

APPENDIX E

Data Validation

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: DoDHF Novato, CA
Collection Date: May 8 through May 9, 2008
LDC Report Date: June 20, 2008
Matrix: Soil/Water
Parameters: Volatiles
Validation Level: NFESC Level III & IV
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K0804066

Sample Identification

PS-1A-7S**	PS-1A-5
PS-1A-7I	PS-1A-3
PS-1A-7D	PS-1A-1
PS-1A-7XD	PS-1A-1-DUP
PS-1A-2S	PS-1A-7
PS-1A-2I	PS-1A-6
PS-1A-2D	
PS-1A-1S	
PS-1A-1I	
PS-1A-1D	
PS-1A-5S**	
PS-1A-5I	
PS-1A-5D	
PS-1A-6S	
PS-1A-6I	
PS-1A-6D	
PS-1A-3S	
PS-1A-3I	
PS-1A-3D	
PS-1A-2**	

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 19 soil samples and 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
3/3/08	Tetrahydrofuran Acetone 2-Butanone 2-Hexanone	0.0146 (≥ 0.05) 0.0405 (≥ 0.05) 0.0148 (≥ 0.05) 0.0390 (≥ 0.05)	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
3/20/08	Ethyl alcohol	0.00110 (≥ 0.05)	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
5/20/08	Acetone 2-Butanone	0.0431 (≥ 0.05) 0.0223 (≥ 0.05)	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D KWG0804743-3	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
5/21/08	2-Butanone	0.0239 (≥ 0.05)	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D KWG0804792-3	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/14/08 (0514F004)	Bromomethane	31	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
5/14/08 (0514F006)	Ethyl alcohol	39	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
5/14/08 (0514F005)	Cyclohexane	37	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/3/08 (0308F024)	Chloromethane	29	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
	Naphthalene	28			

Date	Compound	%D	Associated Samples	Flag	A or P
5/21/08 (0521F030)	Dichlorodifluoromethane 2-Butanone	39 29	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D KWG0804792-3	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria. with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/14/08 (0514F004)	Tetrahydrofuran Acetone 2-Butanone 2-Hexanone 1,2-Dibromo-3-chloropropane	0.0142 (≥ 0.05) 0.0427 (≥ 0.05) 0.0161 (≥ 0.05) 0.0393 (≥ 0.05) 0.0461 (≥ 0.05)	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
5/14/08 (0514F006)	Ethyl alcohol	0.00153 (≥ 0.05)	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 KWG0804770-3 KWG0804490-3	J (all detects) UJ (all non-detects)	A
5/22/08 (0522F003)	2-Butanone	0.0243 (≥ 0.05)	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D KWG0804792-3	J (all detects) UJ (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/20/08 (0520F020)	Acetone 2-Butanone	0.0404 (≥ 0.05) 0.0226 (≥ 0.05)	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D KWG0804743-3	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
KWG0804743-3	5/20/08	Methylene chloride Acetone n-Hexane Benzene Toluene 1,4-Dichlorobenzene Naphthalene	1.2 ug/Kg 7.2 ug/Kg 0.22 ug/Kg 0.78 ug/Kg 1.7 ug/Kg 0.20 ug/Kg 0.45 ug/Kg	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D
KWG0804770-3	5/14/08	Methylene chloride	0.024 ug/Kg	PS-1A-2S PS-1A-2I
KWG0804792-3	5/22/08	Methylene chloride Acetone n-Hexane Toluene 1,4-Dichlorobenzene Naphthalene	0.45 ug/Kg 1.9 ug/Kg 0.16 ug/Kg 0.27 ug/Kg 0.18 ug/Kg 0.48 ug/Kg	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D
KWG0804490-3	5/14/08	Methylene chloride	0.24 ug/L	PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (> 10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
PS-1A-7S**	Methylene chloride Acetone n-Hexane Benzene Naphthalene	3.4 ug/Kg 15 ug/Kg 0.21 ug/Kg 0.83 ug/Kg 0.32 ug/Kg	8.8U ug/Kg 18U ug/Kg 8.8U ug/Kg 2.2U ug/Kg 18U ug/Kg
PS-1A-7I	Methylene chloride Acetone n-Hexane Benzene Naphthalene	0.47 ug/Kg 17 ug/Kg 0.40 ug/Kg 0.71 ug/Kg 0.27 ug/Kg	9.4U ug/Kg 19U ug/Kg 9.4U ug/Kg 2.4U ug/Kg 19U ug/Kg
PS-1A-7D	Methylene chloride Acetone n-Hexane	0.67 ug/Kg 20 ug/Kg 0.20 ug/Kg	8.7U ug/Kg 20U ug/Kg 8.7U ug/Kg
PS-1A-7XD	Methylene chloride Acetone Benzene	0.84 ug/Kg 5.3 ug/Kg 0.70 ug/Kg	8.7U ug/Kg 18U ug/Kg 2.2U ug/Kg
PS-1A-2D	Methylene chloride Acetone n-Hexane	0.48 ug/Kg 9.6 ug/Kg 0.65 ug/Kg	8.9U ug/Kg 18U ug/Kg 8.9U ug/Kg
PS-1A-1S	Methylene chloride Acetone	1.5 ug/Kg 9.1 ug/Kg	14U ug/Kg 28U ug/Kg
PS-1A-1I	Methylene chloride Acetone n-Hexane Benzene Naphthalene	0.42 ug/Kg 13 ug/Kg 0.30 ug/Kg 1.6 ug/Kg 1.6 ug/Kg	8.3U ug/Kg 17U ug/Kg 8.3U ug/Kg 2.1U ug/Kg 17U ug/Kg
PS-1A-1D	Methylene chloride Acetone n-Hexane	1.5 ug/Kg 37 ug/Kg 0.30 ug/Kg	8.7U ug/Kg 37U ug/Kg 8.7U ug/Kg
PS-1A-2S	Methylene chloride	0.11 ug/Kg	0.91U ug/Kg
PS-1A-2I	Methylene chloride	0.065 ug/Kg	0.45U ug/Kg

