



**Base Realignment and Closure
Program Management Office West Naval
Facilities Engineering Command**

**Air Monitoring Summary Report
Loading, Transportation, & Removal
of Waste Material
Hunters Point Naval Shipyard
San Francisco, California**

Contract: N62473-11-D-2226, PTO 0007

December 19, 2014



A handwritten signature in black ink, appearing to read "D. Willis".

Daniel Willis
Project Engineer

A handwritten signature in black ink, appearing to read "Claire Hamaji".

Claire Hamaji
Environmental Scientist

Air Monitoring Summary Report

Loading, Transportation, &
Removal Hunters Point Naval
Shipyard, San Francisco, CA

Prepared for:
Base Realignment and Closure
Program Management Office West Naval
Facilities Engineering Command
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Date:
December 19, 2014

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Acronyms and Abbreviations	ii
1. Introduction	1
2. Monitoring Site Locations	1
3. Analytical Methods	2
4. Analysis of Air Monitoring Data	2
5. Air Monitoring Results	3
6. References	3

Figures

Figure 1	Site Location and Monitoring Zone Map
Figure 2	Metal Reef Air Monitoring Station Locations and Boundaries

Tables

Table 1	Threshold Criteria for Analysis of Air Monitoring Data
Table 2	Ambient Pressure and Temperature Monitoring Results
Table 3	Total Suspended Particulates and Metals Monitoring Results
Table 4	Particulate Matter Smaller than 10 Microns in Diameter (PM10) Monitoring Results

Appendices

A	Air Monitoring Laboratory Analytical Results
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Acronyms and Abbreviations

ARCADIS	ARCADIS U.S., Inc.
BRAC	Base Realignment and Closure
DCP	Dust Control Plan
HPNS	Hunters Point Naval Shipyard
NAVFAC	Naval Facilities Engineering Command
Navy	United States Department of the Navy
PM10	particulate matter less than 10 microns in diameter
TSP	total suspended particles
USEPA	U.S. Environmental Protection Agency

1. Introduction

ARCADIS-US, Inc. (herein after referred to as ARCADIS) is providing environmental remediation services to the U.S. Department of the Navy under the Contract: N62473-11-D-2226, PTO 0007. ARCADIS is performing air monitoring at Hunters Point Naval Shipyard (HPNS) in accordance with the Basewide Dust Control Plan (DCP), included as Appendix E to the Final Work Plan for the Loading, Transportation, & Removal of Waste Material, Hunters Point Naval Shipyard, San Francisco, California (ARCADIS 2013; See Figure 1). The DCP described procedures that minimized dust during work activities, and required air monitoring to ensure these procedures were effective. The DCP helped prevent exposure of residents and construction crews to potential airborne chemicals of concern, and dust from the work area.

This document summarizes the perimeter air monitoring data collected and analyzed for this project during the period of November 11, 2014 to December 2, 2014. This summary report describes the following:

- Where and how air monitoring samples were collected
- What test methods were used to analyze air monitoring samples
- How air monitoring data were evaluated

This summary report also presents the air monitoring test results and compares the results with the established threshold criteria included in the DCP.

2. Monitoring Site Locations

Air monitoring stations were mobilized to collect air samples upwind and downwind of work areas for the duration of the project. Air monitoring was performed to ensure effective dust control. The predominant wind direction at HPNS is from the west.

Locations of air monitoring stations and wind direction are shown on Figures 1 and 2. The locations of the air monitoring stations were determined based on where the work was to be conducted, the prevailing wind direction, and were modified as needed. A windsock was used to show wind direction and atmospheric parameters were checked daily at www.wunderground.com (see Table 2). Atmospheric data provided by www.wunderground.com was collected from station KCASANFR131 for the period of November 11, 2014 to November 19, 2014 and from station KCASANFR328 for the period of November 20, 2014 to December 2, 2014. Air monitoring stations remained stationary while sampling was conducted. In accordance with the DCP, air monitoring

samples are collected on a filter from each air monitoring station that operates for a maximum of 24 hours.

Each monitoring station included two separate sample/filter media for:

1. Total suspended particulates (TSP) and for arsenic, lead, and manganese
2. Particulate matter larger than 10 microns in size (PM10)

3. Analytical Methods

TSP, Arsenic, Lead, and Manganese. TSP samples were collected with a high-volume (39 to 60 cubic feet per minute) air sampler in accordance with U.S. Environmental Protection Agency's (EPA's) reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50; Appendix B. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighed to determine the amount of TSP collected.

Once the amount of TSP was determined, the sample was analyzed for arsenic, lead, and manganese. Arsenic, lead, and manganese were analyzed using a modified EPA Method 6020 (EPA SW846; Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its Updates.) The equipment specifications and sampling procedures used, including the sampling apparatus, filters, equipment accuracy, equipment calibration, and quality assurance checks, all conformed to those specified in the analytical method.

PM10. Air samples were collected and analyzed for PM10 in accordance with EPA's reference sampling method for PM10, described in 40 CFR Part 50, Appendix J. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighed to evaluate the concentrations of PM10 in ambient air.

4. Analysis of Air Monitoring Data

Analytical results from air monitoring samples were compared to the threshold criteria listed in Table 1. Site activities did not result in the exceedances of the established threshold criteria at any time during project execution.

