03-N	P1700163-12	1/10/2017	Air	VOCs [a]
17N239A-B-01-N	P1700163-13	1/10/2017	Air	VOCs [a]
17N239A-1-09-N	P1700163-14	1/10/2017	Air	VOCs [a]
17N239A-1-03-N	P1700163-15	1/10/2017	Air	VOCs [a]
17N239A-1-05-N	P1700163-16	1/10/2017	Air	VOCs [a]
17N239A-1-06-N	P1700163-17	1/10/2017	Air	VOCs [a]
17N239A-1-08-N	P1700163-18	1/10/2017	Air	VOCs [a]
17N239A-1-10-N	P1700163-19	1/10/2017	Air	VOCs [a]
17N239A-1-11-N	P1700163-20	1/10/2017	Air	VOCs [a]
17M339A-1-10-N	P1700163-21	1/10/2017	Field QC	VOCs [a]
17M015-1-01-N	P1700163-22	1/10/2017	Air	VOCs [a]
17M015-1-03-N	P1700163-23	1/10/2017	Air	VOCs [a]
17M015-1-06-N	P1700163-24	1/10/2017	Air	VOCs [a]
17M015-1-02-N	P1700163-25	1/10/2017	Air	VOCs [a]
SDG 1700173				
17M566-1-01-N	P1700173-01	1/09/2017	Air	VOCs [a]
17M566-1-02-N	P1700173-02	1/09/2017	Air	VOCs [a]
17M029-1-01	P1700173-03	1/09/2017	Air	VOCs [a]
17M029-B-01	P1700173-04	1/09/2017	Air	VOCs [a]
17M029-A-01	P1700173-05	1/09/2017	Air	VOCs [a]
SDG 1700183				
17M567-1-01	P1700183-01	1/11/2017	Air	VOCs [a]
17M567-1-02	P1700183-02	1/11/2017	Air	VOCs [a]
17M567-1-03	P1700183-03	1/11/2017	Air	VOCs [a]
17M567-A-01	P1700183-04	1/11/2017	Air	VOCs [a]
17M126-1-01-N	P1700183-05	1/11/2017	Air	VOCs [a]
17M126-1-02-N	P1700183-06	1/11/2017	Air	VOCs [a]
17M126-1-04-N	P1700183-07	1/11/2017	Air	VOCs [a]
17M326-1-02-N	P1700183-08	1/11/2017	Field QC	VOCs [a]
17M126-A-01-N	P1700183-09	1/11/2017	Air	VOCs [a]

Sample ID	Laboratory ID	Sample Date	Sample Matrix	Analysis
SDG 1700234				
17M010-1-01	P1700234-01	1/12/2017	Air	VOCs [a]
17M010-1-02	P1700234-02	1/12/2017	Air	VOCs [a]
17M010-1-03	P1700234-03	1/12/2017	Air	VOCs [a]
17M010-1-05	P1700234-04	1/12/2017	Air	VOCs [a]
17M010-1-06	P1700234-05	1/12/2017	Air	VOCs [a]
17M010-1-07	P1700234-06	1/12/2017	Air	VOCs [a]
17M010-1-10	P1700234-07	1/12/2017	Air	VOCs [a]
17M310-1-03	P1700234-08	1/12/2017	Air	VOCs [a]
17M310-1-10	P1700234-09	1/12/2017	Air	VOCs [a]
17M010-A-01	P1700234-10	1/12/2017	Air	VOCs [a]
17M012-1-02-N	P1700234-11	1/12/2017	Air	VOCs [a]
17M012-C-05-N	P1700234-12	1/12/2017	Air	VOCs [a]
17M015-A-01-N	P1700234-13	1/12/2017	Air	VOCs [a]
17N239-B-01-N	P1700234-14	1/12/2017	Air	VOCs [a]
17N239-B-02-N	P1700234-15	1/12/2017	Air	VOCs [a]
17N239-B-05-N	P1700234-16	1/12/2017	Air	VOCs [a]
17N239-B-06-N	P1700234-17	1/12/2017	Air	VOCs [a]
17N239-1-02-N	P1700234-18	1/12/2017	Air	VOCs [a]
17N239-1-03-N	P1700234-19	1/12/2017	Air	VOCs [a]
17N239-1-05-N	P1700234-20	1/12/2017	Air	VOCs [a]
17N239-1-07-N	P1700234-21	1/12/2017	Air	VOCs [a]
17N239-1-08-N	P1700234-22	1/12/2017	Air	VOCs [a]
17M339-B-01-N	P1700234-23	1/12/2017	Air	VOCs [a]
17N239-A-01-N	P1700234-24	1/12/2017	Air	VOCs [a]
17N243-B-02-N	P1700234-25	1/12/2017	Air	VOCs [a]
17N243-B-04-N	P1700234-26	1/12/2017	Air	VOCs [a]
17N243-B-06-N	P1700234-27	1/12/2017	Air	VOCs [a]
17N243-B-07-N	P1700234-28	1/12/2017	Air	VOCs [a]
17N243-1-01-N	P1700234-29	1/12/2017	Air	VOCs [a]
17N243-1-02-N	P1700234-30	1/12/2017	Air	VOCs [a]
17N243-A-01-N	P1700234-31	1/12/2017	Air	VOCs [a]
17N243-A-02-N	P1700234-32	1/12/2017	Air	VOCs [a]
17N243A-B-01-N	P1700234-33	1/12/2017	Air	VOCs [a]
17N243A-1-01-N	P1700234-34	1/12/2017	Air	VOCs [a]
17N243A-1-02-N	P1700234-35	1/12/2017	Air	VOCs [a]
17M343A-1-01-N	P1700234-36	1/12/2017	Air	VOCs [a]
17N243A-A-01-N	P1700234-37	1/12/2017	Air	VOCs [a]
SDG 1700259				
17M003-1-01-F	P1700259-01	1/16/2017	Air	VOCs [a]
17M003-1-02-F	P1700259-02	1/16/2017	Air	VOCs [a]
17M003-1-03-F	P1700259-03	1/16/2017	Air	VOCs [a]
17M003-1-04-F	P1700259-04	1/16/2017	Air	VOCs [a]
17M003-1-06-F	P1700259-05	1/16/2017	Air	VOCs [a]
17M003-1-07-F	P1700259-06	1/16/2017	Air	VOCs [a]

Sample ID	Laboratory ID	Sample Date	Sample Matrix	Analysis
17M003-1-08-F	P1700259-07	1/16/2017	Air	VOCs [a]
17M003-1-09-F	P1700259-08	1/16/2017	Air	VOCs [a]
17M303-1-06-F	P1700259-09	1/16/2017	Field QC	VOCs [a]
17M003-A-01-F	P1700259-10	1/16/2017	Air	VOCs [a]
17M012-1-01-F	P1700259-11	1/15/2017	Air	VOCs [a]
17M012-1-02-F	P1700259-12	1/15/2017	Air	VOCs [a]
17M012-1-03-F	P1700259-13	1/15/2017	Air	VOCs [a]
17M012-C-05-F	P1700259-14	1/15/2017	Air	VOCs [a]
17M312-1-03-F	P1700259-15	1/15/2017	Field QC	VOCs [a]
17M012-A-01-F	P1700259-16	1/15/2017	Air	VOCs [a]
17M014-C-01-F	P1700259-17	1/16/2017	Air	VOCs [a]
17M014-C-02-F	P1700259-18	1/16/2017	Air	VOCs [a]
17M014-1-03-F	P1700259-19	1/16/2017	Air	VOCs [a]
17M014-1-04-F	P1700259-20	1/16/2017	Air	VOCs [a]
17M014-1-05-F	P1700259-21	1/15/2017	Air	VOCs [a]
17M015-1-01-F	P1700259-22	1/15/2017	Air	VOCs [a]
17M015-1-02-F	P1700259-23	1/15/2017	Air	VOCs [a]
17M015-1-03-F	P1700259-24	1/15/2017	Air	VOCs [a]
SDG 1700260				
17M015-1-06-F	P1700260-01	1/15/2017	Air	VOCs [a]
17M315-1-03-F	P1700260-02	1/15/2017	Field QC	VOCs [a]
17M015-A-01-F	P1700260-03	1/15/2017	Air	VOCs [a]
17M016-1-01-F	P1700260-04	1/16/2017	Air	VOCs [a]
17M016-1-02-F	P1700260-05	1/16/2017	Air	VOCs [a]
17M016-1-03-F	P1700260-06	1/16/2017	Air	VOCs [a]
17M016-1-04-F	P1700260-07	1/16/2017	Air	VOCs [a]
17M016-1-05-F	P1700260-08	1/16/2017	Air	VOCs [a]
17M016-1-06-F	P1700260-09	1/16/2017	Air	VOCs [a]
17M316-1-03-F	P1700260-10	1/16/2017	Field QC	VOCs [a]
17M016-A-01-F	P1700260-11	1/15/2017	Air	VOCs [a]
17M017-1-01-F	P1700260-12	1/16/2017	Air	VOCs [a]
17M017-1-02-F	P1700260-13	1/16/2017	Air	VOCs [a]
17M510-1-02-F	P1700260-14	1/15/2017	Air	VOCs [a]
17M510-1-03-F	P1700260-15	1/15/2017	Air	VOCs [a]
17M510-A-01-F	P1700260-16	1/15/2017	Air	VOCs [a]
17M555-1-01-F	P1700260-17	1/16/2017	Air	VOCs [a]
17M555-1-03-F	P1700260-18	1/16/2017	Air	VOCs [a]
17M555-A-01-F	P1700260-19	1/15/2017	Air	VOCs [a]
17M566-1-01-F	P1700260-20	1/16/2017	Air	VOCs [a]
17M566-1-02-F	P1700260-21	1/16/2017	Air	VOCs [a]
17N210-1-01-F	P1700260-22	1/16/2017	Air	VOCs [a]
17N210-1-02-F	P1700260-23	1/16/2017	Air	VOCs [a]
17N210-G-03-F	P1700260-24	1/16/2017	Air	VOCs [a]
17N239A-B-01-F	P1700261-01	1/15/2017	Air	VOCs [a]

Sample ID	Laboratory ID	Sample Date	Sample Matrix	Analysis
SDG 1700261				
17N239A-1-09-F	P1700261-02	1/15/2017	Air	VOCs [a]
17N239A-1-03-F	P1700261-03	1/15/2017	Air	VOCs [a]
17N239A-1-05-F	P1700261-04	1/15/2017	Air	VOCs [a]
17N239A-1-06-F	P1700261-05	1/15/2017	Air	VOCs [a]
17N239A-1-08-F	P1700261-06	1/15/2017	Air	VOCs [a]
17N239A-1-10-F	P1700261-07	1/15/2017	Air	VOCs [a]
17N239A-1-11-F	P1700261-08	1/15/2017	Air	VOCs [a]
17M339A-1-01-F	P1700261-09	1/15/2017	Field QC	VOCs [a]
17N243-B-02-F	P1700261-10	1/15/2017	Air	VOCs [a]
17N243-B-03-F	P1700261-11	1/15/2017	Air	VOCs [a]
17N243-B-04-F	P1700261-12	1/15/2017	Air	VOCs [a]
17N243-B-06-F	P1700261-13	1/15/2017	Air	VOCs [a]
17N243-B-07-F	P1700261-14	1/15/2017	Air	VOCs [a]
17N243-1-01-F	P1700261-15	1/15/2017	Air	VOCs [a]
17N243-1-02-F	P1700261-16	1/15/2017	Air	VOCs [a]
17M343-B-07-F	P1700261-17	1/15/2017	Field QC	VOCs [a]
17N243-A-01-F	P1700261-18	1/15/2017	Air	VOCs [a]
17N243-A-02-F	P1700261-19	1/15/2017	Air	VOCs [a]
SDG 1700262				
17N210-1-04-F	P1700262-01	1/16/2017	Air	VOCs [a]
17N210-1-06-F	P1700262-02	1/16/2017	Air	VOCs [a]
17N210-1-07-F	P1700262-03	1/16/2017	Field QC	VOCs [a]
17N210-1-08-F	P1700262-04	1/16/2017	Air	VOCs [a]
17N210-1-10-F	P1700262-05	1/16/2017	Air	VOCs [a]
17N210-C-11-F	P1700262-06	1/16/2017	Air	VOCs [a]
17M310-1-10-F	P1700262-07	1/16/2017	Air	VOCs [a]
17N210-A-01-F	P1700262-08	1/15/2017	Air	VOCs [a]
17N243A-B-01-F	P1700262-09	1/15/2017	Air	VOCs [a]
17N243A-1-01-F	P1700262-10	1/15/2017	Air	VOCs [a]
17N243A-1-02-F	P1700262-11	1/15/2017	Field QC	VOCs [a]
17N243A-A-01-F	P1700262-12	1/15/2017	Air	VOCs [a]
17N239-B-01-F	P1700262-13	1/15/2017	Air	VOCs [a]
17N239-B-02-F	P1700262-14	1/15/2017	Air	VOCs [a]
17N239-G-04-F	P1700262-15	1/16/2017	Air	VOCs [a]
17N239-B-05-F	P1700262-16	1/15/2017	Air	VOCs [a]
17N239-B-06-F	P1700262-17	1/15/2017	Air	VOCs [a]
17N239-1-02-F	P1700262-18	1/15/2017	Air	VOCs [a]
17N239-1-03-F	P1700262-19	1/15/2017	Field QC	VOCs [a]
17N239-1-05-F	P1700262-20	1/15/2017	Air	VOCs [a]
17N239-1-07-F	P1700262-21	1/15/2017	Air	VOCs [a]
17N239-1-08-F	P1700262-22	1/15/2017	Air	VOCs [a]
17M339-1-07-F	P1700262-23	1/15/2017	Field QC	VOCs [a]
17N239-A-01-F	P1700262-24	1/15/2017	Air	VOCs [a]

Sample ID	Laboratory ID	Sample Date	Sample Matrix	Analysis
SDG 1700288				
17M013-1-01	P1700288-01	1/18/2017	Air	VOCs [a]
17M013-1-02	P1700288-02	1/18/2017	Air	VOCs [a]
17M313-1-02	P1700288-03	1/18/2017	Field QC	VOCs [a]
17M013-A-01	P1700288-04	1/18/2017	Air	VOCs [a]
17M126-1-05-N	P1700288-05	1/18/2017	Air	VOCs [a]
17M510-1-02-N	P1700288-06	1/18/2017	Air	VOCs [a]
17M510-1-03-N	P1700288-07	1/18/2017	Air	VOCs [a]
17M510-A-01-N	P1700288-08	1/18/2017	Air	VOCs [a]
17M555-1-01-N	P1700288-09	1/18/2017	Air	VOCs [a]
17M555-1-03-N	P1700288-10	1/18/2017	Air	VOCs [a]
17M355-1-01-N	P1700288-11	1/18/2017	Field QC	VOCs [a]
17M555-A-01-N	P1700288-12	1/18/2017	Air	VOCs [a]
17M016-1-01-N	P1700288-13	1/18/2017	Air	VOCs [a]
17M016-1-02-N	P1700288-14	1/18/2017	Air	VOCs [a]
17M016-1-03-N	P1700288-15	1/18/2017	Air	VOCs [a]
17M016-1-04-N	P1700288-16	1/18/2017	Air	VOCs [a]
17M016-1-05-N	P1700288-17	1/18/2017	Air	VOCs [a]
17M016-1-06-N	P1700288-18	1/18/2017	Air	VOCs [a]
17M316-1-02-N	P1700288-19	1/18/2017	Field QC	VOCs [a]
17M016-A-01-N	P1700288-20	1/18/2017	Air	VOCs [a]
SDG 1700289				
17M045-1-01	P1700289-01	1/17/2017	Air	VOCs [a]
17M045-1-02	P1700289-02	1/17/2017	Air	VOCs [a]
17M045-A-01	P1700289-03	1/17/2017	Air	VOCs [a]
17M002-1-02	P1700289-04	1/17/2017	Air	VOCs [a]
17M002-1-03	P1700289-05	1/17/2017	Air	VOCs [a]
17M002-1-04	P1700289-06	1/17/2017	Air	VOCs [a]
17M302-1-03	P1700289-07	1/17/2017	Field QC	VOCs [a]
17M302-1-04	P1700289-08	1/17/2017	Field QC	VOCs [a]
17M067-1-01	P1700289-09	1/17/2017	Air	VOCs [a]
17M067-A-01	P1700289-10	1/17/2017	Air	VOCs [a]
17M076-1-01	P1700289-11	1/17/2017	Air	VOCs [a]
17M126-1-01-F	P1700289-12	1/17/2017	Air	VOCs [a]
17M126-1-02-F	P1700289-13	1/17/2017	Air	VOCs [a]
17M126-1-04-F	P1700289-14	1/17/2017	Air	VOCs [a]
17M126-1-05-F	P1700289-15	1/17/2017	Air	VOCs [a]
17M126-A-01-F	P1700289-16	1/17/2017	Air	VOCs [a]
17M014-C-01-F	P1700289-17	1/17/2017	Air	VOCs [a]
17M014-C-02-F	P1700289-18	1/17/2017	Air	VOCs [a]
17M014-1-03-F	P1700289-19	1/17/2017	Air	VOCs [a]
17M014-1-04-F	P1700289-20	1/17/2017	Air	VOCs [a]
17M014-1-05-F	P1700289-21	1/17/2017	Air	VOCs [a]
17M314-1-05-F	P1700289-22	1/17/2017	Field QC	VOCs [a]
17M107-1-01-F	P1700289-23	1/17/2017	Air	VOCs [a]
17M107-1-02-F	P1700289-24	1/17/2017	Air	VOCs [a]

Note:

Bold and *italicized* = Level IV data validation performed on sample.

[a] VOCs included vinyl chloride, 1,1-DCE, 1,1-DCA, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and PCE.

ATTACHMENT B
VALIDATION REASON CODES

Element Validation Code Legend

HT	Holding Times
NP	Sample Preservation (Cooler Temp), Preparation
CU	Sample Custody
DE	Missing Deliverables
IC	Initial Calibration (RSD, r^2, RT)
CC	Continuing Calibration (%D, RT)
FB	Field (Ambient) Blanks
EB	Equipment Rinsate Blanks
SB	Source Water Blanks
TB	Trip Blanks
LB	Laboratory Blanks
MS	Matrix Spike Recoveries
MD	Matrix Spike Duplicate RPDs or Duplicate Samples RPDs
BS	Laboratory Control Sample Recoveries
IC	ICP Interference Check
IR	Ion Ratio does not meet Dioxin criteria
SC	RPD Between Two GC Columns
SU	Surrogates
FD	Field Duplicate RPDs
LD	Laboratory Duplicate RPDs
SD	ICP Serial Dilution
CR	Chemical Recoveries
IS	Internal Standards
LE	Linear Range Exceeded
FP	Potential False Positives
NS	Do not use, other result more technically sound
OT	Other (explanation in narrative)

ATTACHMENT C
QUALIFIED ANALYTE SUMMARY

Qualified Results Summary Table

NOTE: *Sample results that were "J-flagged" by the laboratory are considered estimated values and should remain "J-qualified" in the final results.*

Sample ID	Compound	Result	Validation Qualifier	Reason Code	Reportable?
17M010-1-10 17M310-1-10	1,1-DCA	0.18 0.13	J -qualified	FD	Y
17M003-1-06-F 17M303-1-06-F	PCE	0.084 0.047	J -qualified	FD	Y
17M012-1-03-F 17M312-1-03-F	trans-1,2-DCE	0.079 0.45	J -qualified	FD	Y
17N243-B-07-F 17M343-B-07-F	trans-1,2-DCE	0.063 0.1	J -qualified	FD	Y
17N239-1-07-F 17M339-1-07-F	trans-1,2-DCE	0.068 0.16	J -qualified	FD	Y
17M016-1-02-N 17M316-1-02-N	TCE	0.029 0.43	J -qualified	FD	Y
17M002-1-03 17M302-1-03	Vinyl chloride	0.072 0.052	J -qualified	FD	Y
17M002-1-04 17M302-1-04	TCE	0.063 0.091	J -qualified	FD	Y

ATTACHMENT D

DV CHECKLIST & CALCULATION VERIFICATION SHEETS

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/5/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700163
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 25 air samples in this SDG
17N239A-1-11-N canister IDs did not match (#3285 vs AC)1250) between COC record and laboratory sample receipt/check-in.
However, no other samples are impacted but client should check and verify. Since only canister, sample results are still associated with the above sample, no qualifications or further action during DV.

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler		2/5/2017
Printed Name	Signature	Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	No

Reviewer: Stacie Wissler
Date: 5-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700163
Matrix: Air

3.0 Holding Time

QC Batch(es): P170119, P170120

Sampled: 01/10/17 Analyzed: 01/19-20/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
25 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170119, P170120

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA

Types of field QC blanks: None

Qualifications applied? No

Notes: MBs (2) = ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170119, P170120

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700163

6.0 Internal Standards — QC Batch(es): P170119, P170120 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170119, P170120 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170119, P170120 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170119, P170120 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M003-1-07-N, 17N239A-1-10-N / 17M012-1-03-N (lab)	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		Yes

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? No

Notes: Field duplicates 17M303-A-01-N, 17-M339A-1-10-N = all below RPD 30%, no qualifications
Lab RPD = 25%; ok

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700163

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS20	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/19/2017 @ 0506
BFB 1/20/2017 @ 0135

12.0 Initial Calibration	Instrument Nos. MS20	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS20	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/19/2017 @ 0524; %D < 30% for limited target analyte list
CCV 1/20/2017 @ 0155; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Samples M003-1-03, M003-1-07, N239A-1-03, N239-1-10, and M015-1-02 were selected for LIV recalculations.

Duplicate Verification - RPD

SDG: P1700163
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M003-1-07-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	0.023	0.023	0.0%	Y
cis -1,2-DCE	0.023	0.023	0.0%	Y
TCE	0.26	0.26	0.0%	Y
PCE	0.047	0.048	2.1%	Y

Parent Sample ID: 17N239-1-10-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	0.29	0.29	0%	Y
1,1-DCA	0.27	0.25	7.7%	Y
trans-1,2-DCA	0.068	0.067	1.5%	Y
1,1-DCE	0.2	0.18	10.5%	Y
cis -1,2-DCE	5.4	5.2	3.8%	Y
TCE	12	13	8.0%	Y
PCE	0.19	0.24	23.3%	Y

Spike Verification - LCS and Surrogates

SDG: P1700163
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170119	X		1/19/2017	Vinyl chloride	4.2	3.91	93%	93%	Y
LCS P170119	X		1/19/2017	1,1-DCE	4.25	4.16	98%	98%	Y
LCS P170119	X		1/19/2017	TCE	4.25	3.98	94%	94%	Y
LCS P170120	X		1/19/2017	cis-1,2-DCE	4.24	4.2	99%	99%	Y
LCS P170120	X		1/19/2017	trans-1,2-DCE	4.27	4.18	98%	98%	Y
LCS P170120	X		1/19/2017	PCE	4.25	3.92	92%	92%	Y
17M003-1-03-N		X	1/19/2017	1,2-DCA-d4	1000	977.603	98%	98%	Y
17M003-1-07-N		X	1/19/2017	Toluene-d8	1000	1032.915	103%	103%	Y
17N239A-1-03-N		X	1/19/2017	Bromofluorobenzene	1000	1130.603	113%	113%	Y
17N239A-1-10-N		X	1/19/2017	1,2-DCA-d4	1000	1004.748	100%	101%	Y
17M015-1-02-N		X	1/19/2017	Toluene-d8	1000	1022.224	102%	102%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700163
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS20
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
cis-1,2-DCE	BCM	701	43810	10	1000	1.60009	1.504	-6.39%	Y
trans-1,2-DCE	BCM	4931	45005	105	1000	1.04348	1.027	-1.60%	Y
1,1-DCE	BCM	1234	43076	21	1000	1.36414	1.353	-0.82%	Y
TCE	1,4-DFB	2805	190926	52	1000	0.28253	0.277	-2.00%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700163
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS20
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF
cis-1,2-DCE	50000	1.546
cis-1,2-DCE	10000	1.141
cis-1,2-DCE	5000	1.167
cis-1,2-DCE	2000	1.211
cis-1,2-DCE	1000	1.307
cis-1,2-DCE	500	1.139
cis-1,2-DCE	100	1.061
cis-1,2-DCE	50	1.164
cis-1,2-DCE	20	1.37
cis-1,2-DCE	10	1.504
	Calc Avg RRF:	1.2610
	Rpt Avg RRF	1.261
	S:	0.165
	Recalc %RSD:	13.065
	Reported %RSD:	13.06

Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Continuing Calibration Verification

SDG: P1700163
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS20
Cal Date 1/18/2017
CCV Date 1/19/2017 @ 0524

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.488	2.139	2.091	14.0%	13.4%	**Y**
1,1-DCE	1.117	1.0693	1.01	4.3%	6.7%	**Y**
trans -1,2-DCE	1.2	1.1686	1.095	2.6%	6.2%	**Y**
cis -1,2-DCE	1.261	1.2381	1.164	1.8%	5.0%	**Y**
1,1-DCA	2.129	1.9533	1.915	8.3%	7.5%	**Y**
TCE	0.267	0.245	0.231	8.2%	11.2%	**Y**
PCE	0.277	0.2501	0.236	9.7%	12.6%	**Y**

CCV Date 1/20/2017 @ 0155

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.488	2.1084	2.061	15.3%	14.7%	**Y**
1,1-DCE	1.117	1.036	0.978	7.3%	9.7%	**Y**
trans -1,2-DCE	1.2	1.1343	1.063	5.5%	9.7%	**Y**
cis -1,2-DCE	1.261	1.1971	1.125	5.1%	8.2%	**Y**
1,1-DCA	2.129	1.9262	1.888	9.5%	8.8%	**Y**
TCE	0.267	0.2423	0.229	9.3%	11.9%	**Y**
PCE	0.277	0.2471	0.233	10.8%	13.7%	**Y**

Sample Result Quantitation Verification

SDG: P1700163
Validator: Stacie Wissler

Sample ID: 17M003-1-03-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1362	56665	1000	2.488	=	0.0155	0.016	µg/m^3	-3.451%	**Y**
1,1-DCA	1089	56665	1000	2.129	=	0.0144	0.0150	µg/m^3	-3.784%	**Y**
cis-1,2-DCE	923	56665	1000	1.261	=	0.0207	0.021	µg/m^3	-1.60%	**Y**
TCE	9031	291197	1000	0.267	=	0.1858	0.19	µg/m^3	-2.21%	**Y**
PCE	2670	291197	1000	0.277	=	0.0530	0.055	µg/m^3	-3.78%	**Y**

Sample ID: 17M003-1-07-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1992	57343	1000	2.488	=	0.0219	0.023	µg/m^3	-4.804%	**Y**
1,1-DCA	620	57343	1000	2.129	=	0.0080	ND	µg/m^3	NA	**Y**
cis-1,2-DCE	1022	57343	1000	1.261	=	0.0222	0.023	µg/m^3	-3.585%	**Y**
TCE	12421	287353	1000	0.267	=	0.2542	0.26	µg/m^3	-2.27%	**Y**
PCE	2318	287353	1000	0.277	=	0.0457	0.047	µg/m^3	-2.76%	**Y**

Sample ID: 17N239A-1-03-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	9320	60185	1000	2.488	=	0.0822	0.085	µg/m^3	-3.400%	**Y**
1,1-DCE	3694	60185	1000	1.117	=	0.0725	0.075	µg/m^3	-3.346%	**Y**
1,1-DCA	5147	60185	1000	2.129	=	0.0530	0.055	µg/m^3	-3.660%	**Y**
trans-1,2-DCE	1345	60185	1000	1.2	=	0.0246	0.025	µg/m^3	-1.684%	**Y**
cis-1,2-DCE	79961	60185	1000	1.261	=	1.3907	1.4	µg/m^3	-0.663%	**Y**
TCE	216281	303686	1000	0.267	=	3.5209	3.6	µg/m^3	-2.22%	**Y**
PCE	4291	303686	1000	0.277	=	0.0673	0.069	µg/m^3	-2.45%	**Y**

Sample ID: 17N239A-1-10-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	27560	59258	1000	2.488	=	0.2841	0.29	µg/m^3	-2.043%	**Y**
1,1-DCE	11525	59258	1000	1.117	=	0.2647	0.27	µg/m^3	-1.998%	**Y**
trans-1,2-DCE	3113	59258	1000	1.2	=	0.0665	0.068	µg/m^3	-2.168%	**Y**
cis-1,2-DCE	257116	59258	1000	1.261	=	5.2301	5.4000	µg/m^3	-3.196%	**Y**
TCE	660159	311655	1000	0.267	=	12.0589	12	µg/m^3	0.49%	**Y**
PCE	10337	311655	1000	0.277	=	0.1820	0.19	µg/m^3	-4.30%	**Y**

Sample ID:	17M015-1-02-N									
Analyte	**Asa**	**Ais**	**Ais Conc**	**ICAL RRF**		**Calculated**	**Reported**	**Units**	**% Diff**	**Acceptable?**
cis-1,2-DCE	445	55439	1000	1.261	=	0.0096	0.0093	µg/m^3	3.298%	**Y**
TCE	7203	277928	1000	0.267	=	0.1466	0.15	µg/m^3	-2.31%	**Y**
PCE	1607	277928	1000	0.277	=	0.0315	0.032	µg/m^3	-1.51%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/7/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700173
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 5 air samples in this SDG
17M556-1-02-N canister IDs do not match (#5058 vs 5068) between COC record and laboratory sample receipt/check-in.
However, no other samples are impacted but client should check and verify. Since only canister, sample results are
still associated with the above sample, no qualifications or further action during DV. Not noted on sample reciept form.

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — 2/7/2017
Printed Name — Signature — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	No

Reviewer: Stacie Wissler
Date: 7-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700173
Matrix: Air

3.0 Holding Time

QC Batch(es): P170123

Sampled: 01/09/17 Analyzed: 01/23/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
5 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170123

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA

Types of field QC blanks: None

Qualifications applied? No

Notes: MB = ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170123

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700173

6.0 Internal Standards — QC Batch(es): P170123 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each		Yes
		Area > 200%	Area < 50%
	Positive	J	J
	Non-detect	None	UJ (20-50%) or R (< 20%)
6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?		Yes
	Action : if > RT 30 seconds of continuing calibration, R qualify data.		
		Qualifications applied?	No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170123 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170123 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170123 — Finding

9.1	Were any field or laboratory duplicates included for analysis?	No
9.2	Was a project sample used for the duplicate? If so, which sample?	NA
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL	NA
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)	NA
	Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.	
	Qualifications applied?	No

Notes:

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No
	Qualifications applied?	No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700173

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS20	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/23/2017 @ 0717

12.0 Initial Calibration	Instrument Nos. MS20	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS20	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/23/2017 @ 0735; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Samples M566-1-02-N was selected for LIV recalculations.

Spike Verification - LCS and Surrogates

SDG: P1700173
Method: USEPA TO-15
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170123	X		1/23/2017	Vinyl chloride	4.2	3.75	89%	89%	Y
LCS P170123	X		1/23/2017	1,1-DCE	4.25	4.06	96%	96%	Y
LCS P170123	X		1/23/2017	TCE	4.25	3.96	93%	93%	Y
LCS P170123	X		1/23/2017	cis-1,2-DCE	4.24	4.13	97%	97%	Y
10M566-1-01-N		X	1/23/2017	1,2-DCA-d4	1000	966.099	97%	97%	Y
10M566-1-01-N		X	1/23/2017	Toluene-d8	1000	1038.317	104%	104%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700173
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS20
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
TCE	1,4-DFB	786	194571	10	1000	0.40397	0.381	-6.03%	Y
1,1-DCA	BCM	2353	43076	21	1000	2.60116	2.678	2.87%	Y
1,1-DCE	BCM	2470	42312	52	1000	1.12261	1.102	-1.87%	Y
PCE	1,4-DFB	5324	208640	105	1000	0.24303	0.241	-0.84%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700173
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS20
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF
TCE	50000	0.293
TCE	10000	0.208
TCE	5000	0.213
TCE	2000	0.232
TCE	1000	0.261
TCE	500	0.232
TCE	100	0.237
TCE	50	0.277
TCE	20	0.335
TCE	10	0.381
	Calc Avg RRF:	0.2669
	Rpt Avg RRF	0.267
	S:	0.056
	Recalc %RSD:	20.965
	Reported %RSD:	20.95

Acceptable?	%RSD ≤ 30%
Y	

GC/MS Continuing Calibration Verification

SDG: P1700173
Method: USEPA TO-17
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS20
Cal Date 1/18/2017
CCV Date 1/23/2017 @ 0735

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.488	1.9923	2.415	19.9%	19.3%	**Y**
1,1-DCE	1.117	0.9983	0.943	10.6%	12.9%	**Y**
trans -1,2-DCE	1.2	1.0962	1.027	8.6%	12.0%	**Y**
cis -1,2-DCE	1.261	1.1607	1.091	8.0%	10.9%	**Y**
1,1-DCA	2.129	1.8416	1.806	13.5%	12.8%	**Y**
TCE	0.267	0.2377	0.224	11.0%	13.8%	**Y**
PCE	0.277	0.2446	0.231	11.7%	14.4%	**Y**

Sample Result Quantitation Verification

SDG: P1700173
Validator: Stacie Wissler

Sample ID: 17M566-1-01-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	792	58354	1000	2.488	=	0.0086	ND	µg/m^3	OK	**Y**
trans-1,2-DCE	560	58354	1000	1.2	=	0.0126	0.013	µg/m^3	-2.844%	**Y**
1,1-DCA	998	58354	1000	2.129	=	0.0127	0.0130	µg/m^3	-2.395%	**Y**
cis-1,2-DCE	1100	58354	1000	1.261	=	0.0236	0.024	µg/m^3	-1.600%	**Y**
TCE	6794	285192	1000	0.267	=	0.1410	0.14	µg/m^3	0.69%	**Y**
PCE	1919	285192	1000	0.277	=	0.0384	0.039	µg/m^3	-1.60%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/8/2017
Lab: ALS Simi Valley

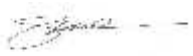
Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700183
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 9 air samples in this SDG
17M126-1-02-N canister IDs do not match (#13047 vs 5036) between COC record and laboratory sample receipt/check-in.
However, 17M126-1-04-N also assigned same can ID but client should check and verify. Sample results are
still associated with the above sample, no qualifications or further action during DV. Not noted on sample reciept form.

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.



Stacie Wissler		2/8/2017
Printed Name	Signature	Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	No

Reviewer: Stacie Wissler
Date: 8-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700183
Matrix: Air

3.0 Holding Time

QC Batch(es): P170120

Sampled: 01/11/17 Analyzed: 01/20/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
9 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170120

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA

Types of field QC blanks: None

Qualifications applied? No

Notes: MB = ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170120

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700183

6.0 Internal Standards — QC Batch(es): P170120 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170120 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170120 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170120 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M126-1-02-N / 17M567-1-03 (lab)	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		Yes

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? No

Notes: Field duplicate 17M326-1-02-N = all below RPD 30%, no qualifications
Lab RPD = 25%; ok

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700183

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS20	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/23/2017 @ 0717

12.0 Initial Calibration	Instrument Nos. MS20	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS20	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/20/2017 @ 0155; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Samples M567-1-01-N and M126-1-02-N were selected for LIV recalculations.

Duplicate Verification - RPD

SDG: P1700183
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M126-1-02-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	1.3	1.3	0%	**Y**
1,1-DCE	0.43	0.43	0.0%	**Y**
trans-1,2-DCE	0.16	0.17	6.1%	**Y**
1,1-DCA	0.35	0.35	0.0%	**Y**
cis-1,2-DCE	24	24	0.0%	**Y**
TCE	18	19	5.4%	**Y**
PCE	41	41	0.0%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700183
Method: USEPA TO-15
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170120	X		1/20/2017	Vinyl chloride	4.2	3.82	91%	91%	Y
LCS P170120	X		1/20/2017	1,1-DCA	4.25	4.2	99%	99%	Y
LCS P170120	X		1/20/2017	cis-1,2-DCE	4.24	4.2	99%	99%	Y
LCS P170120	X		1/20/2017	PCE	4.25	3.92	92%	92%	Y
10M567-1-01-N		X	1/20/2017	1,2-DCA-d4	1000	930.675	93%	93%	Y
10M567-1-01-N		X	1/20/2017	Bromofluorobenzene	1000	1167.498	117%	117%	Y
10M126-1-02-N		X	1/20/2017	Toluene-d8	1000	1028.731	103%	103%	Y
10M126-1-02-N		X	1/20/2017	Bromofluorobenzene	1000	1157.835	116%	116%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700183
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS20
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
Vinyl chloride	BCM	6403	42312	52	1000	2.91016	2.959	1.65%	Y
trans-1,2-DCE	BCM	710	43810	10	1000	1.62063	1.519	-6.69%	Y
TCE	1,4-DFB	58583	211388	1047	1000	0.26469	0.261	-1.42%	Y
PCE	1,4-DFB	2790	190926	52	1000	0.28102	0.275	-2.19%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700183
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS20
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF
Vinyl chloride	50000	2.468
Vinyl chloride	10000	2.089
Vinyl chloride	5000	2.185
Vinyl chloride	2000	2.337
Vinyl chloride	1000	2.811
Vinyl chloride	500	2.502
Vinyl chloride	100	2.551
Vinyl chloride	50	2.959
	Calc Avg RRF:	2.4878
	Rpt Avg RRF	2.488
	S:	0.294
	Recalc %RSD:	11.813
	Reported %RSD:	11.82

Acceptable?	%RSD ≤ 30%
Y	

GC/MS Continuing Calibration Verification

SDG: P1700183
Method: USEPA TO-17
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS20
Cal Date 1/18/2017
CCV Date 1/20/2017 @ 0155

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.1084	2.061	12.7%	14.7%	**Y**
1,1-DCE	1.083	1.036	0.978	4.3%	9.7%	**Y**
trans -1,2-DCE	1.167	1.1343	1.063	2.8%	8.9%	**Y**
cis -1,2-DCE	1.225	1.1971	1.125	2.3%	8.2%	**Y**
1,1-DCA	2.07	1.9262	1.888	6.9%	8.8%	**Y**
TCE	0.26	0.2423	0.229	6.8%	11.9%	**Y**
PCE	0.27	0.2471	0.233	8.5%	13.7%	**Y**

Sample Result Quantitation Verification

SDG: P1700183
Validator: Stacie Wissler

Sample ID: 17M567-1-01-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
1,1-DCE	2585	67164	1000	1.083	=	0.0593	0.059	µg/m^3	0.589%	**Y**
trans-1,2-DCE	716	67164	1000	1.167	=	0.0153	0.015	µg/m^3	1.688%	**Y**
1,1-DCA	8102	67164	1000	2.07	=	0.0973	0.097	µg/m^3	0.329%	**Y**
cis-1,2-DCE	3748	67164	1000	1.225	=	0.0761	0.076	µg/m^3	0.099%	**Y**
TCE	146886	344427	1000	0.26	=	2.7392	2.7	µg/m^3	1.44%	**Y**
PCE	4101	344427	1000	0.27	=	0.0736	0.074	µg/m^3	-0.48%	**Y**

Sample ID: 17M126-1-02-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	72303	60647	1000	2.415	=	1.2885	1.3	µg/m^3	-0.892%	**Y**
1,1-DCE	10706	60647	1000	1.083	=	0.4254	0.43	µg/m^3	-1.068%	**Y**
trans-1,2-DCE	4430	60647	1000	1.167	=	0.1634	0.160	µg/m^3	2.082%	**Y**
1,1-DCA	16763	60647	1000	2.07	=	0.3485	0.350	µg/m^3	-0.427%	**Y**
cis-1,2-DCE	689291	60647	1000	1.225	=	24.2157	24	µg/m^3	0.895%	**Y**
TCE	566540	311310	1000	0.26	=	18.2686	18	µg/m^3	1.48%	**Y**
PCE	1318288	311310	1000	0.27	=	40.9349	41	µg/m^3	-0.16%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/8/2017
Lab: ALS Simi Valley

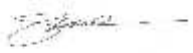
Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700234
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 37 air samples in this SDG
17M339-B-01-N canister IDs do not match (#AS0116 vs AS01176) between COC record and laboratory sample receipt/check-in.
Client should check and verify. Sample results arestill associated with the above sample,no qualifications or further action during DV. Not noted on sample reciept form.