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
PS-1A-5S**	Methylene chloride Toluene Naphthalene	0.34 ug/Kg 0.24 ug/Kg 0.39 ug/Kg	9.8U ug/Kg 25U ug/Kg 20U ug/Kg
PS-1A-5I	Methylene chloride n-Hexane Toluene Naphthalene	1.4 ug/Kg 0.23 ug/Kg 0.47 ug/Kg 0.68 ug/Kg	10U ug/Kg 10U ug/Kg 25U ug/Kg 20U ug/Kg
PS-1A-5D	Acetone Toluene Naphthalene	14 ug/Kg 0.28 ug/Kg 0.28 ug/Kg	17U ug/Kg 21U ug/Kg 17U ug/Kg
PS-1A-6S	Methylene chloride Acetone Toluene	0.41 ug/Kg 7.5 ug/Kg 0.21 ug/Kg	8.3U ug/Kg 17U ug/Kg 21U ug/Kg
PS-1A-6I	Methylene chloride Toluene Naphthalene	0.36 ug/Kg 0.43 ug/Kg 0.36 ug/Kg	8.4U ug/Kg 21U ug/Kg 17U ug/Kg
PS-1A-6D	Methylene chloride n-Hexane Toluene	0.32 ug/Kg 0.19 ug/Kg 0.29 ug/Kg	10U ug/Kg 10U ug/Kg 25U ug/Kg
PS-1A-3S	Methylene chloride Acetone Toluene Naphthalene	0.56 ug/Kg 9.6 ug/Kg 0.30 ug/Kg 0.19 ug/Kg	8.1U ug/Kg 17U ug/Kg 21U ug/Kg 17U ug/Kg
PS-1A-3I	n-Hexane Toluene Naphthalene	0.27 ug/Kg 0.76 ug/Kg 0.62 ug/Kg	8.8U ug/Kg 22U ug/Kg 18U ug/Kg
PS-1A-3D	Acetone n-Hexane Toluene	19 ug/Kg 0.18 ug/Kg 0.27 ug/Kg	19U ug/Kg 8.7U ug/Kg 22U ug/Kg

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
PS-1A-2D	Bromofluorobenzene	145 (58-117)	All TCL compounds	J (all detects)	P
PS-1A-1S	Bromofluorobenzene	388 (58-117)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

*VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
KWG080770-1/2 (PS-1A-2S PS-1A-2I KWG0804770-3)	Ethyl alcohol	138 (70-130)	136 (70-120)	-	J (all detects)	P
KWG0804490-1/2 (All water samples in SDG K0804066)	Ethyl alcohol	138 (70-120)	136 (70-120)	-	J (all detects)	P
KWG0804490-1/2 (All water samples in SDG K0804066)	Methyl-tert-butyl ether Bromomethane 2-Hexanone 1,2-Dibromo-3-chloropropane	79 (80-120) 78 (80-120) 77 (80-120) 79 (80-120)	- - - -	- - - -	J (all detects) UJ (all non-detects)	P
KWG0804743-1/2 (PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D KWG0804743-3)	Acetone	71 (80-120)	77 (80-120)	-	J (all detects) UJ (all non-detects)	P

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
KWG0804770-1/2 (PS-1A-2S PS-1A-2I KWG0804776-3)	Methyl-tert-butyl ether Bromomethane 2-Hexanone 1,2-Dibromo-3-chloropropane	79 (80-120) 78 (80-120) 77 (80-120) 79 (80-120)	- - - -	- - - -	J (all detects) UJ (all non-detects)	P
KWG0804792-1/2 (PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D KWG0804792-3)	Dichlorodifluoromethane Carbon disulfide	142 (80-120) 124 (80-120)	137 (80-120) 122 (80-120)	- -	J (all detects) J (all detects)	P

*Added several qualification flags to table above.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
PS-1A-7S**	1,4-Dichlorobenzene-d4	282410 (283258-1133032)	1,1,2,2-Tetrachloroethane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Hexachlorobutadiene n-Butylbenzene n-Propylbenzene Naphthalene p-Isopropyltoluene sec-Butylbenzene tert-Butylbenzene	J (all detects) UJ (all non-detects)	A

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
PS-1A-3I	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	687522 (718491-2873962) 165910 (326715-1306858)	1,1,1,2-Tetrachloroethane 1,2-Dibromoethane 1,3-Dichloropropane Bromoform Chlorobenzene Dibromochloromethane Ethylbenzene m,p-Xylenes o-Xylene Styrene Tetrachloroethene trans-1,3-Dichloropropane 1,1,2-Trichloroethane 2-Hexanone Isopropylbenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Hexachlorobutadiene n-Butylbenzene n-Propylbenzene Naphthalene p-Isopropyltoluene sec-Butylbenzene tert-Butylbenzene	J (all detects) UJ (all non-detects)	A

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIV. System Performance

The system performance was acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of the report if data has been qualified.