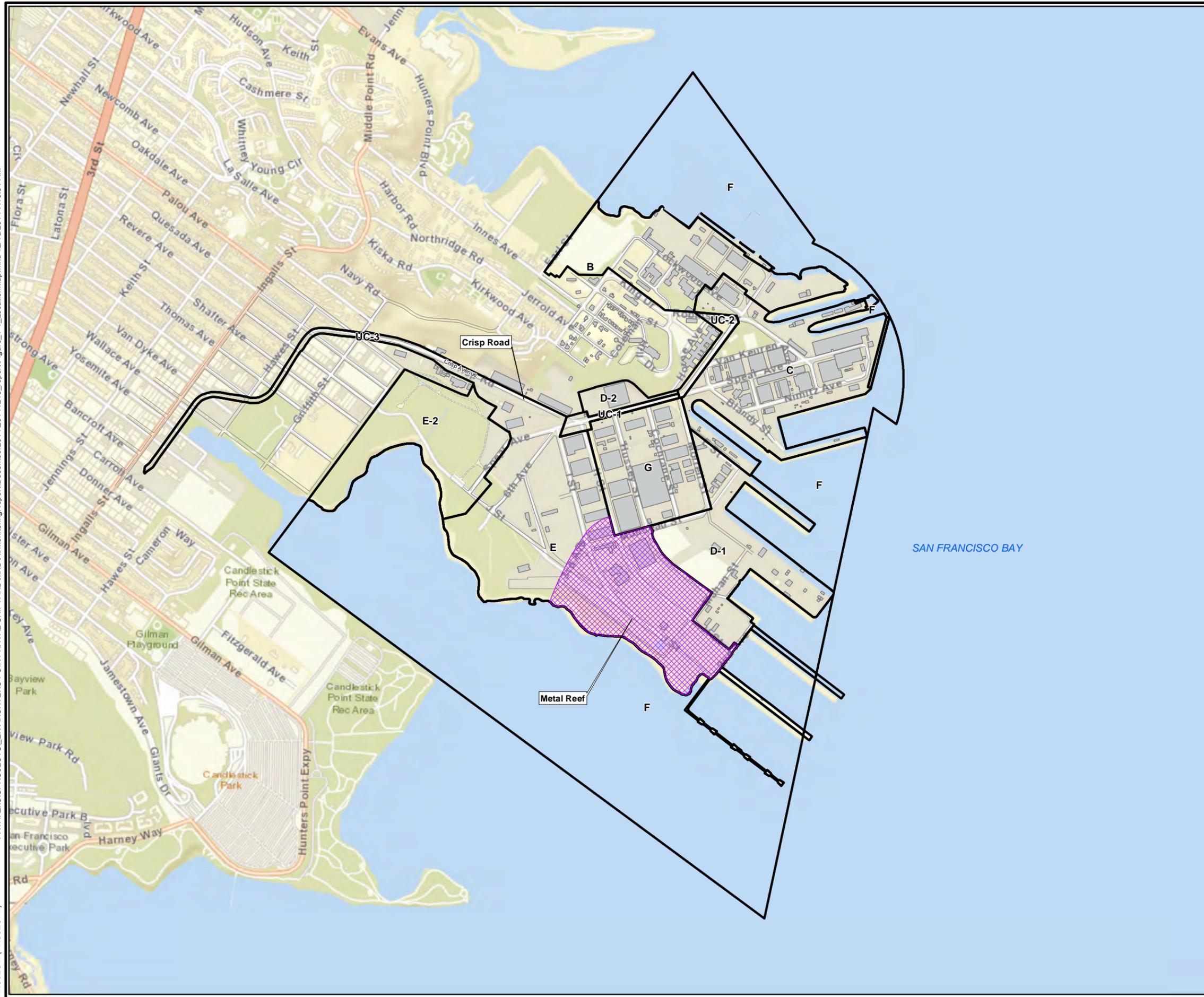
5. Air Monitoring Results

There were no exceedances of the threshold criteria for TSP, lead, arsenic, manganese, or PM10 during this monitoring reporting period. All laboratory analytical results from the air monitoring summarized in this report are included as Appendix A. Weather information (including high ambient pressure and temperature data) and air monitoring results are summarized in Tables 2 through 4.

6. References

ARCADIS. 2013. Final Work Plan for the Loading, Transportation, & Removal of Waste Material, Hunters Point Naval Shipyard, San Francisco, California. October.

Figures

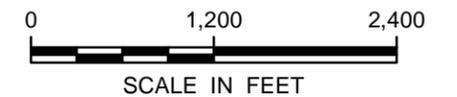


Legend

-  Parcel Boundary
-  Existing Building
-  Metal Reef

Notes:

1. Hatched areas represent loading/exclusion zones that are part of this air monitoring report.
2. Parcel E was divided into three monitoring zones due to the large area of the parcel. Metal Reef was the only monitoring zone in Parcel E sampled as part of this report.



U.S. DEPARTMENT OF THE NAVY, BRAC PMO WEST,
 SAN DIEGO, CALIFORNIA
 HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA
AIR MONITORING SUMMARY REPORT:
 LOADING, TRANSPORTATION, & REMOVAL OF WASTE MATERIAL

**SITE LOCATION AND
 MONITORING ZONE MAP**



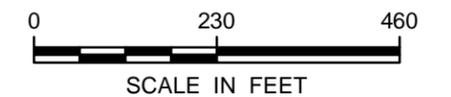


Legend

-  Upwind Air Monitoring Station Location
-  Downwind Air Monitoring Station Location
-  Metal Reef Air Monitoring Boundary
-  Parcel Boundary
-  Existing Building

Notes:

1. For monitoring boundaries as part of this report, refer to Figure 1: Site Location and Monitoring Zone Map.
2. Parcel E is divided into three monitoring zones due to size. Metal Reef was the only monitoring zone in Parcel E sampled as part of this report.
3. Air monitoring was conducted in Metal Reef from 11/11/2014 - 12/02/2014 for the period of 11/11/2014 - 12/02/2014 included in this report. Air monitors were not operated on days when field work did not take place such as on weekends, mobilization days, or days with rain.