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.



Stacie Wissler — Printed Name
Signature
2/8/2017 — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	Yes

Reviewer: Stacie Wissler
Date: 8-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700234
Matrix: Air

3.0 Holding Time

QC Batch(es): P170123, P170124

Sampled: 01/12/17 Analyzed: 01/23-24/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
37 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170123, P170124

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (2)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170123, P170124

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700234

6.0 Internal Standards — QC Batch(es): P170123, P170124 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each		Yes
		Area > 200% / Area < 50%	
	Positive	J / J	
	Non-detect	None / UJ (20-50%) or R (< 20%)	
6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?		Yes
	Action : if > RT 30 seconds of continuing calibration, R qualify data.		
		Qualifications applied?	No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170123, P170124 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA
	Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____	
	No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.	
	Qualifications applied?	No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170123, P170124 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?		Yes
8.2	Is LCS analyzed at the required frequency for each matrix?		Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0____%R		Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____		Yes
		>UCL / <LCL	
	Detect	J / J	
	Non-detect	None / UJ / R	
		Qualifications applied?	No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170123, P170124 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M010-1-03-N, 17M010-1-10-N, 17N239-B-01, 17N234A-1-01-N	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		No
	Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.		
		Qualifications applied?	Yes

Notes: Field duplicates: 17M310-1-03-N, 17M310-1-10-N, 17N239-B-01, 17M343-A-1-01-N = all below RPD 30%, except the following:
Duplicate pair 1,1-DCA RPD for sample 17M010-1-10 @ 32.3% = "J" qualify 1,1-DCA results in duplicate pair
Laboratory duplicate sample = 17N239-A-01-N; Lab RPD = 25%; ok;

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No
	Qualifications applied?	No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700234

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/23/2017 @ 0717
BFB 1/24/2017 @ 0135
BFB 1/25/2017 @ 1950

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/23/2017 @ 0735; %D < 30% for limited target analyte list
CCV 1/24/2017 @ 0153; %D < 30% for limited target analyte list
CCV 1/24/2017 @ 2010; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Eight samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700234
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M010-1-03-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCE	0.025	0.025	0.0%	**Y**
trans-1,2-DCE	0.022	0.023	4.4%	**Y**
cis-1,2-DCE	0.28	0.28	0.0%	**Y**
TCE	1.9	1.9	0.0%	**Y**
PCE	0.064	0.056	13.3%	**Y**

Parent Sample ID: 17M010-1-10-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCE	0.15	0.14	6.9%	**Y**
trans-1,2-DCE	0.048	0.054	11.8%	**Y**
1,1-DCA	**0.18**	**0.13**	**32.3%**	**No**
cis-1,2-DCE	2.0	1.9	5.1%	**Y**
TCE	11	11	0.0%	**Y**
PCE	0.1	0.1	0.0%	**Y**

Parent Sample ID: 17N239-B-01 **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
trans-1,2-DCE	0.048	0.052	8.0%	**Y**
1,1-DCA	--	0.054	NA	**Y**
cis-1,2-DCE	0.051	0.052	1.9%	**Y**
TCE	0.14	0.14	0.0%	**Y**
PCE	0.053	0.053	0.0%	**Y**

Parent Sample ID: 17N243A-1-01-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
trans-1,2-DCE	0.042	0.035	18.2%	**Y**
1,1-DCA	0.014	0.015	6.9%	**Y**
cis-1,2-DCE	0.09	0.097	7.5%	**Y**
TCE	0.09	0.083	8.1%	**Y**
PCE	0.11	0.13	16.7%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700234
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170123	X		1/20/2017	Vinyl chloride	4.2	3.75	89%	89%	Y
LCS P170123	X		1/20/2017	1,1-DCA	4.25	4.06	96%	96%	Y
LCS P170124	X		1/20/2017	cis-1,2-DCE	4.24	4.17	98%	98%	Y
LCS P170124	X		1/20/2017	PCE	4.25	3.7	87%	877%	Y
17M010-1-03-N		X	1/20/2017	1,2-DCA-d4	1000	958.015	96%	96%	Y
17M010-1-10-N		X	1/20/2017	Bromofluorobenzene	1000	1016.724	102%	102%	Y
17M012-1-02-N		X	1/20/2017	Toluene-d8	1000	1028.832	103%	103%	Y
17N239-B-01-N		X	1/20/2017	1,2-DCA-d4	1000	956.962	96%	96%	Y
17N239-1-02-N		X	1/20/2017	Bromofluorobenzene	1000	1041.727	104%	104%	Y
17N239-1-07-N		X	1/20/2017	Toluene-d8	1000	1020.625	102%	102%	Y
17N243-B-06-N		X	1/20/2017	1,2-DCA-d4	1000	845.057	85%	85%	Y
17N243A-B-01-N		X	1/20/2017	Bromofluorobenzene	1000	1227.375	123%	123%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700234
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
PCE	1,4-DFB	891	194571	10	1000	0.45793	0.432	-6.00%	Y
1,1-DCA	BCM	2353	43076	21	1000	2.60116	2.678	2.87%	Y
TCE	1,4-DFB	2805	190926	52	1000	0.28253	0.277	-2.00%	Y
cis-1,2-DCE	BCM	2621	42312	52	1000	1.19124	1.164	-2.34%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700234
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF
PCE	50000	0.303
PCE	10000	0.22
PCE	5000	0.22
PCE	2000	0.237
PCE	1000	0.265
PCE	500	0.236
PCE	100	0.241
PCE	50	0.275
PCE	20	0.34
PCE	10	0.432
	Calc Avg RRF:	0.2769
	Rpt Avg RRF	0.277
	S:	0.067
	Recalc %RSD:	24.044
	Reported %RSD:	24.02

Acceptable?	
Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Continuing Calibration Verification

SDG: P1700234
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/18/2017
CCV Date 1/23/2017 @ 0735

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	1.90111	1.948	21.3%	19.3%	Y
1,1-DCE	1.083	0.95256	0.943	12.0%	12.9%	Y
trans-1,2-DCE	1.167	1.04601	1.027	10.4%	12.0%	Y
cis-1,2-DCE	1.225	1.1075	1.091	9.6%	10.9%	Y
1,1-DCA	2.07	1.75727	1.806	15.1%	12.8%	Y
TCE	0.26	0.22685	0.224	12.8%	13.8%	Y
PCE	0.27	0.23342	0.231	13.5%	14.4%	Y

CCV Date 1/24/2017 @ 0153

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.15279	2.205	10.9%	8.7%	Y
1,1-DCE	1.083	0.97097	0.961	10.3%	11.3%	Y
trans-1,2-DCE	1.167	1.05669	1.038	9.5%	11.1%	Y
cis-1,2-DCE	1.225	1.12072	1.104	8.5%	9.9%	Y
1,1-DCA	2.07	1.75329	1.801	15.3%	13.0%	Y
TCE	0.26	0.22429	0.222	13.7%	14.6%	Y
PCE	0.27	0.21778	0.215	19.3%	20.4%	Y

CCV Date 1/24/2017 @ 2010

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	1.9785	2.027	18.1%	16.1%	Y
1,1-DCE	1.083	0.94671	0.937	12.6%	13.5%	Y
trans-1,2-DCE	1.167	1.03114	1.013	11.6%	13.2%	Y
cis-1,2-DCE	1.225	1.08922	1.073	11.1%	12.4%	Y
1,1-DCA	2.07	1.61339	1.658	22.1%	19.9%	Y
TCE	0.26	0.22888	0.226	12.0%	13.1%	Y

PCE	0.27	0.23034	0.228	14.7%	15.6%	**Y**

Sample Result Quantitation Verification

SDG: P1700234
Validator: Stacie Wissler

Sample ID: 17M010-1-03

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
1,1-DCE	1033	54009	1000	1.117	=	0.0240	0.025	µg/m^3	-4.197%	**Y**
trans-1,2-DCE	970	54009	1000	1.2	=	0.0210	0.022	µg/m^3	-4.874%	**Y**
cis-1,2-DCE	13016	54009	1000	1.261	=	0.2676	0.280	µg/m^3	-4.543%	**Y**
TCE	92461	264170	1000	0.267	=	1.8352	1.9	µg/m^3	-3.47%	**Y**
PCE	3242	264170	1000	0.277	=	0.0620	0.064	µg/m^3	-3.13%	**Y**

Sample ID: 17M010-1-10

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	563	39518	1000	2.488	=	0.0084	ND	µg/m^3	NA	**Y**
1,1-DCE	4343	39518	1000	1.117	=	0.1446	0.15	µg/m^3	-3.645%	**Y**
trans-1,2-DCE	1497	39518	1000	1.2	=	0.0464	0.048	µg/m^3	-3.379%	**Y**
1,1-DCA	9981	39518	1000	2.129	=	0.1744	0.180	µg/m^3	-3.166%	**Y**
cis-1,2-DCE	64945	39518	1000	1.261	=	1.9158	2.0	µg/m^3	-4.300%	**Y**
TCE	390834	199660	1000	0.267	=	10.7772	11	µg/m^3	-2.05%	**Y**
PCE	3696	199660	1000	0.277	=	0.0982	0.1	µg/m^3	-1.78%	**Y**

Sample ID: 17M012-1-02-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	260	37965	1000	2.488	=	0.0035	ND	µg/m^3	NA	**Y**
1,1-DCE	217	37965	1000	1.117	=	0.0064	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	2130	37965	1000	1.2	=	0.0589	0.061	µg/m^3	-3.487%	**Y**
1,1-DCA	810	37965	1000	2.129	=	0.0126	0.013	µg/m^3	-2.912%	**Y**
cis-1,2-DCE	2262	37965	1000	1.261	=	0.0595	0.061	µg/m^3	-2.433%	**Y**
TCE	14573	192373	1000	0.267	=	0.3575	0.37	µg/m^3	-3.44%	**Y**
PCE	3407	192373	1000	0.277	=	0.0806	0.08	µg/m^3	-2.98%	**Y**

Sample ID: 17N239-B-01-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	388	40289	1000	2.488	=	0.0053	ND	µg/m^3	NA	**Y**
1,1-DCE	70	40289	1000	1.117	=	0.0021	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	1650	40289	1000	1.2	=	0.0471	0.048	µg/m^3	-1.899%	**Y**
1,1-DCA	493	40289	1000	2.129	=	0.0079	ND	µg/m^3	NA	**Y**
cis-1,2-DCE	1840	40289	1000	1.261	=	0.0500	0.051	µg/m^3	-2.020%	**Y**
TCE	4958	192149	1000	0.267	=	0.1334	0.14	µg/m^3	-4.86%	**Y**
PCE	1975	192149	1000	0.277	=	0.0512	0.053	µg/m^3	-3.44%	**Y**

Sample ID: 17N239-1-02-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	336	38225	1000	2.488	=	0.0074	ND	µg/m^3	NA	**Y**
1,1-DCE	67	38225	1000	1.117	=	0.0033	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	1078	38225	1000	1.2	=	0.0494	0.051	µg/m^3	-3.283%	**Y**
1,1-DCA	575	38225	1000	2.129	=	0.0148	0.015	µg/m^3	-1.088%	**Y**
cis-1,2-DCE	1458	38225	1000	1.261	=	0.0635	0.065	µg/m^3	-2.302%	**Y**
TCE	3618	184346	1000	0.267	=	0.1544	0.16	µg/m^3	-3.59%	**Y**
PCE	1222	184346	1000	0.277	=	0.0503	0.052	µg/m^3	-3.41%	**Y**

Sample ID: 17N239-1-07-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	413	42523	1000	2.488	=	0.0055	ND	µg/m^3	NA	**Y**
1,1-DCE	84	42523	1000	1.117	=	0.0025	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	1777	42523	1000	1.2	=	0.0495	0.051	µg/m^3	-3.085%	**Y**
1,1-DCA	418	42523	1000	2.129	=	0.0066	ND	µg/m^3	NA	**Y**
cis-1,2-DCE	1295	42523	1000	1.261	=	0.0343	0.035	µg/m^3	-2.037%	**Y**
TCE	3488	203307	1000	0.267	=	0.0912	0.094	µg/m^3	-2.98%	**Y**
PCE	2030	203307	1000	0.277	=	0.0512	0.053	µg/m^3	-3.48%	**Y**

Sample ID: 17N243-B-06-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	513	46509	1000	2.488	=	0.0107	ND	µg/m^3	NA	**Y**
1,1-DCE	105	46509	1000	1.117	=	0.0049	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	1012	46509	1000	1.2	=	0.0439	0.045	µg/m^3	-2.52%	**Y**
1,1-DCA	429	46509	1000	2.129	=	0.0105	ND	µg/m^3	NA	**Y**
cis-1,2-DCE	1940	46509	1000	1.261	=	0.0801	0.082	µg/m^3	-2.41%	**Y**
TCE	8655	218880	1000	0.267	=	0.3584	0.37	µg/m^3	-3.19%	**Y**
PCE	4396	218880	1000	0.277	=	0.1755	0.18	µg/m^3	-2.55%	**Y**

Sample ID: 17N243A-B-01-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	2638	44285	1000	2.488	=	0.0338	0.035	µg/m^3	-3.610%	**Y**
1,1-DCE	406	44285	1000	1.117	=	0.0116	ND	µg/m^3	NA	**Y**
trans-1,2-DCE	2123	44285	1000	1.2	=	0.0563	0.058	µg/m^3	-2.923%	**Y**
1,1-DCA	1515	44285	1000	2.129	=	0.0227	0.023	µg/m^3	-1.503%	**Y**
cis-1,2-DCE	22788	44285	1000	1.261	=	0.5754	0.59	µg/m^3	-2.509%	**Y**
TCE	3221	212645	1000	0.267	=	0.0800	0.082	µg/m^3	-2.48%	**Y**
PCE	4201	212645	1000	0.277	=	0.1006	0.10	µg/m^3	0.56%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/15/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700259
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 24 air samples in this SDG

Discrepancy with canister IDs for 2 samples - 17M003-1-01-F and 17M014-1-05-F in Detail Summary Report. All other sample information is correct and associated results reported. No further action taken during data validation.

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — 2/15/2017

Printed Name — Signature — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	Yes

Reviewer: Stacie Wissler
Date: 15-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700259
Matrix: Air

3.0 Holding Time

QC Batch(es): P170127, P170128, P170201

Sampled: 01/15-16/17 Analyzed: 01/27-28/2017, 2/01/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
24 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170127, P170128, P170201

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (3) = ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170127, P170128, P170201

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	No
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.
Bromofluorobenzene high %Rs = 17M003-1-04 (133%), 17M003-A-01 (138%), 17M012-1-01 (131%), 17M012-1-02 (134%), 17M003-1-03 (132%), and 17M012-C-05 (134%) = surrogate not associated with specific TCLs, so no qualifications.

Project #: PO 16104 SDG: P1700259

6.0 Internal Standards	QC Batch(es): P170127, P170128, P170201	Finding
6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing	No

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes
	Action : if > RT 30 seconds of continuing calibration, R qualify data.	
	Qualifications applied?	No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint
Samples 17M312-1-03-F and 17M012-A-01-F reported high recovery of Chlorobenzene-d5; however, this internal standard is not associa with the target analytes, no qualifications applied.

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)	QC Batch(es): P170127, P170128, P170201	Finding
7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA
	Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____	
	No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.	
	Qualifications applied?	No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS)	QC Batch(es): P170127, P170128, P170201	Finding
8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

	Qualifications applied?	No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples	QC Batch(es): P170127, P170128, P170201	Finding
9.1	Were any field or laboratory duplicates included for analysis?	Yes
9.2	Was a project sample used for the duplicate? If so, which sample? 17M003-1-06-F, 17M012-1-03-F / 17M003-1-07-F (lab)	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL	Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)	No
	Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.	
	Qualifications applied?	Yes

Notes: Lab RPD = 25%; ok
Duplicate pair 17M003-1-06-F reported high RPD for PCE (56.5%); so PCE results in pair are "J" qualified.
Duplicate pair 17M012-1-03-F reported high RPD for trans-1,2-DCE (140.3%); so PCE results in pair are "J" qualified.

10.0 Sample Results		Finding
10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No
	Qualifications applied?	No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700259

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/27/2017 @ 0912
BFB 1/28/2017 @ 0336
BFB 1/31/2017 @ 1453
BFB 2/1/2017 @ 0801

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)
ICAL 1/31/2017; RSD < 30%
ICV 1/31/2017 @ 2139; %R ok

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/27/2017 @ 0930; %D < 30% for limited target analyte list
CCV 1/27/2017 @ 0930; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Four samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700259
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M003-1-06-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	0.11	0.1	9.5%	**Y**
1,1-DCA	0.016	0.016	0.0%	**Y**
trans-1,2-DCE	0.029	0.028	3.5%	**Y**
cis-1,2-DCE	0.052	0.047	10.1%	**Y**
TCE	0.66	0.73	10.1%	**Y**
PCE	**0.084**	**0.047**	**56.5%**	**No**

Parent Sample ID: 17M012-1-03-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
***trans*-1,2-DCE**	**0.079**	**0.45**	**140.3%**	**No**
cis-1,2-DCE	0.019	0.019	0.0%	**Y**
TCE	0.06	0.062	3.3%	**Y**
PCE	0.089	0.11	21.1%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700259
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170127	X		1/27/2017	Vinyl chloride	4.2	3.89	93%	93%	Y
LCS P170127	X		1/27/2017	*trans* -1,1-DCE	4.27	4.1	96%	96%	Y
LCS P170128	X		1/28/2017	*cis* -1,1-DCE	4.24	3.92	92%	92%	Y
LCS P170128	X		1/28/2017	TCE	4.25	3.86	91%	91%	Y
LCS P170201	X		2/1/2017	1,1-DCE	4.25	4.1	96%	96%	Y
LCS P170201	X		2/1/2017	1,1-DCA	4.25	4.18	98%	98%	Y
17M003-1-04-F		X	1/27/2017	1,2-DCA-d4	1000	901.94	90%	90%	Y
17M003-1-04-F		X	1/27/2017	Toluene-d8	1000	1006.265	101%	101%	Y
17M003-1-08-F		X	1/28/2017	Toluene-d8	1000	1017.307	102%	102%	Y
17M003-1-08-F		X	1/28/2017	1,2-DCA-d4	1000	913.694	91%	91%	Y
17M012-1-03-F		X	1/28/2017	1,2-DCA-d4	1000	918.994	92%	92%	Y
17M012-1-03-F		X	1/28/2017	Toluene-d8	1000	1032.057	103%	103%	Y
17M014-1-05-F		X	1/28/2017	1,2-DCA-d4	1000	923.245	92%	92%	Y
17M014-1-05-F		X	1/28/2017	Toluene-d8	1000	1128.585	113%	113%	Y
17M015-1-03-F		X	2/1/2017	1,2-DCA-d4	1000	991.711	99%	99%	Y
17M015-1-03-F		X	2/1/2017	Bromofluorobenzene	1000	1014.777	101%	102%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700259
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 2/1/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
Vinyl chloride	BCM	1910	43136	21	1000	2.10850	2.164	2.56%	Y
cis-1,2-DCE	BCM	533	43243	10	1000	1.23257	1.158	-6.44%	Y
trans-1,2-DCE	BCM	5113	45285	105	1000	1.07531	1.058	-1.64%	Y
PCE	1,4-DFB	3108	205331	52	1000	0.29109	0.285	-2.14%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700259
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 2/1/2017

Compound	Cs (µg/mL)	RF
Vinyl chloride	50000	1.677
Vinyl chloride	10000	1.767
Vinyl chloride	5000	1.854
Vinyl chloride	2000	1.955
Vinyl chloride	1000	2.274
Vinyl chloride	500	2.012
Vinyl chloride	100	2.063
Vinyl chloride	50	2.406
Vinyl chloride	20	2.164
Vinyl chloride	10	2.663
	Calc Avg RRF:	2.0835
	Rpt Avg RRF	2.084
	S:	0.302
	Recalc %RSD:	14.512
	Reported %RSD:	14.51

Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Continuing Calibration Verification

SDG: P1700259
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/18/2017
CCV Date 1/27/2017 @ 0930

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.23692	2.292	7.4%	5.1%	Y
1,1-DCE	1.083	1.07702	1.066	0.6%	1.6%	Y
trans-1,2-DCE	1.167	1.15957	1.139	0.6%	2.4%	Y
cis-1,2-DCE	1.225	1.22991	1.211	-0.4%	1.1%	Y
1,1-DCA	2.07	1.84001	1.891	11.1%	8.6%	Y
TCE	0.26	0.25881	0.256	0.5%	1.5%	Y
PCE	0.27	0.25764	0.254	4.6%	5.9%	Y

CCV Date 1/28/2017 @ 0354

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.10633	2.158	12.8%	10.6%	Y
1,1-DCE	1.083	1.06909	1.058	1.3%	2.3%	Y
trans-1,2-DCE	1.167	1.21564	1.194	-4.2%	-2.3%	Y
cis-1,2-DCE	1.225	1.22783	1.213	-0.2%	1.0%	Y
1,1-DCA	2.07	2.08545	2.143	-0.7%	-3.5%	Y
TCE	0.26	0.25353	0.251	2.5%	3.5%	Y
PCE	0.27	0.24897	0.246	7.8%	8.9%	Y

CCV Date 2/1/2017 @ 0819

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	1.89083	1.937	21.7%	7.1%	Y
1,1-DCE	1.083	1.00983	0.999	6.8%	6.3%	Y
trans-1,2-DCE	1.167	1.09297	1.074	6.3%	0.3%	Y
cis-1,2-DCE	1.225	1.15385	1.136	5.8%	2.1%	Y
1,1-DCA	2.07	1.76108	1.809	14.9%	3.2%	Y
TCE	0.26	0.25026	0.247	3.7%	3.5%	Y
PCE	0.27	0.26492	0.262	1.9%	4.0%	Y

Sample Result Quantitation Verification

SDG: P1700259
Validator: Stacie Wissler

Sample ID: 17M003-1-04-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	3788	51808	1000	2.488	=	0.0420	0.043	µg/m^3	-2.295%	**Y**
1,1-DCE	519	51808	1000	1.117	=	0.0128	0.013	µg/m^3	-1.356%	**Y**
trans-1,2-DCE	2555	51808	1000	1.2	=	0.0588	0.060	µg/m^3	-2.073%	**Y**
cis-1,2-DCE	3133	51808	1000	1.261	=	0.0686	0.071	µg/m^3	-3.471%	**Y**
1,1-DCA	2620	51808	1000	2.129	=	0.0340	0.0350	µg/m^3	-2.994%	**Y**
TCE	78287	251016	1000	0.267	=	1.6704	1.7	µg/m^3	-1.76%	**Y**
PCE	2750	251016	1000	0.277	=	0.0566	0.058	µg/m^3	-2.52%	**Y**

Sample ID: 17M003-1-08-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	4187	50454	1000	2.488	=	0.0504	0.052	µg/m^3	-3.193%	**Y**
1,1-DCE	1580	50454	1000	1.117	=	0.0423	0.044	µg/m^3	-3.860%	**Y**
trans-1,2-DCE	2625	50454	1000	1.2	=	0.0655	0.067	µg/m^3	-2.313%	**Y**
cis-1,2-DCE	8082	50454	1000	1.261	=	0.1918	0.200	µg/m^3	-4.177%	**Y**
1,1-DCA	3061	50454	1000	2.129	=	0.0430	0.0440	µg/m^3	-2.230%	**Y**
TCE	189124	243957	1000	0.267	=	4.3843	4.5	µg/m^3	-2.60%	**Y**
PCE	3523	243957	1000	0.277	=	0.0787	0.081	µg/m^3	-2.85%	**Y**

Sample ID: 17M012-1-03-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	3756	50944	1000	1.2	=	0.0768	0.079	µg/m^3	-2.824%	**Y**
cis-1,2-DCE	930	50944	1000	1.261	=	0.0181	0.019	µg/m^3	-4.873%	**Y**
TCE	3094	246244	1000	0.267	=	0.0588	0.06	µg/m^3	-1.98%	**Y**
PCE	4722	246244	1000	0.277	=	0.0865	0.089	µg/m^3	-2.81%	**Y**

Sample ID: 17M014-1-05-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1487	52667	1000	1.2	=	0.0426	0.044	µg/m^3	-3.265%	**Y**
1,1-DCA	1144	52667	1000	2.129	=	0.0185	0.019	µg/m^3	-2.847%	**Y**
cis-1,2-DCE	2407	52667	1000	1.261	=	0.0656	0.068	µg/m^3	-3.593%	**Y**
TCE	47063	258287	1000	0.267	=	1.2352	1.3	µg/m^3	-5.11%	**Y**
PCE	4215	258287	1000	0.277	=	0.1066	0.11	µg/m^3	-3.11%	**Y**

Sample ID:	17M015-1-03-F									
Analyte	**Asa**	**Ais**	**Ais Conc**	**ICAL RRF**		**Calculated**	**Reported**	**Units**	**% Diff**	**Acceptable?**
trans-1,2-DCE	1795	46867	1000	1.077	=	0.0629	0.063	µg/m^3	-0.089%	**Y**
1,1-DCA	767	46867	1000	1.869	=	0.0155	0.016	µg/m^3	-3.184%	**Y**
cis-1,2-DCE	1750	46867	1000	1.16	=	0.0570	0.057	µg/m^3	-0.043%	**Y**
TCE	31311	227438	1000	0.256	=	0.9518	0.95	µg/m^3	0.19%	**Y**
PCE	2541	227438	1000	0.273	=	0.0724	0.072	µg/m^3	0.60%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/10/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700260
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 24 air samples in this SDG

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — 2/10/2017
Printed Name — Signature — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	No

Reviewer: Stacie Wissler
Date: 10-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700260
Matrix: Air

3.0 Holding Time — QC Batch(es): P170124, P170125

Sampled: 01/15-16/17 Analyzed: 01/24-25/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])
Soil/Sediment	14 days	40 days
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg
Air/Soil Vapor	--	30 days (Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
24 air samples

4.0 Blanks (Method Blanks and Field Blanks) — QC Batch(es): P170124, P170125

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA

Types of field QC blanks: None — Qualifications applied? No

Notes: MBs (2)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery — QC Batch(es): P170124, P170125

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700260

6.0 Internal Standards — QC Batch(es): P170124, P170125 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170124, P170125 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?		No
7.2	Are MS/MSD analyzed at the appropriate frequency?		NA
7.3	Was a project sample used for MS/MSD? If so, what sample?		NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?		NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170124, P170125 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?		Yes
8.2	Is LCS analyzed at the required frequency for each matrix?		Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R		Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____		Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170124, P170125 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M015-1-03-F *, 17M016-1-03-F / 17M510-1-03-F (lab)	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		Yes

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? Yes

Notes: Lab RPD = 25%; ok
* NOTE = Results for sample 17M015-1--03-F were reported in SDG P1700259, but calculated in this worksheet.

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700260

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/25/2017 @ 1950
BFB 1/25/2017 @ 1518

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 30%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/24/2017 @ 2010; %D < 30% for limited target analyte list
CCV 1/25/2017 @ 1536; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Four samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700260
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M015-1-03-F (SDG P1700259) **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	0.016	0.012	28.6%	**Y**
trans-1,2-DCE	0.063	0.054	15.4%	**Y**
cis-1,2-DCE	0.057	0.048	17.1%	**Y**
TCE	0.95	0.88	7.7%	**Y**
PCE	0.072	0.062	14.9%	**Y**

Parent Sample ID: 17M016-1-03-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	0.021	0.018	15.4%	**Y**
trans-1,2-DCE	0.036	0.038	5.4%	**Y**
cis-1,2-DCE	0.16	0.16	0.0%	**Y**
TCE	0.79	0.77	2.6%	**Y**
PCE	0.16	0.17	6.1%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700260
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170124	X		1/24/2017	trans-1,2-DCE	4.27	3.88	91%	91%	Y
LCS P170124	X		1/24/2017	TCE	4.25	3.91	92%	92%	Y
LCS P170125	X		1/25/2017	1,1-DCA	4.25	3.32	78%	78%	Y
LCS P170125	X		1/25/2017	PCE	4.25	3.42	80%	80%	Y
17M016-1-03-F		X	1/25/2017	1,2-DCA-d4	1000	897.944	90%	90%	Y
17M016-1-03-F		X	1/25/2017	Bromofluorobenzene	1000	1157.817	116%	116%	Y
17M107-1-02-F		X	1/25/2017	Toluene-d8	1000	1004.163	100%	101%	Y
17M107-1-02-F		X	1/25/2017	1,2-DCA-d4	1000	899.832	90%	90%	Y
17M555-1-01-F		X	1/25/2017	Bromofluorobenzene	1000	1153.099	115%	115%	Y
17M555-1-01-F		X	1/25/2017	Toluene-d8	1000	1021.856	102%	102%	Y
17N210-G-03-F		X	1/25/2017	1,2-DCA-d4	1000	878.56	88%	88%	Y
17N210-G-03-F		X	1/25/2017	Bromofluorobenzene	1000	1052.901	105%	105%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700260
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
1,1-DCA	1,4-DFB	2353	43076	21	1000	2.60116	2.678	2.87%	Y
Vinyl chloride	1,4-DFB	6403	42312	52	1000	2.91016	2.959	1.65%	Y
trans-1,2-DCE	1,4-DFB	25773	44783	524	1000	1.09830	1.079	-1.79%	Y
cis-1,2-DCE	1,4-DFB	58195	41854	1047	1000	1.32801	1.307	-1.61%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700260
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF		
1,1-DCA	50000	2.375		
1,1-DCA	10000	1.807		
1,1-DCA	5000	1.898		
1,1-DCA	2000	2.02		
1,1-DCA	1000	2.258		
1,1-DCA	500	1.978		
1,1-DCA	100	1.95		
1,1-DCA	50	2.2		
1,1-DCA	20	2.678		
	Calc Avg RRF:	2.1293		
	Rpt Avg RRF	2.129		
	S:	0.276		
	Recalc %RSD:	12.940	**Acceptable?**	**%RSD ≤ 30%**
	Reported %RSD:	12.93	Y	

GC/MS Continuing Calibration Verification

SDG: P1700260
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/18/2017
CCV Date 1/24/2017 @ 2010

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	1.9785	2.027	18.1%	16.1%	**Y**
1,1-DCE	1.083	0.94671	0.937	12.6%	13.5%	**Y**
trans-1,2-DCE	1.167	1.03114	1.013	11.6%	13.2%	**Y**
cis-1,2-DCE	1.225	1.08922	1.073	11.1%	12.4%	**Y**
1,1-DCA	2.07	1.61339	1.658	22.1%	19.9%	**Y**
TCE	0.26	0.22888	0.226	12.0%	13.1%	**Y**
PCE	0.27	0.23034	0.228	14.7%	15.6%	**Y**

CCV Date 1/25/2017 @ 1536

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.03025	2.08	15.9%	8.7%	**Y**
1,1-DCE	1.083	0.97738	0.967	9.8%	10.7%	**Y**
trans-1,2-DCE	1.167	1.06173	1.043	9.0%	10.6%	**Y**
cis-1,2-DCE	1.225	1.11672	1.1	8.8%	10.2%	**Y**
1,1-DCA	2.07	1.67886	1.725	18.9%	16.7%	**Y**
TCE	0.26	0.23332	0.231	10.3%	11.3%	**Y**
PCE	0.27	0.23324	0.23	13.6%	14.8%	**Y**

Sample Result Quantitation Verification

SDG: P1700260
Validator: Stacie Wissler

Sample ID: 17M016-1-03-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1262	43391	1000	1.2	=	0.0351	0.036	µg/m^3	-2.407%	**Y**
cis-1,2-DCE	6005	43391	1000	1.261	=	0.1591	0.160	µg/m^3	-0.542%	**Y**
1,1-DCA	1311	43391	1000	2.129	=	0.0206	0.021	µg/m^3	-2.032%	**Y**
TCE	29217	207162	1000	0.267	=	0.7659	0.79	µg/m^3	-3.10%	**Y**
PCE	6077	207162	1000	0.277	=	0.1536	0.16	µg/m^3	-4.11%	**Y**

Sample ID: 17M107-1-02-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1032	41586	1000	1.2	=	0.0285	0.029	µg/m^3	-1.604%	**Y**
cis-1,2-DCE	568	41586	1000	1.261	=	0.0149	0.015	µg/m^3	-0.351%	**Y**
TCE	2135	196350	1000	0.267	=	0.0562	0.058	µg/m^3	-3.15%	**Y**
PCE	1835	196350	1000	0.277	=	0.0466	0.048	µg/m^3	-3.05%	**Y**

Sample ID: 17M555-1-01-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1431	42269	1000	2.488	=	0.0204	0.021	µg/m^3	-2.846%	**Y**
trans-1,2-DCE	1699	42269	1000	1.2	=	0.0502	0.052	µg/m^3	-3.436%	**Y**
1,1-DCA	1900	42269	1000	2.129	=	0.0317	0.033	µg/m^3	-4.113%	**Y**
cis-1,2-DCE	15533	42269	1000	1.261	=	0.4371	0.450	µg/m^3	-2.902%	**Y**
TCE	26999	203734	1000	0.267	=	0.7445	0.76	µg/m^3	-2.06%	**Y**
PCE	4408	203734	1000	0.277	=	0.1172	0.12	µg/m^3	-2.39%	**Y**

Sample ID: 17N210-G-03-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1699	45068	1000	1.2	=	0.0446	0.046	µg/m^3	-3.068%	**Y**
1,1-DCA	6296	45068	1000	2.129	=	0.0932	0.096	µg/m^3	-2.984%	**Y**
cis-1,2-DCE	4308	45068	1000	1.261	=	0.1076	0.110	µg/m^3	-2.167%	**Y**
TCE	22632	231047	1000	0.267	=	0.5210	0.54	µg/m^3	-3.59%	**Y**
PCE	4554	231047	1000	0.277	=	0.1010	0.1	µg/m^3	1.04%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/12/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700261
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 19 air samples in this SDG

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — Printed Name
Signature
2/12/2017 — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	No

Reviewer: Stacie Wissler
Date: 12-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700261
Matrix: Air

3.0 Holding Time — QC Batch(es): P170125, P170127

Sampled: 01/15/17 Analyzed: 01/26-27/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
19 air samples

4.0 Blanks (Method Blanks and Field Blanks) — QC Batch(es): P170125, P170127

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (2)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery — QC Batch(es): P170125, P170127

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700261

6.0 Internal Standards — QC Batch(es): P170125, P170127 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint = ok

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170125, P170127 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170125, P170127 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170125, P170127 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17N239A-1-10-F, 17N243-B-07-F	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		Yes

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? No

Notes: Lab RPD = 25%; ok
17N239A-1-09-F and 17N243-1-01-F were used for laboratory duplicates, ok RPDs
Duplicate pair 17N243-B-07-F had high RPD for trans-1,2-DCE (45.4%) = "J" qualify 1,1-DCA results in duplicate pair

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700261

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/25/2017 @ 1518
BFB 1/27/2017 @ 0912

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 25%
ICV 1/18/2017 @1023; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/25/2017 @ 1536; %D < 20% for limited target analyte list
CCV 1/27/2017 @ 0930; %D < 20% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Four samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700261
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17N239A-1-10-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	0.015	0.012	22.2%	**Y**
1,1-DCE	0.013	--	NA	**Y**
1,1-DCA	0.013	0.012	8.0%	**Y**
trans-1,2-DCE	0.08	0.085	6.1%	**Y**
cis-1,2-DCE	0.24	0.21	13.3%	**Y**
TCE	0.95	0.85	11.1%	**Y**
PCE	0.11	0.12	8.7%	**Y**