*XVI. Field Duplicates

Samples PS-1A-1 and PS-1A-1-DUP were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	PS-1A-1	PS-1A-1-DUP			
Methyl tert-butyl ether	0.38	0.36	5 (≤ 35)	-	-
Cyclohexane	0.19	0.29	42 (≤ 35)	J (all detects)	A
Vinyl chloride	0.56	1.3	80 (≤ 35)	J (all detects)	A
1,1-Dichloroethene	0.5	0.43	15 (≤ 35)	-	-
trans-1,2-Dichloroethene	1.8	2.3	24 (≤ 35)	-	-
cis--1,2-Dichloroethene	29	42	37 (≤ 35)	J (all detects)	A
1,2-Dichloroethane	0.09	0.13	36 (≤ 35)	J (all detects)	A
Benzene	0.23	0.4	54 (≤ 35)	J (all detects)	A
Trichloroethene	16	15	6 (≤ 35)	-	-
1,2-Dichloropropane	0.50U	0.07	200 (≤ 35)	J (all detects) UJ (all non-detects)	A
Toluene	0.32	0.49	42 (≤ 35)	J (all detects)	A
Ethylbenzene	0.19	0.29	42 (≤ 35)	J (all detects)	A
m,p-Xylenes	0.33	0.49	39 (≤ 35)	J (all detects)	A

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	PS-1A-1	PS-1A-1-DUP			
o-Xylene	0.55	0.93	51 (≤ 35)	J (all detects)	A
Isopropylbenzene	0.41	0.58	34 (≤ 35)	-	-
n-Propylbenzene	0.83	1.2	36 (≤ 35)	J (all detects)	A
4-Chlorotoluene	0.09	2.0U	200 (≤ 35)	J (all detects) UJ (all non-detects)	A
1,3,5-Trimethylbenzene	0.65	0.9	32 (≤ 35)	-	-
tert-Butylbenzene	0.08	0.11	32 (≤ 35)	-	-
1,2,4-Trimethylbenzene	4.5	6.4	35 (≤ 35)	-	-
sec-Butylbenzene	1.9	2.4	23 (≤ 35)	-	-
4-Isopropyltoluene	2	2.7	30 (≤ 35)	-	-
n-Butylbenzene	2.2	2.7	20 (≤ 35)	-	-
Naphthalene	0.4	0.57	35 (≤ 35)	-	-

*Added QC limits and qualification flags to table above.

***DoDHF Novato, CA**
Volatiles - Data Qualification Summary - SDG K0804066

SDG	Sample	Compound	Flag	A or P	Reason
K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6	Tetrahydrofuran Acetone 2-Butanone 2-Hexanone Ethyl alcohol	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
K0804066	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
K0804066	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D	2-Butanone	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6	Bromomethane Ethyl alcohol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-6	Cyclohexane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6	Chloromethane Naphthalene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
K0804066	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D	Dichlorodifluoromethane 2-Butanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6	Tetrahydrofuran Acetone 2-Butanone 2-Hexanone 1,2-Dibromo-3-chloropropane Ethyl alcohol	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
K0804066	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D	2-Butanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
K0804066	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
K0804066	PS-1A-2D PS-1A-1S	All TCL compounds	J (all detects)	P	Surrogate recovery (%R)
K0804066	PS-1A-2S PS-1A-2I	Ethyl alcohol	J (all detects)	P	Laboratory control samples (%R)

*Indicates change as the result of report review.
SDG K0804066

SDG	Sample	Compound	Flag	A or P	Reason
*K0804066	PS-1A-2S PS-1A-2I PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6	Ethyl alcohol	J (all detects)	P	Laboratory control samples (%R)
*K0804066	PS-1A-2** PS-1A-5 PS-1A-3 PS-1A-1 PS-1A-1-DUP PS-1A-7 PS-1A-6 PS-1A-2S PS-1A-2I	Methyl-tert-butyl ether Bromomethane 2-Hexanone 1,2-Dibromo-3-chloropropane	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
*K0804066	PS-1A-7S** PS-1A-7I PS-1A-7D PS-1A-7XD PS-1A-2D PS-1A-1S PS-1A-1I PS-1A-1D	Acetone	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
*K0804066	PS-1A-5S** PS-1A-5I PS-1A-5D PS-1A-6S PS-1A-6I PS-1A-6D PS-1A-3S PS-1A-3I PS-1A-3D	Dichlorodifluoromethane Carbon disulfide	J (all detects) J (all detects)	P	Laboratory control samples (%R)

SDG	Sample	Compound	Flag	A or P	Reason
K0804066	PS-1A-7S**	1,1,2,2-Tetrachloroethane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Hexachlorobutadiene n-Butylbenzene n-Propylbenzene Naphthalene p-Isopropyltoluene sec-Butylbenzene tert-Butylbenzene	J (all detects) UJ (all non-detects)	A	Internal standards (area)
K0804066	PS-1A-3I	1,1,1,2-Tetrachloroethane 1,2-Dibromoethane 1,3-Dichloropropane Bromoform Chlorobenzene Dibromochloromethane Ethylbenzene m,p-Xylenes o-Xylene Styrene Tetrachloroethene trans-1,3-Dichloropropane 1,1,2-Trichloroethane 2-Hexanone Isopropylbenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Hexachlorobutadiene n-Butylbenzene n-Propylbenzene Naphthalene p-Isopropyltoluene sec-Butylbenzene tert-Butylbenzene	J (all detects) UJ (all non-detects)	A	Internal standards (area)