U.S. DEPARTMENT OF THE NAVY, BRAC PMO WEST,
SAN DIEGO, CALIFORNIA
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA
AIR MONITORING SUMMARY REPORT:
LOADING, TRANSPORTATION, & REMOVAL OF WASTE MATERIAL

**METAL REEF AIR MONITORING STATION
LOCATIONS AND BOUNDARIES**



FIGURE

2

Tables

Table 1
Threshold Criteria for Analysis of Air Monitoring Data
Air Monitoring Summary Report
Hunters Point Naval Shipyard
San Francisco, California

Test Parameter	Threshold Criterion	Threshold Criteria Reference
TSP	0.5 mg/m ³	Calculated action level for general dust and particulates
Arsenic	10 µg/m ³	Cal/OSHA PEL ¹
Lead	50 µg/m ³	Cal/OSHA PEL
Manganese	200 µg/m ³	Cal/OSHA PEL
PM ₁₀	5,000 µg/m ³	Cal/OSHA PEL

Notes:

¹ = Cal/OSHA PEL for particulates not otherwise regulated (respiratory) used for PM10

Cal/OSHA = California Division of Occupational Safety and Health Administration

mg/m³ = milligrams per cubic meter

PEL = permissible exposure limit

PM₁₀ = particulate matter less than 10 microns in diameter

TSP = total suspended particulates

µg/m³ = micrograms per cubic meter

Table 2
Ambient Pressure and Temperature Monitoring Results
Air Monitoring Summary Report
Hunters Point Naval Shipyard
San Francisco, California

Sample Date	Ambient Pressure (in Hg)	Ambient Temperature (°F)
11/12/2014	29.84	58
11/17/2014	30.28	70
11/26/2014	30.33	68

Notes:

1. Ambient pressure and ambient temperature data were gathered from the Weather Underground website (www.wunderground.com). □
2. Data reported were the "highs" collected from station KCASANFR131 for the period of 11/11/2014 to 11/19/2014, and from station KCASANFR328 for the period of 11/20/2014 to 12/02/2014. Ranges of sampling dates are represented here by their midpoint when available, or by the start date.

°F = degrees Fahrenheit

in Hg = inches of mercury

Table 3
Total Suspended Particulates and Metals Monitoring Results
Air Monitoring Summary Report
Hunters Point Naval Shipyard
San Francisco, California

Dates of Sampling ¹	Sample Location ²	Volume of Air Pumped (m ³)	TSP (mg/m ³)	TSP Exceedance? (Yes/No)	Arsenic (µg/m ³)	Arsenic Exceedance? (Yes/No)	Lead (µg/m ³)	Lead Exceedance? (Yes/No)	Manganese (µg/m ³)	Manganese Exceedance? (Yes/No)
11/11 to 11/13/2014	2A	1,660	0.135	No	0.0005	No	0.0127	No	0.1205	No
11/11 to 11/13/2014	2B	1,666	0.031	No	0.0003	No	0.0033	No	0.0102	No
11/14 to 11/19/2014	2A	1,710	0.029	No	0.0014	No	0.0363	No	0.1403	No
11/14 to 11/19/2014	2B	1,634	0.172	No	0.0003	No	0.0092	No	0.0122	No
11/20 to 12/02/2014	2A	1,705	0.031	No	0.0003	No	0.0111	No	0.0147	No
11/20 to 12/02/2014	2B	1,733	0.021	No	0.0003	No	0.0058	No	0.0034	No
Screening Criteria			0.500		10		50		200	

Notes:

1. Air monitors were not run on weekends, during mobilization days, or on days with rain.
2. Sample nomenclature was changed for ease of recording beginning on 1/31/2014 due to a prior divergence from the sampling nomenclature. From 1/31/2014 onwards, 2A and 2B samples refer to TSP/Metals results downwind and upwind of the site, respectively.
3. Sample locations are shown on Figure 1.
4. The threshold criteria are as follows: TSP = 0.5 mg/m³, arsenic = 10 µg/m³, lead = 50 µg/m³, manganese = 200 µg/m³.
5. The detection limit for TSP is 0.06 µg/m³ assuming a minimum sample volume of 1,600 m³. The detection limits for arsenic, lead, and manganese are 16 ng/m³ assuming minimum sample volumes of 1,600 m³.
6. Samples analyzed by TestAmerica
7. The screening level for TSP is the calculated action level for general dust and particulates.
8. Screening levels for arsenic, lead, and manganese are based on the Cal/OSHA permissible exposure limit.

m³ - cubic meter

µg/m³ - micrograms per cubic meter

mg/m³ - milligrams per cubic meter

ng/m³ - nanograms per cubic meter

TSP - total suspended particulates

Table 4
Particulate Matter Smaller than 10 Microns in Diameter (PM₁₀) Monitoring Results
Air Monitoring Summary Report
Hunters Point Naval Shipyard
San Francisco, California