Parent Sample ID: 17N243-B-07-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	0.017	0.02	16.2%	**Y**
1,1-DCE	0.014	0.016	13.3%	**Y**
1,1-DCA	0.016	0.017	6.1%	**Y**
***trans*-1,2-DCE**	**0.063**	**0.1**	**45.4%**	**No**
cis-1,2-DCE	0.25	0.28	11.3%	**Y**
TCE	0.75	0.81	7.7%	**Y**
PCE	0.44	0.44	0.0%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700261
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170125	X		1/25/2017	Vinyl chloride	4.2	3.42	81%	81%	Y
LCS P170125	X		1/25/2017	*trans* -1,1-DCE	4.27	3.54	83%	83%	Y
LCS P170127	X		1/27/2017	*cis* -1,1-DCE	4.24	4.12	97%	97%	Y
LCS P170127	X		1/27/2017	TCE	4.25	4.04	95%	95%	Y
17N239A-B-01-F		X	1/25/2017	1,2-DCA-d4	1000	881.828	88%	88%	Y
17N239A-B-01-F		X	1/25/2017	Toluene-d8	1000	1006.675	101%	101%	Y
17N239A-1-10-F		X	1/27/2017	Toluene-d8	1000	1013.365	101%	101%	Y
17N239A-1-10-F		X	1/27/2017	Bromofluorobenzene	1000	1146.403	115%	115%	Y
17N243-B-02-F		X	1/27/2017	1,2-DCA-d4	1000	906.877	91%	91%	Y
17N243-B-02-F		X	1/27/2017	Toluene-d8	1000	1016.104	102%	102%	Y
17N243-B-07-F		X	1/27/2017	1,2-DCA-d4	1000	888.811	89%	88%	Y
17N243-B-07-F		X	1/27/2017	Bromofluorobenzene	1000	1080.531	108%	108%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700261
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 1/18/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
TCE	1,4-DFB	1358	191402	21	1000	0.33786	0.381	11.32%	Y
PCE	BCM	2790	190926	52	1000	0.28102	0.275	-2.19%	Y
1,1-DCA	BCM	45178	44783	524	1000	1.92523	1.978	2.67%	Y
1,1-DCE	BCM	51989	41854	1047	1000	1.18639	1.173	-1.14%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700261
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 1/18/2017

Compound	Cs (µg/mL)	RF		
TCE	50000	0.293		
TCE	10000	0.208		
TCE	5000	0.213		
TCE	2000	0.232		
TCE	1000	0.261		
TCE	500	0.232		
TCE	100	0.237		
TCE	50	0.277		
TCE	20	0.335		
TCE	10	0.381		
	Calc Avg RRF:	0.2669		
	Rpt Avg RRF	0.267		
	S:	0.056		
	Recalc %RSD:	20.965	**Acceptable?**	**%RSD ≤ 30%**
	Reported %RSD:	20.95	Y	

GC/MS Continuing Calibration Verification

SDG: P1700261
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/18/2017
CCV Date 1/25/2017 @ 1536

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.03025	2.08	15.9%	8.7%	**Y**
1,1-DCE	1.083	0.97738	0.967	9.8%	10.7%	**Y**
trans-1,2-DCE	1.167	1.06173	1.043	9.0%	10.6%	**Y**
cis-1,2-DCE	1.225	1.11672	1.1	8.8%	10.2%	**Y**
1,1-DCA	2.07	1.67886	1.725	18.9%	16.7%	**Y**
TCE	0.26	0.23332	0.231	10.3%	11.3%	**Y**
PCE	0.27	0.23324	0.23	13.6%	14.8%	**Y**

CCV Date 1/27/2017 @ 0930

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	2.23692	2.292	7.4%	5.1%	**Y**
1,1-DCE	1.083	1.07702	1.066	0.6%	1.6%	**Y**
trans-1,2-DCE	1.167	1.15957	1.139	0.6%	2.4%	**Y**
cis-1,2-DCE	1.225	1.22991	1.211	-0.4%	1.1%	**Y**
1,1-DCA	2.07	1.84001	1.891	11.1%	8.6%	**Y**
TCE	0.26	0.25881	0.256	0.5%	1.5%	**Y**
PCE	0.27	0.25764	0.254	4.6%	5.9%	**Y**

Sample Result Quantitation Verification

SDG: P1700261
Validator: Stacie Wissler

Sample ID: 17N239A-B-01-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1744	47179	1000	1.2	=	0.0404	0.041	µg/m^3	-1.588%	**Y**
cis-1,2-DCE	1559	47179	1000	1.261	=	0.0343	0.035	µg/m^3	-1.937%	**Y**
1,1-DCA	682	47179	1000	2.129	=	0.0089	0.0091	µg/m^3	-2.282%	**Y**
TCE	12881	225174	1000	0.267	=	0.2807	0.29	µg/m^3	-3.27%	**Y**
PCE	4096	225174	1000	0.277	=	0.0860	0.088	µg/m^3	-2.27%	**Y**

Sample ID: 17N239A-1-10-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1269	52115	1000	2.488	=	0.0144	0.015	µg/m^3	-4.173%	**Y**
1,1-DCE	504	52115	1000	1.117	=	0.0127	0.013	µg/m^3	-2.121%	**Y**
trans-1,2-DCE	3306	52115	1000	1.2	=	0.0777	0.080	µg/m^3	-2.904%	**Y**
cis-1,2-DCE	10525	52115	1000	1.261	=	0.2354	0.240	µg/m^3	-1.923%	**Y**
TCE	41978	249466	1000	0.267	=	0.9264	0.95	µg/m^3	-2.51%	**Y**
PCE	5129	249466	1000	0.277	=	0.1091	0.11	µg/m^3	-0.81%	**Y**

Sample ID: 17N243-B-02-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	2324	50725	1000	1.2	=	0.0588	0.060	µg/m^3	-2.026%	**Y**
cis-1,2-DCE	1342	50725	1000	1.261	=	0.0323	0.033	µg/m^3	-2.113%	**Y**
TCE	3146	242728	1000	0.267	=	0.0748	0.077	µg/m^3	-2.96%	**Y**
PCE	3537	242728	1000	0.277	=	0.0810	0.083	µg/m^3	-2.42%	**Y**

Sample ID: 17N243-B-07-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1346	50384	1000	2.488	=	0.0161	0.017	µg/m^3	-5.400%	**Y**
1,1-DCE	518	50384	1000	1.117	=	0.014	0.014	µg/m^3	-1.394%	**Y**
trans-1,2-DCE	2470	50384	1000	1.2	=	0.061	0.063	µg/m^3	-2.769%	**Y**
1,1-DCA	1096	50384	1000	2.129	=	0.015	0.016	µg/m^3	-4.302%	**Y**
cis-1,2-DCE	10464	50384	1000	1.261	=	0.247	0.250	µg/m^3	-1.188%	**Y**
TCE	30592	235478	1000	0.267	=	0.730	0.75	µg/m^3	-2.72%	**Y**
PCE	18658	235478	1000	0.277	=	0.429	0.44	µg/m^3	-2.52%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/13/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700262
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 24 air samples in this SDG

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — 2/13/2017
Printed Name — Signature — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	Yes

Reviewer: Stacie Wissler
Date: 13-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700262
Matrix: Air

3.0 Holding Time

QC Batch(es): P170128, P170202

Sampled: 01/15-16/17 Analyzed: 01/28-29/2017, 2/2/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
24 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170128, P170202

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (2)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170128, P170202

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	No
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.
Sample 17N210-1-04-F reported high %R (163%) for bromofluorobenzene; however, this surrogate is not associated with target analytes applied.

Project #: PO 16104 SDG: P1700262

6.0 Internal Standards	QC Batch(es): P170128, P170202	Finding
6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing	No

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes
	Action : if > RT 30 seconds of continuing calibration, R qualify data.	
	Qualifications applied?	No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint
Sample 17M310-1-10-F reported high recovery of Chlorobenzene-d5; however, this internal standard is not associated with the target analytes, no qualifications applied.

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)	QC Batch(es): P170128, P170202	Finding
7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA
	Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____	
	No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.	
	Qualifications applied?	No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS)	QC Batch(es): P170128, P170202	Finding
8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0____%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

	Qualifications applied?	No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples	QC Batch(es): P170128, P170202	Finding
9.1	Were any field or laboratory duplicates included for analysis?	Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17N210-1-10-F, 17N239-1-07-F	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL	Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)	No
	Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.	
	Qualifications applied?	Yes

Notes: Lab RPD = 25%; ok
Duplicate pair 17N210-1-10-F reported high RPD for PCE (69.8%); no qualifications due to result below the LOQ.
Duplicate pair 17N239-1-07-F reported high RPD for trans-1,2-DCE (80.7%); so PCE results in pair are "J" qualified. (pg 29, 31)

10.0 Sample Results		Finding
10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No
	Qualifications applied?	No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value
D = sample result reported based on a dilution; no qualifications applied
Some samples required dilutions due to elevated concentrations of target analytes.

Project #: PO 16104 SDG: P1700262

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 1/28/2017 @ 1811
BFB 2/02/2017 @ 0236

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/18/2017; RSD < 25%
ICV 1/18/2017 @1023; %R ok (70-130%)
ICAL 1/31/2017; RSD < 25%
ICV 1/31/2017 @ 2139; %R ok (70-130%)

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 1/28/2017 @ 1829; %D < 20% for limited target analyte list, except vinyl chloride (22.9 %D), low bias = "J"/"UJ" sample results
CCV 2/02/2017 @ 0254; %D < 20% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Five samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700262
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17N210-1-10-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	--	0.01	NA	**Y**
trans-1,2-DCE	0.029	0.031	6.7%	**Y**
cis-1,2-DCE	0.054	0.053	1.9%	**Y**
TCE	0.85	0.96	12.2%	**Y**
PCE	**0.041**	**0.085**	**69.8%**	**No**

Parent Sample ID: 17N239-1-07-F **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	0.0098	--	NA	**Y**
***trans*-1,2-DCE**	**0.068**	**0.16**	**80.7%**	**No**
cis-1,2-DCE	0.06	0.079	27.3%	**Y**
TCE	0.15	0.14	6.9%	**Y**
PCE	0.064	0.085	28.2%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700262
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170128	X		1/28/2017	1,1-DCE	4.25	3.98	94%	94%	Y
LCS P170128	X		1/28/2017	1,1-DCA	4.25	3.73	88%	88%	Y
LCS P170202	X		2/2/2017	TCE	4.25	4.18	98%	98%	Y
LCS P170202	X		2/2/2017	PCE	4.25	4.08	96%	96%	Y
17N210-1-07-F		X	1/28/2017	1,2-DCA-d4	1000	932.275	93%	93%	Y
17N210-1-07-F		X	1/28/2017	Toluene-d8	1000	1016.737	102%	102%	Y
17N210-1-10-F		X	1/28/2017	Toluene-d8	1000	757.922	76%	76%	Y
17N210-1-10-F		X	1/28/2017	Bromofluorobenzene	1000	1106.544	111%	111%	Y
17N243A-B-01-F		X	1/28/2017	1,2-DCA-d4	1000	922.634	92%	92%	Y
17N243A-B-01-F		X	1/28/2017	Toluene-d8	1000	1030.403	103%	103%	Y
17N239-G-04-F		X	2/2/2017	1,2-DCA-d4	1000	1059.482	106%	106%	Y
17N239-G-04-F		X	2/2/2017	Toluene-d8	1000	1018.434	102%	102%	Y
17N239-1-07-F		X	2/2/2017	1,2-DCA-d4	1000	1054.711	105%	106%	Y
17N239-1-07-F		X	2/2/2017	Bromofluorobenzene	1000	971.933	97%	97%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700262
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 1/31/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
TCE	1,4-DFB	5856	222412	105	1000	0.25076	0.248	-1.11%	Y
PCE	1,4-DFB	3108	205331	52	1000	0.29109	0.285	-2.14%	Y
cis-1,2-DCE	BCM	991	43136	21	1000	1.09399	1.08	-1.30%	Y
1,1-DCE	BCM	487	43243	10	1000	1.12619	1.063	-5.94%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700262
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 1/31/2017

Compound	Cs (µg/mL)	RF
TCE	50000	0.238
TCE	10000	0.223
TCE	5000	0.234
TCE	2000	0.247
TCE	1000	0.283
TCE	500	0.249
TCE	100	0.248
TCE	50	0.272
TCE	20	0.294
TCE	10	0.268
	Calc Avg RRF:	0.2556
	Rpt Avg RRF	0.256
	S:	0.023
	Recalc %RSD:	8.905
	Reported %RSD:	8.9

Acceptable?
Y

GC/MS Continuing Calibration Verification

SDG: P1700262
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/18/2017
CCV Date 1/28/2017 @ 1829

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.415	1.81644	1.861	24.8%	22.9%	**Y**
1,1-DCE	1.083	0.95987	0.95	11.4%	12.3%	**Y**
trans-1,2-DCE	1.167	1.14216	1.122	2.1%	3.9%	**Y**
cis-1,2-DCE	1.225	1.21364	1.195	0.9%	2.4%	**Y**
1,1-DCA	2.07	1.87298	1.925	9.5%	2.4%	**Y**
TCE	0.26	0.25023	0.247	3.8%	5.0%	**Y**
PCE	0.27	0.24984	0.247	7.5%	8.5%	**Y**

Cal Date 1/31/2017
CCV Date 2/2/2017 @ 0254

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.084	1.93498	1.982	7.2%	4.9%	**Y**
1,1-DCE	1.066	1.00398	0.994	5.8%	6.8%	**Y**
trans-1,2-DCE	1.077	1.09137	1.072	-1.3%	0.5%	**Y**
cis-1,2-DCE	1.122	1.13922	1.122	-1.5%	3.3%	**Y**
1,1-DCA	1.81	1.76153	1.81	2.7%	3.2%	**Y**
TCE	0.256	0.24808	0.245	3.1%	4.3%	**Y**
PCE	0.273	0.25929	0.256	5.0%	6.2%	**Y**

Sample Result Quantitation Verification

SDG: P1700262
Validator: Stacie Wissler

Sample ID: 17N210-1-07-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1655	47734	1000	2.488	=	0.0252	0.026	µg/m^3	-3.033%	**Y**
1,1-DCE	603	47734	1000	1.117	=	0.0205	0.021	µg/m^3	-2.557%	**Y**
trans-1,2-DCE	1097	47734	1000	1.2	=	0.0347	0.036	µg/m^3	-3.782%	**Y**
cis-1,2-DCE	10364	47734	1000	1.261	=	0.3116	0.32	µg/m^3	-2.645%	**Y**
1,1-DCA	1394	47734	1000	2.129	=	0.0248	0.03	µg/m^3	-4.613%	**Y**
TCE	42105	228226	1000	0.267	=	1.2507	1.3	µg/m^3	-3.87%	**Y**
PCE	2176	228226	1000	0.277	=	0.0623	0.064	µg/m^3	-2.69%	**Y**

Sample ID: 17N210-1-10-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	991	48798	1000	1.2	=	0.0281	0.029	µg/m^3	-3.177%	**Y**
cis-1,2-DCE	1929	48798	1000	1.261	=	0.0520	0.054	µg/m^3	-3.700%	**Y**
TCE	42088	317978	1000	0.267	=	0.8229	0.85	µg/m^3	-3.24%	**Y**
PCE	2139	317978	1000	0.277	=	0.0403	0.041	µg/m^3	-1.69%	**Y**

Sample ID: 17N243A-B-01-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	3057	47448	1000	2.488	=	0.0373	0.038	µg/m^3	-1.887%	**Y**
trans-1,2-DCE	1994	47448	1000	1.2	=	0.0504	0.052	µg/m^3	-3.066%	**Y**
cis-1,2-DCE	20560	47448	1000	1.261	=	0.4948	0.510	µg/m^3	-3.020%	**Y**
1,1-DCA	1360	47448	1000	2.129	=	0.0194	0.02	µg/m^3	-3.113%	**Y**
TCE	5116	228388	1000	0.267	=	0.1208	0.12	µg/m^3	0.67%	**Y**
PCE	4781	228388	1000	0.277	=	0.1088	0.11	µg/m^3	-1.07%	**Y**

Sample ID: 17N239-G-04-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	1582	40670	1000	2.084	=	0.0261	0.026	µg/m^3	0.504%	**Y**
1,1-DCE	553	40670	1000	1.066	=	0.0179	0.018	µg/m^3	-0.795%	**Y**
trans-1,2-DCE	2786	40670	1000	1.077	=	0.0890	0.089	µg/m^3	0.053%	**Y**
1,1-DCA	1430	40670	1000	1.869	=	0.0263	0.026	µg/m^3	1.291%	**Y**
cis-1,2-DCE	12027	40670	1000	1.16	=	0.3569	0.36	µg/m^3	-0.863%	**Y**
TCE	29307	197229	1000	0.256	=	0.8126	0.81	µg/m^3	0.32%	**Y**
PCE	7704	197229	1000	0.273	=	0.2003	0.2	µg/m^3	0.16%	**Y**

Sample ID:	17N239-1-07-F									
Analyte	**Asa**	**Ais**	**Ais Conc**	**ICAL RRF**		**Calculated**	**Reported**	**Units**	**% Diff**	**Acceptable?**
trans-1,2-DCE	2445	40476	1000	1.077	=	0.0679	0.068	µg/m^3	-0.198%	**Y**
1,1-DCA	614	40476	1000	1.869	=	0.0098	0.010	µg/m^3	0.212%	**Y**
cis-1,2-DCE	2337	40476	1000	1.16	=	0.0602	0.06	µg/m^3	0.377%	**Y**
TCE	6204	196875	1000	0.256	=	0.1489	0.15	µg/m^3	-0.71%	**Y**
PCE	2852	196875	1000	0.273	=	0.0642	0.064	µg/m^3	0.32%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/13/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700288
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 20 air samples in this SDG

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — Printed Name
Signature
2/13/2017 — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	Yes

Reviewer: Stacie Wissler
Date: 13-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700288
Matrix: Air

3.0 Holding Time

QC Batch(es): P170202, P170206, P170207

Sampled: 01/18/17 Analyzed: 2/2/2017, 2/6/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
20 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170202, P170206, P170207

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (3)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170202, P170206, P170207

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700288

6.0 Internal Standards — QC Batch(es): P170202, P170206, P170207 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170202, P170206, P170207 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170202, P170206, P170207 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170202, P170206, P170207 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M013-1-02, 17M555-1-03-N, 17M016-1-02-N	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		No

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? Yes

Notes: No laboratory duplicate
Duplicate pair 17M016-1-02-N reported high RPD for TCE (174.7%); so TCE results in pair are "J" qualified.

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	No

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value

Project #: PO 16104 SDG: P1700288

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 2/02/2017 @ 0236
BFB 2/06/2017 @ 0810
BFB 2/07/2017 @ 0236

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 1/31/2017; RSD < 30%
ICV 1/31/2017 @ 2139; %R ok
ICAL 2/3/2017; RSD < 30%
ICV 2/3/2017 @ 2106; %R ok

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias — J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias — J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 2/02/2017 @ 0254; %D < 30% for limited target analyte list
CCV 2/06/2017 @ 0828; %D < 30% for limited target analyte list
CCV 2/07/2017 @ 0254; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value?	Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Three samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700288
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M013-1-02 **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
cis-1,2-DCE	0.013	--	NA	**Y**
TCE	0.049	0.039	22.7%	**Y**
PCE	0.034	0.032	6.1%	**Y**

Parent Sample ID: 17M555-1-01-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	0.011	--	NA	**Y**
trans-1,2-DCE	0.019	--	NA	**Y**
cis-1,2-DCE	0.069	--	NA	**Y**
TCE	0.21	0.16	27.0%	**Y**
PCE	0.059	--	NA	**Y**

Parent Sample ID: 17M016-1-02-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
1,1-DCA	--	0.017	NA	**Y**
cis-1,2-DCE	--	0.025	NA	**Y**
TCE	**0.029**	**0.43**	**174.7%**	**No**
PCE	0.18	0.099	58.1%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170202	X		2/2/2017	Vinyl chloride	4.2	4.15	99%	99%	Y
LCS P170202	X		2/2/2017	TCE	4.25	4.18	98%	98%	Y
LCS P170206	X		2/6/2017	1,1-DCE	4.25	4.22	99%	99%	Y
LCS P170206	X		2/6/2017	PCE	4.25	4.22	99%	99%	Y
LCS P170207	X		2/7/2017	*cis*-1,2-DCE	4.24	4.19	99%	99%	Y
LCS P170207	X		2/7/2017	*trans*-1,2-DCE	4.27	4.19	98%	98%	Y
17M555-1-01-N		X	2/2/2017	1,2-DCA-d4	1000	978.931	98%	98%	Y
17M555-1-01-N		X	2/2/2017	Toluene-d8	1000	1005.092	101%	101%	Y
17M016-1-02-N		X	2/6/2017	Toluene-d8	1000	1029.073	103%	103%	Y
17M016-1-02-N		X	2/6/2017	Bromofluorobenzene	1000	1017.806	102%	102%	Y
17M016-1-05-N		X	2/6/2017	1,2-DCA-d4	1000	992.646	99%	99%	Y
17M016-1-05-N		X	2/6/2017	Toluene-d8	1000	996.961	100%	100%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 1/31/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
trans-1,2-DCE	BCM	5113	45285	105	1000	1.07531	1.058	-1.64%	Y
1,1-DCA	BCM	1858	43136	21	1000	2.05110	2.111	2.84%	Y
cis-1,2-DCE	BCM	2774	41753	52	1000	1.27766	1.249	-2.29%	Y
PCE	1,4-DFB	622	212631	10	1000	0.29253	0.276	-5.99%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 1/31/2017

Compound	Cs (µg/mL)	RF
trans-1,2-DCE	50000	1.009
trans-1,2-DCE	10000	1.012
trans-1,2-DCE	5000	1.06
trans-1,2-DCE	2000	1.103
trans-1,2-DCE	1000	1.246
trans-1,2-DCE	500	1.085
trans-1,2-DCE	100	1.058
trans-1,2-DCE	50	1.026
trans-1,2-DCE	20	1.096
trans-1,2-DCE	10	1.075
	Calc Avg RRF:	1.0770
	Rpt Avg RRF	1.077
	S:	0.068
	Recalc %RSD:	6.325
	Reported %RSD:	6.31

Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Initial Calibration - Single Point Verification

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 2/3/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
1,1-DCA	BCM	1001	49044	10	1000	2.04102	2.001	-2.00%	Y
Vinyl chloride	BCM	2233	48491	21	1000	2.19285	2.251	2.58%	Y
TCE	1,4-DFB	2898	230528	52	1000	0.24175	0.237	-2.01%	Y
PCE	1,4-DFB	1213	240179	21	1000	0.24050	0.238	-1.05%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 2/3/2017

Compound	Cs (µg/mL)	RF
1,1-DCA	50000	1.814
1,1-DCA	10000	1.901
1,1-DCA	5000	1.966
1,1-DCA	2000	2.084
1,1-DCA	1000	2.261
1,1-DCA	500	1.948
1,1-DCA	100	1.872
1,1-DCA	50	2.005
1,1-DCA	20	1.988
1,1-DCA	10	2.001
	Calc Avg RRF:	1.9840
	Rpt Avg RRF	1.984
	S:	0.124
	Recalc %RSD:	6.228
	Reported %RSD:	6.23

Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Continuing Calibration Verification

SDG: P1700288
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 1/31/2017
CCV Date 2/2/2017 @ 0254

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.084	1.93498	1.982	7.2%	4.9%	**Y**
1,1-DCE	1.066	1.00398	0.994	5.8%	6.8%	**Y**
trans-1,2-DCE	1.077	1.09137	1.072	-1.3%	0.5%	**Y**
cis-1,2-DCE	1.122	1.13922	1.122	-1.5%	3.3%	**Y**
1,1-DCA	1.81	1.76153	1.81	2.7%	3.2%	**Y**
TCE	0.256	0.24808	0.245	3.1%	4.3%	**Y**
PCE	0.273	0.25929	0.256	5.0%	6.2%	**Y**

Cal Date 2/3/2017
CCV Date 2/6/2017 @ 0828

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.179	1.95623	2.004	10.2%	8.0%	**Y**
1,1-DCE	1.068	1.00112	0.991	6.3%	7.2%	**Y**
trans-1,2-DCE	1.109	1.08054	1.061	2.6%	4.3%	**Y**
cis-1,2-DCE	1.188	1.14885	1.132	3.3%	4.7%	**Y**
1,1-DCA	1.984	1.78103	1.83	10.2%	7.8%	**Y**
TCE	0.242	0.23481	0.232	3.0%	4.1%	**Y**
PCE	0.252	0.23918	0.236	5.1%	6.3%	**Y**

Cal Date 2/3/2017
CCV Date 2/7/2017 @ 0254

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.179	1.86311	1.909	14.5%	12.4%	**Y**
1,1-DCE	1.068	0.96684	0.957	9.5%	10.4%	**Y**
trans-1,2-DCE	1.109	1.03688	1.018	6.5%	8.2%	**Y**
cis-1,2-DCE	1.188	1.09816	1.082	7.6%	8.9%	**Y**
1,1-DCA	1.984	1.65769	1.703	16.4%	14.2%	**Y**
TCE	0.242	0.22958	0.227	5.1%	6.2%	**Y**
PCE	0.252	0.24194	0.239	4.0%	5.2%	**Y**

Sample Result Quantitation Verification

SDG: P1700288
Validator: Stacie Wissler

Sample ID: 17M555-1-03-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	762	55348	1000	1.077	=	0.0194	0.019	µg/m^3	2.240%	**Y**
cis-1,2-DCE	3003	55348	1000	1.16	=	0.0711	0.07	µg/m^3	2.991%	**Y**
1,1-DCA	791	55348	1000	1.869	=	0.0116	0.01	µg/m^3	5.506%	**Y**
TCE	8807	270055	1000	0.256	=	0.1936	0.21	µg/m^3	-8.11%	**Y**
PCE	2634	270055	1000	0.273	=	0.0543	0.059	µg/m^3	-8.29%	**Y**

Sample ID: 17M016-1-02-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
TCE	1109	261610	1000	0.242	=	0.0286	0.029	µg/m^3	-1.55%	**Y**
PCE	7156	261610	1000	0.252	=	0.1769	0.18	µg/m^3	-1.72%	**Y**

Sample ID: 17M016-1-05-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	893	59917	1000	1.109	=	0.0189	0.019	µg/m^3	-0.268%	**Y**
cis-1,2-DCE	1502	59917	1000	1.188	=	0.0298	0.030	µg/m^3	-0.829%	**Y**
1,1-DCA	876	59917	1000	1.869	=	0.011	0.01	µg/m^3	9.793%	**Y**
TCE	14234	306348	1000	0.242	=	0.2707	0.27	µg/m^3	0.27%	**Y**
PCE	3113	306348	1000	0.252	=	0.0569	0.057	µg/m^3	-0.25%	**Y**

DATA VALIDATION WORKSHEET
LEVEL III and IV

Reviewer: Stacie Wissler
Date: 2/15/2017
Lab: ALS Simi Valley

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700289
Matrix: Air

1.0 Data Deliverable Completeness Check		Finding	
1.1	Is Chain of Custody form(s) (COCs) present?	Yes	
1.2	Is Case Narrative present with QC outliers noted?	Yes	
1.3	Is the Data Deliverable signed by Laboratory Director or authorized personnel?	Yes	
1.4	Is Sample Receipt Form present and complete?	Yes	
1.5	Temperature of samples recorded by lab upon arrival?	--	°C
1.6	Are all components (COCs, sample results, QC results, etc) for the required quality deliverable present?	Yes	
1.7	Are all pages present with pre-pagination?	Yes	

2.0 Chain of Custody/Sample Condition		Finding
2.1	Do COC forms list all samples analyzed?	Yes
2.2	Are the sampling IDs, dates, times, and preservatives complete, correct, and compliant?	Yes
2.3	Are all COC forms signed, indicating sample chain-of-custody was maintained?	Yes
2.4	Do the COC forms, Sample Receipt Forms, and/or lab case narrative indicate any issues with sample receipt, sample integrity, analytical outliers or special circumstances affecting the data quality?	Yes
2.5	Do sample preservation, collection and storage condition meet method requirement?	Yes
2.6	Are the correct analyses performed/reported as requested on COC?	Yes
2.7	For air samples, are the canister IDs, flow controllers, initial and final pressure recorded?	Yes
2.8	If yes to 2.7, are all the final pressures less than 10 inches of mercury?	Yes
2.9	If no to 2.8, make note of those samples with final pressure greater than 10 inches of mercury.	
2.1	Does the leak compound concentration exceed the state regulatory criteria (Default for helium = 10,000 ppmv or other leak compound is greater than 5%)	NA
	Action: If helium or other leak compound exceeds the 5% (10,000ppmv for He) criteria, then ALL method target analytes/compounds are qualified as estimated (J-detects, UJ-nondetects)	
	Qualifications applied?	No

Notes: 24 air samples in this SDG

For this data set, no discrepancies were found during limited EDD versus hard-copy report verification.

Stacie Wissler — Printed Name
Signature
2/15/2017 — Date

DATA VALIDATION WORKSHEET
ORGANIC ANALYSIS: GC/MS
LEVEL III and IV

Quals?	Yes

Reviewer: Stacie Wissler
Date: 15-Feb-17
Lab: ALS Simi Valley
Method: VOCs by USEPA TO-15 SIM

Project Name: Moffett Site 28 VI
Project Number: PO 16104
WO/SDG Number: P1700289
Matrix: Air

3.0 Holding Time

QC Batch(es): P170206, P170207, P170208

Sampled: 01/17/17 Analyzed: 2/6-7/2017

		Finding
3.1	Have any technical holding times (below), determined from sampling to date of analysis, been exceeded?	No

Action : If YES, apply J/UJ qualifiers. If any of the holding times grossly exceeded (twice the holding time criteria)? Apply J - detects or R - nondetects

Matrix	Extraction	Analysis	
Aqueous	7 days	40 days (14 days for volatiles [preserved] / 7 days [unpreserved])	
Soil/Sediment	14 days	40 days	
Encore	≤ 6°C (or frozen)	48 hrs - for VOCs and TPHg	
Air/Soil Vapor	--	30 days	(Tedlar - 72 hours)

Qualifications applied? No

Notes: Limited TAL: Vinyl chloride, 1,1-DCE, 1,1-DCA, cis/trans-1,2-DCE, TCE, PCE
24 air samples

4.0 Blanks (Method Blanks and Field Blanks)

QC Batch(es): P170206, P170207, P170208

		Finding
4.1	Have method blank (MB) results been reported for each matrix, each instrument/system used to analyze samples?	Yes
4.2	Do any of the MBs or preparation blanks have reportable concentrations of TCLs above the RL/QL? (except methylene chloride, acetone, and 2-butanone)	No
4.3	For volatile analyses, was a trip blank submitted along with these samples?	NA
4.4	Has a MB been analayzed at least once every 12 hrs for each GCMS system used?	Yes
4.5	Do any field blanks (trip, equipment, source, etc) have reportable concentrations of TCLs? (except methylene chloride, acetone, and 2-butanone)	NA

Action : If < RL/QL and < 5x (or 10x blank conc for the 3 noted analytes above), then Qualify at the RL/QL with "U" qualifier

Action : If ≥ RL/QL and > 5x (or 10x blank conc. for the 3 noted analytes above), then: Qualify at sample or blank result (greater) with "U" qualifier

4.6	Have proper field blanks been collected and submitted at the proper frequency?	NA
	Types of field QC blanks: None — Qualifications applied?	No

Notes: MBs (3)= ND for all TCLs.

5.0 Surrogate or Deuterated Monitoring Compound (DMCs) Recovery

QC Batch(es): P170206, P170207, P170208

		Finding
5.1	Are surrogate recoveries reported for all samples on appropriate form(s)?	Yes
5.2	Are surrogate recoveries within acceptance criteria for all samples and MBs?	Yes
	Record the acceptable control limits (LCL & UCL):____ 70-130 _____%R	
5.3	If NO in Section 5.2, are these sample(s) or MB(s) reanalyzed?	NA
5.4	If NO in Section 5.3, is any sample dilution factor greater than 10? (Surrogate recoveries may be diluted out.)	NA

Note: If surrogate recoveries do not meet acceptable criteria in samples chosen for the MS/MSD and diluted samples, then no reanalysis is required.

	> UCL	10% to LCL	< 10%
Detect	J	J	J
Non-detect	None	UJ	R

Qualifications applied? No

Notes: Laboratory in-house QC limits used, not listed in Final SAP.

Project #: PO 16104 SDG: P1700289

6.0 Internal Standards — QC Batch(es): P170206, P170207, P170208 — Finding

6.1	Are internal standard areas in every field, QC sample and calibration standard within upper and lower QC limits for each continuing		Yes

	Area > 200%	Area < 50%
Positive	J	J
Non-detect	None	UJ (20-50%) or R (< 20%)

6.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	Yes

Action : if > RT 30 seconds of continuing calibration, R qualify data.

Qualifications applied? No

Notes: UCL/LCL = -60 to +140% of ICAL IS midpoint area and RTs, ok
DoD QSM -50 to +100% of ICAL IS midpoint

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) — QC Batch(es): P170206, P170207, P170208 — Finding

7.1	Are MS/MSD recoveries reported on the appropriate form(s)?	No
7.2	Are MS/MSD analyzed at the appropriate frequency?	NA
7.3	Was a project sample used for MS/MSD? If so, what sample?	NA
7.4	Are all MS/MSD %Rs and RPDs within acceptance criteria?	NA

Record the acceptable control limits (LCL & UCL):_____% R; RPD:_____

No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

Qualifications applied? No

Notes: MS/MSD not required to be performed per USEPA TO-15 method.

8.0 Laboratory Control Sample (LCS) — QC Batch(es): P170206, P170207, P170208 — Finding

8.1	Are LCS recoveries reported on the appropriate form(s)?	Yes
8.2	Is LCS analyzed at the required frequency for each matrix?	Yes
8.3	Are all LCS %Rs within acceptance criteria? Record the acceptable control limits (LCL & UCL): DoD QSM v5.0 ___%R	Yes
8.4	If an LCSD present, were the RPD recoveries within the control limits? RPD:_____ 25% ____	Yes

	>UCL	<LCL
Detect	J	J
Non-detect	None	UJ / R

Qualifications applied? No

Notes: DoD QSM v5.0 TO-15 limits (Table 43) reported and used for data validation.

9.0 Field or Lab Duplicate Samples — QC Batch(es): P170206, P170207, P170208 — Finding

9.1	Were any field or laboratory duplicates included for analysis?		Yes
9.2	Was a project sample used for the duplicate? If so, which sample?	17M002-1-03, 17M002-1-04, 17M014-1-05-N	Yes
9.3	Were there any positive results detected in both samples? If Yes, calculate RPD for both results greater than RL		Yes
9.4	Were all RPD or absolute difference values within the control limits? (Default for Aqueous/Vapor/Air = 35%, Solid = 50%)		No

Action : If NO to 9.4, then "J" qualify all detected concentrations in both duplicate pair samples.

Qualifications applied? Yes

Notes: Lab RPD = 25%; ok (17M302-1-03)
Duplicate pair 17M002-1-03 reported high RPD for vinyl chloride (32.3%); so VC results in pair are "J" qualified.
Duplicate pair 17M002-1-04 reported high RPD for trans-1,2-DCE (32.3%) and TCE (36.4%); so these results in pair are "J" qualified.

10.0 Sample Results — Finding

10.1	Were results reported appropriately (correct units, dry/wet weight, etc)?	Yes
10.2	Any laboratory qualifiers applied (besides "U" qualifer for non-detects)? If yes, why?	Yes
10.3	Were dilutions required for the samples (if yes, explain below)	Yes

Qualifications applied? No

Notes: J = analyte detected; reported concentration between LOQ and DL = estimated value
Sample 17M002-1-04 was analyzed at a dilution (3.26x) due to repressurization required due to autocan malfunction, so RLs are elevated. No qualifications were applied.