*Indicates change as the result of report review.
SDG K0804066

SDG	Sample	Compound	Flag	A or P	Reason
*K0804066	PS-1A-1 PS-1A-1-DUP	Cyclohexane Vinyl chloride cis--1,2-Dichloroethene 1,2-Dichloroethane Benzene Toluene Ethylbenzene m,p-Xylenes o-Xylene n-Propylbenzene	J (all detects) J (all detects)	A	Field duplicates (RPD)
*K0804066	PS-1A-1 PS-1A-1-DUP	1,2-Dichloropropane 4-Chlorotoluene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Field duplicates (RPD)

DoDHF Novato, CA

Volatiles - Laboratory Blank Data Qualification Summary - SDG K0804066

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
K0804066	PS-1A-7S**	Methylene chloride Acetone n-Hexane Benzene Naphthalene	8.8U ug/Kg 18U ug/Kg 8.8U ug/Kg 2.2U ug/Kg 18U ug/Kg	A
K0804066	PS-1A-7I	Methylene chloride Acetone n-Hexane Benzene Naphthalene	9.4U ug/Kg 19U ug/Kg 9.4U ug/Kg 2.4U ug/Kg 19U ug/Kg	A
K0804066	PS-1A-7D	Methylene chloride Acetone n-Hexane	8.7U ug/Kg 20U ug/Kg 8.7U ug/Kg	A
K0804066	PS-1A-7XD	Methylene chloride Acetone Benzene	8.7U ug/Kg 18U ug/Kg 2.2U ug/Kg	A
K0804066	PS-1A-2D	Methylene chloride Acetone n-Hexane	8.9U ug/Kg 18U ug/Kg 8.9U ug/Kg	A
K0804066	PS-1A-1S	Methylene chloride Acetone	14U ug/Kg 28U ug/Kg	A

*Indicates change as the result of report review.
SDG K0804066

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
K0804066	PS-1A-1I	Methylene chloride Acetone n-Hexane Benzene Naphthalene	8.3U ug/Kg 17U ug/Kg 8.3U ug/Kg 2.1U ug/Kg 17U ug/Kg	A
K0804066	PS-1A-1D	Methylene chloride Acetone n-Hexane	8.7U ug/Kg 37U ug/Kg 8.7U ug/Kg	A
K0804066	PS-1A-2S	Methylene chloride	0.91U ug/Kg	A
K0804066	PS-1A-2I	Methylene chloride	0.45U ug/Kg	A
K0804066	PS-1A-5S**	Methylene chloride Toluene Naphthalene	9.8U ug/Kg 25U ug/Kg 20U ug/Kg	A
K0804066	PS-1A-5I	Methylene chloride n-Hexane Toluene Naphthalene	10U ug/Kg 10U ug/Kg 25U ug/Kg 20U ug/Kg	A
K0804066	PS-1A-5D	Acetone Toluene Naphthalene	17U ug/Kg 21U ug/Kg 17U ug/Kg	A
K0804066	PS-1A-6S	Methylene chloride Acetone Toluene	8.3U ug/Kg 17U ug/Kg 21U ug/Kg	A
K0804066	PS-1A-6I	Methylene chloride Toluene Naphthalene	8.4U ug/Kg 21U ug/Kg 17U ug/Kg	A
K0804066	PS-1A-6D	Methylene chloride n-Hexane Toluene	10U ug/Kg 10U ug/Kg 25U ug/Kg	A
K0804066	PS-1A-3S	Methylene chloride Acetone Toluene Naphthalene	8.1U ug/Kg 17U ug/Kg 21U ug/Kg 17U ug/Kg	A
K0804066	PS-1A-3I	n-Hexane Toluene Naphthalene	8.8U ug/Kg 22U ug/Kg 18U ug/Kg	A

*Indicates change as the result of report review.
SDG K0804066

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
K0804066	PS-1A-3D	Acetone n-Hexane Toluene	19U ug/Kg 8.7U ug/Kg 22U ug/Kg	A

DoDHF Novato, CA

Volatiles - Field Blank Data Qualification Summary - SDG K0804066

No Sample Data Qualified in this SDG

LDC #: 18844A1
 SDG #: K0804066
 Laboratory: Columbia Analytical Services

VALIDATION COMPLETENESS WORKSHEET
 Level III/IV

Date: 6/08/08
 Page: 1 of 1
 Reviewer: JVG
 2nd Reviewer: *[Signature]*

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/08 - 09/08
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	% RSD r ²
IV.	Continuing calibration	SW	ICV < 25 %
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec
VIII.	Laboratory control samples	SW	LCB/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 23, 24
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Soil T Water

1	PS-1A-7S**	S	11	3	PS-1A-5S**	S	21	4	PS-1A-5	W	31	1	KWG 0804743-3
2	PS-1A-7I		12	3	PS-1A-5I		22	4	PS-1A-3		32	2	KWG 0804770-3
3	PS-1A-7D		13	3	PS-1A-5D		23	4	PS-1A-1 D		33	3	KWG 0804792-3
4	PS-1A-7XD		14	3	PS-1A-6S		24	4	PS-1A-1-DUP D		34	4	KWG 0804490-3
5	PS-1A-2S		15	3	PS-1A-6I		25	4	PS-1A-7		35	5	KWG 0804799-3 (duplicate m/s)
6	PS-1A-2I		16	3	PS-1A-6D		26	4	PS-1A-6		36		
7	PS-1A-2D		17	3	PS-1A-3S		27				37		
8	PS-1A-1S		18	3	PS-1A-3I		28				38		
9	PS-1A-1I		19	3	PS-1A-3D		29				39		
10	PS-1A-1D	✓	20	4	PS-1A-2**	W	30				40		