Sample Identification	Dates of Sampling ¹	Sample Location ²	Sampling Period (hours)	Volume of Air Pumped in cubic meters	PM ₁₀ (µg/m ³)	PM ₁₀ Exceedance? Yes/No
1A-ARCHPPM100914-99	11/11 to 11/13/2014	1A	22.4	1,547	46.2	No
1B-ARCHPPM100914-100	11/11 to 11/13/2014	1B	22.7	1,566	22.1	No
1A-ARCHPPM100914-102	11/14 to 11/19/2014	1A	23.1	1,594	48.4	No
1B-ARCHPPM100914-101	11/14 to 11/19/2014	1B	22.1	1,523	24.2	No
1A-ARCHPPM100914-103	11/20 to 12/02/2014	1A	23.0	1,589	9.6	No
1B-ARCHPPM100914-104	11/20 to 12/02/2014	1B	23.4	1,615	13.7	No
Screening Criteria					5,000	

Notes:

1. Air monitors were not run on weekends, during mobilization days, or on days with rain.
 2. Sample nomenclature was changed for ease of recording beginning on 1/31/2014 due to a prior divergence from the sampling nomenclature. From 1/31/2014 onwards, 1A and 1B samples refer to PM₁₀ results downwind and upwind of the site, respectively.
 3. Sample locations are shown on Figure 1.
 4. The threshold value for PM₁₀ is 5,000 µg/m³ based on the Cal/OSHA permissible exposure limit for particulates not otherwise regulated (respiratory) used for PM₁₀.
 5. The detection limit for PM₁₀ is 0.06 µg/m³ assuming a minimum sample volume of 1,600 m³.
 6. Samples analyzed by TestAmerica.
- m³ - cubic meter
µg/m³ - micrograms per cubic meter
PM₁₀ - particulate matter smaller than 10 microns in diameter

Appendix A
Air Monitoring Laboratory Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-10450-1

Client Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

For:
ARCADIS U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco, California 94104

Attn: Daniel Willis



Authorized for release by:
11/25/2014 1:01:31 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
- 2
- 3
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- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	7
QC Association Summary	8
Lab Chronicle	9
Certification Summary	10
Method Summary	11
Sample Summary	12
Chain of Custody	13
Receipt Checklists	14



Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Job ID: 320-10450-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 11/18/2014 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.0° C.

Metals

Method(s) PM10 40CFR50 App B: Only one initial and final weight was taken for the determination of the final particulate for each filter sample due to the rush nature of the project. This does not meet Testamerica SOP guidelines but meets EPA method guidelines.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Client Sample ID: 1A ARCHPPM100914-99

Lab Sample ID: 320-10450-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0714		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2A ARCHTSP100914-99

Lab Sample ID: 320-10450-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.91	J	2.4	0.49	ug/Filter	1		6020	Total/NA
Lead	21		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	200		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.2248		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

Client Sample ID: 1B ARCHPPM100914-100

Lab Sample ID: 320-10450-3

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0346		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2B ARCHTSP100914-100

Lab Sample ID: 320-10450-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	5.5		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	17		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.0524		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Client Sample ID: 1A ARCHPPM100914-99

Lab Sample ID: 320-10450-1

Date Collected: 11/11/14 15:00
 Date Received: 11/18/14 09:50
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0714		0.0005	0.0005	g			11/20/14 14:48	1

Client Sample ID: 2A ARCHTSP100914-99

Lab Sample ID: 320-10450-2

Date Collected: 11/11/14 15:00
 Date Received: 11/18/14 09:50
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.91	J	2.4	0.49	ug/Filter		11/21/14 09:59	11/22/14 18:47	1
Lead	21		1.2	0.18	ug/Filter		11/21/14 09:59	11/22/14 18:47	1
Manganese	200		1.2	0.17	ug/Filter		11/21/14 09:59	11/22/14 18:47	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.2248		0.0005	0.0005	g			11/20/14 14:41	1

Client Sample ID: 1B ARCHPPM100914-100

Lab Sample ID: 320-10450-3

Date Collected: 11/11/14 15:00
 Date Received: 11/18/14 09:50
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0346		0.0005	0.0005	g			11/20/14 14:48	1

Client Sample ID: 2B ARCHTSP100914-100

Lab Sample ID: 320-10450-4

Date Collected: 11/11/14 15:00
 Date Received: 11/18/14 09:50
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		11/21/14 09:59	11/22/14 18:58	1
Lead	5.5		1.2	0.18	ug/Filter		11/21/14 09:59	11/22/14 18:58	1
Manganese	17		1.2	0.17	ug/Filter		11/21/14 09:59	11/22/14 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.0524		0.0005	0.0005	g			11/20/14 14:42	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 320-58629/1-A
Matrix: Air
Analysis Batch: 58849

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 58629

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		11/21/14 09:59	11/22/14 18:36	1
Lead	ND		1.2	0.18	ug/Filter		11/21/14 09:59	11/22/14 18:36	1
Manganese	ND		1.2	0.17	ug/Filter		11/21/14 09:59	11/22/14 18:36	1

Lab Sample ID: LCS 320-58629/2-A
Matrix: Air
Analysis Batch: 58849

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 58629

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	240	234		ug/Filter		97	86 - 110
Lead	240	243		ug/Filter		101	86 - 111
Manganese	240	234		ug/Filter		97	88 - 110

Lab Sample ID: LCSD 320-58629/3-A
Matrix: Air
Analysis Batch: 58849

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 58629

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	240	220		ug/Filter		92	86 - 110	6	15
Lead	240	239		ug/Filter		100	86 - 111	2	15
Manganese	240	229		ug/Filter		95	88 - 110	2	15

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Metals

Prep Batch: 58629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10450-2	2A ARCHTSP100914-99	Total/NA	Air	3050B	
320-10450-4	2B ARCHTSP100914-100	Total/NA	Air	3050B	
LCS 320-58629/2-A	Lab Control Sample	Total/NA	Air	3050B	
LCSD 320-58629/3-A	Lab Control Sample Dup	Total/NA	Air	3050B	
MB 320-58629/1-A	Method Blank	Total/NA	Air	3050B	