Project #: PO 16104 SDG: P1700289

11.0 GC/MS Instrument Performance Check (IPC)	Instrument Nos. MS19	Finding
11.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	Yes
11.2	Have all samples been analyzed within twelve hours of the tune?	Yes
	Action : If twelve hours have elapsed according to the system clock, and the laboratory analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected samples are rejected "R".	
11.3	Have ion abundance criteria for tuning compound (BFB) been met for each instrument used? Refer to analytical method for acceptable criteria.	Yes
	Action : If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".	
	Qualifications applied?	No

Note: BFB 2/06/2017 @ 0810
BFB 2/07/2017 @ 0236
BFB 2/08/2017 @ 0035

12.0 Initial Calibration	Instrument Nos. MS19	Finding
12.1	Are multi-point Initial Calibration summary forms present and complete for each instrument used?	Yes
12.2	Are calibration or response factors stable per the method over the concentration range of the calibration? (e.g. RSD values < 20 - 40% [NFGs Tables 4 or 16] or correlation coefficient [r] > 0.995)	Yes
	If %RSD > Maximum RSD (Tables 4 or 16), then "J" qualify detects, NDs use professional judgement.	
12.3	Are the retention times stable (within RT window, or ±0.03 mins) throughout the multi-concentration curve?	Yes
12.4	Are RRFs for each compound in each calibration standard > Minimum RRF defined in NFGs Tables 4 or 16 (2013)?	Yes
	RRF < Minimum RRF (Tables 4 or 16), then "J +" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
12.5	Is second source ICV present with acceptable recoveries (%D < 20 - 40% [Tables 4 or 16])	Yes
	Qualifications applied?	No

Note: ICAL 2/3/2017; RSD < 30%
ICV 2/3/2017 @ 2106; %R ok

13.0 Continuing Calibration	Instrument Nos. MS19	Finding
13.1	Are Continuing Calibration summary forms present and complete for each instrument used?	Yes
13.2	Has a continuing calibration standard been analyzed at proper frequency? (maximum span = 12 hour window)	Yes
13.3	Do any compounds have % difference (%D) values between initial and continuing calibration RRF outside method-specific QC limits or %D < 20-40% (See NFGs Tables 4 or 16 (2013) per compound)?	No
	%D > 20-40% (cmpd specific), low bias — J detects / UJ non detects; %D> 20-40% (cmpd specific), high bias — J detects only	
13.4	Do any compounds have RRF values less than minimum RRF (See NFGs Tables 4 or 16 per cmpd)?	No
	RRF < Minimum RRF (Tables 4 or 16), then "J" qualify detects, "R" qualify non-detects (and detects - prof judgement)	
	Qualifications applied?	No

Note: CCV 2/06/2017 @ 0828; %D < 30% for limited target analyte list
CCV 2/07/2017 @ 0254; %D < 30% for limited target analyte list
CCV 2/07/2017 @ 0254; %D < 30% for limited target analyte list

14.0 Result Recalculations - FOR LIV VALIDATION ONLY		Finding
14.1	Were reported values recalculated for LIV samples? (See LIV calcs tab for calculation)	Yes
14.2	Were the recalculated values outside ±10% of reported value? Action : If YES, consult laboratory or J/R qualify.	No
14.3	Was the Primary Ion (EICP) used to calculate and report the compound concentration?	Yes
	Qualifications applied?	No

Note: Five samples were selected for LIV recalculations. See LIV recalculations table

Duplicate Verification - RPD

SDG: P1700289
Validator: Stacie Wissler

$$RPD = \frac{|R_1 - R_2|}{R_1 + R_2 / 2} \times 100 \qquad \times 100$$

Parent Sample ID: 17M002-1-03 **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
Vinyl chloride	**0.072**	**0.052**	**32.3%**	**No**
1,1-DCE	0.021	0.018	15.4%	**Y**
trans-1,2-DCE	0.044	0.054	20.4%	**Y**
cis-1,2-DCE	0.23	0.19	19.0%	**Y**
1,1-DCA	0.024	0.024	0.0%	**Y**
TCE	0.72	0.6	18.2%	**Y**
PCE	0.076	0.088	14.6%	**Y**

Parent Sample ID: 17M002-1-04 **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
***trans*-1,2-DCE**	**0.036**	**0.026**	**32.3%**	**No**
cis-1,2-DCE	--	0.016	NA	**Y**
1,1-DCA	--	0.11	NA	**Y**
TCE	**0.063**	**0.091**	**36.4%**	**No**
PCE	0.059	0.067	12.7%	**Y**

Parent Sample ID: 17M014-1-05-N **RPD < 30%**

Analyte	Parent	Duplicate	Recalc. %R	Acceptable?
trans-1,2-DCE	0.056	0.057	1.8%	**Y**
cis-1,2-DCE	0.053	0.058	9.0%	**Y**
1,1-DCA	0.014	0.015	6.9%	**Y**
TCE	0.76	0.76	0.0%	**Y**
PCE	0.096	0.086	11.0%	**Y**

Spike Verification - LCS and Surrogates

SDG: P1700289
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

%R = (Conc found / Conc spike) * 100
%R = percent recovery Rep. = reported

Sample	LCS	Surrogate	Analysis Date	Analyte	Spiked [µg/m^3]	Found [µg/m^3]	Recalc. %R	Rep. %R	Acceptable?
LCS P170206	X		2/6/2017	Vinyl chloride	4.2	4.15	99%	99%	Y
LCS P170206	X		2/6/2017	1,1-DCE	4.25	4.22	99%	99%	Y
LCS P170207	X		2/7/2017	*cis*- 1,2-DCE	4.24	4.19	99%	99%	Y
LCS P170207	X		2/7/2017	*trans*- 1,2-DCE	4.27	4.19	98%	98%	Y
LCS P170208	X		2/8/2017	TCE	4.25	4.33	102%	102%	Y
LCS P170208	X		2/8/2017	PCE	4.25	4.18	98%	98%	Y
17M002-1-04		X	2/7/2017	1,2-DCA-d4	1000	962.12	96%	96%	Y
17M002-1-04		X	2/7/2017	Toluene-d8	1000	1000.807	100%	100%	Y
17M126-1-01-F		X	2/7/2017	Toluene-d8	1000	1012.836	101%	101%	Y
17M126-1-01-F		X	2/7/2017	Bromofluorobenzene	1000	1056.861	106%	106%	Y
17M014-C-02-N		X	2/8/2017	1,2-DCA-d4	1000	1000.995	100%	100%	Y
17M014-C-02-N		X	2/8/2017	Toluene-d8	1000	1016.654	102%	102%	Y
17M014-1-05-N		X	2/8/2017	1,2-DCA-d4	1000	1013.26	101%	101%	Y
17M014-1-05-N		X	2/8/2017	Toluene-d8	1000	1019.684	102%	102%	Y
17M107-1-02-N		X	2/8/2017	1,2-DCA-d4	1000	1018.533	102%	102%	Y
17M107-1-02-N		X	2/8/2017	Toluene-d8	1000	1021.613	102%	102%	Y

GC/MS Initial Calibration - Single Point Verification

SDG: P1700289
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration [xxx, µg/L, ppbv, etc]

RF = response factor
s = compound or surrogate
is = internal standard

Inst No. MS19
Cal Date 2/3/2017

Compound	Internal Standard	As	Ais	Cs [µg/mL]	Cis [µg/mL]	Recalc RF	Reported RF	%R	Acceptable?
cis -1,2-DCE	BCM	1065	48491	21	1000	1.04585	1.032	-1.34%	Y
1,1-DCE	BCM	513	49044	10	1000	1.04600	0.988	-5.87%	Y
trans -1,2-DCE	BCM	2725	46447	52	1000	1.12825	1.1	-2.57%	Y
TCE	1,4-DFB	1182	240179	21	1000	0.23435	0.232	-1.01%	Y

GC/MS Initial Calibration - Multilevel Verification

SDG: P1700289
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RRF = (Sum RF) / # standards
%RSD = (S / RRF) * 100

RRF = relative response factors
S = standard deviation of RRFs
RSD = relative standard deviation

Inst No. MS19
Cal Date 2/3/2017

Compound	Cs (µg/mL)	RF
cis-1,2-DCE	50000	1.161
cis-1,2-DCE	10000	1.204
cis-1,2-DCE	5000	1.239
cis-1,2-DCE	2000	1.288
cis-1,2-DCE	1000	1.357
cis-1,2-DCE	500	1.164
cis-1,2-DCE	100	1.111
cis-1,2-DCE	50	1.185
cis-1,2-DCE	20	1.032
cis-1,2-DCE	10	1.136
	Calc Avg RRF:	1.1877
	Rpt Avg RRF	1.188
	S:	0.092
	Recalc %RSD:	7.722
	Reported %RSD:	7.72

Acceptable?	**%RSD ≤ 30%**
Y	

GC/MS Continuing Calibration Verification

SDG: P1700289
Method: USEPA TO-15 SIM
Validator: Stacie Wissler

RF = (Area s) * (Conc is) / (Area is) * (Conc s)
Area = EICP area of quantitation ion
Conc = concentration
RF = response factor
s = compound or surrogate
is = internal standard

%D = (|RRFical - RFccal| / RRFical) * 100
RRFical = RRF from initial calibration
RFccal = RF from continuing calibration
%D = percent difference

Inst No. MS19
Cal Date 2/3/2017
CCV Date 2/6/2017 @ 0828

%D ± 30%

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.179	1.95623	2.004	10.2%	8.0%	**Y**
1,1-DCE	1.068	1.00112	0.991	6.3%	7.2%	**Y**
trans-1,2-DCE	1.109	1.08054	1.061	2.6%	4.3%	**Y**
cis-1,2-DCE	1.188	1.14885	1.132	3.3%	4.7%	**Y**
1,1-DCA	1.984	1.78103	1.83	10.2%	7.8%	**Y**
TCE	0.242	0.23481	0.232	3.0%	4.1%	**Y**
PCE	0.252	0.23918	0.236	5.1%	6.3%	**Y**

CCV Date 2/7/2017 @ 0254

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.179	1.86311	1.909	14.5%	12.4%	**Y**
1,1-DCE	1.068	0.96684	0.957	9.5%	10.4%	**Y**
trans-1,2-DCE	1.109	1.03688	1.018	6.5%	8.2%	**Y**
cis-1,2-DCE	1.188	1.09816	1.082	7.6%	8.9%	**Y**
1,1-DCA	1.984	1.65769	1.703	16.4%	14.2%	**Y**
TCE	0.242	0.22958	0.227	5.1%	6.2%	**Y**
PCE	0.252	0.24194	0.239	4.0%	5.2%	**Y**

CCV Date 2/8/2017 @ 0054

Compound	ICAL RRF	Recalc. CCal RF	Reported CCal RRF	Recalc %D	Reported %D	Acceptable?
Vinyl chloride	2.179	1.91392	1.961	12.2%	10.0%	**Y**
1,1-DCE	1.068	0.95904	0.949	10.2%	11.1%	**Y**
trans-1,2-DCE	1.109	1.05817	1.039	4.6%	6.3%	**Y**
cis-1,2-DCE	1.188	1.09481	1.078	7.8%	9.3%	**Y**
1,1-DCA	1.984	1.72429	1.772	13.1%	10.7%	**Y**
TCE	0.242	0.22444	0.222	7.3%	8.3%	**Y**
PCE	0.252	0.22605	0.223	10.3%	11.5%	**Y**

Sample Result Quantitation Verification

SDG: P1700289
Validator: Stacie Wissler

Sample ID: 17M002-1-04

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	645	52120	1000	1.109	=	0.0364	0.036	µg/m^3	1.045%	**Y**
TCE	1198	255631	1000	0.242	=	0.0631	0.063	µg/m^3	0.21%	**Y**
PCE	1160	255631	1000	0.252	=	0.0587	0.059	µg/m^3	-0.50%	**Y**

Sample ID: 17M126-1-01-F

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	96948	47711	1000	2.179	=	1.2869	1.300	µg/m^3	-1.013%	**Y**
1,1-DCE	10837	47711	1000	1.068	=	0.2935	0.290	µg/m^3	1.197%	**Y**
trans-1,2-DCE	5467	47711	1000	1.109	=	0.1426	0.140	µg/m^3	1.831%	**Y**
cis-1,2-DCE	880225	47711	1000	1.188	=	21.4308	21	µg/m^3	2.030%	**Y**
1,1-DCA	19767	47711	1000	1.869	=	0.3059	0.29	µg/m^3	5.339%	**Y**
TCE	637087	246757	1000	0.242	=	14.7229	15	µg/m^3	-1.86%	**Y**
PCE	1432070	246757	1000	0.252	=	31.7814	32	µg/m^3	-0.69%	**Y**

Sample ID: 17M014-C-02-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
Vinyl chloride	4932	46978	1000	2.179	=	0.0756	0.076	µg/m^3	-0.470%	**Y**
1,1-DCE	903	46978	1000	1.068	=	0.0283	0.028	µg/m^3	0.913%	**Y**
trans-1,2-DCE	2737	46978	1000	1.109	=	0.0825	0.082	µg/m^3	0.584%	**Y**
cis-1,2-DCE	4843	46978	1000	1.188	=	0.1362	0.140	µg/m^3	-2.723%	**Y**
1,1-DCA	2220	46978	1000	1.869	=	0.0397	0.037	µg/m^3	7.031%	**Y**
TCE	111479	228227	1000	0.242	=	3.1689	3.2	µg/m^3	-0.98%	**Y**
PCE	3259	228227	1000	0.252	=	0.0890	0.089	µg/m^3	-0.04%	**Y**

Sample ID: 17M014-1-05-N

Analyte	Asa	Ais	Ais Conc	ICAL RRF		Calculated	Reported	Units	% Diff	Acceptable?
trans-1,2-DCE	1688	45566	1000	1.109	=	0.0561	0.056	µg/m^3	0.212%	**Y**
cis-1,2-DCE	1697	45566	1000	1.188	=	0.0527	0.053	µg/m^3	-0.631%	**Y**
1,1-DCA	753	45566	1000	1.869	=	0.0149	0.01	µg/m^3	5.922%	**Y**
TCE	24529	222895	1000	0.242	=	0.7640	0.76	µg/m^3	0.52%	**Y**
PCE	3215	222895	1000	0.252	=	0.0962	0.096	µg/m^3	0.17%	**Y**

Sample ID:	17M017-1-02-N									
Analyte	**Asa**	**Ais**	**Ais Conc**	**ICAL RRF**		**Calculated**	**Reported**	**Units**	**% Diff**	**Acceptable?**
trans-1,2-DCE	2534	45794	1000	1.109	=	0.0619	0.062	µg/m^3	-0.208%	**Y**
cis-1,2-DCE	808	45794	1000	1.188	=	0.0184	0.018	µg/m^3	2.288%	**Y**
1,1-DCA	675	45794	1000	1.869	=	0.0098	0.0092	µg/m^3	6.105%	**Y**
TCE	3416	224368	1000	0.242	=	0.0780	0.078	µg/m^3	0.02%	**Y**
PCE	2983	224368	1000	0.252	=	0.0654	0.065	µg/m^3	0.64%	**Y**

ATTACHMENT E
QUALIFIED SAMPLE RESULT FORMS
(Form Is)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M010-1-10** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-007

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02085
Initial Pressure (psig): -2.25 Final Pressure (psig): 3.59

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.029		0.037	0.029	0.011	**U**
75-35-4	1,1-Dichloroethene	**0.15**		0.037	0.031	0.013	
156-60-5	trans-1,2-Dichloroethene	**0.048**		0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.18**	J-FD	0.037	0.029	0.0090	
156-59-2	cis-1,2-Dichloroethene	**2.0**		0.037	0.031	0.014	
79-01-6	Trichloroethene	**11**		0.037	0.031	0.012	
127-18-4	Tetrachloroethene	**0.10**		0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M310-1-10** ALS Project ID: P1700234
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700234-009

Test Code: EPA TO-15 SIM Date Collected: 1/12/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/19/17
Analyst: Cory Lewis Date Analyzed: 1/23/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01024
Initial Pressure (psig): -1.30 Final Pressure (psig): 3.71

Canister Dilution Factor: 1.37

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.027		0.034	0.027	0.010	**U**
75-35-4	1,1-Dichloroethene	**0.14**		0.034	0.029	0.012	
156-60-5	trans-1,2-Dichloroethene	**0.054**		0.034	0.029	0.010	
75-34-3	1,1-Dichloroethane	**0.13**	J-FD	0.034	0.027	0.0084	
156-59-2	cis-1,2-Dichloroethene	**1.9**		0.034	0.029	0.013	
79-01-6	Trichloroethene	**11**		0.034	0.029	0.012	
127-18-4	Tetrachloroethene	**0.10**		0.034	0.029	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M003-1-06-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-005

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01230
Initial Pressure (psig): -1.47 Final Pressure (psig): 5.89

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.11**		0.039	0.031	0.012	
75-35-4	1,1-Dichloroethene	0.033		0.039	0.033	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.029**		0.039	0.033	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.016**		0.039	0.031	0.0095	**J**
156-59-2	cis-1,2-Dichloroethene	**0.052**		0.039	0.033	0.014	
79-01-6	Trichloroethene	**0.66**		0.039	0.033	0.013	
127-18-4	Tetrachloroethene	**0.084**	J-FD	0.039	0.033	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M303-1-06-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-009

Test Code: EPA TO-15 SIM Date Collected: 1/16/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00560
Initial Pressure (psig): -1.44 Final Pressure (psig): 4.09

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.10**		0.036	0.028	0.011	
75-35-4	1,1-Dichloroethene	0.030		0.036	0.030	0.012	**U**
156-60-5	trans-1,2-Dichloroethene	**0.028**		0.036	0.030	0.010	**J**
75-34-3	1,1-Dichloroethane	**0.016**		0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.047**		0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.73**		0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.047**	J-FD	0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M012-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-013

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02048
Initial Pressure (psig): -0.13 Final Pressure (psig): 3.50

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.025		0.031	0.025	0.0095	**U**
75-35-4	1,1-Dichloroethene	0.026		0.031	0.026	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.079**	J-FD	0.031	0.026	0.0091	
75-34-3	1,1-Dichloroethane	0.025		0.031	0.025	0.0076	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**		0.031	0.026	0.012	**J**
79-01-6	Trichloroethene	**0.060**		0.031	0.026	0.011	
127-18-4	Tetrachloroethene	**0.089**		0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M312-1-03-F** ALS Project ID: P1700259
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700259-015

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/28/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01603
Initial Pressure (psig): -2.31 Final Pressure (psig): 3.93

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030		0.038	0.030	0.011	**U**
75-35-4	1,1-Dichloroethene	0.032		0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.45**	J-FD	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	0.030		0.038	0.030	0.0092	**U**
156-59-2	cis-1,2-Dichloroethene	**0.019**		0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.062**		0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.11**		0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N243-B-07-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-014

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00958

Initial Pressure (psig): -1.07 Final Pressure (psig): 3.70
Initial Pressure 2 (psig): 0.46 Final Pressure 2 (psig): 2.10

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.017**		0.038	0.030	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.014**		0.038	0.032	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.063**	J-FD	0.038	0.032	0.011	
75-34-3	1,1-Dichloroethane	**0.016**		0.038	0.030	0.0092	**J**
156-59-2	cis-1,2-Dichloroethene	**0.25**		0.038	0.032	0.014	
79-01-6	Trichloroethene	**0.75**		0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.44**		0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M343-B-07-F** ALS Project ID: P1700261
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700261-017

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 1/27/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02102
Initial Pressure (psig): -1.70 Final Pressure (psig): 3.79

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.020**		0.036	0.028	0.011	**J**
75-35-4	1,1-Dichloroethene	**0.016**		0.036	0.030	0.012	**J**
156-60-5	trans-1,2-Dichloroethene	**0.10**	J-FD	0.036	0.030	0.010	
75-34-3	1,1-Dichloroethane	**0.017**		0.036	0.028	0.0087	**J**
156-59-2	cis-1,2-Dichloroethene	**0.28**		0.036	0.030	0.013	
79-01-6	Trichloroethene	**0.81**		0.036	0.030	0.012	
127-18-4	Tetrachloroethene	**0.44**		0.036	0.030	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17N239-1-07-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-021

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01127
Initial Pressure (psig): 0.46 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.024		0.030	0.024	0.0092	**U**
75-35-4	1,1-Dichloroethene	0.025		0.030	0.025	0.010	**U**
156-60-5	trans-1,2-Dichloroethene	**0.068**	J-FD	0.030	0.025	0.0088	
75-34-3	1,1-Dichloroethane	**0.0098**		0.030	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.060**		0.030	0.025	0.011	
79-01-6	Trichloroethene	**0.15**		0.030	0.025	0.010	
127-18-4	Tetrachloroethene	**0.064**		0.030	0.025	0.0099	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M339-1-07-F** ALS Project ID: P1700262
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700262-023

Test Code: EPA TO-15 SIM Date Collected: 1/15/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/20/17
Analyst: Cory Lewis Date Analyzed: 2/2/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00424
Initial Pressure (psig): -0.64 Final Pressure (psig): 3.73

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.026		0.033	0.026	0.010	**U**
75-35-4	1,1-Dichloroethene	0.028		0.033	0.028	0.011	**U**
156-60-5	trans-1,2-Dichloroethene	**0.16**	J-FD	0.033	0.028	0.0096	
75-34-3	1,1-Dichloroethane	0.026		0.033	0.026	0.0080	**U**
156-59-2	cis-1,2-Dichloroethene	**0.079**		0.033	0.028	0.012	
79-01-6	Trichloroethene	**0.14**		0.033	0.028	0.011	
127-18-4	Tetrachloroethene	**0.085**		0.033	0.028	0.011	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M016-1-02-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-014

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00812
Initial Pressure (psig): -3.45 Final Pressure (psig): 3.64

Canister Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.033	0.041	0.033	0.012	**U**
75-35-4	1,1-Dichloroethene	0.034	0.041	0.034	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.034	0.041	0.034	0.012	**U**
75-34-3	1,1-Dichloroethane	0.033	0.041	0.033	0.0099	**U**
156-59-2	cis-1,2-Dichloroethene	0.034	0.041	0.034	0.015	**U**
79-01-6	Trichloroethene	**0.029** J-FD	0.041	0.034	0.014	**J**
127-18-4	Tetrachloroethene	**0.18**	0.041	0.034	0.013	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M316-1-02-N** ALS Project ID: P1700288
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700288-019

Test Code: EPA TO-15 SIM Date Collected: 1/18/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/6/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00990
Initial Pressure (psig): -3.65 Final Pressure (psig): 3.82

Canister Dilution Factor: 1.68

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.034		0.042	0.034	0.013	**U**
75-35-4	1,1-Dichloroethene	0.035		0.042	0.035	0.014	**U**
156-60-5	trans-1,2-Dichloroethene	0.035		0.042	0.035	0.012	**U**
75-34-3	1,1-Dichloroethane	**0.017**		0.042	0.034	0.010	**J**
156-59-2	cis-1,2-Dichloroethene	**0.025**		0.042	0.035	0.015	**J**
79-01-6	Trichloroethene	**0.43**	J-FD	0.042	0.035	0.014	
127-18-4	Tetrachloroethene	**0.099**		0.042	0.035	0.014	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M002-1-03** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-005

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00988
Initial Pressure (psig): -2.28 Final Pressure (psig): 3.74

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.072**	J-FD	0.037	0.030	0.011	
75-35-4	1,1-Dichloroethene	**0.021**		0.037	0.031	0.013	**J**
156-60-5	trans-1,2-Dichloroethene	**0.044**		0.037	0.031	0.011	
75-34-3	1,1-Dichloroethane	**0.024**		0.037	0.030	0.0090	**J**
156-59-2	cis-1,2-Dichloroethene	**0.23**		0.037	0.031	0.014	
79-01-6	Trichloroethene	**0.72**		0.037	0.031	0.013	
127-18-4	Tetrachloroethene	**0.076**		0.037	0.031	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M302-1-03** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-007

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00799
Initial Pressure (psig): 0.31 Final Pressure (psig): 3.58

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	**0.052**	J-FD	0.031	0.024	0.0093	
75-35-4	1,1-Dichloroethene	**0.018**		0.031	0.026	0.010	**J**
156-60-5	trans-1,2-Dichloroethene	**0.054**		0.031	0.026	0.0089	
75-34-3	1,1-Dichloroethane	**0.024**		0.031	0.024	0.0074	**J**
156-59-2	cis-1,2-Dichloroethene	**0.19**		0.031	0.026	0.011	
79-01-6	Trichloroethene	**0.60**		0.031	0.026	0.010	
127-18-4	Tetrachloroethene	**0.088**		0.031	0.026	0.010	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M002-1-04** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-006

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01365

Initial Pressure (psig): 0.59 Final Pressure (psig): 3.78
Initial Pressure 2 (psig): -8.15 Final Pressure 2 (psig): 2.97

Canister Dilution Factor: 3.26

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.065		0.082	0.065	0.025	**U**
75-35-4	1,1-Dichloroethene	0.068		0.082	0.068	0.028	**U**
156-60-5	trans-1,2-Dichloroethene	**0.036**		0.082	0.068	0.024	**J**
75-34-3	1,1-Dichloroethane	0.065		0.082	0.065	0.020	**U**
156-59-2	cis-1,2-Dichloroethene	0.068		0.082	0.068	0.030	**U**
79-01-6	Trichloroethene	**0.063**	J-FD	0.082	0.068	0.028	**J**
127-18-4	Tetrachloroethene	**0.059**		0.082	0.068	0.027	**J**

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **NOREAS**
Client Sample ID: **17M302-1-04** ALS Project ID: P1700289
Client Project ID: **NAVFAC 018 Moffett / 16104** ALS Sample ID: P1700289-008

Test Code: EPA TO-15 SIM Date Collected: 1/17/17
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 1/23/17
Analyst: Cory Lewis Date Analyzed: 2/7/17
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00581
Initial Pressure (psig): -2.56 Final Pressure (psig): 3.81

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³		LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
75-01-4	Vinyl Chloride	0.030		0.038	0.030	0.012	**U**
75-35-4	1,1-Dichloroethene	0.032		0.038	0.032	0.013	**U**
156-60-5	trans-1,2-Dichloroethene	**0.026**		0.038	0.032	0.011	**J**
75-34-3	1,1-Dichloroethane	**0.011**		0.038	0.030	0.0093	**J**
156-59-2	cis-1,2-Dichloroethene	**0.016**		0.038	0.032	0.014	**J**
79-01-6	Trichloroethene	**0.091**	J-FD	0.038	0.032	0.013	
127-18-4	Tetrachloroethene	**0.067**		0.038	0.032	0.012	

U = This analyte was analzyed for but not detected at the specified detection limit.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

APPENDIX E

PHOTOGRAPHS OF SAMPLING LOCATIONS

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17M002-1-04

Building: 2 **Floor:** First **Location:** 104

Canister: AC01365 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: FCA01021 **Sample Type:** Pathway

Sample Start

Date: 1/17/2017 **Vacuum:** -28.27 in. Hg.

Time: 10:03

Comments: Duplicate 17M302-1-04 shown.

Sample Completion

Date: 1/17/2017 **Vacuum:** -0.81 in. Hg.

Time: 17:47 **Total Time:** 7 Hours 44 Minutes

Comments:

17M002-1-03

Building: 2 **Floor:** First **Location:** 109

Canister: AC00988 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: FCA000929 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.45 in. Hg.

Time: 10:04

Comments: Duplicate 17M302-1-03 shown.

Sample Completion

Date: 1/17/2017 **Vacuum:** -6.54 in. Hg.

Time: 17:49 **Total Time:** 7 Hours 45 Minutes

Comments:

17M003-1-01-N

Building: 3 **Floor:** First **Location:** 105

Canister: 2376 **Interval:** 10 Hour **HVAC:** On

Flow Controller: FCA00960 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -29.35 in. hg.

Time: 7:09

Comments:

Sample Completion

Date: 1/10/2017 **Vacuum:** -0.41 in. hg.

Time: 17:09 **Total Time:** 10 Hours

Comments:

17M003-1-03-F

Building: 3 **Floor:** First **Location:** 104A

Canister: AC00894 **Interval:** 10 Hour **HVAC:** Off

Flow Controller: FCA00874 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -29.65 in. Hg.

Time: 7:31

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -5.64 in. Hg.

Time: 17:21 **Total Time:** 9 Hours 50 Minutes

Comments:

17M003-1-03-N

Building: 3 **Floor:** First **Location:** 108A

Canister: 3555 **Interval:** 10 hour **HVAC:** On

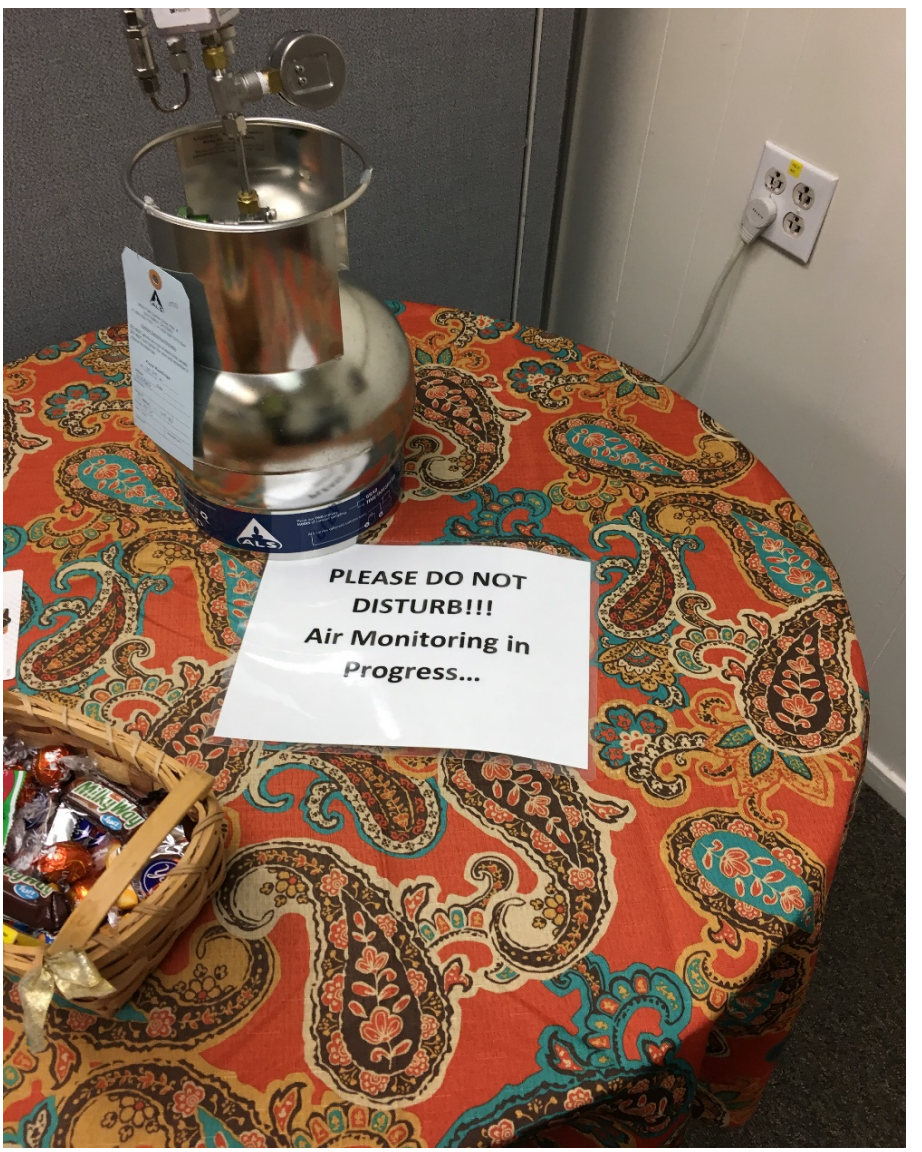
Flow Controller: FCA00965 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -29.79 in. hg.

Time: 7:10

Comments:



Sample Completion

Date: 1/10/2017 **Vacuum:** -7.26 in. hg.

Time: 17:10 **Total Time:** 10 Hours

Comments:

17M003-1-04-N

Building: 3 **Floor:** First **Location:** 122

Canister: 20415 **Interval:** 10 Hour **HVAC:** On

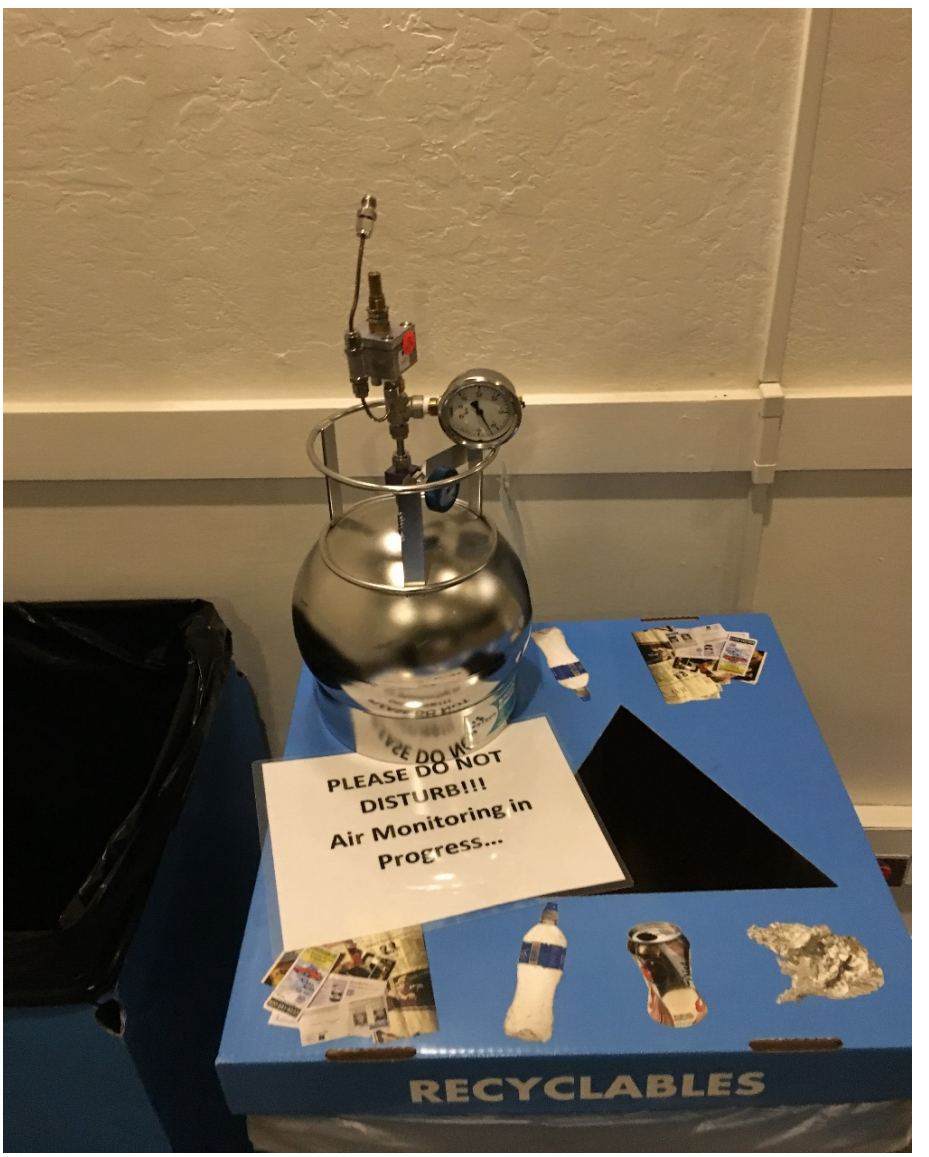
Flow Controller: FCA00787 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.23 in. hg.

Time: 7:05

Comments:



Sample Completion

Date: 1/10/2017 **Vacuum:** -7.51 in. hg.

Time: 17:05 **Total Time:** 10 Hours

Comments:

17M003-1-07-N

Building: 3 **Floor:** First **Location:** 101B

Canister: 13238 **Interval:** 10 Hour **HVAC:** On

Flow Controller: FCA00904 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.18 in. hg.

Time: 7:12

Comments: Duplicate 17-M303-1-07-N shown, sample relocated to 101B due to construction in Room 108.

Sample Completion

Date: 1/10/2017 **Vacuum:** -6.93 in. hg.

Time: 17:12 **Total Time:** 10 Hours

Comments:

17M003-1-08-N

Building: 3 **Floor:** First **Location:** 111

Canister: 14212 **Interval:** 10 Hour **HVAC:** On

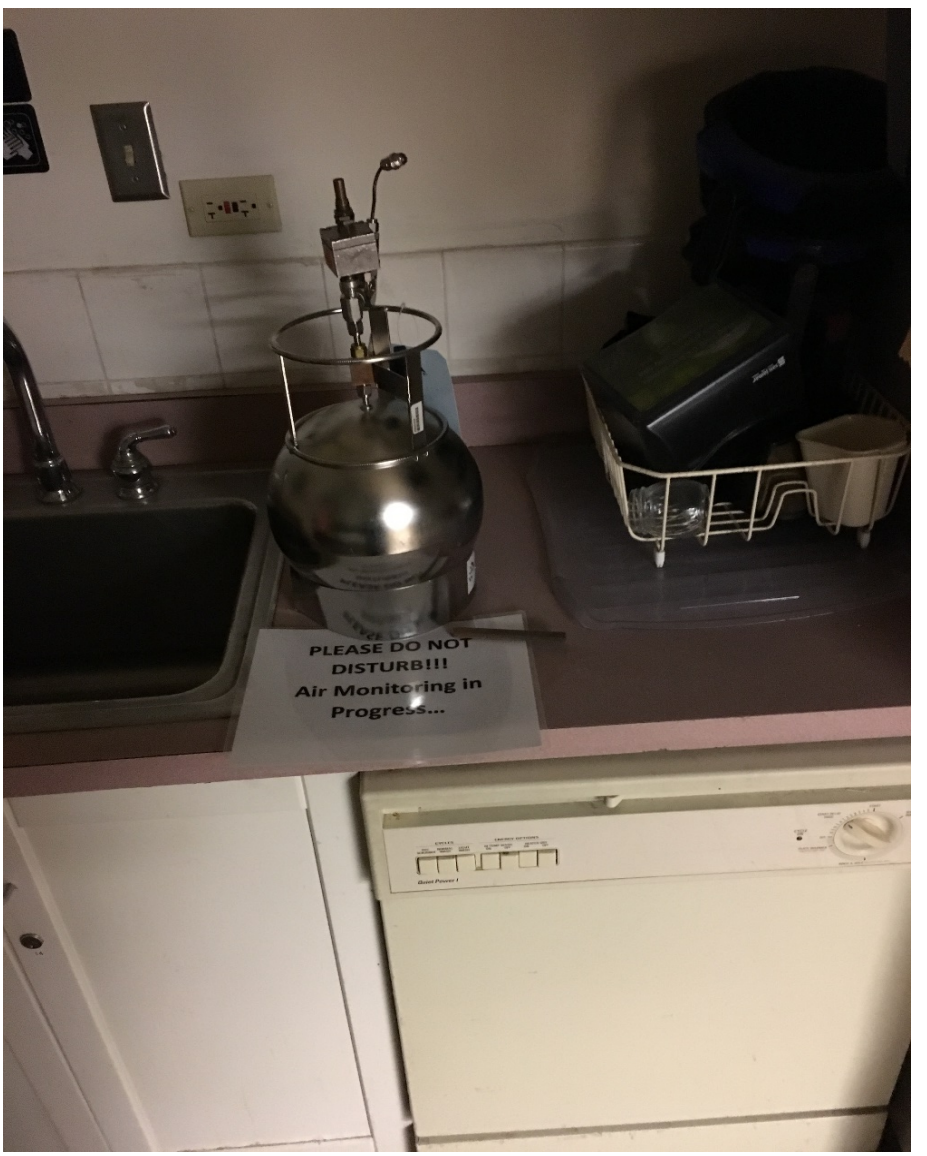
Flow Controller: FCA00880 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.26 in. hg.