(18844A1A + 1b)

(Soil = wet weight basis)

LDC #: 188 +1 A1B
 SDG #: see label

VALIDATION FINDINGS CHECKLIST

Page: 1 of 7
 Reviewer: JV
 2nd Reviewer: [Signature]

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of > 0.9907?	/			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) > 0.05?		/		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) < 25% and relative response factors (RRF) > 0.05?		/		
V. Blanks				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	/			
VI. Surrogate spikes				
Were all surrogate %R within QC limits?		/		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?		/		
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	/			

LDC #: 18844A-1g
 SDG #: See below

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
 Reviewer: JVC
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were retention times within + 30 seconds of the associated calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were chromatogram peaks verified and accounted for?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIV. System performance				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field duplicates.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XVII. Field blanks				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethane, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. <i>Tetrahydrofuran</i>
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. <i>Cyclohexane</i>
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. <i>n-Hexane</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. <i>Ethanol Ethyl alcohol</i>	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-Isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 18844A
 SDG #: See Cont

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
 Reviewer: JVZ
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
- N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
- N N/A Were all %D and RRFs within the validation criteria of ≤ 25 %D and ≥ 0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: <25.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	3/6/08	0308F024 (ICV)	A MMM	29 28		5, 6, 20-26, KWG 0804770-3, KWG 0804490-3	J/NJ/A
	5/14/08	0514F004 (CCV)	NNNN F M Z MM B		0.0142 0.0427 0.0161 0.0393 0.6461		
		0514F006 (CCV)	NWW WWW	39	0.00153	↓	
		0514F005 (CCV)	0000	37		5, 6, 20-24, 26, KWG 0804770-3 KWG 0804490-3	
	5/21/08	0521F030 (ICV)	JJ M	39 29		11-19, KWG 0804792-3 ↓	
	5/22/08	0522F003 (CCV)	M		0.0243	↓	
	5/20/08	0520F020 (CCV)	F M		0.0404 0.0226	1-4, 7-10, KWG 0804743-3 ↓	✓

LDC #: 18844 A 1b
 SDG #: See Conv

VALIDATION FINDINGS WORKSHEET
 Blanks

Page: 1 of 2
 Reviewer: JVB
 2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y/N/N/A Was a method blank associated with every sample in this SDG?
 Y/N/N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
 Y/N/N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 5/20/08

Conc. units: ug/kg Associated Samples: 1-4 7-10

Compound	Blank ID	Sample Identification									
		3-3	1	2	3	4	7	8	9	10	
Methylene chloride	1.2		3.4 / 8.8U	0.47 / 9.4U	0.67 / 8.7U	0.84 / 8.7U	0.48 / 8.9U	1.5 / 14U	0.42 / 8.3U	1.5 / 8.7U	
Acetone	7.2		15 / 18U	17 / 19U	20 / U	5.3 / 18U	9.6 / 18U	9.1 / 28U	13 / 17U	37 / U	
PPPP	0.22		0.21 / 6.8U	0.40 / 9.4U	0.20 / 8.7U		0.65 / 8.9U	(1.4)	0.30 / 8.3U	0.30 / 8.7U	
V	0.78		0.83 / 2.2U	0.71 / 2.4U		0.70 / 2.2U			1.6 / 2.1U		
CC	1.7		(15)	(15)	(15)	(14)	(14)	(24)	(9.9)	(12)	
HHH	0.20										
CRDI MMM	0.45		0.32 / 18U	0.27 / 19U				(88)	1.6 / 17U		

Blank analysis date: 5/14/08

Conc. units: ug/kg Associated Samples: 5 6

Compound	Blank ID	Sample Identification									
		5	6								
(Med Level)	KWG0804770-3										
Methylene chloride	0.024		0.11 / 6.91U	0.065 / 6.45U							
Acetone											
CRDI											

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 18844 A16
 SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 2 of 3
 Reviewer: JVG
 2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- (Y) N N/A Was a method blank associated with every sample in this SDG?
 (Y) N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
 (Y) N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 5/22/08

Conc. units: ug/kg

Associated Samples: 11-19

Compound	Blank ID	Sample Identification									
		11	12	13	14	15	16	17	18		
Methylene chloride	0.45	0.34/9.8 U	1.4/10 U		0.41/8.3 U	0.36/8.4	0.32/10 U	0.56/8.1 U	(5.1)		
Acetone	1.9		(55)	14/7 U	7.5/17 U	(30)		9.6/17 U	(69)		
PPPP	0.16		0.23/10 U				0.19/10 U		0.27/8.8 U		
CC	0.27	0.24/25 U	0.47/25 U	0.28/21 U	0.21/21 U	0.43/21 U	0.29/25 U	0.30/21 U	6.76/22 U		
HHH	0.18										
MMM	0.48	0.39/20 U	0.68/20 U	0.28/17 U		0.36/17 U		0.19/17 U	0.62/18 U		
CROI											

Blank analysis date: _____

Conc. units: _____

Same as above

Associated Samples: _____

Compound	Blank ID	Sample Identification									
		19									
Methylene chloride	0.45										
Acetone	1.9	19/U									
PPPP	0.16	0.18/8.7 U									
CC	0.27	0.27/22 U									
HHH	0.18										
MMM	0.48										
CROI											