Analysis Batch: 58849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10450-2	2A ARCHTSP100914-99	Total/NA	Air	6020	58629
320-10450-4	2B ARCHTSP100914-100	Total/NA	Air	6020	58629
LCS 320-58629/2-A	Lab Control Sample	Total/NA	Air	6020	58629
LCSD 320-58629/3-A	Lab Control Sample Dup	Total/NA	Air	6020	58629
MB 320-58629/1-A	Method Blank	Total/NA	Air	6020	58629

General Chemistry

Analysis Batch: 58811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10450-2	2A ARCHTSP100914-99	Total/NA	Air	40CFR50 App B	
320-10450-4	2B ARCHTSP100914-100	Total/NA	Air	40CFR50 App B	

Analysis Batch: 58812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10450-1	1A ARCHPPM100914-99	Total/NA	Air	PM10	
320-10450-3	1B ARCHPPM100914-100	Total/NA	Air	PM10	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Client Sample ID: 1A ARCHPPM100914-99

Lab Sample ID: 320-10450-1

Date Collected: 11/11/14 15:00

Matrix: Air

Date Received: 11/18/14 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			58812	11/20/14 14:48	SKV	TAL SAC

Client Sample ID: 2A ARCHTSP100914-99

Lab Sample ID: 320-10450-2

Date Collected: 11/11/14 15:00

Matrix: Air

Date Received: 11/18/14 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	58629	11/21/14 09:59	NIM	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	58849	11/22/14 18:47	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			58811	11/20/14 14:41	SKV	TAL SAC

Client Sample ID: 1B ARCHPPM100914-100

Lab Sample ID: 320-10450-3

Date Collected: 11/11/14 15:00

Matrix: Air

Date Received: 11/18/14 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			58812	11/20/14 14:48	SKV	TAL SAC

Client Sample ID: 2B ARCHTSP100914-100

Lab Sample ID: 320-10450-4

Date Collected: 11/11/14 15:00

Matrix: Air

Date Received: 11/18/14 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	58629	11/21/14 09:59	NIM	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	58849	11/22/14 18:58	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			58811	11/20/14 14:42	SKV	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2897	01-31-15

- 1
- 2
- 3
- 4
- 5
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- 10
- 11
- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL SAC
40CFR50 App B	Suspended Particulate Matter in Ambient Air	EPA	TAL SAC
PM10	Particulate Matter	40CFR50J	TAL SAC

Protocol References:

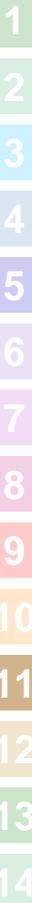
40CFR50J = 40CFR50J

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA000776.0002.0003, Parcel G, Hunters Po

TestAmerica Job ID: 320-10450-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-10450-1	1A ARCHPPM100914-99	Air	11/11/14 15:00	11/18/14 09:50
320-10450-2	2A ARCHTSP100914-99	Air	11/11/14 15:00	11/18/14 09:50
320-10450-3	1B ARCHPPM100914-100	Air	11/11/14 15:00	11/18/14 09:50
320-10450-4	2B ARCHTSP100914-100	Air	11/11/14 15:00	11/18/14 09:50

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



320-10450 Chain of Custody

THE LEA

Temperature on Receipt 50°C

Drinking Water? Yes No

Chain of Custody Record

TAL-4124 (1/007)

Client: Arcadis
Address: 630 Plaza Dr., Ste. # 200
 City: Highlands Ranch, State: CO, Zip Code: 80129
Project Name and Location (State): Hunters Point Naval Shipyard
Contract/Purchase Order/Quote No.:

Project Manager: Scott Morris
Telephone Number (Area Code)/Fax Number: 408-896-8725
Site Contact: Danny Willis
Carrier/Invoice Number:

Lab Contact:

Date: 11/14/14
Chain of Custody Number: 268381
Page: 1 of 1

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives					Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt	
			Air	Soil	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc			HNO2
1A ARCHPPM100914-99	11/11/14	1500	X												Row time @ 1345 mins
2A ARCHTSP100914-99			X												" " 1345 mins
1B ARCHPPM100914-100			X												" " 1362 mins
2B ARCHTSP100914-100			X												" " 1350 mins

Sample Disposal: Return To Client Unknown Poison B Skin Irritant Flammable Non-Hazard

QC Requirements (Specify):

1. Relinquished By: [Signature] Date: 11/14/14 Time: 1500
 2. Relinquished By: [Signature] Date: 11/18/14 Time: 9:50
 3. Relinquished By: [Signature] Date: [] Time: []

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report. CANARY - Stays with the Sample. PINK - Field Copy



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-10450-1

Login Number: 10450

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	15.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-10601-1
Client Project/Site: CA0008120.000 T&D Hunters PO

For:
ARCADIS U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco, California 94104

Attn: Daniel Willis



Authorized for release by:
12/3/2014 4:05:26 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

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results through
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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

1

2

3

4

5

6

7

8

9

10

11

12

13

14



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	7
QC Association Summary	8
Lab Chronicle	9
Certification Summary	10
Method Summary	11
Sample Summary	12
Chain of Custody	13
Receipt Checklists	14

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Job ID: 320-10601-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 11/25/2014 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.0° C.