Time: 7:07

Comments:



Sample Completion

Date: 1/10/2017 **Vacuum:** -3.59 in. hg.

Time: 17:07 **Total Time:** 10 Hours

Comments:

17M003-1-09-N

Building: 3 **Floor:** First **Location:** 128

Canister: AC01251 **Interval:** 10 Hour **HVAC:** On

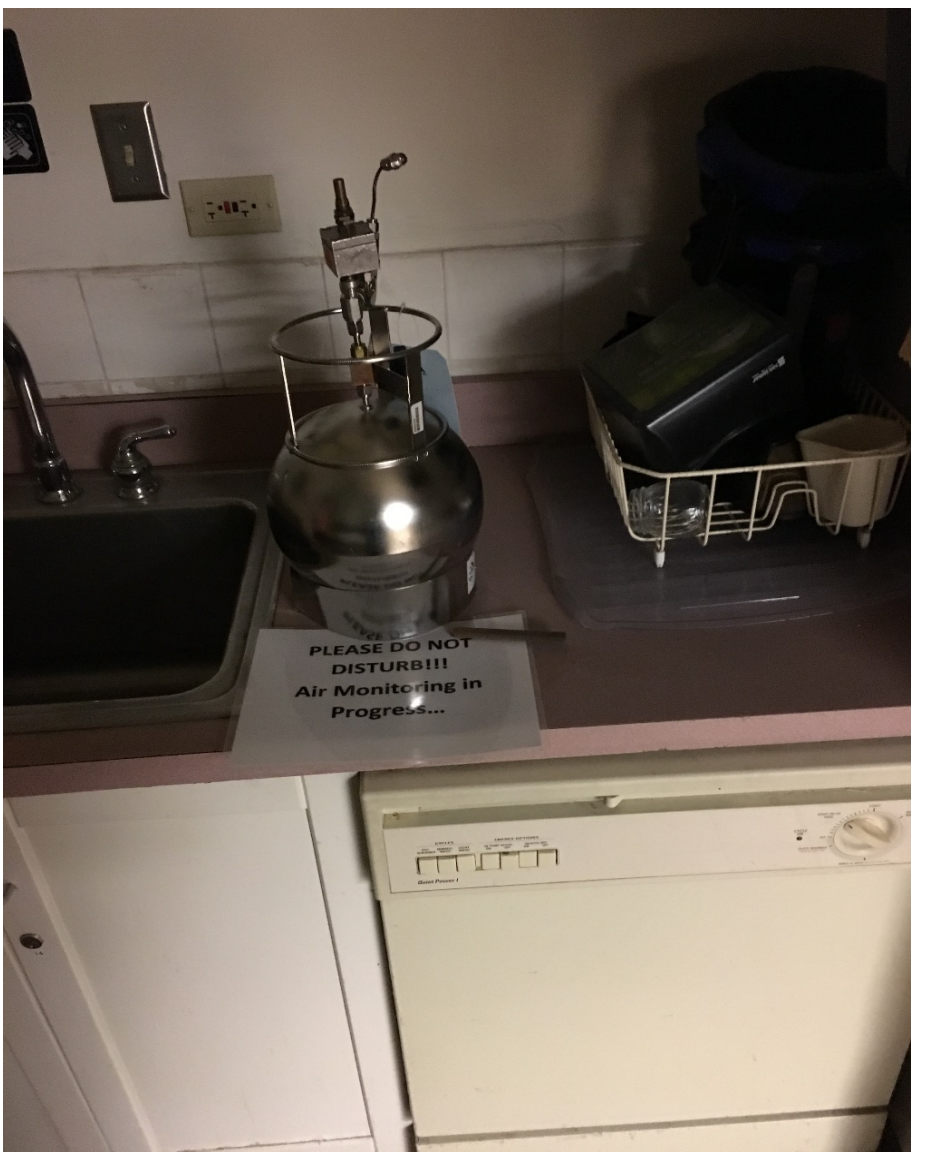
Flow Controller: F214111 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.17 in. hg.

Time: 7:06

Comments:



Sample Completion

Date: 1/10/2017 **Vacuum:** -7.47 in. hg.

Time: 17:06 **Total Time:** 10 Hours

Comments:

17M010-1-02

Building: 10 **Floor:** First **Location:** 101
Canister: AS01060 **Interval:** 8 Hour **HVAC:** N/A
Flow Controller: FCA00686 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.22 in. Hg.
Time: 8:23
Comments:

Sample Completion

Date: 1/12/2017 **Vacuum:** -2.52 in. Hg.
Time: 16:23 **Total Time:** 8 Hours
Comments:

17M010-1-03

Building: 10 **Floor:** First **Location:** 101
Canister: AS00260 **Interval:** 8 Hour **HVAC:** N/A
Flow Controller: FCA00705 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.23 in. Hg.
Time: 8:25
Comments: Duplicate 17M310-1-03 shown.

Sample Completion

Date: 1/12/2017 **Vacuum:** -5.87 in. Hg.
Time: 16:25 **Total Time:** 8 Hours
Comments:

17M010-1-05

Building: 10 **Floor:** First **Location:** 102

Canister: AS01083 **Interval:** 8 Hour **HVAC:** N/A

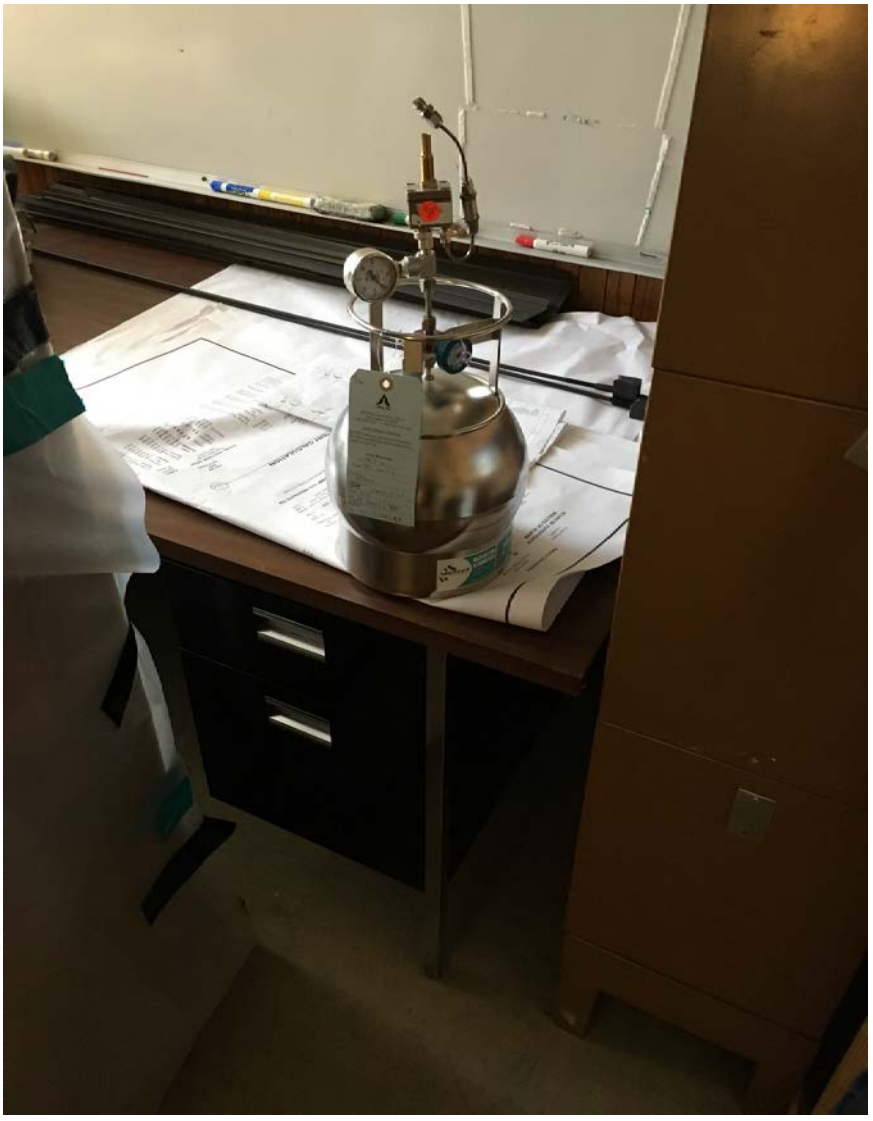
Flow Controller: FCA00283 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.17 in. Hg.

Time: 8:29

Comments:



Sample Completion

Date: 1/12/2017 **Vacuum:** -4.14 in. Hg.

Time: 16:29 **Total Time:** 8 Hours

Comments:

17M010-1-06

Building: 10 **Floor:** First **Location:** N104

Canister: AS00813 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: FCA00057 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.40 in. Hg.

Time: 8:22

Comments:

Sample Completion

Date: 1/12/2017 **Vacuum:** -5.21 in. Hg.

Time: 16:22 **Total Time:** 8 Hours

Comments:

17M010-1-07

Building: 10 **Floor:** N/A **Location:** Exhaust
Canister: AS00773 **Interval:** 8 Hour **HVAC:** N/A
Flow Controller: FCA000752 **Sample Type:** Exhaust

Sample Start

Date: 1/12/2017 **Vacuum:** -30.25 in. Hg.
Time: 8:30
Comments:

Sample Completion

Date: 1/12/2017 **Vacuum:** -4.67 in. Hg.
Time: 16:30 **Total Time:** 8 Hours
Comments:

17M010-1-10

Building: 10 **Floor:** First **Location:** 103

Canister: AC02085 **Interval:** 8 Hour **HVAC:** N/A

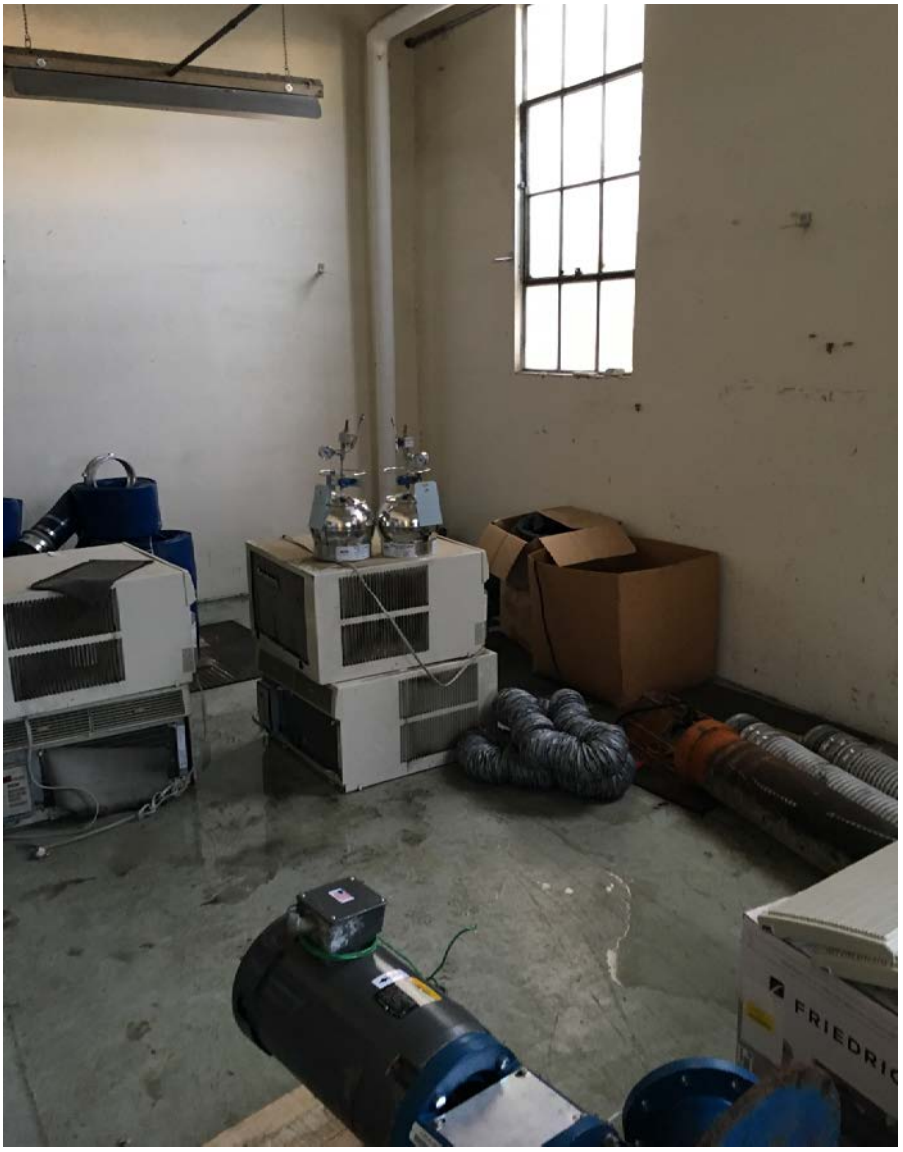
Flow Controller: FCA00247 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.37 in. Hg.

Time: 8:27

Comments: Duplicate 17M310-1-10-N shown.



Sample Completion

Date: 1/12/2017 **Vacuum:** -6.97 in. Hg.

Time: 16:27 **Total Time:** 8 Hours

Comments:

17M010-A-01

Building: 10 **Floor:** Ambient Air **Location:** N/A

Canister: AS01060 **Interval:** 24 Hour **HVAC:** N/A

Flow Controller: FCA00686 **Sample Type:** Background

Sample Start

Date: 1/12/2017 **Vacuum:** -30.22 in. Hg.

Time: 8:31

Comments:

Sample Completion

Date: 1/12/2017 **Vacuum:** -0.96 in. Hg.

Time: 8:55 **Total Time:** 24 Hours 24 Minutes

Comments:

17M012-1-01-F

Building: 12 **Floor:** First **Location:** 109D

Canister: AS00340 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCA00654 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -29.90 in. Hg.

Time: 8:40

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -10.59 in. Hg.

Time: 8:25 **Total Time:** 23 Hours 45 Minutes

Comments:

17M012-1-01-N

Building: 12 **Floor:** First **Location:** 109D

Canister: AC02119 **Interval:** 24 Hour **HVAC:** On

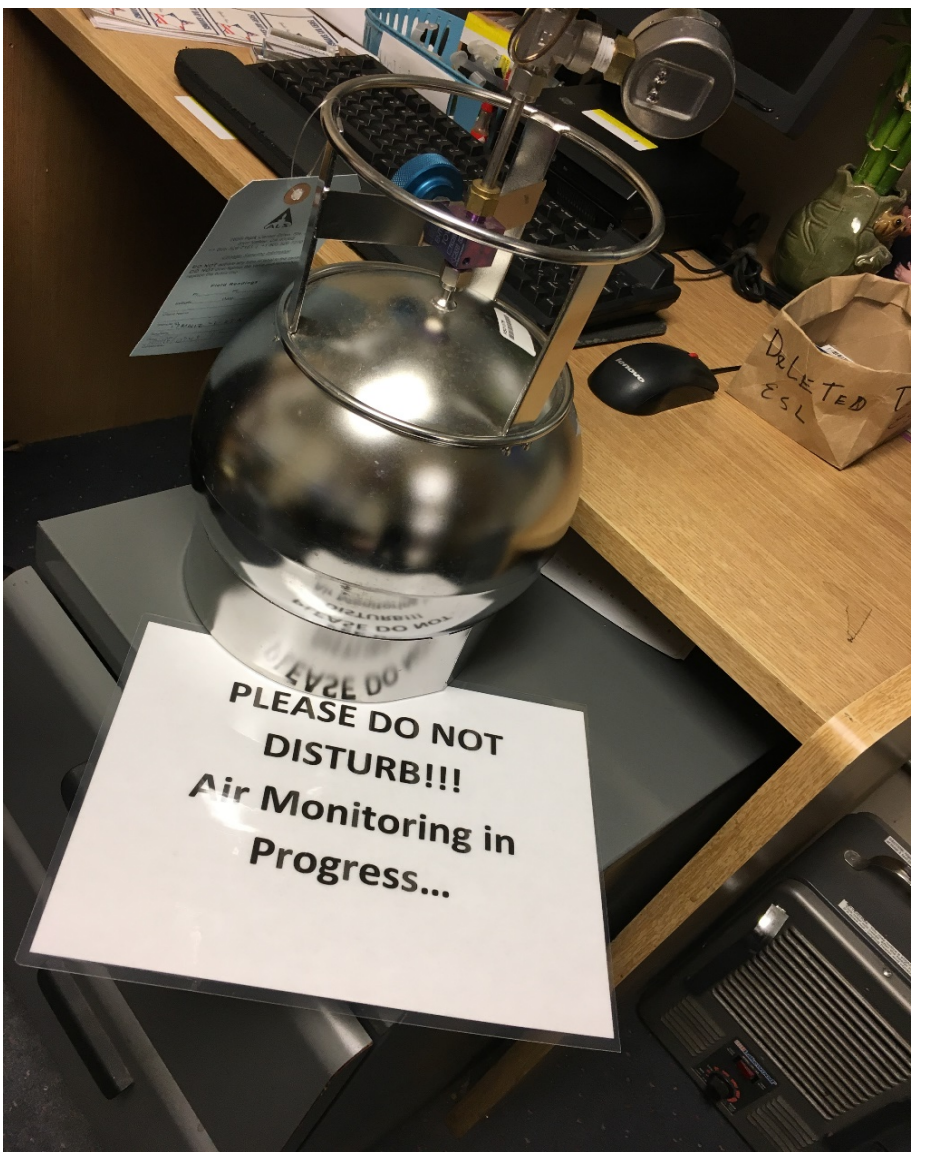
Flow Controller: FCA00993 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.17 in. hg.

Time: 7:38

Comments:



Sample Completion

Date: 1/11/2017 **Vacuum:** -6.59 in. hg.

Time: 7:38 **Total Time:** 24 Hours

Comments:

17M012-1-02-N

Building: 12 **Floor:** First **Location:** 109

Canister: AC02119 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA01038 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.25 in. hg.

Time: 10:08

Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -1.89 in. hg.

Time: 9:58 **Total Time:** 23 Hours 50 Minutes

Comments:

17M012-1-03-F

Building: 12 **Floor:** First **Location:** 101

Canister: AC02048 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCA00849 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -29.83 in. Hg.

Time: 8:40

Comments: Duplicate 17M312-1-03-F shown.

Sample Completion

Date: 1/16/2017 **Vacuum:** -1.73 in. Hg.

Time: 8:26 **Total Time:** 23 Hours 46 Minutes

Comments:

17M012-1-03-N

Building: 12 **Floor:** First **Location:** 101

Canister: 19037 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00471 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.28 in. hg.

Time: 7:43

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -2.38 in. hg.

Time: 7:43 **Total Time:** 24 Hours

Comments:

17M012-A-01-N

Building: 12 **Floor:** Ambient Air **Location:** N/A

Canister: 5009 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00786 **Sample Type:** Background

Sample Start

Date: 1/10/2017 **Vacuum:** -30.22 in. hg.

Time: 7:42

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -0.78 in. hg.

Time: 7:42 **Total Time:** 24 Hours

Comments:

17M012-C-05-F

Building: 12 **Floor:** N/A **Location:** Crawl Space
Canister: AS01076 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FAC00029 **Sample Type:** Pathway

Sample Start

Date: 1/15/2017 **Vacuum:** -29.75 in. Hg.
Time: 8:49
Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -5.51 in. Hg.
Time: 8:39 **Total Time:** 23 Hours 50 Minutes
Comments:

17M012-C-05-N

Building: 12 **Floor:** Crawl Space **Location:** Crawl Space

Canister: AS01016 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00685 **Sample Type:** Pathway

Sample Start

Date: 1/12/2017 **Vacuum:** -29.92 in. hg.

Time: 10:10

Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -0.70 in. hg.

Time: 10:00 **Total Time:** 23 Hours 50 Minutes

Comments:

17M013-1-02

Building: 13 **Floor:** First **Location:** 102

Canister: AS00668 **Interval:** 24 Hour **HVAC:** N/A

Flow Controller: FCR00055 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -29.84 in. Hg.

Time: 8:20

Comments: Duplicate 17M313-1-02 Shown

Sample Completion

Date: 1/19/2017 **Vacuum:** -4.34 in. Hg.

Time: 8:09 **Total Time:** 23 Hours 49 Minutes

Comments:

17M014-1-03-F

Building: 14 **Floor:** First **Location:** 101

Canister: AC02183 **Interval:** 8 Hour **HVAC:** Off

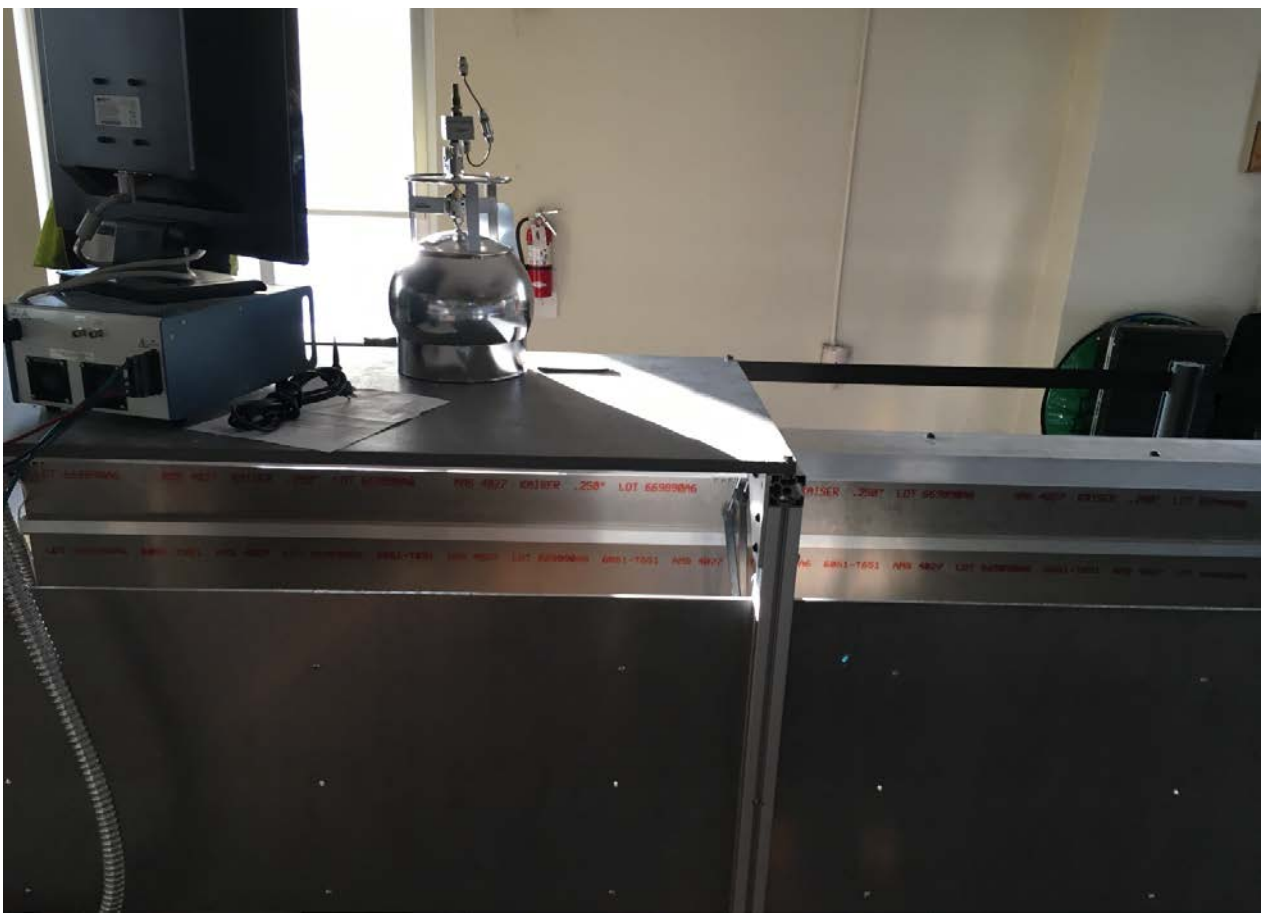
Flow Controller: FCA00541 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -30.21 in. Hg.

Time: 8:36

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -4.74 in. Hg.

Time: 16:36 **Total Time:** 7 Hours 43 Minutes

Comments:

17M014-1-03-N

Building: 14 **Floor:** First **Location:** 101

Canister: AS00537 **Interval:** 8 Hour **HVAC:** On

Flow Controller: FCA01015 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.92 in. Hg.

Time: 8:56

Comments:

Sample Completion

Date: 1/17/2017 **Vacuum:** -11.25 in. Hg.

Time: 15:55 **Total Time:** 6 Hours 59 Minutes

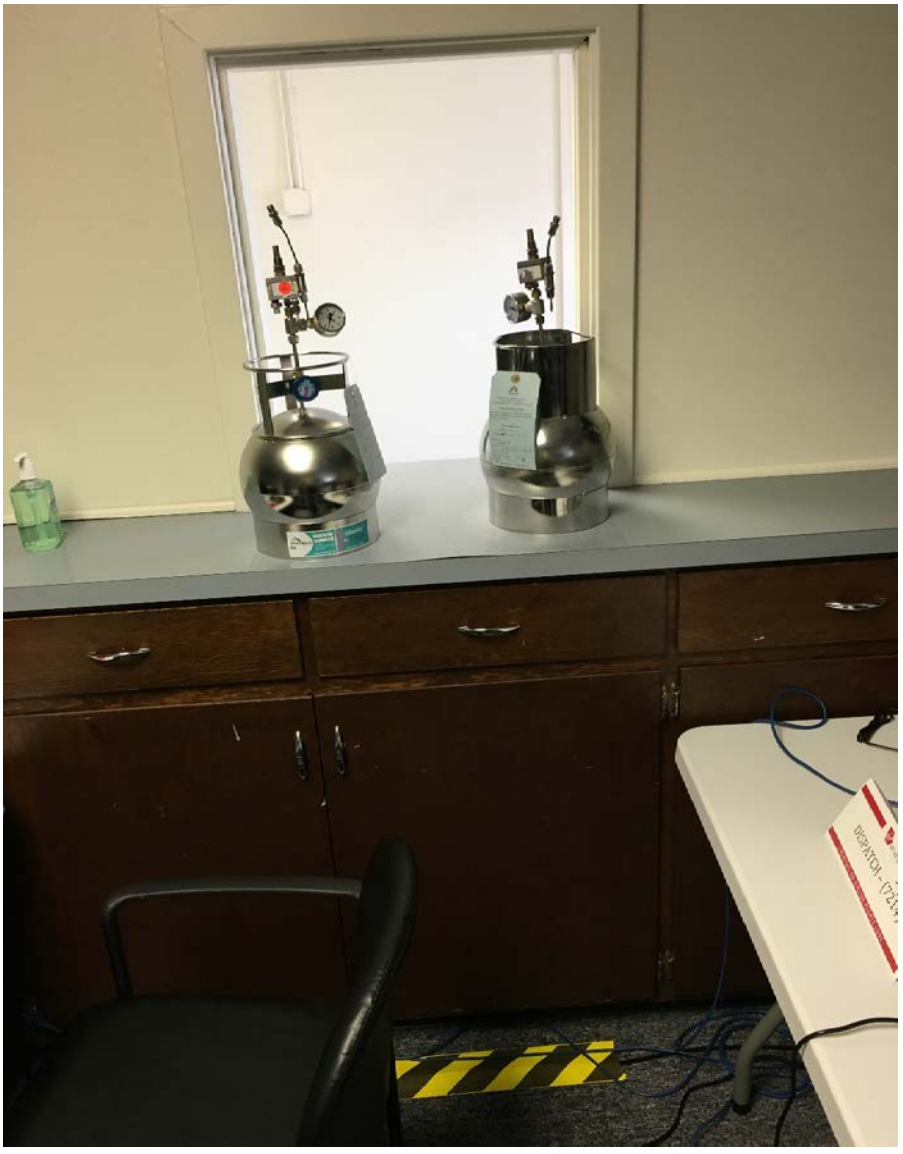
Comments:

17M014-1-05-N

Building: 14 **Floor:** First **Location:** 106
Canister: AS01138 **Interval:** 8 Hour **HVAC:** On
Flow Controller: FCS00268 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.78 in. Hg.
Time: 8:51
Comments: Duplicate 17M314-1-05-N shown.



Sample Completion

Date: 1/17/2017 **Vacuum:** -8.58 in. Hg.
Time: 15:53 **Total Time:** 7 Hours 2 Minutes
Comments:

17M014-C-02-F

Building: 14 **Floor:** Crawl Space **Location:** Crawl Space

Canister: AC01780 **Interval:** 8 Hour **HVAC:** Off

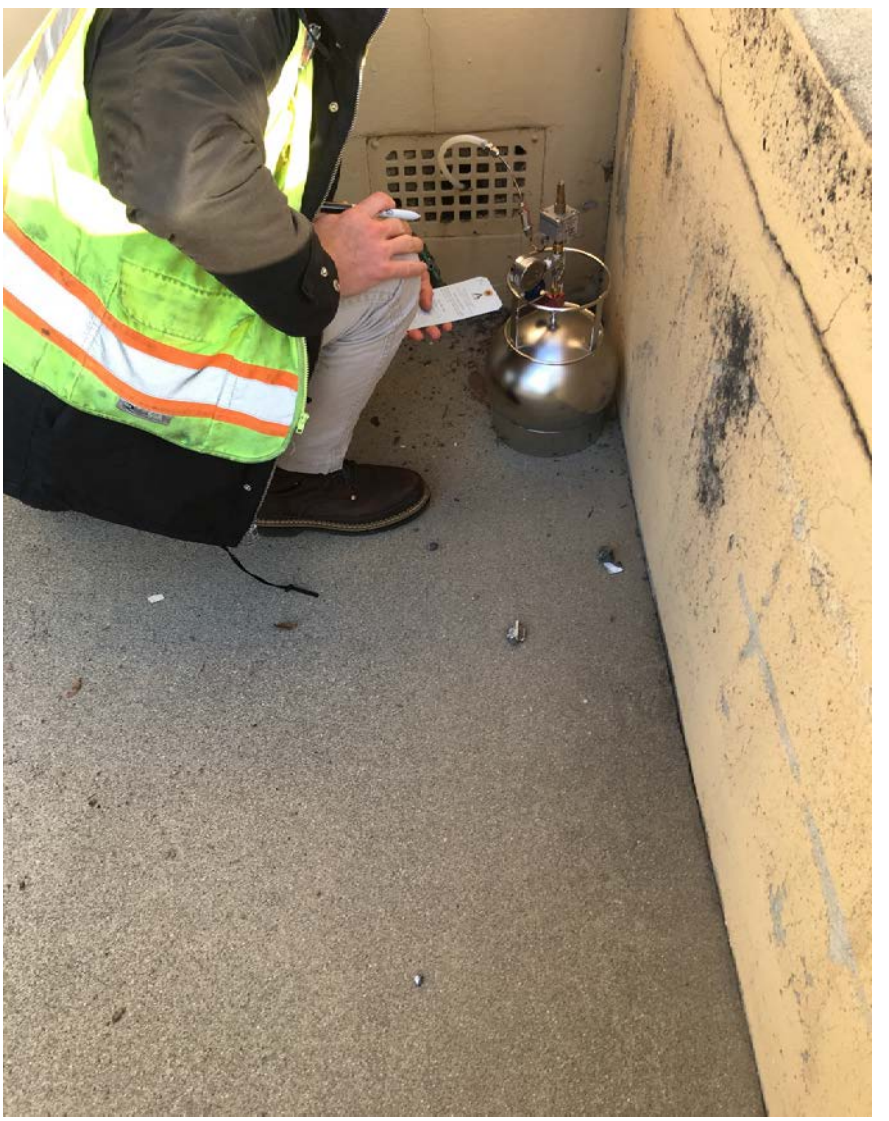
Flow Controller: FCA01047 **Sample Type:** Pathway

Sample Start

Date: 1/16/2017 **Vacuum:** -30.25 in. Hg.

Time: 8:39

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -7.56 in. Hg.

Time: 16:28 **Total Time:** 7 Hours 49 Minutes

Comments:

17M014-C-02-N

Building: 14 **Floor:** Crawl Space **Location:** Crawl Space

Canister: AC01913 **Interval:** 8 Hour **HVAC:** On

Flow Controller: FCA01008 **Sample Type:** Pathway

Sample Start

Date: 1/17/2017 **Vacuum:** -29.21 in. Hg.

Time: 8:39

Comments:

Sample Completion

Date: 1/17/2017 **Vacuum:** -7.35 in. Hg.

Time: 15:54 **Total Time:** 7 Hours 15 Minutes

Comments:

17M015-1-01-F

Building: 15 **Floor:** First **Location:** 135D

Canister: AC01642 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCA00813 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.25 in. Hg.

Time: 9:03

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -4.91 in. Hg.

Time: 8:45 **Total Time:** 23 Hours 42 Minutes

Comments:

17M015-1-01-N

Building: 15 **Floor:** First **Location:** 135D

Canister: 4369 **Interval:** 24 Hour **HVAC:** On

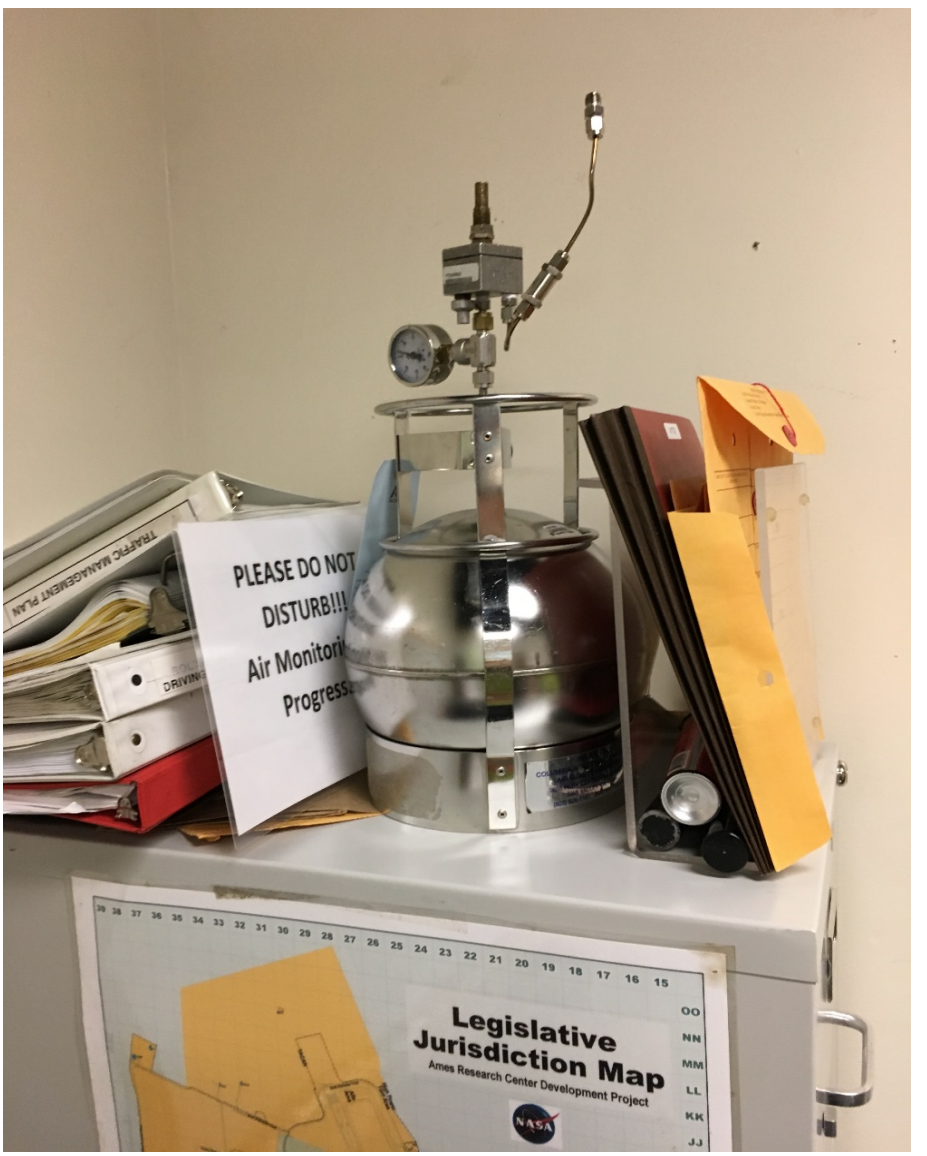
Flow Controller: FCA00631 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.08 in. hg.

Time: 7:52

Comments:



Sample Completion

Date: 1/11/2017 **Vacuum:** -15.76 in. hg.

Time: 7:52 **Total Time:** 24 Hours

Comments:

17M015-1-02-N

Building: 15 **Floor:** First **Location:** 117

Canister: 17031 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA01087 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.18 in. hg.

Time: 7:56

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -6.03 in. hg.