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 18844 A ~~h~~
 SDG #: Sec Com

VALIDATION FINDINGS WORKSHEET
 Laboratory Control Samples (LCS)

Page: 1 of 1
 Reviewer: JVZ
 2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N/N/A Was a LCS required?
 Y(N)/N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		KWG0804770-1/2	WWW	138 (80-120)	136 (80-120)	()	5,6, KWG0804770-3	J acts/p
				()	()	()		
				()	()	()		
		KW58804490-1/2	WWW	138 ()	136 ()	()	All water, KWG0804490-3	J/NJ/P
			LL	79 ()	()	()		
			B	78 ()	()	()		
			Z	77 ()	()	()		
			MM	79 ()	()	()		
				()	()	()		
		KWG0804743-1/2	F	71 ()	77 ()	()	1-4, 7-10, KWG0804743-3	J/NJ/P
				()	()	()		
				()	()	()		
		KWG0804776-1/2	LL	79 ()	()	()	5,6, KWG0804776-3	
			B	78 ()	()	()		
			Z	77 ()	()	()		
			MM	79 ()	()	()		
				()	()	()		
		KWG0804792-1/2	JJ	142 ()	137 ()	()	11-19, KWG0804792-3	J acts/p
			G	124 ()	122 ()	()		
				()	()	()		
				()	()	()		
				()	()	()		
				()	()	()		

Volatile Internal Standards

Fluorobenzene	Chlorobenzene-d5 (CBZ)	1,4-Dichlorobenzene-d4 (4DCB)
1,1,1-Trichloroethane	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	1,2-Dibromoethane	1,2,3-Trichlorobenzene
1,1-Dichloroethane	1,3-Dichloropropane	1,2,3-Trichloropropane
1,1-Dichloroethene	1-Chlorohexane	1,2,4-Trichlorobenzene
1,1-Dichloropropene	Bromoform	1,2,4-Trimethylbenzene
1,2-Dichloroethane	Chlorobenzene	1,2-Dichlorobenzene
1,2-Dichloropropane	Dibromochloromethane	1,2-Dibromo-3-chloropropane
2,2-Dichloropropane	Ethylbenzene	1,3,5-Trimethylbenzene
Acetone	m,p-Xylene	1,3-Dichlorobenzene
Benzene	o-Xylene	1,4-Dichlorobenzene
Bromochloromethane	Styrene	2-Chlorotoluene
Bromodichloromethane	Tetrachloroethane	4-Chlorotoluene
Bromomethane	<i>trans-1,3-Dichloropropane</i>	Bromobenzene
Carbon tetrachloride	<i>1,1,2-Trichloroethane</i>	Hexachlorobutadiene
Chloroethane	<i>2-Hexanone</i>	Isopropylbenzene
Chloroform	<i>Isopropylbenzene</i>	Methyl isobutyl ketone
Chloromethane		n-Butylbenzene
cis-1,2-Dichloroethene		n-Propylbenzene
cis-1,3-Dichloropropene		Naphthalene
Dibromomethane		p-Isopropyltoluene
Dichlorodifluoromethane		sec-Butylbenzene
Methylene chloride		tert-Butylbenzene
Methyl-tert-butyl ether		
2-Butanone		
Trichloroethene		
Toluene		
trans-1,2-Dichloroethene		
trans-1,3-Dichloropropene		
Trichlorofluoromethane		
Vinyl chloride		

LDC#: 18844A1
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JL
2nd Reviewer: J

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y / N / NA Were field duplicate pairs identified in this SDG?
Y / N / NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD	Parent only
	23	24		
Methyl tert-butyl ether	0.38	0.36	5	
Cyclohexane	0.19	0.29	42	Jdets/A
Vinyl chloride	0.56	1.3	80	↓
1,1-Dichloroethene	0.50	0.43	15	
trans-1,2-Dichloroethene	1.8	2.3	24	
cis-1,2-Dichloroethene	29	42	37	Jdets/A
1,2-Dichloroethane	0.090	0.13	36	↓
Benzene	0.23	0.40	54	↓
Trichloroethene	16	15	6	
1,2-Dichloropropane	0.50U	0.070	200	J/NS/A
Toluene	0.32	0.49	42	Jdets/A
Ethylbenzene	0.19	0.29	42	↓
m,p-Xylenes	0.33	0.49	39	↓
o-Xylene	0.55	0.93	51	↓
Isopropylbenzene	0.41	0.58	34	
n-Propylbenzene	0.83	1.2	36	Jdets/A
4-Chlorotoluene	0.090	2.0U	200	J/NS/A
1,3,5-Trmethylbenzene	0.65	0.90	32	
tert-Butylbenzene	0.080	0.11	32	
1,2,4-Trmethylbenzene	4.5	6.4	35	
sec-Butylbenzene	1.9	2.4	23	
4-Isopropyltoluene	2.0	2.7	30	
n-Butylbenzene	2.2	2.7	20	
Naphthalene	0.40	0.57	35	

LDC #: 18844A1b
 SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: JVG
 2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_s)/(A_s)(C_x)$
 average RRF = sum of the RRFs/number of standards
 $\%RSD = 100 * (S/X)$

A_x = Area of compound,
 C_x = Concentration of compound,
 S = Standard deviation of the RRFs
 X = Mean of the RRFs