Metals

Method(s) PM10 and 40CFR50 App B: : Only one initial and final weighing was taken for the determination of the final particulate for each filter sample due to the rush nature of the project.. This does not meet Testamerica SOP guidelines but meets EPA method guidelines.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Client Sample ID: 1A ARCHPPM100914-102

Lab Sample ID: 320-10601-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0771		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2A ARCHTSP100914-101

Lab Sample ID: 320-10601-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.4		2.4	0.49	ug/Filter	1		6020	Total/NA
Lead	62		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	240		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.0496		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

Client Sample ID: 1B ARCHPPM100914-101

Lab Sample ID: 320-10601-3

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0369		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2B ARCHTSP100914-102

Lab Sample ID: 320-10601-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	15		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	20		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.2816		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Client Sample ID: 1A ARCHPPM100914-102

Lab Sample ID: 320-10601-1

Date Collected: 11/14/14 15:00
 Date Received: 11/25/14 09:05
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0771		0.0005	0.0005	g			11/30/14 09:23	1

Client Sample ID: 2A ARCHTSP100914-101

Lab Sample ID: 320-10601-2

Date Collected: 11/14/14 15:00
 Date Received: 11/25/14 09:05
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.4		2.4	0.49	ug/Filter		12/01/14 14:00	12/01/14 21:58	1
Lead	62		1.2	0.18	ug/Filter		12/01/14 14:00	12/01/14 21:58	1
Manganese	240		1.2	0.17	ug/Filter		12/01/14 14:00	12/01/14 21:58	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.0496		0.0005	0.0005	g			11/30/14 09:16	1

Client Sample ID: 1B ARCHPPM100914-101

Lab Sample ID: 320-10601-3

Date Collected: 11/14/14 15:00
 Date Received: 11/25/14 09:05
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0369		0.0005	0.0005	g			11/30/14 09:23	1

Client Sample ID: 2B ARCHTSP100914-102

Lab Sample ID: 320-10601-4

Date Collected: 11/14/14 15:00
 Date Received: 11/25/14 09:05
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		12/01/14 14:00	12/01/14 22:09	1
Lead	15		1.2	0.18	ug/Filter		12/01/14 14:00	12/01/14 22:09	1
Manganese	20		1.2	0.17	ug/Filter		12/01/14 14:00	12/01/14 22:09	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.2816		0.0005	0.0005	g			11/30/14 09:16	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 320-59492/1-A
Matrix: Air
Analysis Batch: 59558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 59492

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		12/01/14 14:00	12/01/14 21:47	1
Lead	ND		1.2	0.18	ug/Filter		12/01/14 14:00	12/01/14 21:47	1
Manganese	ND		1.2	0.17	ug/Filter		12/01/14 14:00	12/01/14 21:47	1

Lab Sample ID: LCS 320-59492/2-A
Matrix: Air
Analysis Batch: 59558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 59492

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	240	230		ug/Filter		96	86 - 110
Lead	240	233		ug/Filter		97	86 - 111
Manganese	240	239		ug/Filter		100	88 - 110

Lab Sample ID: LCSD 320-59492/3-A
Matrix: Air
Analysis Batch: 59558

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 59492

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	240	245		ug/Filter		102	86 - 110	6	15
Lead	240	242		ug/Filter		101	86 - 111	4	15
Manganese	240	248		ug/Filter		103	88 - 110	4	15

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Metals

Prep Batch: 59492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10601-2	2A ARCHTSP100914-101	Total/NA	Air	3050B	
320-10601-4	2B ARCHTSP100914-102	Total/NA	Air	3050B	
LCS 320-59492/2-A	Lab Control Sample	Total/NA	Air	3050B	
LCSD 320-59492/3-A	Lab Control Sample Dup	Total/NA	Air	3050B	
MB 320-59492/1-A	Method Blank	Total/NA	Air	3050B	

Analysis Batch: 59558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10601-2	2A ARCHTSP100914-101	Total/NA	Air	6020	59492
320-10601-4	2B ARCHTSP100914-102	Total/NA	Air	6020	59492
LCS 320-59492/2-A	Lab Control Sample	Total/NA	Air	6020	59492
LCSD 320-59492/3-A	Lab Control Sample Dup	Total/NA	Air	6020	59492
MB 320-59492/1-A	Method Blank	Total/NA	Air	6020	59492

General Chemistry

Analysis Batch: 59363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10601-2	2A ARCHTSP100914-101	Total/NA	Air	40CFR50 App B	
320-10601-4	2B ARCHTSP100914-102	Total/NA	Air	40CFR50 App B	

Analysis Batch: 59364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10601-1	1A ARCHPPM100914-102	Total/NA	Air	PM10	
320-10601-3	1B ARCHPPM100914-101	Total/NA	Air	PM10	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Client Sample ID: 1A ARCHPPM100914-102

Lab Sample ID: 320-10601-1

Date Collected: 11/14/14 15:00

Matrix: Air

Date Received: 11/25/14 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			59364	11/30/14 09:23	SKV	TAL SAC

Client Sample ID: 2A ARCHTSP100914-101

Lab Sample ID: 320-10601-2

Date Collected: 11/14/14 15:00

Matrix: Air

Date Received: 11/25/14 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	59492	12/01/14 14:00	CV1	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	59558	12/01/14 21:58	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			59363	11/30/14 09:16	SKV	TAL SAC

Client Sample ID: 1B ARCHPPM100914-101

Lab Sample ID: 320-10601-3

Date Collected: 11/14/14 15:00

Matrix: Air

Date Received: 11/25/14 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			59364	11/30/14 09:23	SKV	TAL SAC