Time: 7:56 **Total Time:** 24 Hours

Comments:

17M015-1-03-N

Building: 15 **Floor:** First **Location:** C107

Canister: 11583 **Interval:** 24 Hour **HVAC:** On

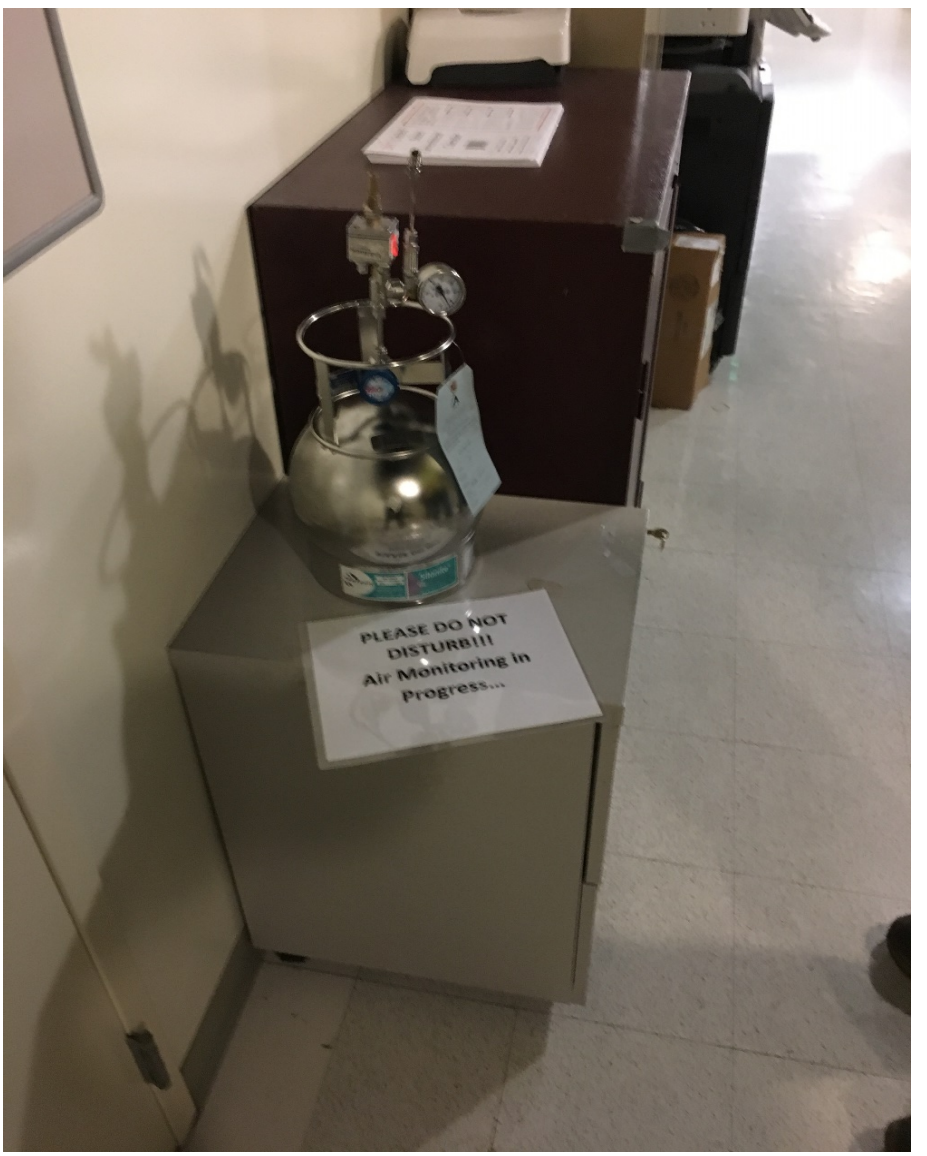
Flow Controller: FCA00460 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.20 in. hg.

Time: 7:51

Comments:



Sample Completion

Date: 1/11/2017 **Vacuum:** -11.49 in. hg.

Time: 7:51 **Total Time:** 24 Hours

Comments:

17M015-1-06-N

Building: 15 **Floor:** First **Location:** C104

Canister: 20405 **Interval:** 24 Hour **HVAC:** On

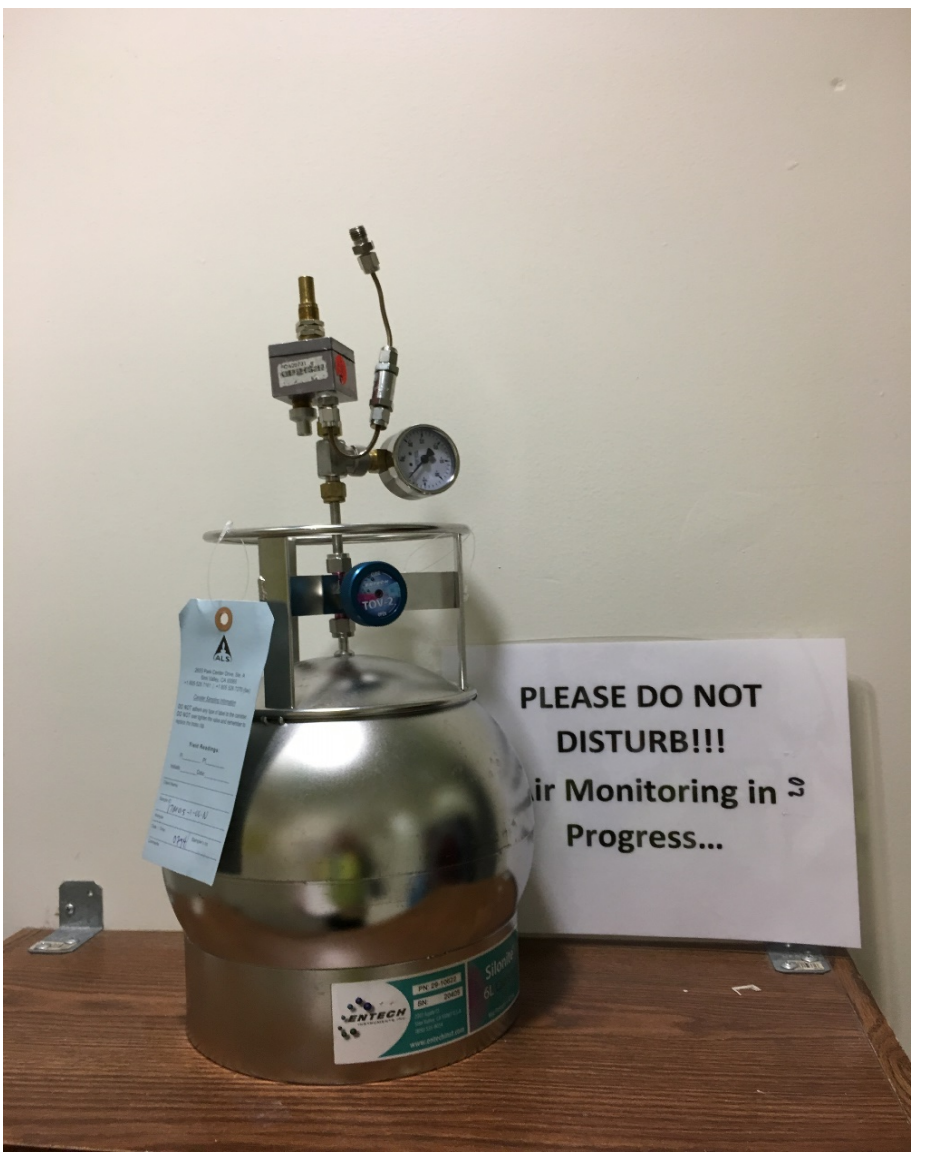
Flow Controller: FCA00731 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.20 in. hg.

Time: 7:54

Comments:



Sample Completion

Date: 1/11/2017 **Vacuum:** -7.42 in. hg.

Time: 7:54 **Total Time:** 24 Hours

Comments:

17M015-A-01-F

Building: 15 **Floor:** Ambient Air **Location:** N/A

Canister: SC01489 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCR00149 **Sample Type:** Background

Sample Start

Date: 1/15/2017 **Vacuum:** -30.29 in. Hg.

Time: 9:11

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -2.42 in. Hg.

Time: 8:38 **Total Time:** 23 Hours 42 Minutes

Comments:

17M016-1-01-F

Building: 16 **Floor:** First **Location:** 106

Canister: AC02154 **Interval:** 10 Hour **HVAC:** Off

Flow Controller: FCA00174 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -30.32 in. Hg.

Time: 7:42

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -7.10 in. Hg.

Time: 17:32 **Total Time:** 9 Hours 50 Minutes

Comments:

17M016-1-01-N

Building: 16 **Floor:** First **Location:** 102

Canister: AS00039 **Interval:** 10 Hour **HVAC:** On

Flow Controller: FCA00961 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -29.97 in. Hg.

Time: 7:00

Comments:

Sample Completion

Date: 1/18/2017 **Vacuum:** -7.95 in. Hg.

Time: 16:37 **Total Time:** 9 Hours 37 Minutes

Comments:

17M016-1-02-F

Building: 16 **Floor:** First **Location:** 110

Canister: AS02131 **Interval:** 10 Hour **HVAC:** Off

Flow Controller: FCA00023 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -30.23 in. Hg.

Time: 7:44

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -6.60 in. Hg.

Time: 17:32 **Total Time:** 9 Hours 48 Minutes

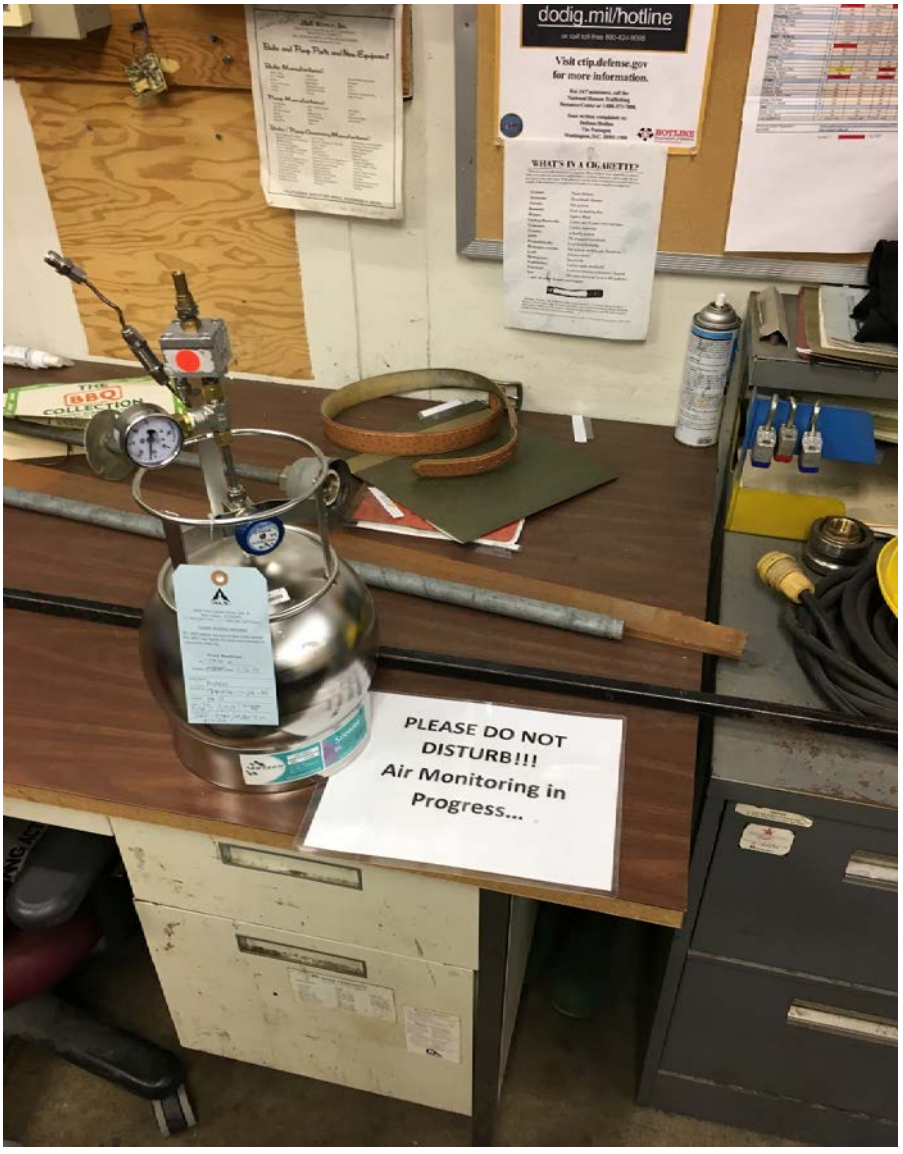
Comments:

17M016-1-04-N

Building: 16 **Floor:** First **Location:** 113
Canister: AC01910 **Interval:** 10 Hour **HVAC:** On
Flow Controller: FCA00500 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -29.70 in. Hg.
Time: 7:05
Comments:



Sample Completion

Date: 1/18/2017 **Vacuum:** -7.18 in. Hg.
Time: 16:40 **Total Time:** 9 Hours 35 Minutes
Comments:

17M016-1-05-N

Building: 16 **Floor:** First **Location:** 103

Canister: AC01881 **Interval:** 10 Hour **HVAC:** On

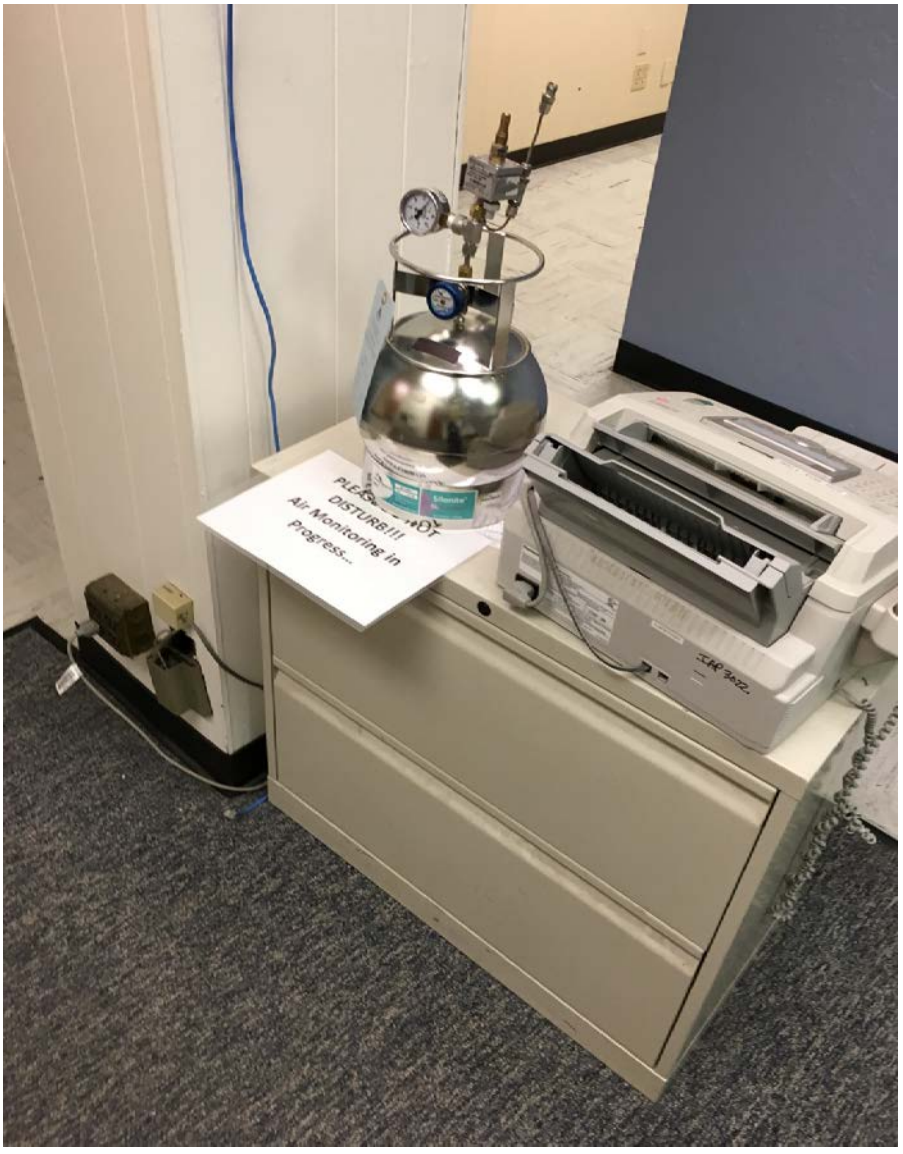
Flow Controller: FCA00907 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -28.47 in. Hg.

Time: 6:57

Comments:



Sample Completion

Date: 1/18/2017 **Vacuum:** -4.70 in. Hg.

Time: 16:35 **Total Time:** 9 Hours 57 Minutes

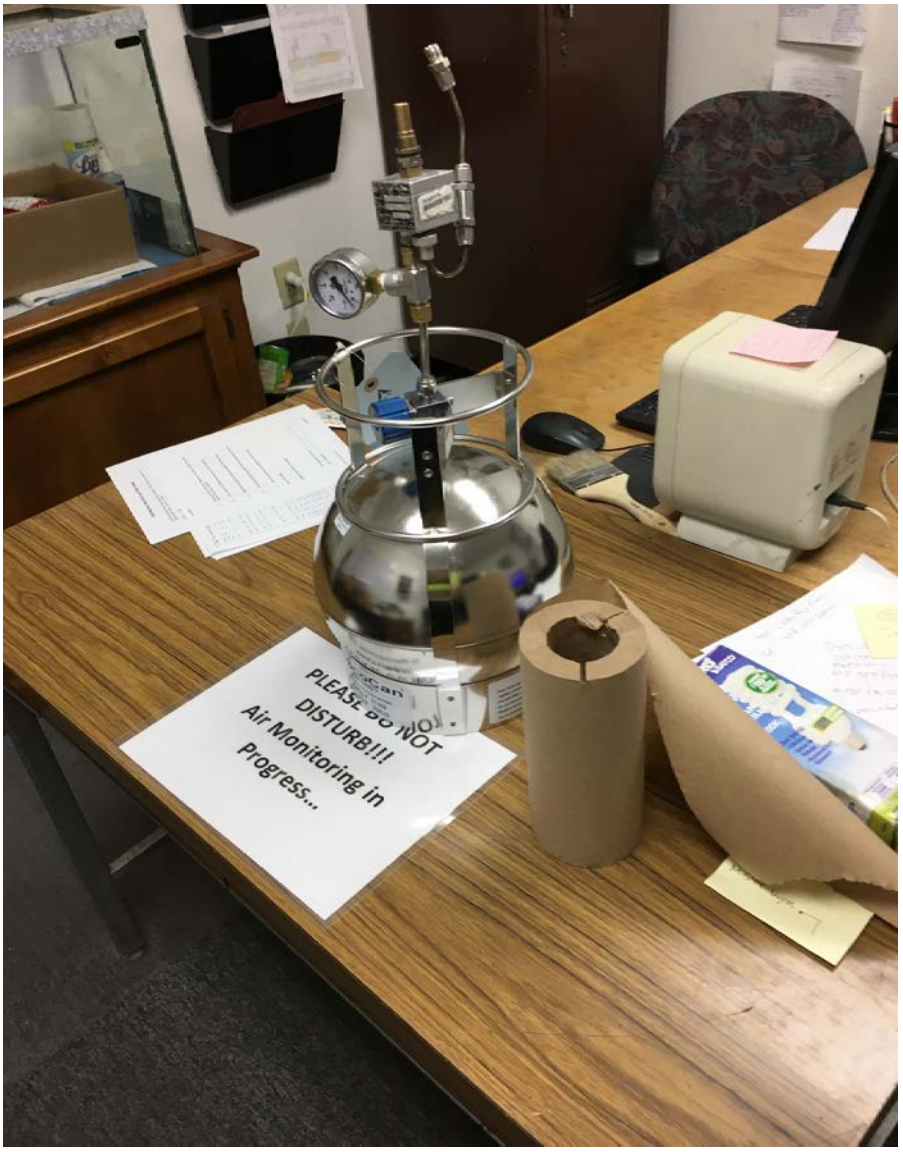
Comments:

17M016-1-06-N

Building: 16 **Floor:** First **Location:** 108
Canister: AS01028 **Interval:** 10 Hour **HVAC:** On
Flow Controller: FCA00175 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -28.94 in. Hg.
Time: 7:03
Comments:



Sample Completion

Date: 1/18/2017 **Vacuum:** -6.55 in. Hg.
Time: 17:04 **Total Time:** 9 Hours 59 Minutes
Comments:

17M016-A-01-F

Building: 16 **Floor:** Ambient Air **Location:** N/A

Canister: AS01030 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCR00235 **Sample Type:** Background

Sample Start

Date: 1/15/2017 **Vacuum:** -30.21 in. Hg.

Time: 9:28

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -0.26 in. Hg.

Time: 8:57 **Total Time:** 23 Hours 29 Minutes

Comments:

17M016-A-01-N

Building: 16 **Floor:** Ambient Air **Location:** N/A
Canister: AC02054 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCR00038 **Sample Type:** Background

Sample Start

Date: 1/18/2017 **Vacuum:** -29.96 in. Hg.
Time: 8:11
Comments:

Sample Completion

Date: 1/19/2017 **Vacuum:** -5.43 in. Hg.
Time: 8:01 **Total Time:** 23 Hours 50 Minutes
Comments:

17M029-1-01

Building: 29 **Floor:** First **Location:** 106

Canister: 12875 **Interval:** 8 Hour **HVAC:** N/A

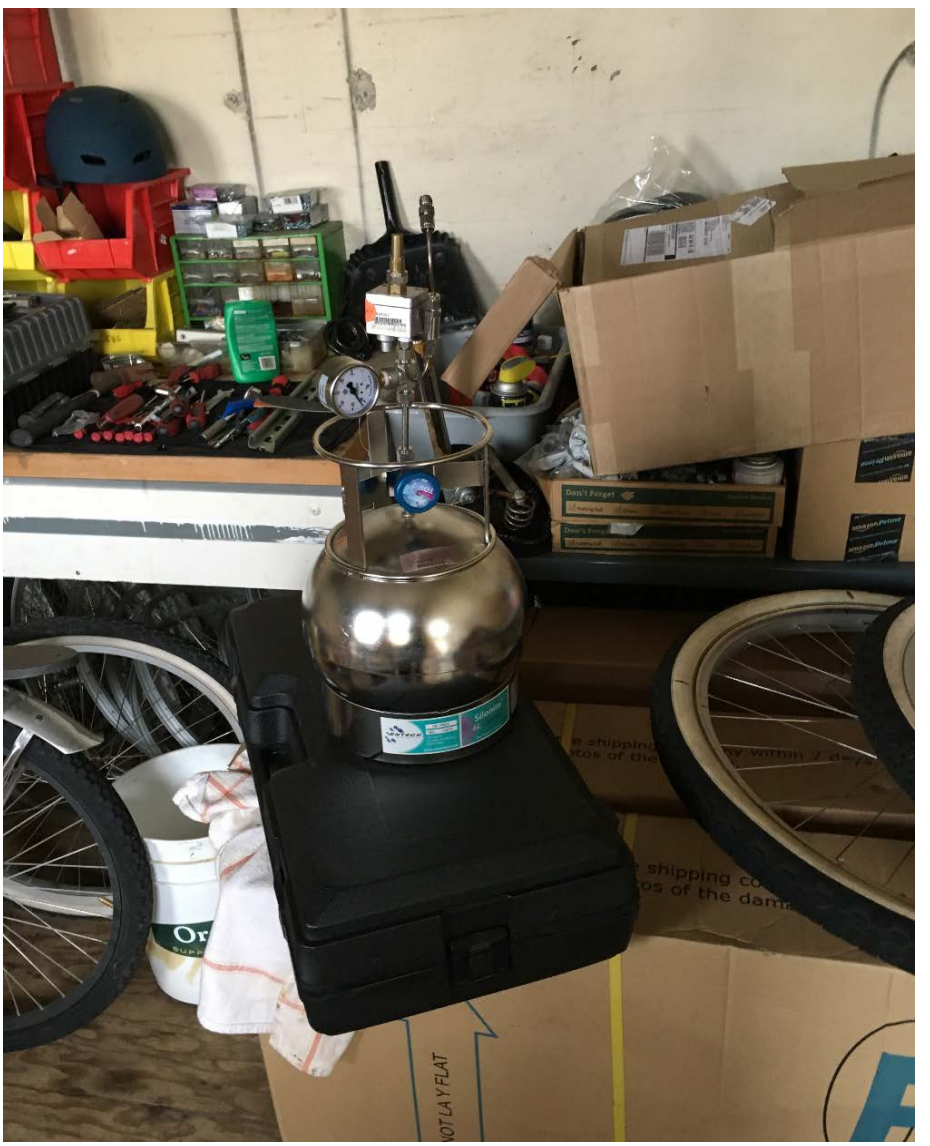
Flow Controller: FCA01085 **Sample Type:** Work Area

Sample Start

Date: 1/9/2017 **Vacuum:** -29.99 in. Hg.

Time: 8:48

Comments:



Sample Completion

Date: 1/9/2017 **Vacuum:** -5.74 in. Hg.

Time: 16:48 **Total Time:** 8 Hours

Comments:

17M029-A-01

Building: 29 **Floor:** Ambient Air **Location:** N/A

Canister: 3024 **Interval:** 24 Hour **HVAC:** N/A

Flow Controller: FCA00454 **Sample Type:** Background

Sample Start

Date: 1/9/2017 **Vacuum:** -29.95 in. hg.

Time: 8:49

Comments:

Sample Completion

Date: 1/10/2017 **Vacuum:** -4.71 in. hg.

Time: 16:49 **Total Time:** 24 Hours

Comments:

17M029-B-01

Building: 29 **Floor:** Basement **Location:** Basement

Canister: 3024 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: 14056 **Sample Type:** Work Area

Sample Start

Date: 1/9/2017 **Vacuum:** -30.01 in. hg.

Time: 8:47

Comments:

Sample Completion

Date: 1/9/2017 **Vacuum:** -5.40 in. hg.

Time: 16:47 **Total Time:** 8 Hours

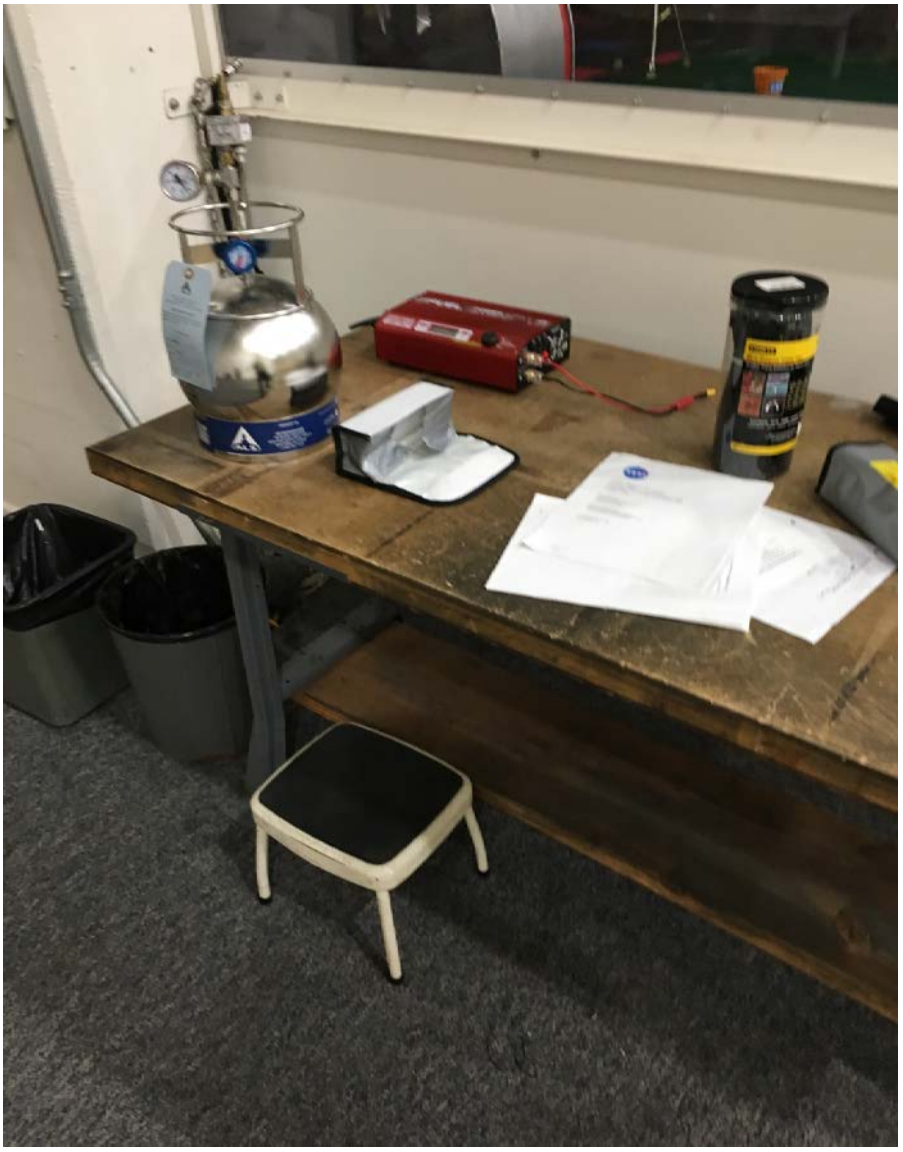
Comments:

17M045-1-01

Building: 45 **Floor:** First **Location:** 101
Canister: AS00885 **Interval:** 8 Hour **HVAC:** N/A
Flow Controller: FCA01022 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.81 in. Hg.
Time: 7:55
Comments:



Sample Completion

Date: 1/17/2017 **Vacuum:** -2.49 in. Hg.
Time: 15:43 **Total Time:** 7 Hours 47 Minutes
Comments:

17M045-1-02

Building: 45 **Floor:** First **Location:** 102

Canister: AS00974 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: FCA00919 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.34 in. Hg.

Time: 7:56

Comments:

Sample Completion

Date: 1/17/2017 **Vacuum:** -5.76 in. Hg.

Time: 15:40 **Total Time:** 7 Hours 44 Minutes

Comments:

17M076-1-01

Building: 76 **Floor:** First **Location:** 101

Canister: AC02125 **Interval:** 8 Hour **HVAC:** N/A

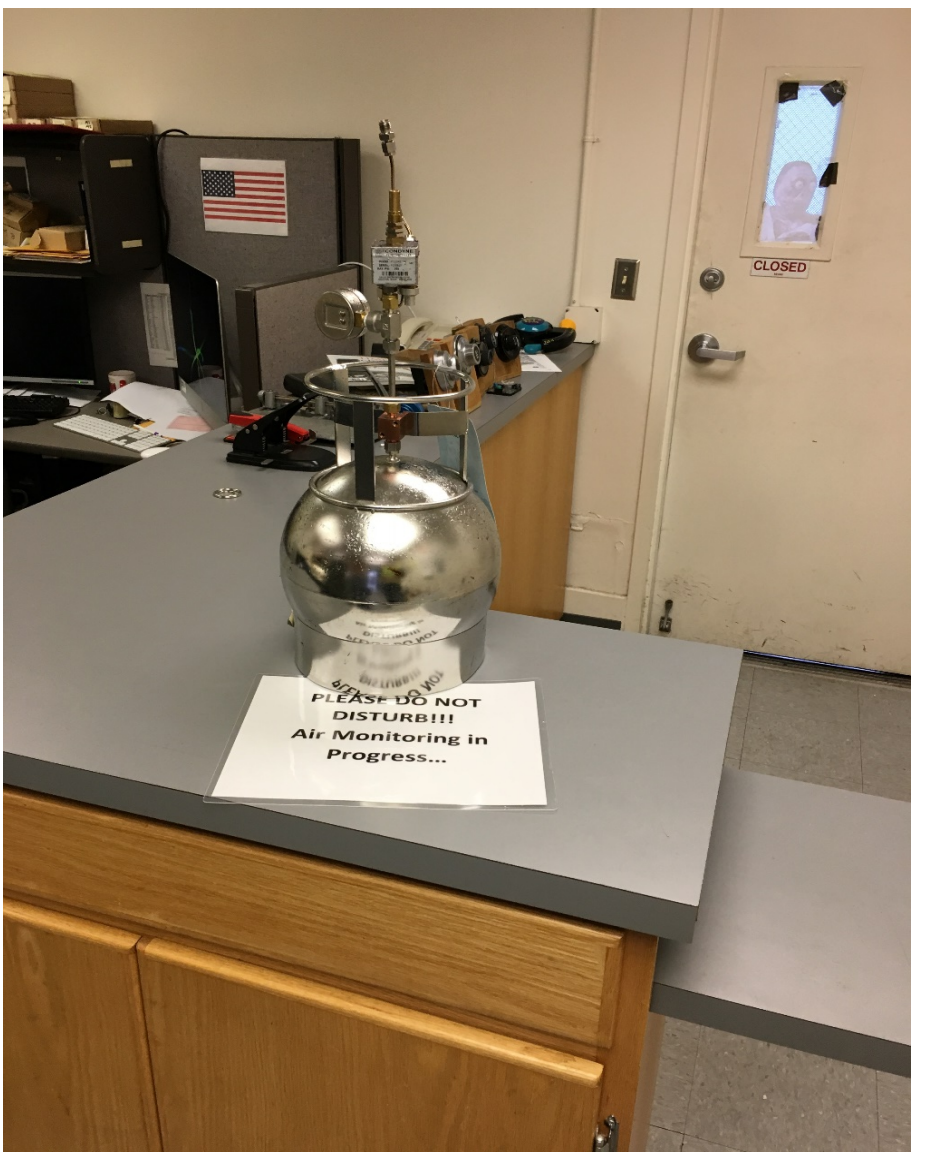
Flow Controller: FCA01052 **Sample Type:** Work Area

Sample Start

Date: 1/17/2017 **Vacuum:** -29.95 in. Hg.

Time: 7:41

Comments:



Sample Completion

Date: 1/18/2017 **Vacuum:** -0.61 in. hg.

Time: 14:45 **Total Time:** 7 Hours 4 Minutes

Comments:

17M107-1-02-F

Building: 107 **Floor:** First **Location:** C101

Canister: AS00982 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCS00269 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -30.20 in. Hg.

Time: 7:59

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -4.74 in. Hg.

Time: 15:56 **Total Time:** 7 Hours 47 Minutes

Comments:

17M126-1-02-N

Building: 126 **Floor:** First **Location:** 103

Canister: 13047 **Interval:** 8 Hour **HVAC:** N/A

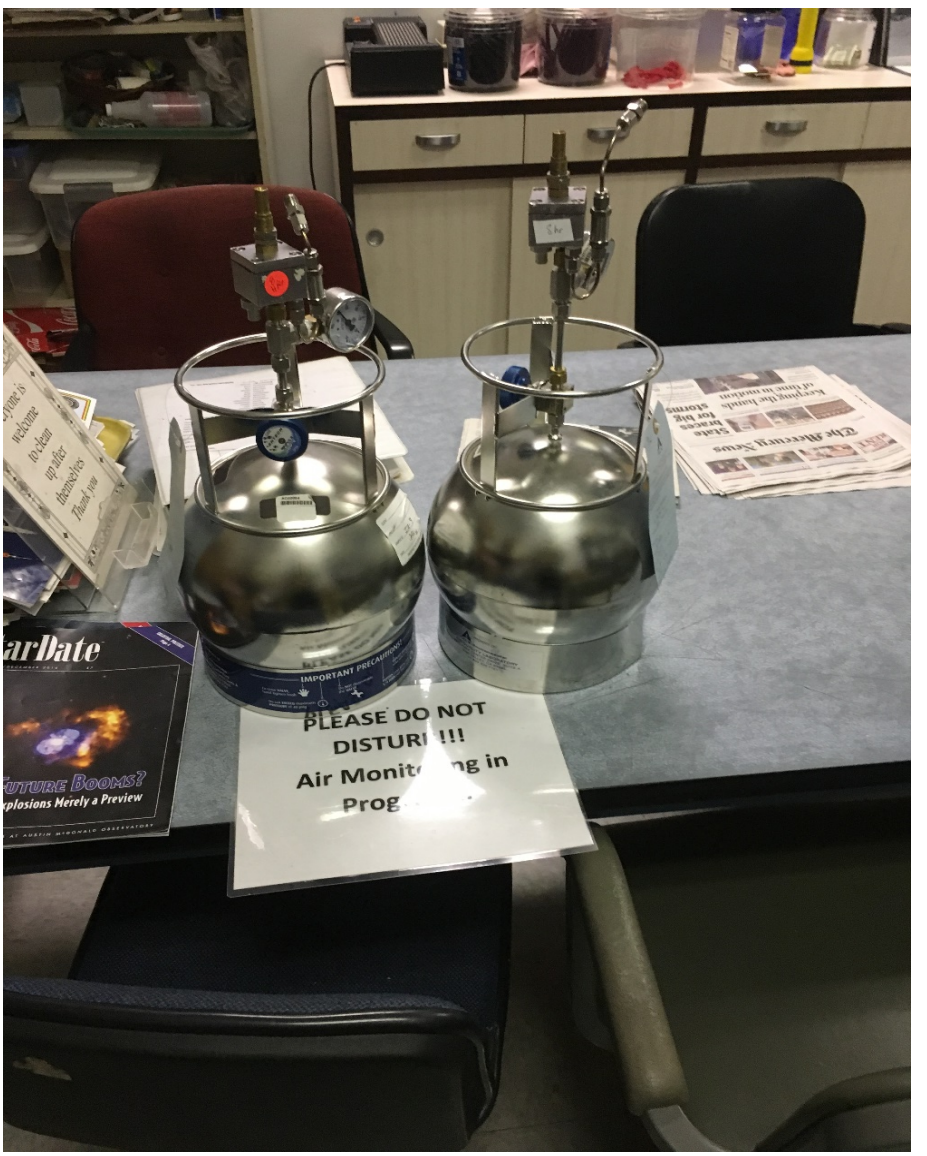
Flow Controller: FCA00825 **Sample Type:** Work Area

Sample Start

Date: 1/11/2017 **Vacuum:** -30.44 in. Hg.

Time: 9:11

Comments: Duplicate 17M326-1-02-N shown.



Sample Completion

Date: 1/12/2017 **Vacuum:** -16.47 in. hg.