A_s = Area of associated internal standard
 C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (std)	RRF (std)	Average RRF (Initial)	Average RRF (Initial)	%RSD	%RSD
1	ICAL MS 05	5/20/08 CAL 7369	C (1st internal standard)	0.311	0.311	0.331	0.331	15.2	15.1
			EE (2nd internal standard)	0.573	0.573	0.579	0.579	8.5	8.6
			BB (3rd internal standard)	0.845	0.845	0.845	0.845	7.1	7.1
2	ICAL MS 05	5/21/08 CAL 7373	C (1st internal standard)	0.227	0.227	0.257	0.258	6.3	6.3
			EE (2nd internal standard)	0.504	0.504	0.573	0.573	9.3	9.3
			BB (3rd internal standard)	0.789	0.789	0.838	0.838	5.0	5.0
3	ICAL MS 1B	3/07/08 CAL 7116	C (1st internal standard) ¹⁰	0.441	0.441	0.413	0.413	3.8	3.8
			EE (2nd internal standard) ¹⁰	1.16	1.163	1.104	1.104	4.2	4.2
			BB (3rd internal standard) ¹⁰	0.466	0.466	0.439	0.439	4.2	4.1
4			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 18644 A/E
 SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: OV

2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = $100 \cdot (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$
 $\text{RRF} = (A_s)(C_s) / (A_a)(C_a)$

Where: ave. RRF = initial calibration average RRF
 RRF = continuing calibration RRF
 A_s = Area of compound, A_a = Area of associated internal standard
 C_s = Concentration of compound, C_a = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	0520F020	5/20/08	C (1st internal standard)	0.531	0.284	0.284	14	14
			EE (2nd internal standard)	0.579	0.570	0.570	2	2
			BB (3rd internal standard)	0.845	0.868	0.868	3	3
2	0522F003	5/22/08	C (1st internal standard)	0.257	0.250	0.250	3	3
			EE (2nd internal standard)	0.573	0.615	0.615	7	7
			BB (3rd internal standard)	0.826	0.906	0.906	8	8
3	0514F004	5/14/08	C (1st internal standard)	0.413	0.351	0.351	15	15
			EE (2nd internal standard)	1.10	1.08	1.08	2	2
			BB (3rd internal standard)	0.439	0.419	0.419	5	5
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 18844 A16
 SDG #: See Cont

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: JV6
 2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	50	43.61	87	87	0
Bromofluorobenzene	↓	35.69	79	79	↓
1,2-Dichloroethane-d4					
Dibromofluoromethane		44.44	89	89	↓

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: DoDHF Novato, CA
Collection Date: May 11, 2008
LDC Report Date: June 21, 2008
Matrix: Air
Parameters: Volatiles
Validation Level: NFESC Level III & IV
Laboratory: Air Toxics LTD.

Sample Delivery Group (SDG): 0805267R2

Sample Identification

PS-1A-1S
PS-1A-1D
PS-1A-2S**
PS-1A-2D
PS-1A-3S
PS-1A-3D
PS-1A-5S
PS-1A-5D
PS-1A-6S
PS-1A-6D**
PS-1A-7S
PS-1A-7I
PS-1A-7D
PS-1A-8
PS-1A-9
PS-1A-5S-DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 16 air samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method TO-15 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
5/7/08	Bromomethane	34.924	All samples in SDG 0805267R2	J (all detects) UJ (all non-detects)	P

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/14/08	Methyl-tert-butyl ether	36.89866	All samples in SDG 0805267R2	J (all detects) UJ (all non-detects)	P
	1,2,4-Trichlorobenzene	44.30320		J (all detects) UJ (all non-detects)	

V. Blanks

Method blank analyses were performed at the required frequency. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were analyzed at the required frequency. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
PS-1A-71	1,1-Difluoroethane	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

Samples PS-1A-5S and PS-1A-5S-DUP were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/m ³)		RPD
	PS-1A-5S	PS-1A-5S-DUP	
Vinyl chloride	380	430	12
Acetone	380	390	3
Carbon disulfide	46	49	6
trans-1,2-Dichloroethene	400	420	5
Hexane	280	300	7
2-Butanone	35U	53	200
cis-1,2-Dichloroethene	5500	5700	4
Cyclohexane	590	640	8
2,2,4-Trimethylpentane	630	680	8
Benzene	200	200	0
Heptane	150	160	6
Trichloroethene	450	440	2
Toluene	350	360	3

Compound	Concentration (ug/m ³)		RPD
	PS-1A-5S	PS-1A-5S-DUP	
m,p-Xylenes	180	180	0
o-Xylene	64	68	6
Propylbenzene	74	58U	200
4-Ethyltoluene	65	75	14
1,2,4-Trimethylbenzene	130	120	8

DoDHF Novato, CA
Volatiles - Data Qualification Summary - SDG 0805267R2

SDG	Sample	Compound	Flag	A or P	Reason
0805267R2	PS-1A-1S PS-1A-1D PS-1A-2S** PS-1A-2D PS-1A-3S PS-1A-3D PS-1A-5S PS-1A-5D PS-1A-6S PS-1A-6D** PS-1A-7S PS-1A-7I PS-1A-7D PS-1A-8 PS-1A-9 PS-1A-5S-DUP	Bromomethane	J (all detects) UJ (all non-detects)	P	Initial calibration (%RSD)
0805267R2	PS-1A-1S PS-1A-1D PS-1A-2S** PS-1A-2D PS-1A-3S PS-1A-3D PS-1A-5S PS-1A-5D PS-1A-6S PS-1A-6D** PS-1A-7S PS-1A-7I PS-1A-7D PS-1A-8 PS-1A-9 PS-1A-5S-DUP	Methyl-tert-butyl ether 1,2,4-Trichlorobenzene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
0805267R2	PS-1A-7I	1,1-Difluoroethane	J (all detects)	P	Compound quantitation and CRQLs

DoDHF Novato, CA
Volatiles - Laboratory Blank Data Qualification Summary - SDG 0805267R2

No Sample Data Qualified in this SDG

DoDHF Novato, CA
Volatiles - Field Blank Data Qualification Summary - SDG 0805267R2

No Sample Data Qualified in this SDG

LDC #: 18902A48
 SDG #: 0805267 R2
 Laboratory: Air Toxics, LTD.