Client Sample ID: 2B ARCHTSP100914-102

Lab Sample ID: 320-10601-4

Date Collected: 11/14/14 15:00

Matrix: Air

Date Received: 11/25/14 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	59492	12/01/14 14:00	CV1	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	59558	12/01/14 22:09	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			59363	11/30/14 09:16	SKV	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2897	01-31-15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL SAC
40CFR50 App B	Suspended Particulate Matter in Ambient Air	EPA	TAL SAC
PM10	Particulate Matter	40CFR50J	TAL SAC

Protocol References:

40CFR50J = 40CFR50J

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10601-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-10601-1	1A ARCHPPM100914-102	Air	11/14/14 15:00	11/25/14 09:05
320-10601-2	2A ARCHTSP100914-101	Air	11/14/14 15:00	11/25/14 09:05
320-10601-3	1B ARCHPPM100914-101	Air	11/14/14 15:00	11/25/14 09:05
320-10601-4	2B ARCHTSP100914-102	Air	11/14/14 15:00	11/25/14 09:05

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-10601-1

Login Number: 10601

List Number: 1

Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-10750-1
Client Project/Site: CA0008120.000 T&D Hunters PO

For:
ARCADIS U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco, California 94104

Attn: Daniel Willis



Authorized for release by:
12/12/2014 3:33:16 PM
David Alltucker, Project Management Assistant II
(916)374-4383
david.alltucker@testamericainc.com

Designee for
Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	7
QC Association Summary	8
Lab Chronicle	9
Certification Summary	10
Method Summary	11
Sample Summary	12
Chain of Custody	13
Receipt Checklists	14

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Job ID: 320-10750-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-10750-1

Receipt

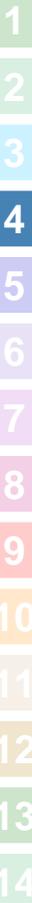
The samples were received on 12/5/2014 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.0° C.

Metals

Method(s) PM10: For these filters, 1A ARCHPPM100914-103 (320-10750-1), 1B ARCHPPM100914-104 (320-10750-3), only one initial and final weighing was taken for the determination of the final particulate for each filter sample. This was requested by the client. This does not meet Testamerica SOP guidelines but meets EPA method guidelines.

Method(s) 40CFR50 App B: For these filters, 2A ARCHTSP100914-104 (320-10750-2), 2B ARCHTSP100914-103 (320-10750-4), only one initial and final weighing was taken for the determination of the final particulate for each filter sample. This was requested by the client. This does not meet Testamerica SOP guidelines but meets EPA method guidelines.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Client Sample ID: 1A ARCHPPM100914-103

Lab Sample ID: 320-10750-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0153		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2A ARCHTSP100914-104

Lab Sample ID: 320-10750-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	19		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	25		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.0532		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

Client Sample ID: 1B ARCHPPM100914-104

Lab Sample ID: 320-10750-3

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Particulate Matter as PM 10	0.0222		0.0005	0.0005	g	1		PM10	Total/NA

Client Sample ID: 2B ARCHTSP100914-103

Lab Sample ID: 320-10750-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	10		1.2	0.18	ug/Filter	1		6020	Total/NA
Manganese	5.9		1.2	0.17	ug/Filter	1		6020	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Particulates	0.0362		0.0005	0.0005	g	1		40CFR50 App B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Client Sample ID: 1A ARCHPPM100914-103

Lab Sample ID: 320-10750-1

Date Collected: 12/02/14 15:00
 Date Received: 12/05/14 09:30
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0153		0.0005	0.0005	g			12/09/14 09:11	1

Client Sample ID: 2A ARCHTSP100914-104

Lab Sample ID: 320-10750-2

Date Collected: 12/02/14 15:00
 Date Received: 12/05/14 09:30
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		12/09/14 09:16	12/09/14 16:43	1
Lead	19		1.2	0.18	ug/Filter		12/09/14 09:16	12/09/14 16:43	1
Manganese	25		1.2	0.17	ug/Filter		12/09/14 09:16	12/09/14 16:43	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.0532		0.0005	0.0005	g			12/09/14 09:01	1

Client Sample ID: 1B ARCHPPM100914-104

Lab Sample ID: 320-10750-3

Date Collected: 12/02/14 15:00
 Date Received: 12/05/14 09:30
 Sample Container: Folder/Filter

Matrix: Air

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Particulate Matter as PM 10	0.0222		0.0005	0.0005	g			12/09/14 09:12	1

Client Sample ID: 2B ARCHTSP100914-103

Lab Sample ID: 320-10750-4

Date Collected: 12/02/14 15:00
 Date Received: 12/05/14 09:30
 Sample Container: Folder/Filter

Matrix: Air

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		12/09/14 09:16	12/09/14 16:54	1
Lead	10		1.2	0.18	ug/Filter		12/09/14 09:16	12/09/14 16:54	1
Manganese	5.9		1.2	0.17	ug/Filter		12/09/14 09:16	12/09/14 16:54	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Particulates	0.0362		0.0005	0.0005	g			12/09/14 09:02	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 320-60196/1-A
Matrix: Air
Analysis Batch: 60342

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 60196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.4	0.49	ug/Filter		12/09/14 09:16	12/09/14 16:32	1
Lead	ND		1.2	0.18	ug/Filter		12/09/14 09:16	12/09/14 16:32	1
Manganese	ND		1.2	0.17	ug/Filter		12/09/14 09:16	12/09/14 16:32	1

Lab Sample ID: LCS 320-60196/2-A
Matrix: Air
Analysis Batch: 60342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 60196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	240	243		ug/Filter		101	86 - 110
Lead	240	242		ug/Filter		101	86 - 111
Manganese	240	246		ug/Filter		103	88 - 110