Time: 15:32 **Total Time:** 6 Hours 21 Minutes

Comments:

17M126-1-04-N

Building: 126 **Floor:** First **Location:** 106

Canister: 5036 **Interval:** 8 Hour **HVAC:** N/A

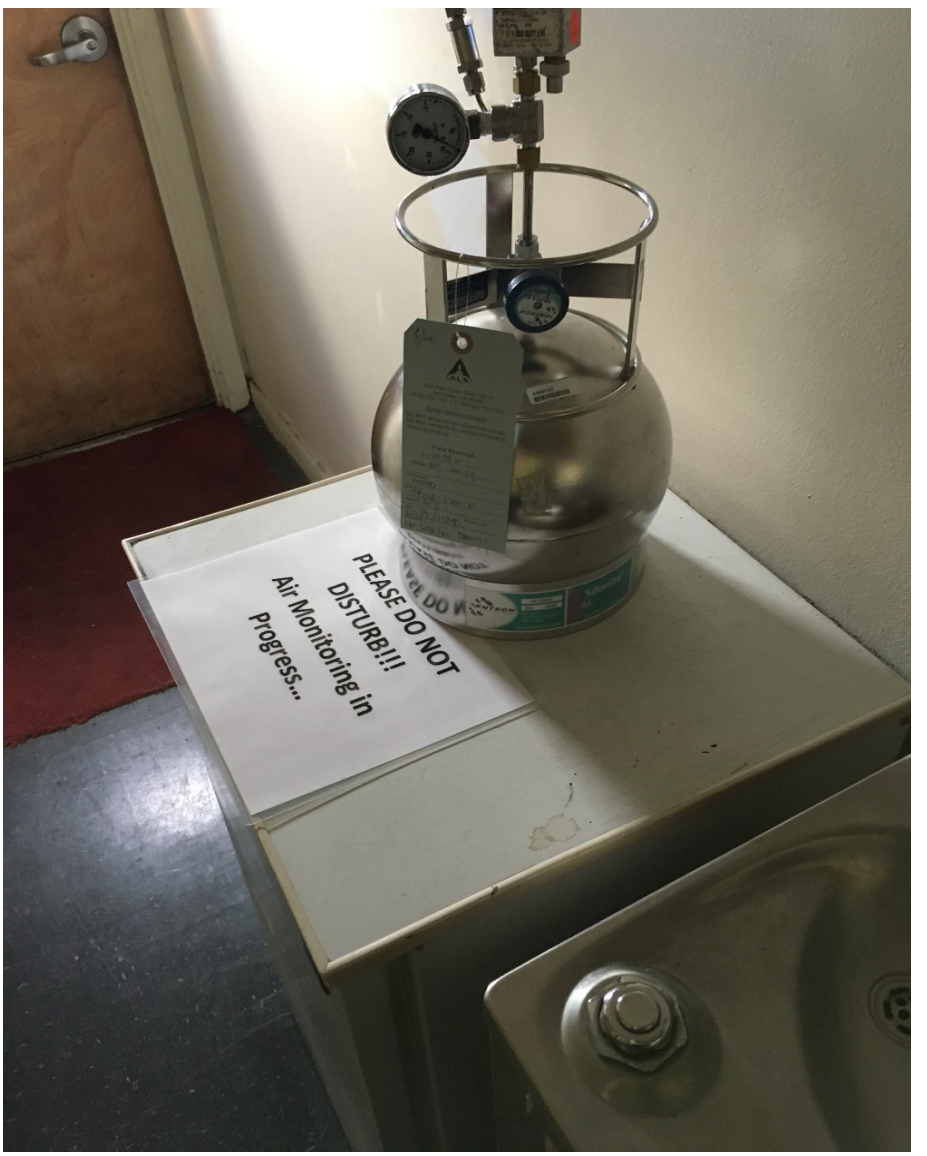
Flow Controller: FCA00977 **Sample Type:** Work Area

Sample Start

Date: 1/11/2017 **Vacuum:** -30.38 in. Hg.

Time: 9:09

Comments:



Sample Completion

Date: 1/12/2017 **Vacuum:** -19.07 in. hg.

Time: 15:31 **Total Time:** 6 Hours 22 Minutes

Comments:

17M126-1-05-N

Building: 126 **Floor:** First **Location:** 101

Canister: AC01606 **Interval:** 8 Hour **HVAC:** N/A

Flow Controller: FCA00950 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -30.42 in. Hg.

Time: 9:35

Comments:

Sample Completion

Date: 1/19/2017 **Vacuum:** -9.59 in. Hg.

Time: 15:30 **Total Time:** 5 Hours 55 Minutes

Comments:

17M510-1-02-F

Building: 510 **Floor:** First **Location:** 110

Canister: AS00978 **Interval:** 24 Hour **HVAC:** Off

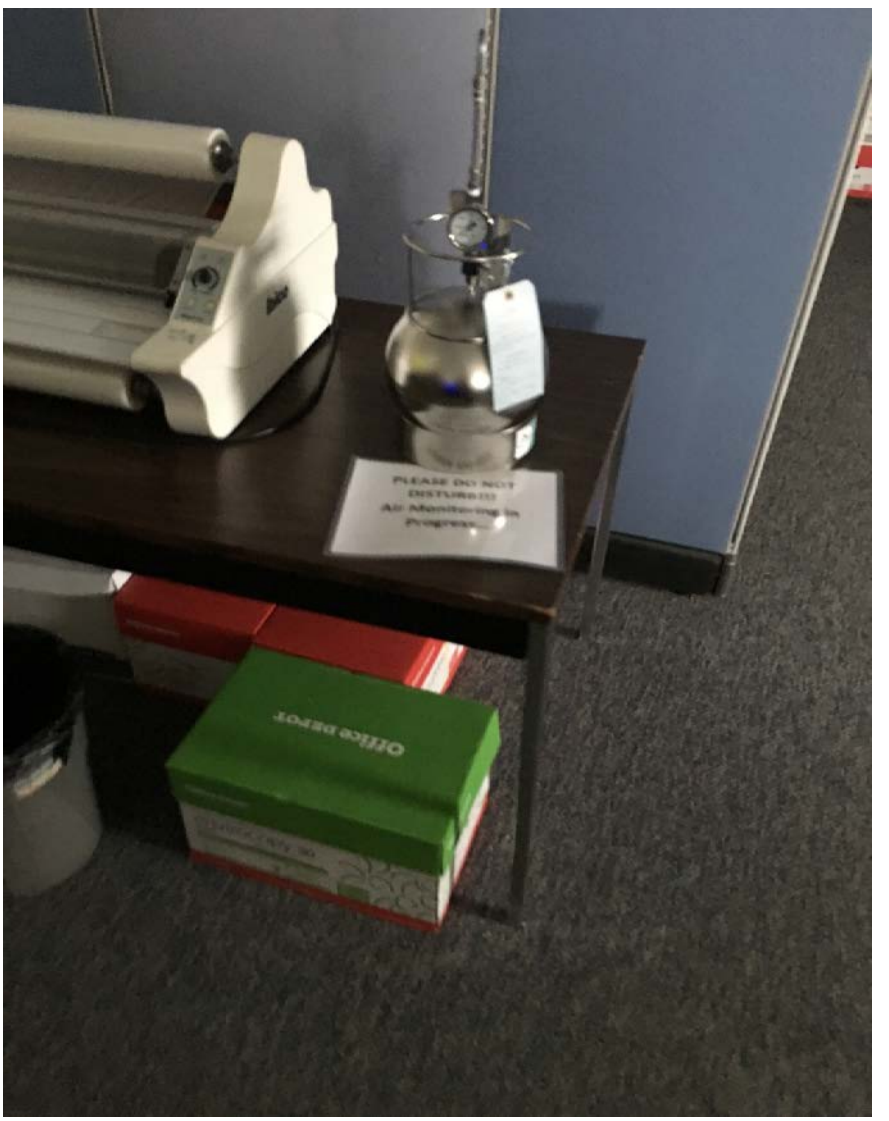
Flow Controller: FCR00117 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -29.68 in. Hg.

Time: 9:18

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -4.18 in. Hg.

Time: 8:52 **Total Time:** 23 Hours 34 Minutes

Comments:

17M510-1-03-F

Building: 510 **Floor:** First **Location:** C101

Canister: AC02190 **Interval:** 24 Hour **HVAC:** Off

Flow Controller: FCR00248 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.22 in. Hg.

Time: 9:17

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -5.48 in. Hg.

Time: 8:51 **Total Time:** 23 Hours 34 Minutes

Comments:

17M510-1-03-N

Building: 510 **Floor:** First **Location:** C101
Canister: AS01026 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCR00280 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -29.93 in. Hg.
Time: 8:08
Comments:

Sample Completion

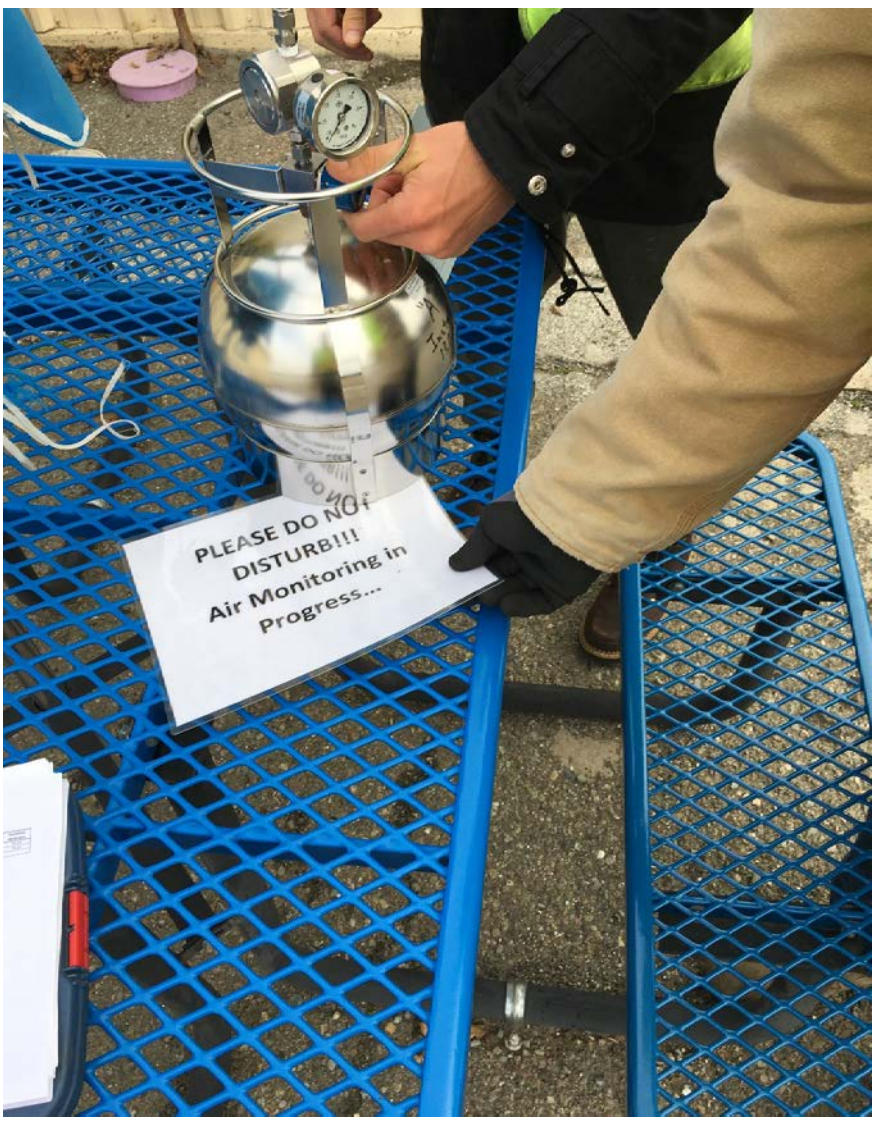
Date: 1/19/2017 **Vacuum:** -5.24 in. Hg.
Time: 7:58 **Total Time:** 23 Hours 50 Minutes
Comments:

17M510-A-01-F

Building: 510 **Floor:** Ambient Air **Location:** N/A
Canister: AS01023 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00207 **Sample Type:** Background

Sample Start

Date: 1/15/2017 **Vacuum:** -30.13 in. Hg.
Time: 9:20
Comments:



Sample Completion

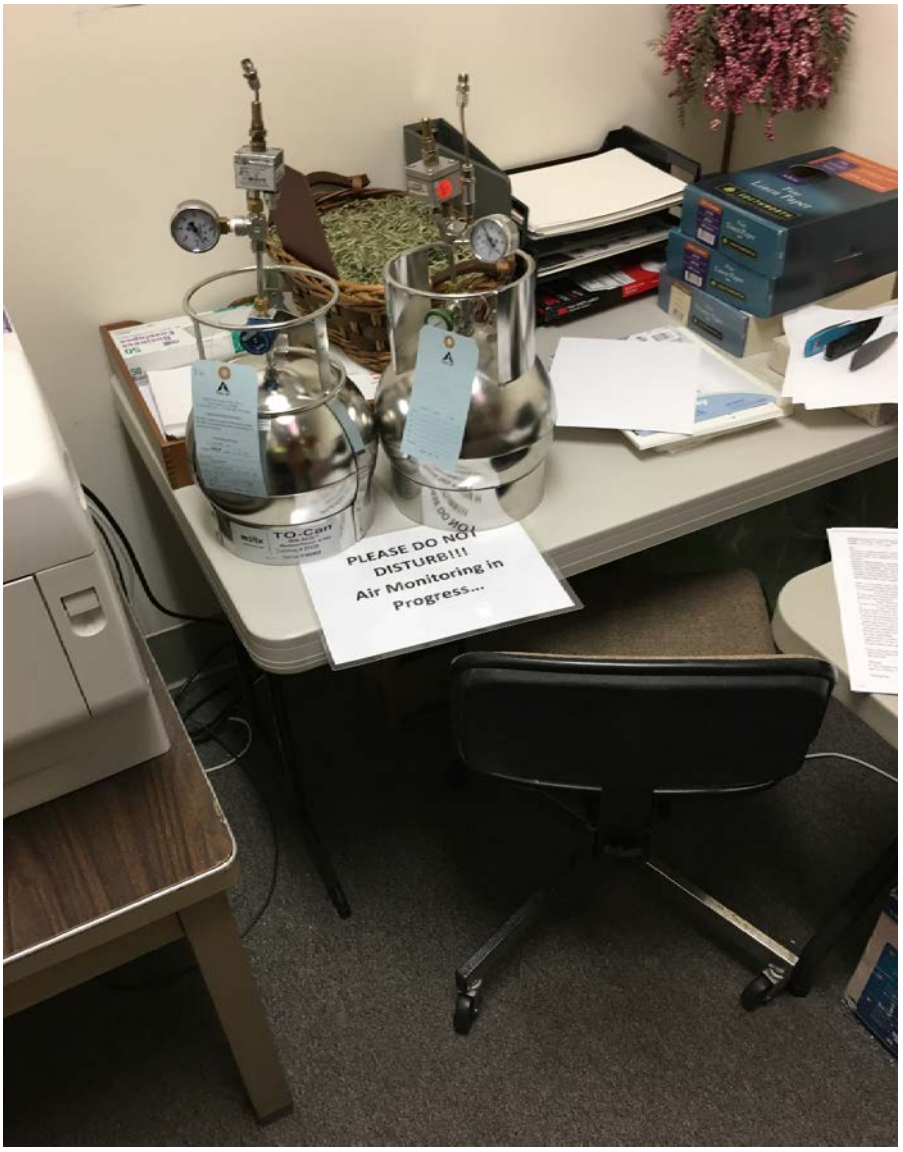
Date: 1/16/2017 **Vacuum:** -4.14 in. Hg.
Time: 8:55 **Total Time:** 23 Hours 35 Minutes
Comments:

17M555-1-01-N

Building: 555 **Floor:** First **Location:** 112
Canister: AC02087 **Interval:** 8 Hour **HVAC:** On
Flow Controller: FCA00895 **Sample Type:** Work Area

Sample Start

Date: 1/18/2017 **Vacuum:** -29.93 in. Hg.
Time: 7:22
Comments: Duplicate 17M355-1-01-N shown.



Sample Completion

Date: 1/18/2017 **Vacuum:** -6.11 in. Hg.
Time: 15:15 **Total Time:** 7 Hours 53 Minutes
Comments:

17M555-A-01-F

Building:	555	**Floor:**	Ambient Air	**Location:**	N/A
Canister:	AC02182	**Interval:**	24 Hour	**HVAC:**	Off
Flow Controller:	FCR00272	**Sample Type:**	Background		

Sample Start

Date: 1/15/2017 **Vacuum:** -29.73 in. Hg.

Time: 9:24

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -5.24 in. Hg.

Time: 8:55 **Total Time:** 23 Hours 36 Minutes

Comments:

17M566-1-01-F

Building: 566 **Floor:** First **Location:** 111

Canister: AS00917 **Interval:** 8 Hour **HVAC:** Off

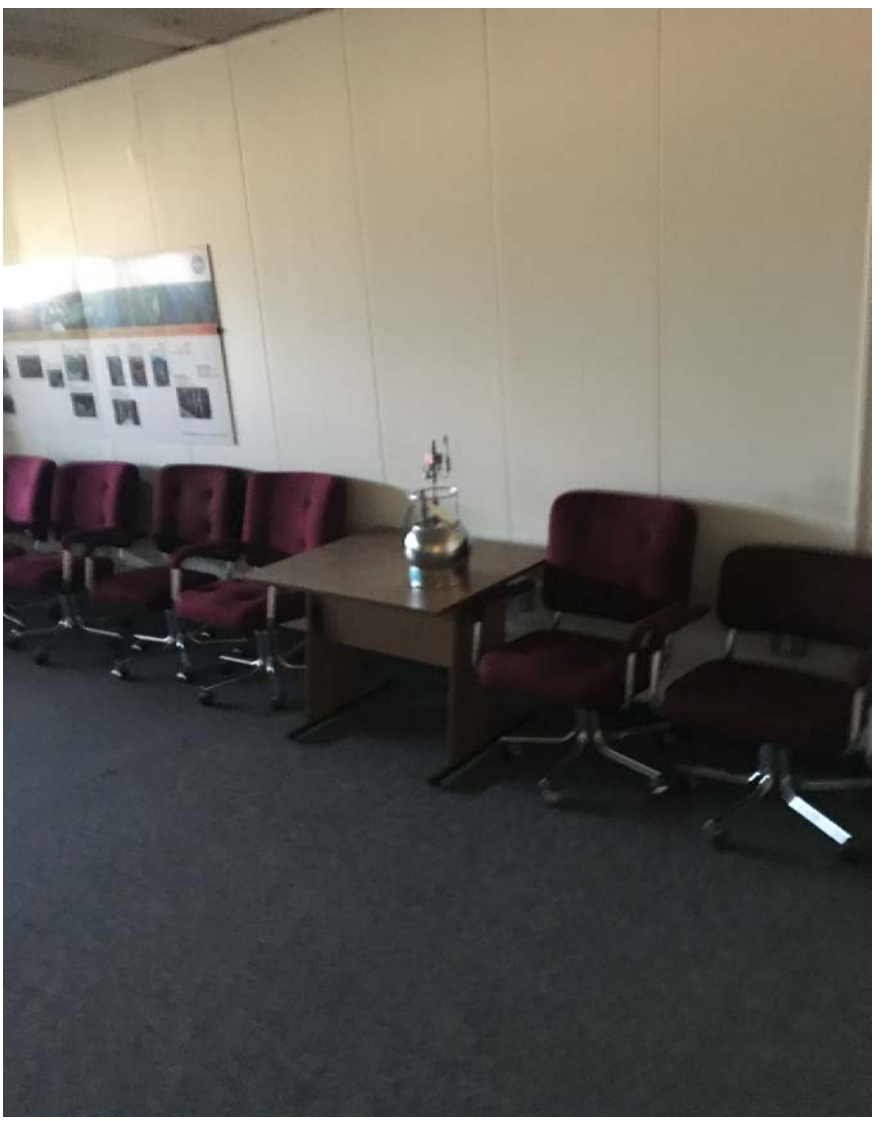
Flow Controller: FCS0053 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -29.77 in. Hg.

Time: 8:19

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -3.41 in. Hg.

Time: 16:15 **Total Time:** 7 Hours 56 Minutes

Comments:

17M566-1-01-N

Building: 566 **Floor:** First **Location:** 111

Canister: 6381 **Interval:** 8 Hour **HVAC:** On

Flow Controller: FCA4810 **Sample Type:** Work Area

Sample Start

Date: 1/9/2017 **Vacuum:** -28.68 in. hg.

Time: 8:19

Comments:

Sample Completion

Date: 1/9/2017 **Vacuum:** -7.18 in. hg.

Time: 16:19 **Total Time:** 8 Hours

Comments:

17M566-1-02-F

Building: 566 **Floor:** First **Location:** C103

Canister: AC01507 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCA00515 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -29.72 in. Hg.

Time: 8:20

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -6.79 in. Hg.

Time: 16:13 **Total Time:** 7 Hours 53 Minutes

Comments:

17M566-1-01-N

Building: 566 **Floor:** First **Location:** C103

Canister: 5058 **Interval:** 8 Hour **HVAC:** On

Flow Controller: FCA00473 **Sample Type:** Work Area

Sample Start

Date: 1/9/2017 **Vacuum:** -30.04 in. hg.

Time: 8:20

Comments:

Sample Completion

Date: 1/9/2017 **Vacuum:** -9.08 in. hg.

Time: 16:20 **Total Time:** 8 Hours

Comments:

17N210-1-02-F

Building: 210 **Floor:** First **Location:** C117A

Canister: AC02204 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCA01007 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -29.73 in. Hg.

Time: 9:15

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -7.02 in. Hg.

Time: 17:07 **Total Time:** 7 Hours 52 Minutes

Comments:

17N210-1-06-F

Building: 210 **Floor:** First **Location:** Q134

Canister: SSC00186 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCA01067 **Sample Type:** Pathway

Sample Start

Date: 1/16/2017 **Vacuum:** -29.71 in. Hg.

Time: 10:21

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -13.51 in. Hg.

Time: 17:42 **Total Time:** 7 Hours 21 Minutes

Comments:

17N210-1-10-F

Building: 210 **Floor:** First **Location:** Near 033 & 036

Canister: AS01003 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCA00754 **Sample Type:** Work Area

Sample Start

Date: 1/16/2017 **Vacuum:** -30.41 in. Hg.

Time: 9:17

Comments: Duplicate 17M310-1-10-F shown.

Sample Completion

Date: 1/16/2017 **Vacuum:** -9.29 in. Hg.

Time: 17:11 **Total Time:** 7 Hours 54 Minutes

Comments:

17N210-C-11-F

Building: 210 **Floor:** Crawl Space **Location:** Crawl Space

Canister: AS00961 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: FCA00927 **Sample Type:** Pathway

Sample Start

Date: 1/16/2017 **Vacuum:** -29.52 in. Hg.

Time: 10:15

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -1.37 in. Hg.

Time: 17:55 **Total Time:** 7 Hours 40 Minutes

Comments:

17N210-G-03-F

Building: 210 **Floor:** First **Location:** Elevator Shaft

Canister: AC02228 **Interval:** 8 Hour **HVAC:** Off

Flow Controller: N/A **Sample Type:** Grab

Sample Start

Date: 1/16/2017 **Vacuum:** -29.70 in. Hg.

Time: 9:26

Comments:

Sample Completion

Date: N/A **Vacuum:** -5.72 in. Hg.

Time: N/A **Total Time:** N/A

Comments:

17N239-1-03-F

Building: N239 **Floor:** First **Location:** 189

Canister: AS00549 **Interval:** 24 Hour **HVAC:** Off

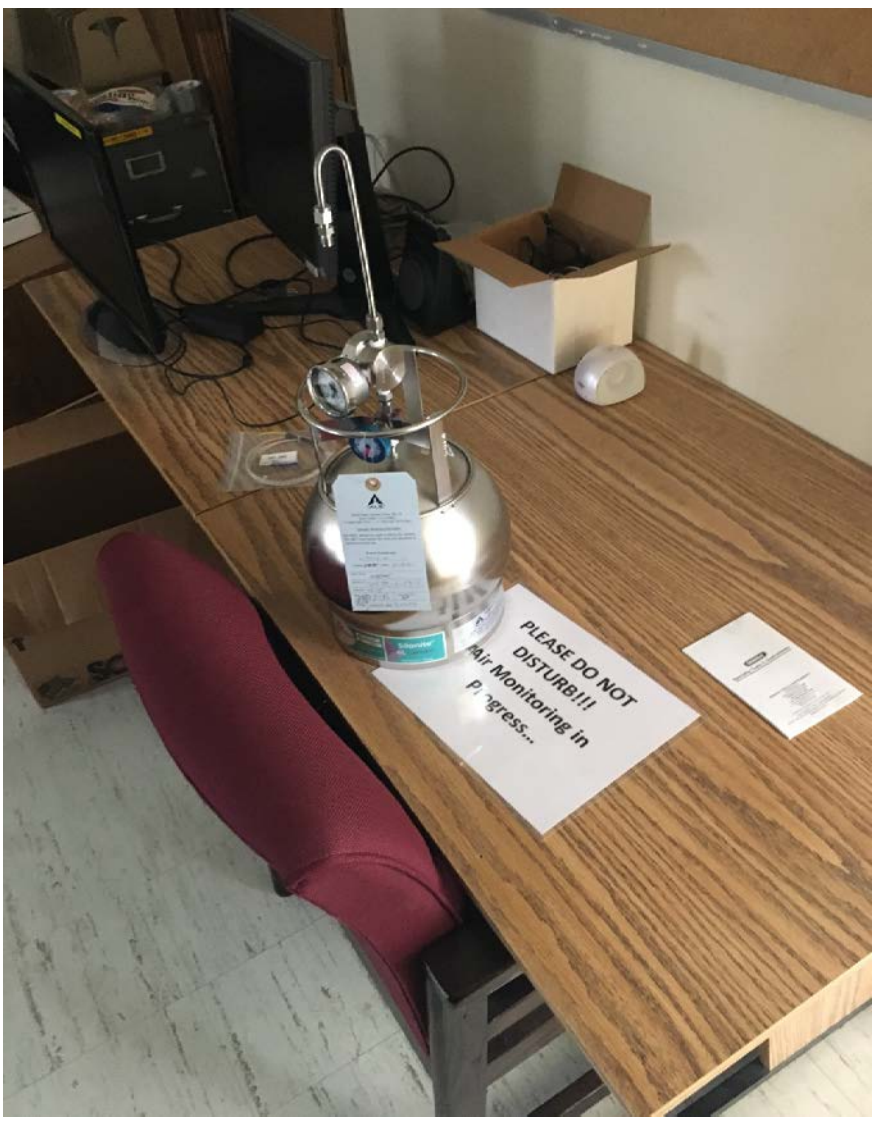
Flow Controller: FCR00259 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.06 in. Hg.

Time: 11:36

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -2.36 in. Hg.

Time: 10:46 **Total Time:** 23 Hours 10 Minutes

Comments:

17N239-1-05-N

Building: N239 **Floor:** First **Location:** 138S

Canister: AS01190 **Interval:** 24 Hour **HVAC:** On

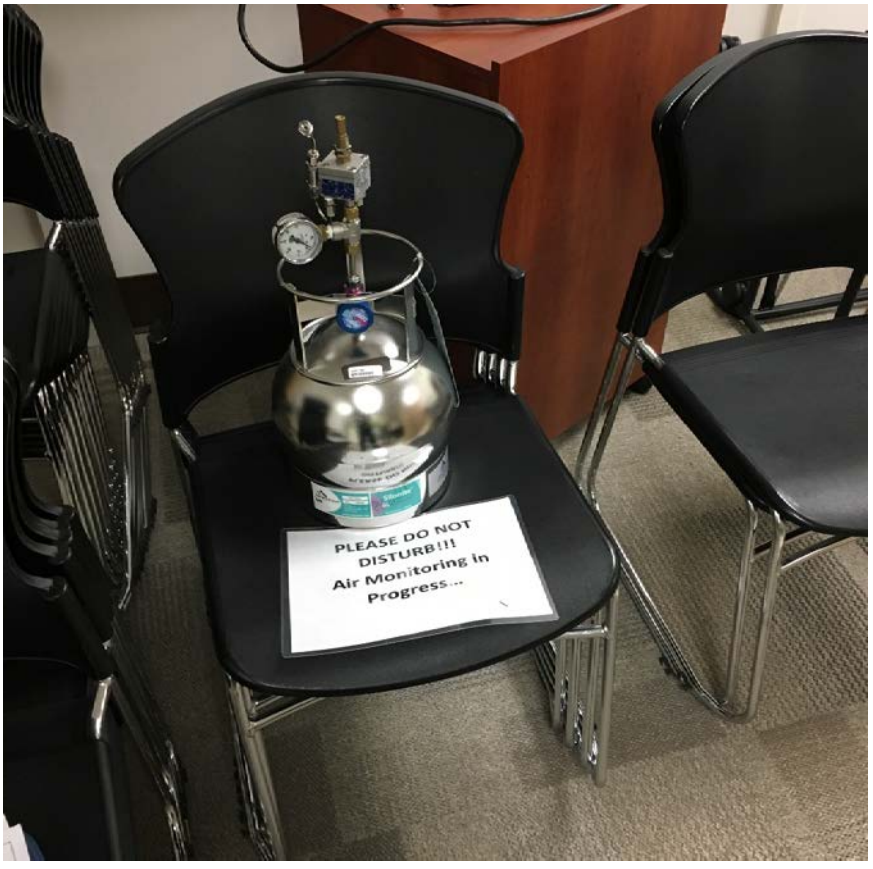
Flow Controller: FCA00278 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.32 in. Hg.

Time: 7:03

Comments:



Sample Completion

Date: 1/13/2017 **Vacuum:** -4.60 in. Hg.

Time: 7:03 **Total Time:** 24 Hours

Comments:

17N239-1-07-F

Building: N239 **Floor:** First **Location:** 102

Canister: AC01127 **Interval:** 24 Hour **HVAC:** Off

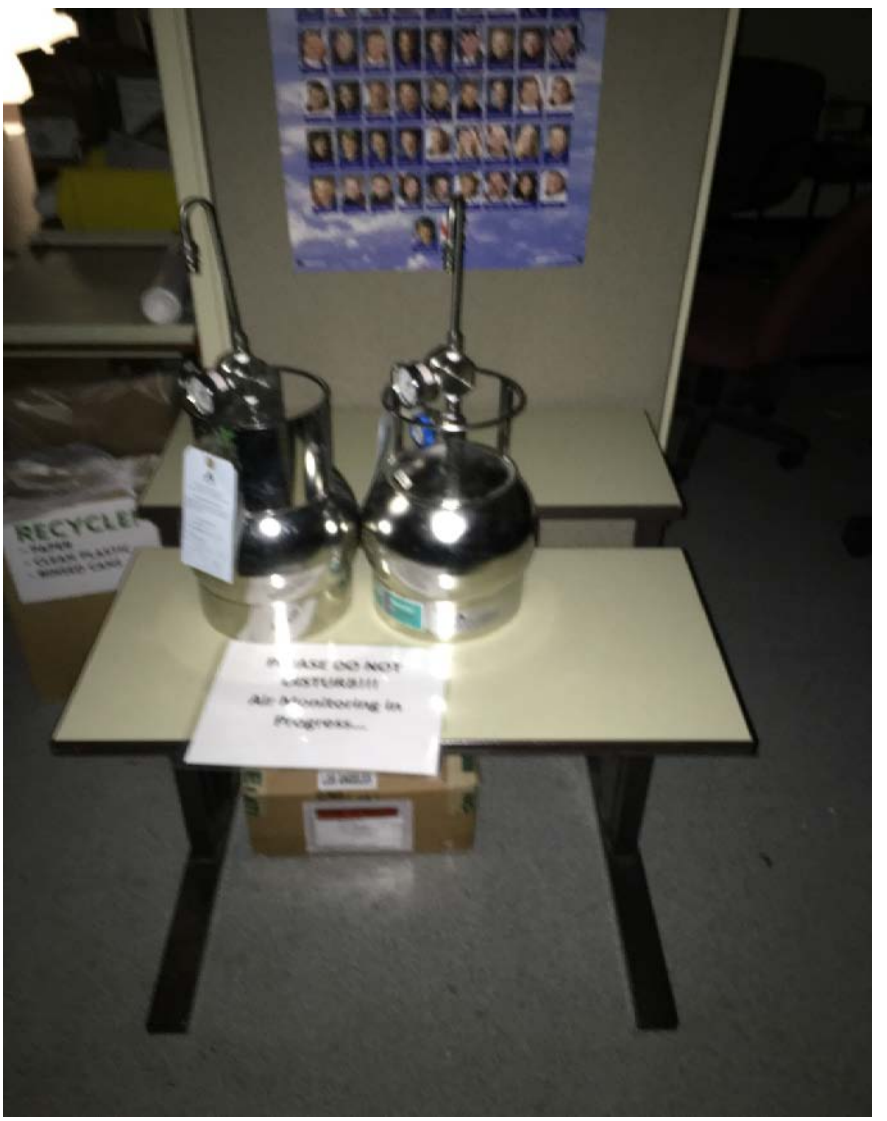
Flow Controller: FCR00232 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.49 in. Hg.

Time: 11:38

Comments: Duplicate 17M339-1-07-F shown.



Sample Completion

Date: 1/16/2017 **Vacuum:** -0.14 in. Hg.

Time: 10:55 **Total Time:** 23 Hours 17 Minutes

Comments:

17N239-1-08-F

Building:	N239	**Floor:**	First	**Location:**	C101
Canister:	AC02124	**Interval:**	24 Hour	**HVAC:**	Off
Flow Controller:	FCR00038	**Sample Type:**	Work Area		

Sample Start

Date: 1/15/2017 **Vacuum:** -30.44 in. Hg.

Time: 11:34

Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -3.04 in. Hg.

Time: 10:49 **Total Time:** 23 Hours 15 Minutes

Comments:

17N239-1-08-N

Building: N239 **Floor:** First **Location:** C101

Canister: AS0103 **Interval:** 24 Hour **HVAC:** On

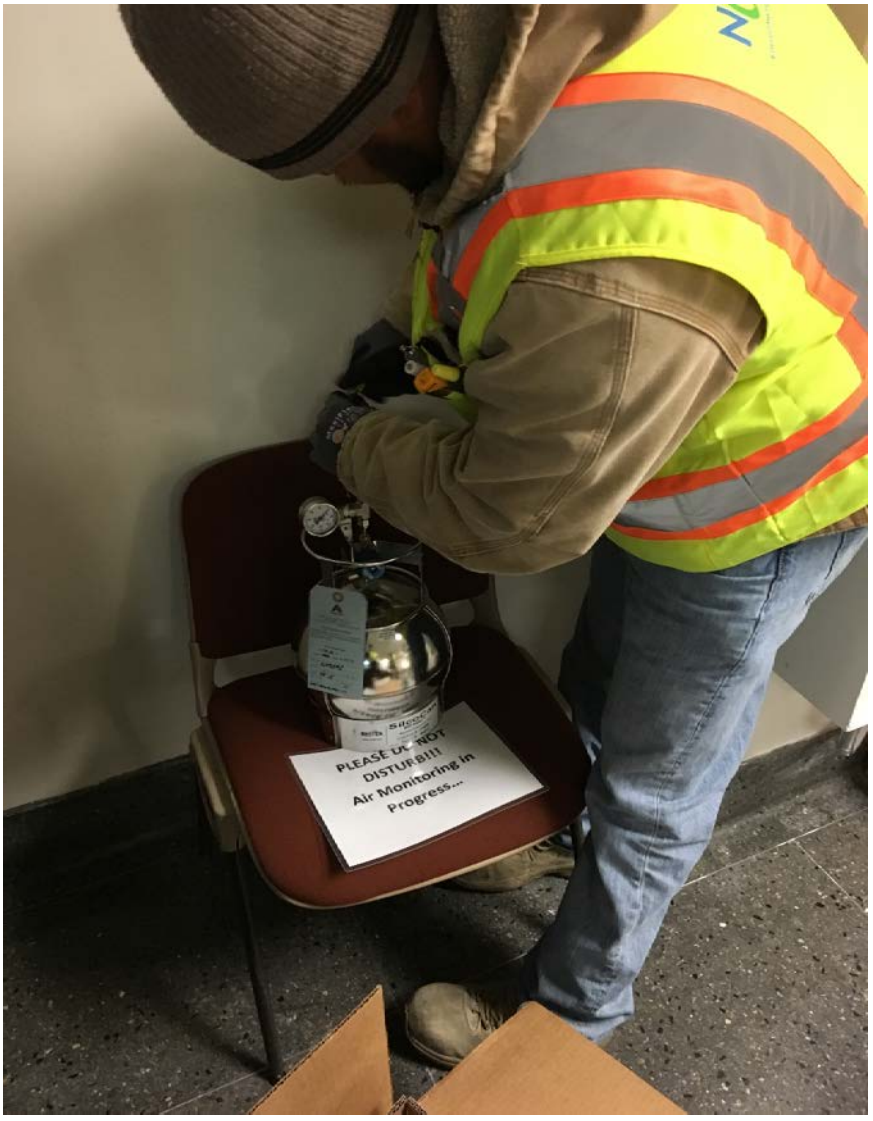
Flow Controller: FCA01086 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.32 in. Hg.

Time: 7:00

Comments:



Sample Completion

Date: 1/13/2017 **Vacuum:** -5.57 in. Hg.