VALIDATION COMPLETENESS WORKSHEET
 Level III/IV

Date: 6/19/08
 Page: 1 of 1
 Reviewer: JVC
 2nd Reviewer: J

METHOD: GC/MS Volatiles (EPA Method TO-15)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/11/08
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration/ICV	SW	ICV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	NA	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	SW	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 7, 16
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Air

1	PS-1A-1S	11	PS-1A-7S	21	COS1409 a Lab Blk	31
2	PS-1A-1D	12	PS-1A-7I	22		32
3	PS-1A-2S**	13	PS-1A-7D	23		33
4	PS-1A-2D	14	PS-1A-8	24		34
5	PS-1A-3S	15	PS-1A-9	25		35
6	PS-1A-3D	16	PS-1A-5S-DUP D	26		36
7	PS-1A-5S D	17		27		37
8	PS-1A-5D	18		28		38
9	PS-1A-6S	19		29		39
10	PS-1A-6D**	20		30		40

LDC #: 18902A48
 SDG #: Se Canal

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
 Reviewer: JZ
 2nd Reviewer: J

Method: Volatiles (EPA Method TO-15)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Canister pressure criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) \leq 30% and relative response factors (RRF) $>$ 0.05?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $<$ 30% and relative response factors (RRF) $>$ 0.05?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
V. Blanks				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per analytical batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 18902 A 48
 SDG #: See Copy

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
 Reviewer: JTB
 2nd Reviewer: JTB

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within +/- 20.0 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?		✓		
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?		✓		
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA Method TO-15)

A. Chloromethane*	S. Trichloroethene	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	MMMM. Ethyl ether
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene	NNNN. Benzyl chloride
C. Vinyl chloride**	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol	
D. Chloroethane	V. Benzene	NN. Diethyl ether	FFF. 1,3-Dichlorobenzene	XXX. Di-isopropyl ether	
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol	
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol	
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether	
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether	
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC. 1-Chlorohexane	
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol	
K. Chloroform**	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile	
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein	
M. 2-Butanone	EE. Ethylbenzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile	
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane	
O. Carbon tetrachloride	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol	
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile	
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile	
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL. Methyl ethyl ketone	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC#: 18902A48
 SDG#: See cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: JY
 2nd Reviewer: K

METHOD: GC/MS VOA (EPA TO-15)

- Y/N NA Were field duplicate pairs identified in this SDG?
 Y/N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/m3)		RPD	
	7	16		
Vinyl Chloride	380	430	12	
Acetone	380	390	3	
Carbon disulfide	46	49	6	
trans-1,2-Dichloroethene	400	420	5	
Hexane	280	300	7	
2-Butanone	35U	53	200	
cis-1,2-Dichloroethene	5500	5700	4	
Cyclohexane	590	640	8	
2,2,4-Trimethylpentane	630	680	8	
Benzene	200	200	0	
Heptane	150	160	6	
Trichloroethene	450	440	2	
Toluene	350	360	3	
m,p-Xylene	180	180	0	
o-Xylene	64	68	6	
Propylbenzene	74	58U	200	
4-Ethyltoluene	65	75	14	
1,2,4-Trimethylbenzene	130	120	8	

LDC #: 18902 A 48
 SDG #: Su Cont

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: SVZ
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA Method TO-15)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is}) / (A_{is})(C_x)$
 average RRF = sum of the RRFs/number of standards
 %RSD = $100 * (S/X)$

A_x = Area of compound,
 C_x = Concentration of compound,
 S = Standard deviation of the RRFs
 X = Mean of the RRFs

A_{is} = Area of associated internal standard
 C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (100 std)	RRF (100 std)	Average RRF (Initial)	Average RRF (Initial)	%RSD	%RSD
1	ICAL MS C	4/28 - 5/07/08	Methylene chloride (1st internal standard)	1.8891	1.88918	1.75925	1.75925	11.263	11.263
			Trichlorethene (2nd internal standard)	0.64185	0.64185	0.63687	0.63687	6.194	6.194
			Toluene (3rd internal standard)	1.24421	1.24421	1.24694	1.24694	12.774	12.774
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 18902A48
 SDG #: Sea Core

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: JVZ
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA TO-15)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = $100 * (ave. RRF - RRF) / ave. RRF$
 $RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
 RRF = continuing calibration RRF
 A_x = Area of compound, A_{is} = Area of associated internal standard
 C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	C051407	5/14/08	Methylene chloride (1st internal standard)	1.75925	1.55131	1.55131	11.81954	11.81955
			Trichlorethene (2nd internal standard)	0.63687	0.50317	0.50317	20.99247	20.99277
			Toluene (3rd internal standard)	1.24294	1.06467	1.06467	14.61758	14.61775
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