Lab Sample ID: LCSD 320-60196/3-A
Matrix: Air
Analysis Batch: 60342

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 60196

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	240	233		ug/Filter		97	86 - 110	4	15
Lead	240	241		ug/Filter		101	86 - 111	0	15
Manganese	240	245		ug/Filter		102	88 - 110	1	15

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Metals

Prep Batch: 60196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10750-2	2A ARCHTSP100914-104	Total/NA	Air	3050B	
320-10750-4	2B ARCHTSP100914-103	Total/NA	Air	3050B	
LCS 320-60196/2-A	Lab Control Sample	Total/NA	Air	3050B	
LCSD 320-60196/3-A	Lab Control Sample Dup	Total/NA	Air	3050B	
MB 320-60196/1-A	Method Blank	Total/NA	Air	3050B	

Analysis Batch: 60342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10750-2	2A ARCHTSP100914-104	Total/NA	Air	6020	60196
320-10750-4	2B ARCHTSP100914-103	Total/NA	Air	6020	60196
LCS 320-60196/2-A	Lab Control Sample	Total/NA	Air	6020	60196
LCSD 320-60196/3-A	Lab Control Sample Dup	Total/NA	Air	6020	60196
MB 320-60196/1-A	Method Blank	Total/NA	Air	6020	60196

General Chemistry

Analysis Batch: 60241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10750-2	2A ARCHTSP100914-104	Total/NA	Air	40CFR50 App B	
320-10750-4	2B ARCHTSP100914-103	Total/NA	Air	40CFR50 App B	

Analysis Batch: 60242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-10750-1	1A ARCHPPM100914-103	Total/NA	Air	PM10	
320-10750-3	1B ARCHPPM100914-104	Total/NA	Air	PM10	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Client Sample ID: 1A ARCHPPM100914-103

Date Collected: 12/02/14 15:00

Date Received: 12/05/14 09:30

Lab Sample ID: 320-10750-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			60242	12/09/14 09:11	SKV	TAL SAC

Client Sample ID: 2A ARCHTSP100914-104

Date Collected: 12/02/14 15:00

Date Received: 12/05/14 09:30

Lab Sample ID: 320-10750-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	60196	12/09/14 09:16	NIM	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	60342	12/09/14 16:43	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			60241	12/09/14 09:01	SKV	TAL SAC

Client Sample ID: 1B ARCHPPM100914-104

Date Collected: 12/02/14 15:00

Date Received: 12/05/14 09:30

Lab Sample ID: 320-10750-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	PM10		1			60242	12/09/14 09:12	SKV	TAL SAC

Client Sample ID: 2B ARCHTSP100914-103

Date Collected: 12/02/14 15:00

Date Received: 12/05/14 09:30

Lab Sample ID: 320-10750-4

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.08333	100 mL	60196	12/09/14 09:16	NIM	TAL SAC
Total/NA	Analysis	6020		1	0.08333	100 mL	60342	12/09/14 16:54	LW1	TAL SAC
Total/NA	Analysis	40CFR50 App B		1			60241	12/09/14 09:02	SKV	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2897	01-31-15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL SAC
40CFR50 App B	Suspended Particulate Matter in Ambient Air	EPA	TAL SAC
PM10	Particulate Matter	40CFR50J	TAL SAC

Protocol References:

40CFR50J = 40CFR50J

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CA0008120.000 T&D Hunters PO

TestAmerica Job ID: 320-10750-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-10750-1	1A ARCHPPM100914-103	Air	12/02/14 15:00	12/05/14 09:30
320-10750-2	2A ARCHTSP100914-104	Air	12/02/14 15:00	12/05/14 09:30
320-10750-3	1B ARCHPPM100914-104	Air	12/02/14 15:00	12/05/14 09:30
320-10750-4	2B ARCHTSP100914-103	Air	12/02/14 15:00	12/05/14 09:30

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- 2
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- 9
- 10
- 11
- 12
- 13
- 14



Temperature on Receipt As is
Drinking Water? Yes No

THE LEA
Temperature on Receipt As is
Drinking Water? Yes No

Chain of Custody Record

TAL-4124 (1007)

Client: **Aradis** Chain of Custody Number: **268383**
 Address: **650 Plaza Dr., Ste. #200**
 City: **Highlands Ranch** State: **CO** Zip Code: **80129**
 Project Name and Location (State): **Hunters Point Naval Shipyard**
 Contract/Purchase Order/Quote No.:

Project Manager: **Scott Morris** Date: **12/13/14**
 Telephone Number (Area Code)/Fax Number: **408-896-8725** Lab Number: **1** of **1**
 Site Contact: **Danny Willis** Lab Contact:
 Carrier/Waybill Number:

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives					Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt	
			Air	Sed	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH			ZnAc
1A ARCHPPM100914-103	12/2/14	1500	X										Buy Time @ 1382
2A ARCHTSP100914-104	↓	↓	X										" " 1382
1B ARCHPPM100914-104	↓	↓	X										" " 1404
2B ARCHTSP100914-103	↓	↓	X										" " 1404

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Disposal By Lab Archive For _____ Months
 (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
 24 Hours 48 Hours 7 Days 14 Days 21 Days Other: **STANDARD**

QC Requirements (Specify):

1. Relinquished By: [Signature] Date: **12/13/14** Time: **1400**
 2. Relinquished By: [Signature] Date: **12-15-14** Time: **930**
 3. Relinquished By: _____ Date: _____ Time: _____

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-10750-1

Login Number: 10750

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