Time: 7:02 **Total Time:** 24 Hours 2 Minutes

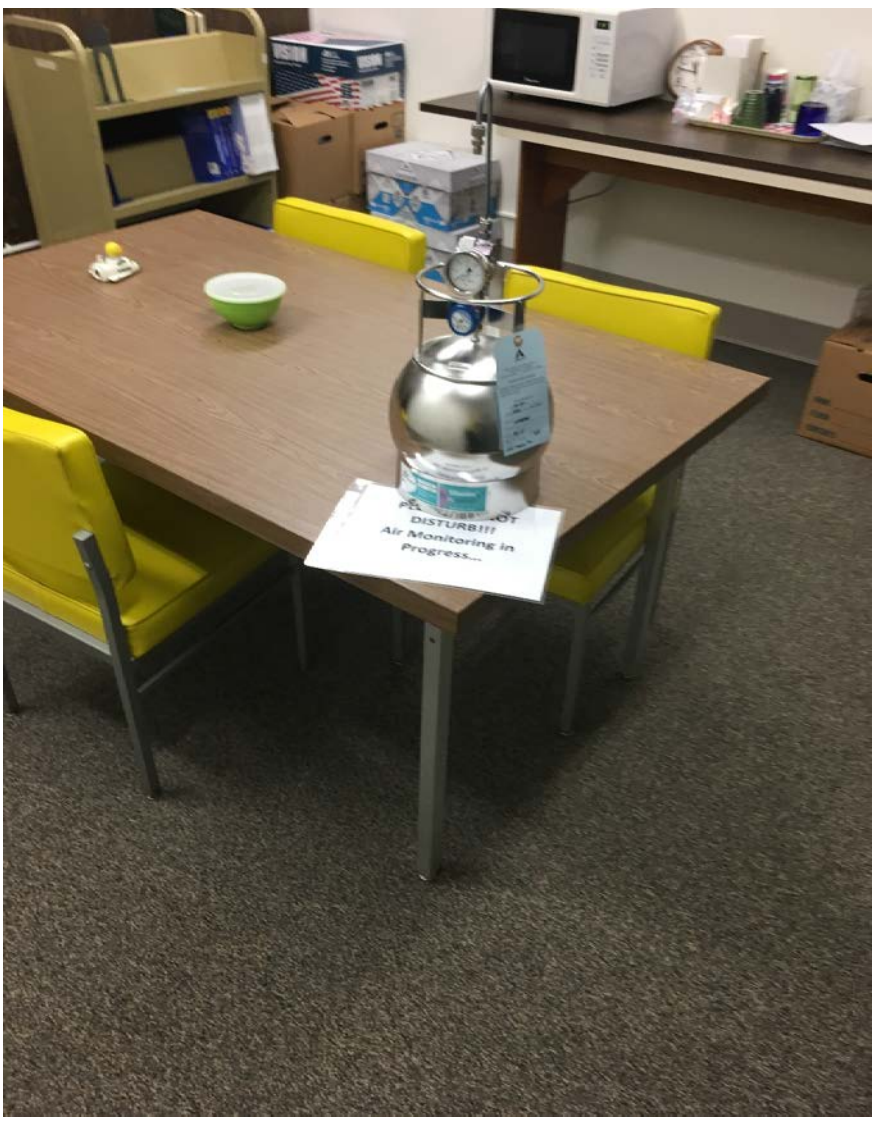
Comments:

17N239-B-01-F

Building: N239 **Floor:** Basement **Location:** 53A
Canister: AS00534 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00223 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.34 in. Hg.
Time: 11:46
Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -4.39 in. Hg.
Time: 10:53 **Total Time:** 23 Hours 7 Minutes
Comments:

17N239-B-05-N

Building: N239 **Floor:** Basement **Location:** C001
Canister: AC01051 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA00782 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.36 in. Hg.
Time: 7:06
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -1.50 in. Hg.
Time: 7:05 **Total Time:** 23 Hours 59 Minutes
Comments:

17N239-A-01-N

Building: N239 **Floor:** Ambient Air **Location:** N/A
Canister: AS00019 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA01011 **Sample Type:** Background

Sample Start

Date: 1/12/2017 **Vacuum:** -30.22 in. Hg.
Time: 7:13
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -2.84 in. Hg.
Time: 7:18 **Total Time:** 24 Hours 5 Minutes
Comments:

17N239A-1-03-N

Building: 239A **Floor:** First **Location:** 120

Canister: 4293 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00757 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.04 in. Hg.

Time: 8:34

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -2.59 in. Hg.

Time: 8:34 **Total Time:** 24 Hours

Comments:

17N239A-1-05-F

Building: N239A **Floor:** First **Location:** 102

Canister: AS01108 **Interval:** 24 Hour **HVAC:** Off

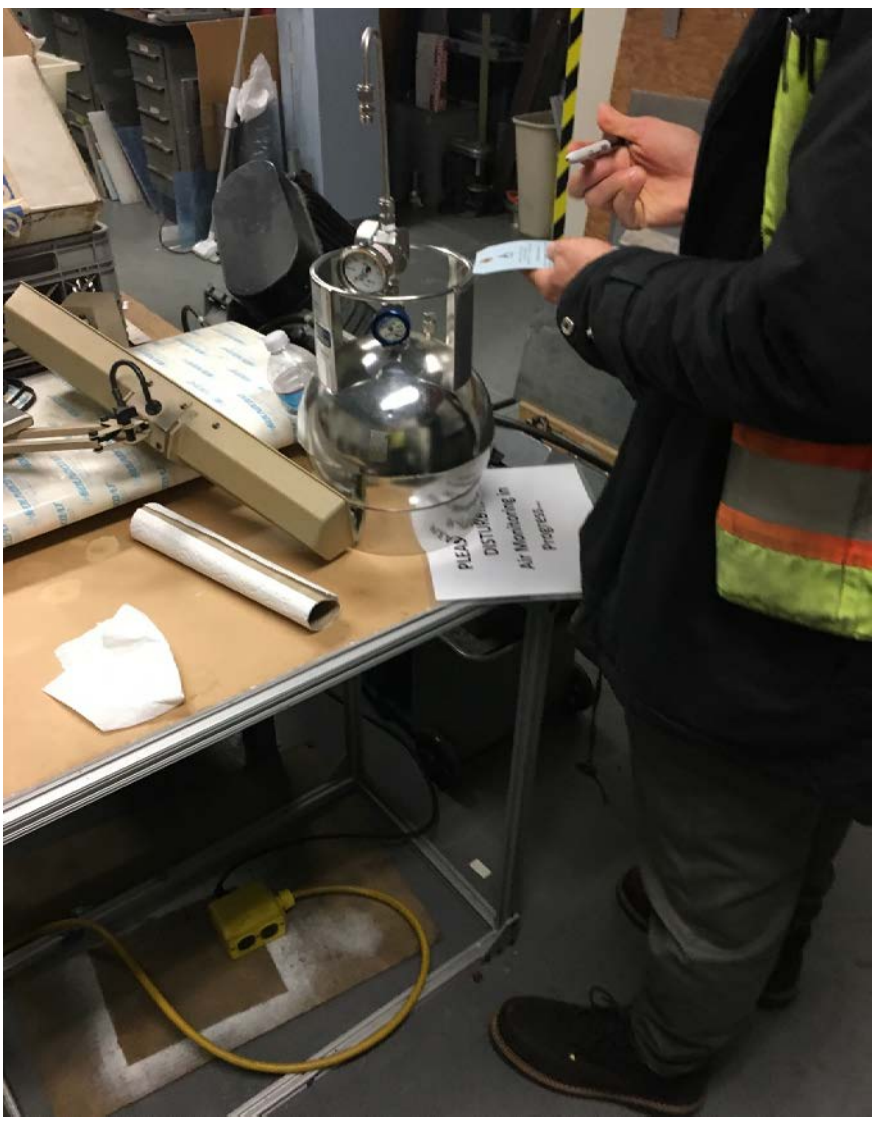
Flow Controller: FCR00182 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.23 in. Hg.

Time: 11:12

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -5.17 in. Hg.

Time: 11:03 **Total Time:** 23 Hours 51 Minutes

Comments:

17N239A-1-05-N

Building: 239A **Floor:** First **Location:** 104

Canister: 2879 **Interval:** 24 Hour **HVAC:** On

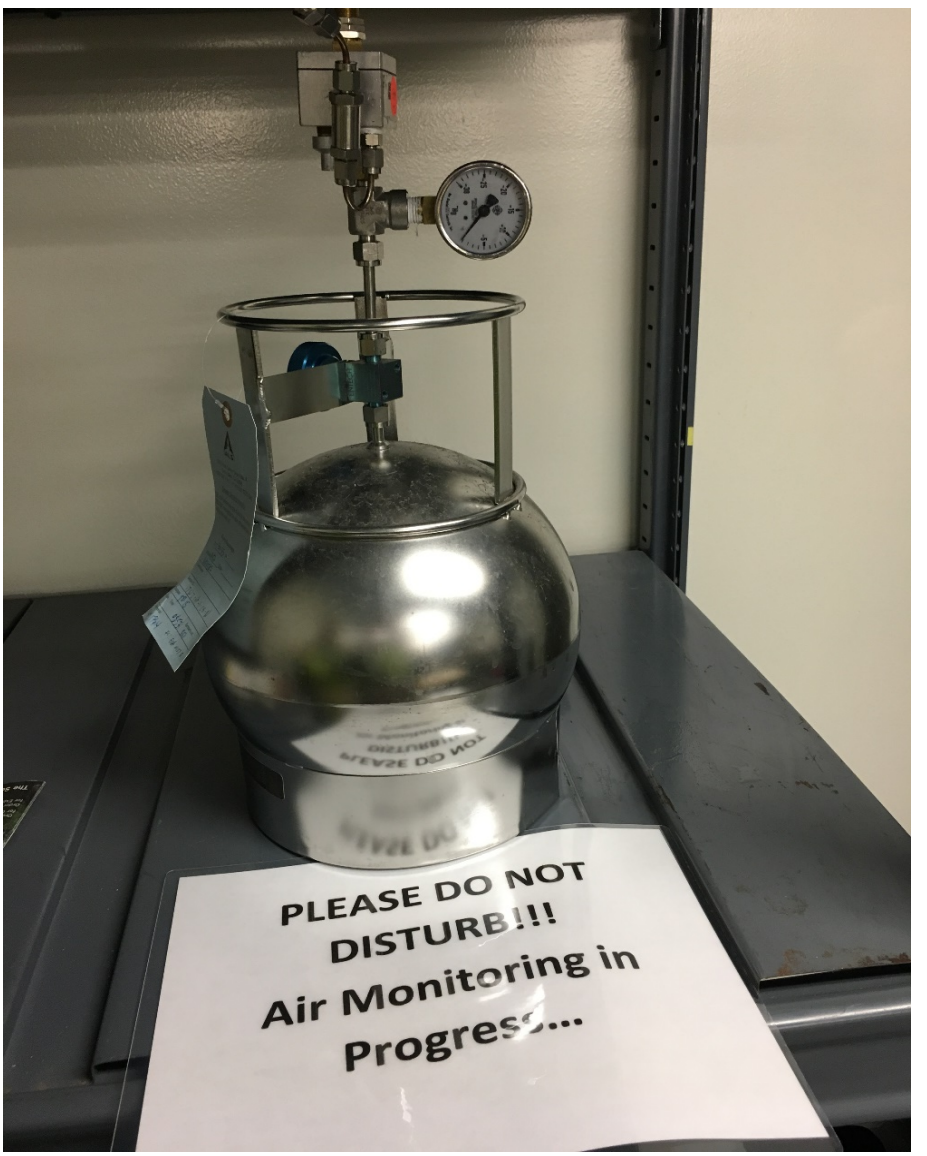
Flow Controller: FCA00417 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.45 in. Hg.

Time: 8:33

Comments:



Sample Completion

Date: 1/11/2017 **Vacuum:** -6.89 in. Hg.

Time: 8:33 **Total Time:** 24 Hours

Comments:

17N239A-1-06-N

Building: 239A **Floor:** First **Location:** C102

Canister: 17630 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00973 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.30 in. Hg.

Time: 8:30

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -2.19 in. Hg.

Time: 8:30 **Total Time:** 24 Hours

Comments:

17N239A-1-09-N

Building: N239A **Floor:** First **Location:** 144

Canister: 4290 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00630 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.05 in. hg.

Time: 8:55

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -5.94 in. hg.

Time: 8:55 **Total Time:** 24 Hours

Comments:

17N239A-1-10-F

Building: N239A **Floor:** First **Location:** U101
Canister: AS00750 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00269 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -29.73 in. Hg.
Time: 11:30
Comments: Duplicate 17M339A-1-10-F shown.

Sample Completion

Date: 1/16/2017 **Vacuum:** -6.05 in. Hg.
Time: 10:45 **Total Time:** 23 Hours 15 Minutes
Comments:

17N239A-1-11-N

Building: 239A **Floor:** First **Location:** U102

Canister: 3285 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA00809 **Sample Type:** Work Area

Sample Start

Date: 1/10/2017 **Vacuum:** -30.45 in. Hg.

Time: 8:29

Comments:

Sample Completion

Date: 1/11/2017 **Vacuum:** -4.53 in. Hg.

Time: 8:29 **Total Time:** 24 Hours

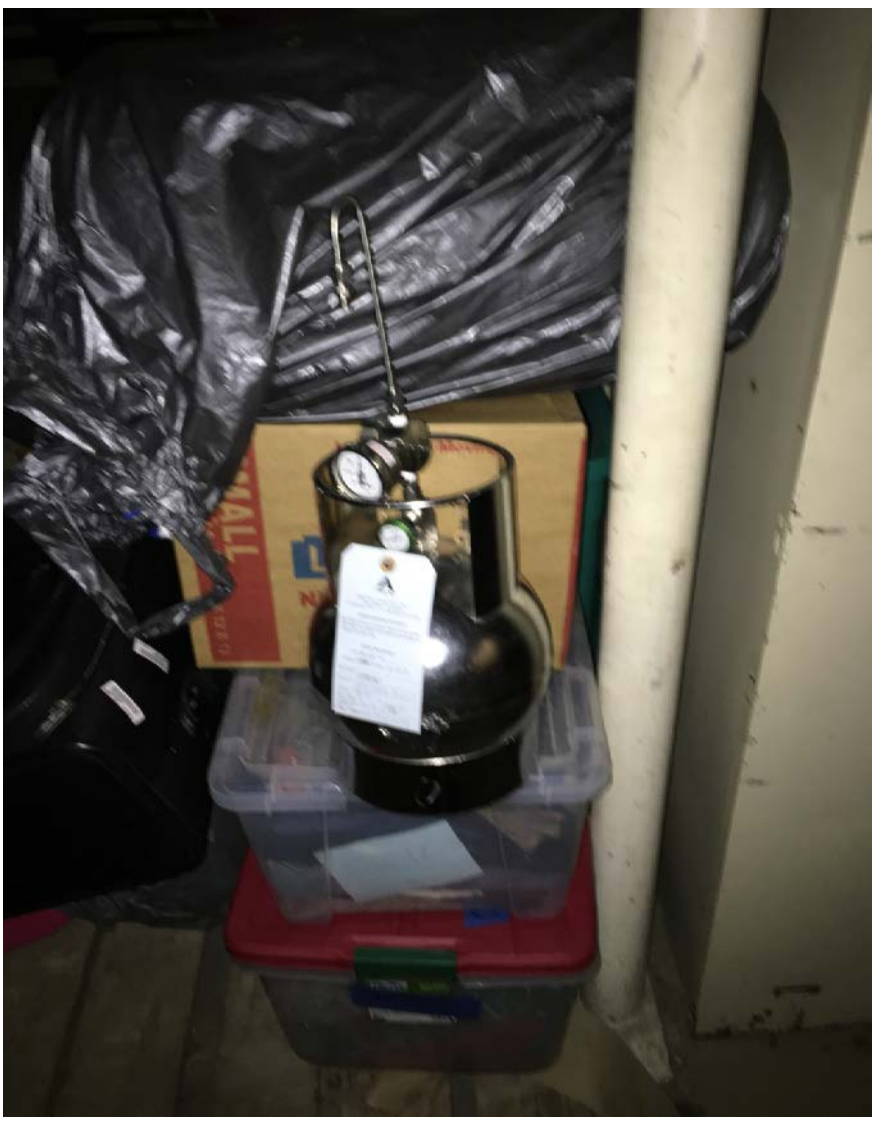
Comments:

17N239A-B-01-F

Building: N239A **Floor:** Basement **Location:** Basement
Canister: AC01013 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00254 **Sample Type:** Pathway

Sample Start

Date: 1/15/2017 **Vacuum:** -30.62 in. Hg.
Time: 11:09
Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -2.82 in. Hg.
Time: 10:58 **Total Time:** 23 Hours 49 Minutes
Comments:

17N243-1-01-N

Building: N243 **Floor:** First **Location:** 136

Canister: AS00566 **Interval:** 24 Hour **HVAC:** On

Flow Controller: FCA01036 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.36 in. Hg.

Time: 7:27

Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -8.08 in. Hg.

Time: 7:20 **Total Time:** 23 Hours 53 Minutes

Comments:

17N243-1-02-F

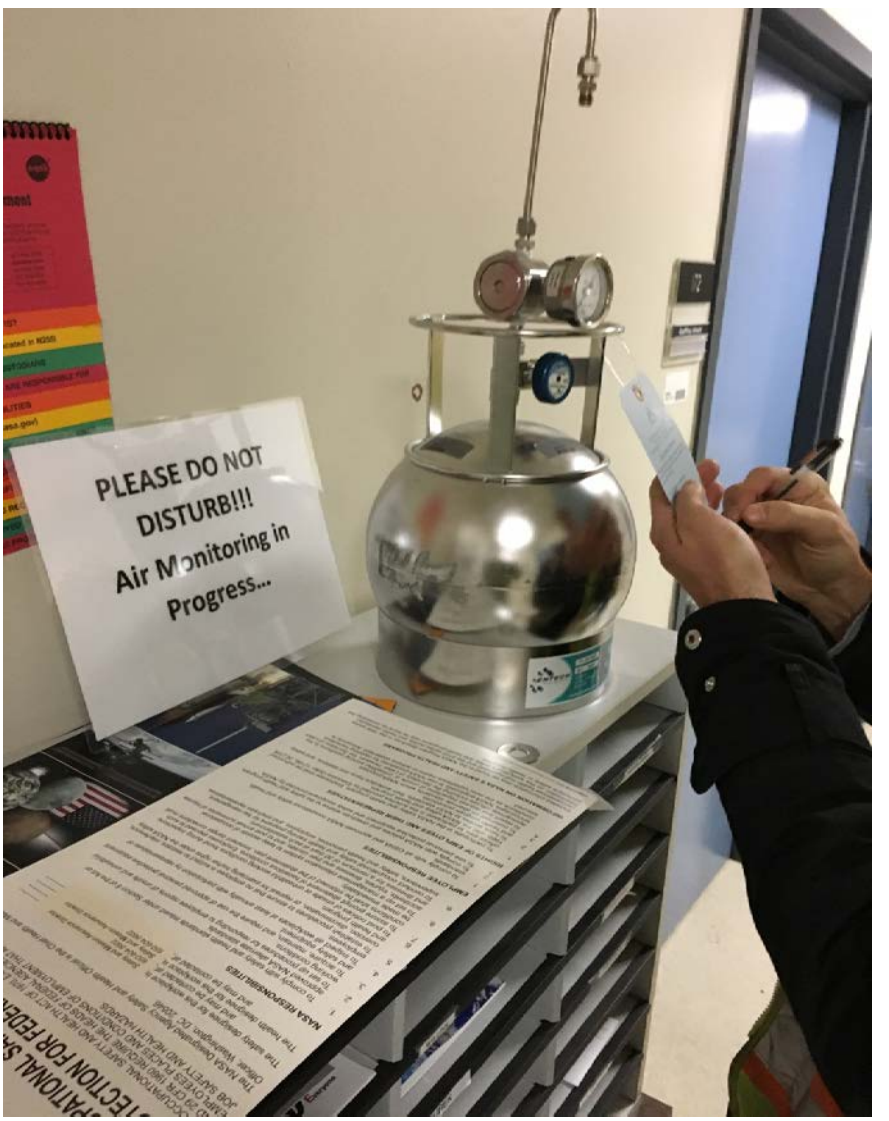
Building:	N243	**Floor:**	First	**Location:**	C104
Canister:	AS01160	**Interval:**	24 Hour	**HVAC:**	Off
Flow Controller:	FCR00188	**Sample Type:**	Work Area		

Sample Start

Date: 1/15/2017 **Vacuum:** -30.21 in. Hg.

Time: 9:53

Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -5.68 in. Hg.

Time: 9:54 **Total Time:** 24 Hours 1 Minute

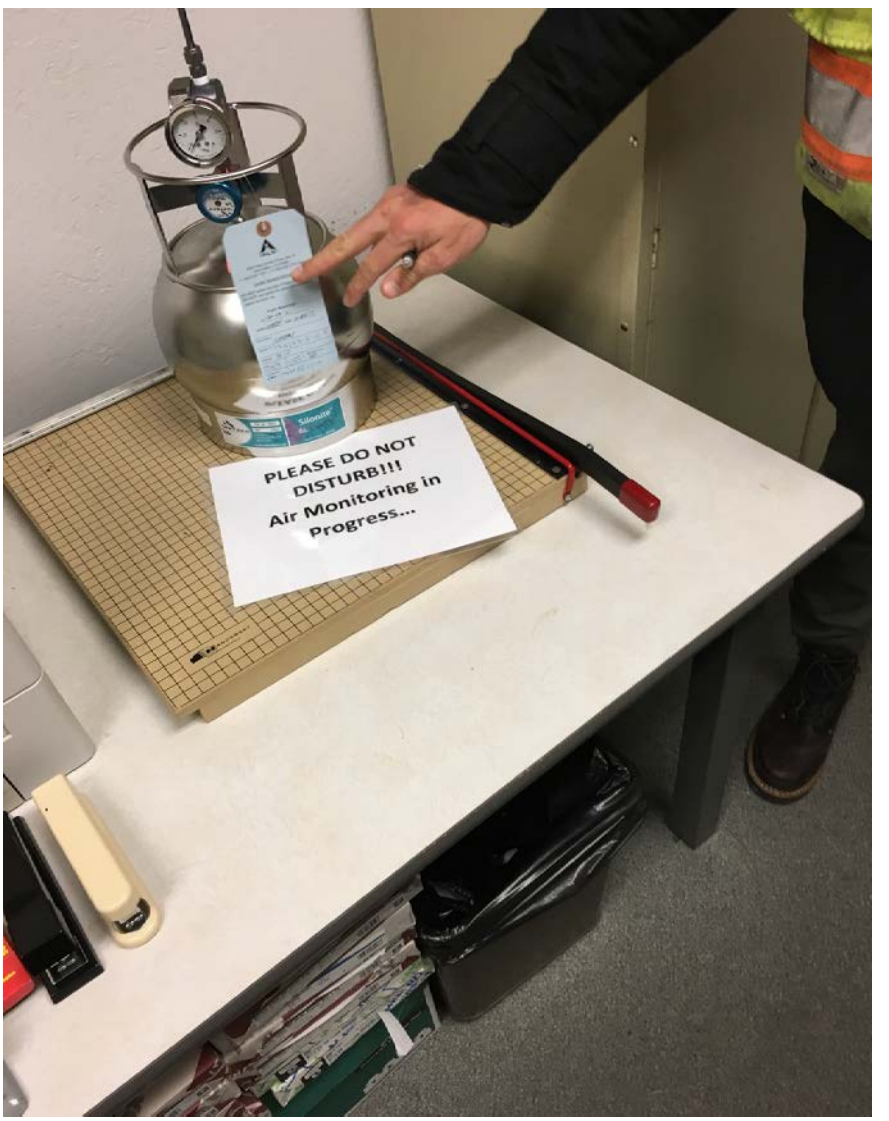
Comments:

17N243-B-02-F

Building: N243 **Floor:** Basement **Location:** C002
Canister: AS00864 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00214 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.49 in. Hg.
Time: 9:55
Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -7.24 in. Hg.
Time: 9:57 **Total Time:** 24 Hours 2 Minutes
Comments:

17N243-B-04-N

Building: N243 **Floor:** Basement **Location:** C008
Canister: AS00764 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA00646 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.38 in. Hg.
Time: 7:46
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -4.02 in. Hg.
Time: 7:37 **Total Time:** 23 Hours 49 Minutes
Comments:

17N243-B-06-F

Building: N243 **Floor:** Basement **Location:** 050
Canister: AS00970 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00281 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.52 in. Hg.
Time: 10:47
Comments:

Sample Completion

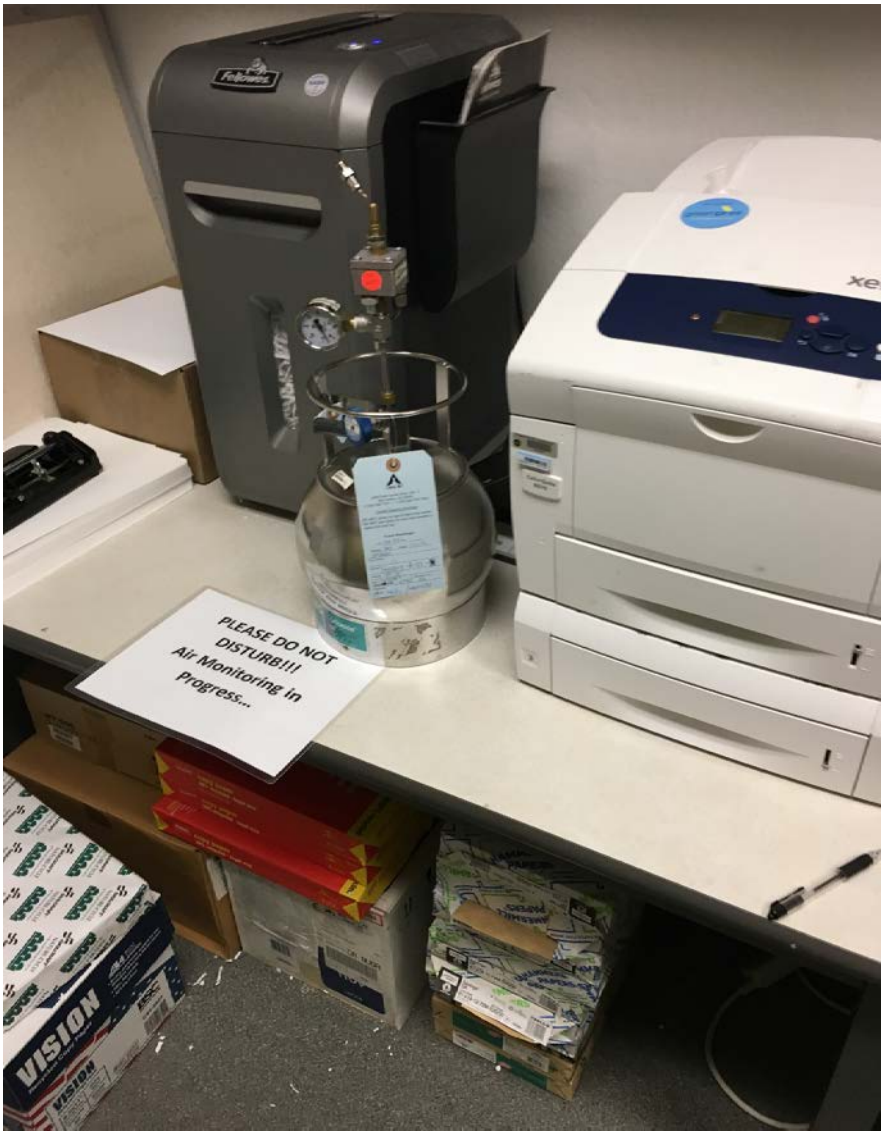
Date: 1/16/2017 **Vacuum:** -4.79 in. Hg.
Time: 10:30 **Total Time:** 23 Hours 43 Minutes
Comments:

17N243-B-06-N

Building: N243 **Floor:** Basement **Location:** 050
Canister: AS01128 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA00910 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.33 in. Hg.
Time: 7:49
Comments:



Sample Completion

Date: 1/13/2017 **Vacuum:** -0.87 in. Hg.
Time: 7:42 **Total Time:** 23 Hours 53 Minutes
Comments:

17N243-A-01-F

Building: N243 **Floor:** Ambient Air **Location:** N/A
Canister: AS00928 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00226 **Sample Type:** Background

Sample Start

Date: 1/15/2017 **Vacuum:** -29.79 in. Hg.
Time: 10:16
Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -4.74 in. Hg.
Time: 10:11 **Total Time:** 23 Hours 55 Minutes
Comments:

17N243-A-01-N

Building: N243 **Floor:** Ambient Air **Location:** N/A
Canister: AS01009 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FAC00736 **Sample Type:** Background

Sample Start

Date: 1/12/2017 **Vacuum:** -30.47 in. Hg.
Time: 7:35
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -3.69 in. Hg.
Time: 7:30 **Total Time:** 23 Hours 55 Minutes
Comments:

17N243A-1-01-N

Building: N243A **Floor:** First **Location:** 104
Canister: AS00852 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA01090 **Sample Type:** Work Area

Sample Start

Date: 1/12/2017 **Vacuum:** -30.44 in. Hg.
Time: 8:03
Comments: Duplicate 17M343A-1-01-N shown.

Sample Completion

Date: 1/13/2017 **Vacuum:** -10.19 in. Hg.
Time: 8:04 **Total Time:** 24 Hours 1 Minute
Comments:

17N243A-1-02-F

Building: N243A **Floor:** First **Location:** 101
Canister: SSC00081 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00065 **Sample Type:** Work Area

Sample Start

Date: 1/15/2017 **Vacuum:** -30.31 in. Hg.
Time: 10:43
Comments:

Sample Completion

Date: 1/16/2017 **Vacuum:** -9.00 in. Hg.
Time: 10:27 **Total Time:** 23 Hours 44 Minutes
Comments:

17N243-A-02-N

Building: N243 **Floor:** Ambient Air **Location:** N/A
Canister: AS00603 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA00966 **Sample Type:** Background

Sample Start

Date: 1/12/2017 **Vacuum:** -30.40 in. Hg.
Time: 8:06
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -3.11 in. Hg.
Time: 8:08 **Total Time:** 24 Hours 2 Minutes
Comments:

17N243A-A-01-F

Building: N243A **Floor:** Ambient Air **Location:** N/A
Canister: AS00225 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: FCR00079 **Sample Type:** Background

Sample Start

Date: 1/15/2017 **Vacuum:** -30.31 in. Hg.
Time: 9:41
Comments:

Sample Completion

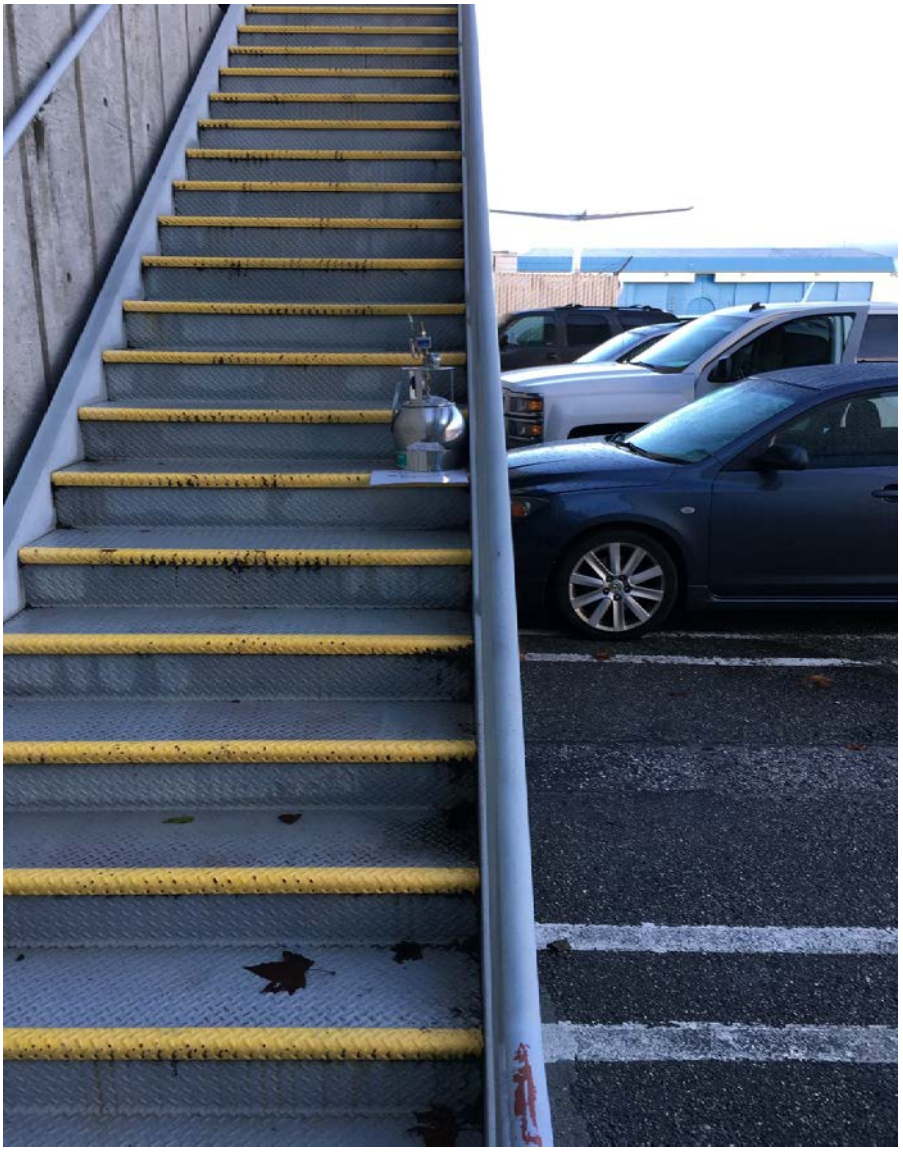
Date: 1/16/2017 **Vacuum:** -4.54 in. Hg.
Time: 9:46 **Total Time:** 24 Hours 5 Minutes
Comments:

17N243A-A-01-N

Building: N243N **Floor:** Ambient Air **Location:** N/A
Canister: AC02185 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCA00497 **Sample Type:** Baseline

Sample Start

Date: 1/12/2017 **Vacuum:** -30.44 in. Hg.
Time: 8:00
Comments:



Sample Completion

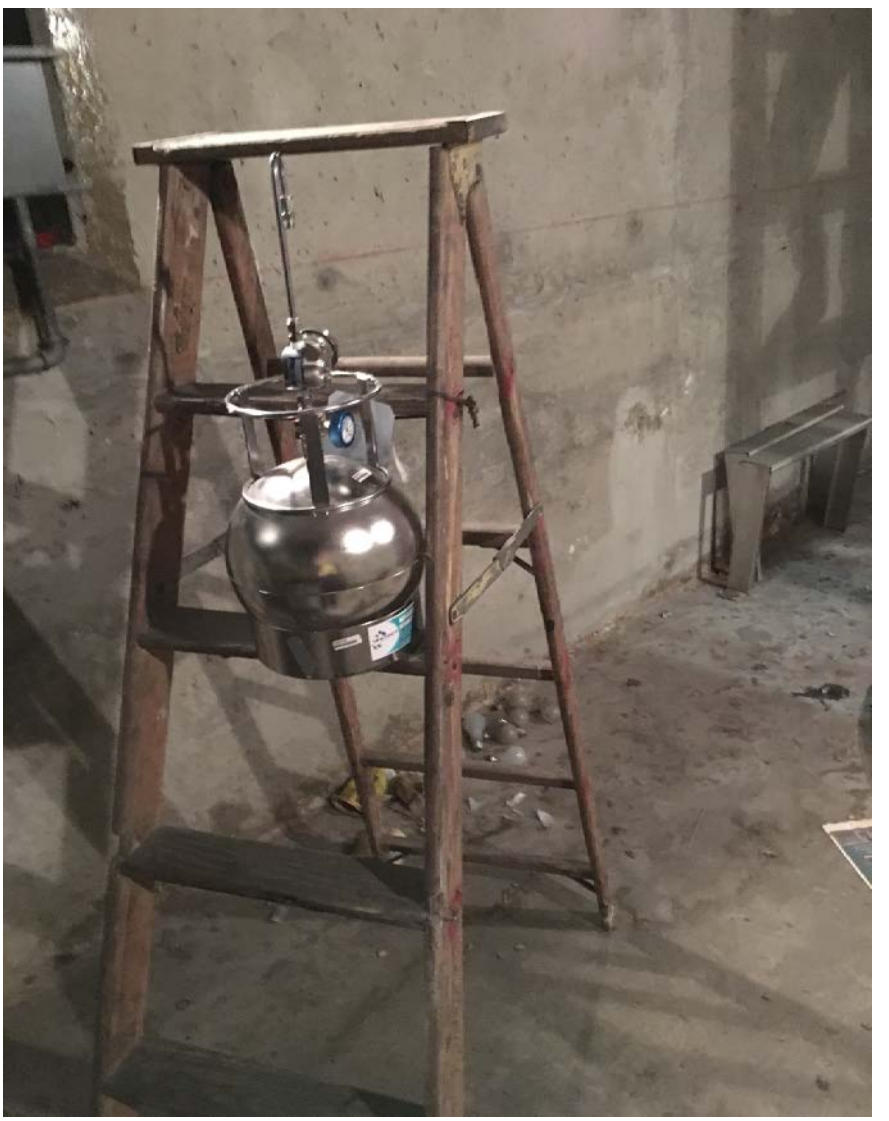
Date: 1/13/2017 **Vacuum:** -1.51 in. Hg.
Time: 7:59 **Total Time:** 23 Hours 59 Minute
Comments:

17N243A-B-01-F

Building: N243A **Floor:** Basement **Location:** Basement
Canister: AS00756 **Interval:** 24 Hour **HVAC:** Off
Flow Controller: 4643 **Sample Type:** Pathway

Sample Start

Date: 1/15/2017 **Vacuum:** -30.37 in. Hg.
Time: 10:45
Comments:



Sample Completion

Date: 1/16/2017 **Vacuum:** -5.71 in. Hg.
Time: 10:24 **Total Time:** 23 Hours 39 Minutes
Comments:

17N243A-B-01-N

Building: N243N **Floor:** Basement **Location:** Basement
Canister: AC00982 **Interval:** 24 Hour **HVAC:** On
Flow Controller: FCS00130 **Sample Type:** Pathway

Sample Start

Date: 1/12/2017 **Vacuum:** -30.23 in. Hg.
Time: 8:05
Comments:

Sample Completion

Date: 1/13/2017 **Vacuum:** -5.33 in. Hg.
Time: 8:07 **Total Time:** 24 Hours 2 Minute
Comments: