



October 14, 2013

TDD No: TO2-09-12-04-0002

PAN No: EE-002693-2177

Tom Dunkelman, U.S. EPA Federal On-Scene Coordinator  
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Emergency Response Section  
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Subject: **Addendum Letter Report to the Eureka Smelter Site Removal  
Assessment Report, Eureka, Eureka County, Nevada, March 2013.  
Latitude: 39° 30' 45" North, Longitude: 115° 57' 39" West**

## **INTRODUCTION**

The Ecology and Environment, Inc. (E&E) Superfund Technical Assessment and Response Team (START) has been directed by the United States Environmental Protection Agency (U.S. EPA) to collect additional environmental data to assist in addressing the data gaps identified during the 2012 Eureka Smelter Site Removal Assessment.

In May 2013, the U.S. EPA Emergency Response Section (ERS) Federal On-Scene Coordinator (FOSC) Tom Dunkelman with the Nevada Department of Environmental Protection (NDEP) and START collected additional environmental data on 21 properties in the town of Eureka, Nevada in order to supplement the existing data generated on 108 properties and other locations that were presented in the March 2013 report titled *Eureka Smelter Sites, Removal Assessment Report, Eureka, Eureka County*. This letter report is an addendum to the March 2013 removal assessment report. This trip report presents the new data in tables and updated maps. Site and sampling location maps are presented in Attachment 1, data tables are presented in Attachment 2, contamination maps are presented in Attachment 3, data correlation graphs are in Attachment 4, laboratory reports in Attachment 5 and photographic documentation in Attachment 6.

## **SAMPLING LOCATIONS**

The Eureka Smelter Site study area is located in Eureka, Eureka County, Nevada (Figure 1, Attachment 1). The sampling locations for the May 2013 field work are presented in Figure 2-1, Attachment 1. Figure 2-1 also includes the locations of slag piles and the historic smelter operations.

## **FIELD ACTIVITY**

On May 28, 2013, FOOSC Dunkelman and START mobilized to the site in order to sample 20 additional properties. Samples were collected in accordance with the *May 2013 Sampling and Analysis Plan, Eureka Smelter Sites Assessment, Additional Sampling in Eureka, Eureka County, Nevada, E & E Inc.* (SAP) with no significant sample collection deviations. At the FOOSC's direction, three composite samples were generated for toxicity characteristic leaching procedure (TCLP) and synthetic precipitation leaching procedure (SPLP) extractions and analyses. The additional data is needed by the U.S. EPA in order to estimate disposal and treatment cost. The following analyses and extraction methods were necessary to generate additional required data and are not included in the SAP:

- TCLP by U.S. EPA Method 1311;
- SPLP by U.S. EPA Method 1312; and
- Analysis of extract for Lead, Arsenic, Silver, Cadmium, Barium, chromium, and selenium U.S. EPA Method 6010B and Mercury by U.S. EPA Method 7471A.

Sampling was initiated on May 29<sup>th</sup>, completed on May 30<sup>th</sup> and START demobilized on May 31, 2013. A total of 177 unique samples were collected during the mobilization. Twelve properties were sampled on May 29<sup>th</sup> and eight properties were sampled on May 30<sup>th</sup>. Prior to the collection of samples, the FOOSC and START identified 43 decision units.

## **START X-RAY FLUORESCENCE (XRF) ANALYSIS**

A total of 177 unique soil samples and 29 field and preparation duplicate samples were analyzed by START using an Innov-X field portable X-Ray Fluorescence (XRF) instrument. Including analysis duplicates and quality assurance samples a total of approximately 260 XRF analyses were completed. Sample analysis and QA/QC procedures with the XRF units were performed in accordance with the manufacturer guidance, U.S. EPA SW-846 Method 6200, project SAP and described in the March 2013 Removal Assessment report.

## **REGIONAL LABORATORY ANALYSIS**

A total of 40 soil samples, including duplicates were analyzed by the U.S. EPA Region 9 Laboratory for arsenic and lead by U.S. EPA Method 6010B Inductively Coupled Plasma-Atomic Emission Spectrometry. Three composite soil samples from the collected samples were generated and submitted to the U.S. EPA Region 9 Laboratory for both TCLP and SPLP extraction with extract analyzed for the eight RCRA metals. Additionally a rinsate blank generated by START in the field was analyzed by the U.S. EPA Region 9 Laboratory for arsenic and lead by U.S. EPA Method 6010B. The samples were also extracted using a bio-accessibility extraction procedure followed by analyses for total arsenic and lead concentration by U.S. EPA Method 6010B.

## **SUMMARY OF START SAMPLE RESULTS**

### Arsenic and Lead XRF Data

The data tables for each sampled property are presented in tables in Attachment 2, Table 1-

1 through 1-20.

The U.S. EPA SW-846 XRF Method 6200 suggests that a minimum of 5 to 10 percent of the XRF-analyzed samples be submitted to an analytical laboratory for confirmation analysis to verify the quality of the generated XRF data. During this assessment, approximately 20 percent of the XRF-analyzed samples were submitted for confirmation laboratory analysis.

#### TCLP and SPLP Metals Data

The analytical data for composite samples that were extracted by two U.S. EPA leachate procedures (TCLP and SPLP) and analyzed for arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury are presented in Attachment 2, Table 2. The total and extractible lead and arsenic concentrations for the three composite samples are as follows:

	<b>Total Lead</b>	<b>RCRA Lead</b>	<b>TCLP Lead</b>	<b>SPLP Lead</b>
	<b>mg/kg</b>	<b>Criteria</b>	<b>mg/L</b>	<b>mg/L</b>
	<b>mg/kg</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>
Composite 1	<b>1,300</b>	<b>5</b>	0.35	0.38
Composite 2	<b>12,000</b>	<b>5</b>	1.4	1.5
Composite 3	<b>3,100</b>	<b>5</b>	1.0	0.79

	<b>Total Arsenic</b>	<b>RCRA Arsenic</b>	<b>TCLP Arsenic</b>	<b>SPLP Arsenic</b>
	<b>mg/kg</b>	<b>Criteria</b>	<b>mg/L</b>	<b>mg/L</b>
	<b>mg/kg</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>
Composite 1	<b>260</b>	<b>5</b>	1.1	0.26
Composite 2	<b>1,400</b>	<b>5</b>	0.48	0.44
Composite 3	<b>590</b>	<b>5</b>	0.78	0.44

#### Arsenic Data Correlation

Linear regression analysis between field XRF and laboratory results for arsenic from 35 of the 36 unique soil samples submitted to the laboratory generated a final coefficient of determination (R<sup>2</sup>) value of 0.9923 and slope value of 1.0504. The concentration results from one sample with an extremely high concentration of arsenic were considered an outlier and were not used in the comparison. Based on the strong positive correlation of 0.9923 between XRF and laboratory results, the XRF data generated for arsenic concentrations during this assessment exceed the U.S. EPA criteria and is acceptable for use as screening level data (R<sup>2</sup>=0.7). Based upon the calculated slope of 1.0504, the XRF concentrations for arsenic are documented as exhibiting a slightly low bias. Since the slope is within 20 percent of a 1:1 slope, the documented biases are acceptable and usable without adjustment. The field XRF and laboratory analysis data correlation summary is provided in Attachment 4.

#### Lead Data Correlation

Linear regression analysis between field XRF and laboratory results for lead from 35 of the 36

unique soil samples submitted to the laboratory generated a final R2 value of 0.9952 and slope value of 1.1166. The concentration results from one sample with an extremely high concentration of lead were considered an outlier and were not used in the comparison. Based on the strong positive correlation of 0.9952 between XRF and laboratory results, the XRF data generated for lead concentrations during this assessment exceed the U.S. EPA criteria and is acceptable for use as screening level data (R2=0.7). Based upon the calculated slope of 1.1166, the XRF concentrations for lead are documented as exhibiting a slightly low bias. Since the slope is within 20 percent of a 1:1 slope, the documented biases are acceptable and usable without adjustment. The field XRF and laboratory analysis data correlation summary is provided in Attachment 4.

## **DISCUSSION OF RESULTS**

Data generated during this sampling event were compared to site-specific screening level (SSLs) of 60 mg/kg for arsenic and 400 mg/kg for lead. The collected surface and shallow surface soil concentration data were also compared to elevated site screening levels (ESSLs), which were values 10 times the SSL for arsenic (600 mg/kg) and 7.5 times the SSL for lead (3,000 mg/kg). It should be noted that both the SSLs and ESSLs for arsenic and lead are preliminary screening goals and do not necessarily constitute levels that would drive cleanup actions.

A total of 20 Eureka parcels, consisting of 43 decision units, were sampled. Within the 20 parcels a total of 86 unique composite soil samples and 87 unique discrete soil samples were collected and subjected to XRF analysis. Approximately 74 percent of the 173 analyzed unique soil samples exceeded the SSL for either arsenic or lead. Only two of the 20 sampled parcels did not have a sample that exceeded the SSLs for either arsenic or lead. There were 52 samples from eight of the 20 properties that exceeded the ESSL for either arsenic or lead. One of the eight parcels that exceeded ESSLs was a residential property with multiple residential structures present.

Property locations with lead and arsenic concentration data are graphically presented in figures in Attachment 1. The data for each sampled property parcel is presented in tables in Attachment 2. The data tables in Attachment 2 also include the area measurement of each decision unit and an estimate of the cubic yards of soil above the SSL for each decision unit.

One property that had been sampled in 2012 was re-sampled during the May 2013 sampling event. This property had been recently graded and was being prepared for construction. The concentrations of lead and arsenic in the 1 to 2 inch below ground surface (bgs) interval, and the 2 to 6 inch bgs interval were significantly lower in the May 2013 samples as compared to the 2012 samples. The change is presented in Table 3 in Attachment 2.

The iso-concentration maps for lead and arsenic are presented in Attachment 3, these maps show estimated areas of lead and arsenic concentrations in soil based upon 2012 and 2013 data. The sample populations (in percent) for the new data based on level of contamination are:

	Lead or Arsenic
Percentage of samples collected from parcels that are more than 10 times the SSL (600 mg/kg for arsenic or 3,000 mg/kg for lead).	30 %
Percentage of samples collected from parcels that are between the SSL and 10 times the SSL.	44 %
Percentage of samples collected from parcels that are less than SSL.	26 %

The general conclusions that can be inferred for excavated soil, is that the soil will pass the TCLP and SPLP leachate extraction criteria for RCRA metals.

The location of nineteen residential properties from this sampling event and the 2012 sampling event are presented in Attachment 3, Figure 5.

### **SUMMARY AND CONCLUSION**

On May 29 and May 30, 2013 the U.S. EPA and START conducted additional soil sampling at 20 property parcels in Eureka, Nevada. A total of 173 unique samples were collected and analyzed by XRF. A total of 45 soil samples were submitted to the U.S. EPA Region 9 Laboratory in Richmond, California, for confirmation analysis by U.S. EPA Method 6010B. Soil samples were additionally TCLP and SPLP extracted followed by analyses using U.S. EPA Method 6010B.

The data collected from this sampling will be used by the U.S. EPA Region 9 ERS to supplement data collected in 2012. Data generated during the May, 2013 sampling event will be used to determine whether environmental hazards are present in Eureka, Nevada may pose an “imminent and substantial endangerment to human health or the environment.” As appropriate, the U.S.EPA will use this assessment data to evaluate the potential for a removal action at the site and identify alternative methods to mitigate environmental hazards that meet endangerment criteria.

In summary, a total of 18 of the 20 sampled residential and public properties in the study area contained soils with arsenic and/or lead concentrations that exceeded the respective U.S. EPA SSLs. A total of 3 occupied residential properties contained soils with arsenic and/or lead concentrations above the ESSLs.

Based upon results for TCLP and SPLP leachate extractions on the sampled soil; excavated soil from Eureka properties should not exceed the RCRA leachate criteria requirements for metals.

The new data supports the conclusions indicated in the March 2013 Removal Assessment

report titled *Eureka Smelter Site, Removal Assessment Report, Eureka, Eureka County*.

This letter report concludes all work performed on this project related to the May 2013 sampling in Eureka, California. Please contact me at 510-893-6700 extension 4707 if you have any questions or require additional information.

Sincerely,

Howard Edwards  
START Member

Attachments:

Attachment 1: Site Location and Sampling Location Maps

Site Location Map: Figure 1:  
Sampling Location Map: Figure 2-1:

Attachment 2: Tables

Data Summary Tables: Tables 1-1 through 1-20  
TCLP and SPLP Data Table: Table 2-1 and 2-2  
Property Re-Sampling Data: Table 3

Attachment 3: Town of Eureka Maps

Iso-Concentration for Arsenic: Figure 3  
Iso-Concentration for Lead: Figure 4  
Elevated Contamination on  
Developed Properties: Figure 5

Attachment 4: Confirmatory Summary of XRF to ICP Data

Laboratory Data Summary: Table 4  
Correlation for Lead: Figure 6  
Correlation for Arsenic: Figure 7

Attachment 5: Laboratory Analysis, Data Validation Reports

Attachment 6: Photo Documentation

DVD Disk (attached)

# **Attachment 1**

## **Site Location and Sampling Location Maps**

**Site Location Map:**

**Figure 1**

**Sampling Location Map:**

**Figure 2-1**

**Parcel Maps:**

**Figures 2-2  
through 2-21**

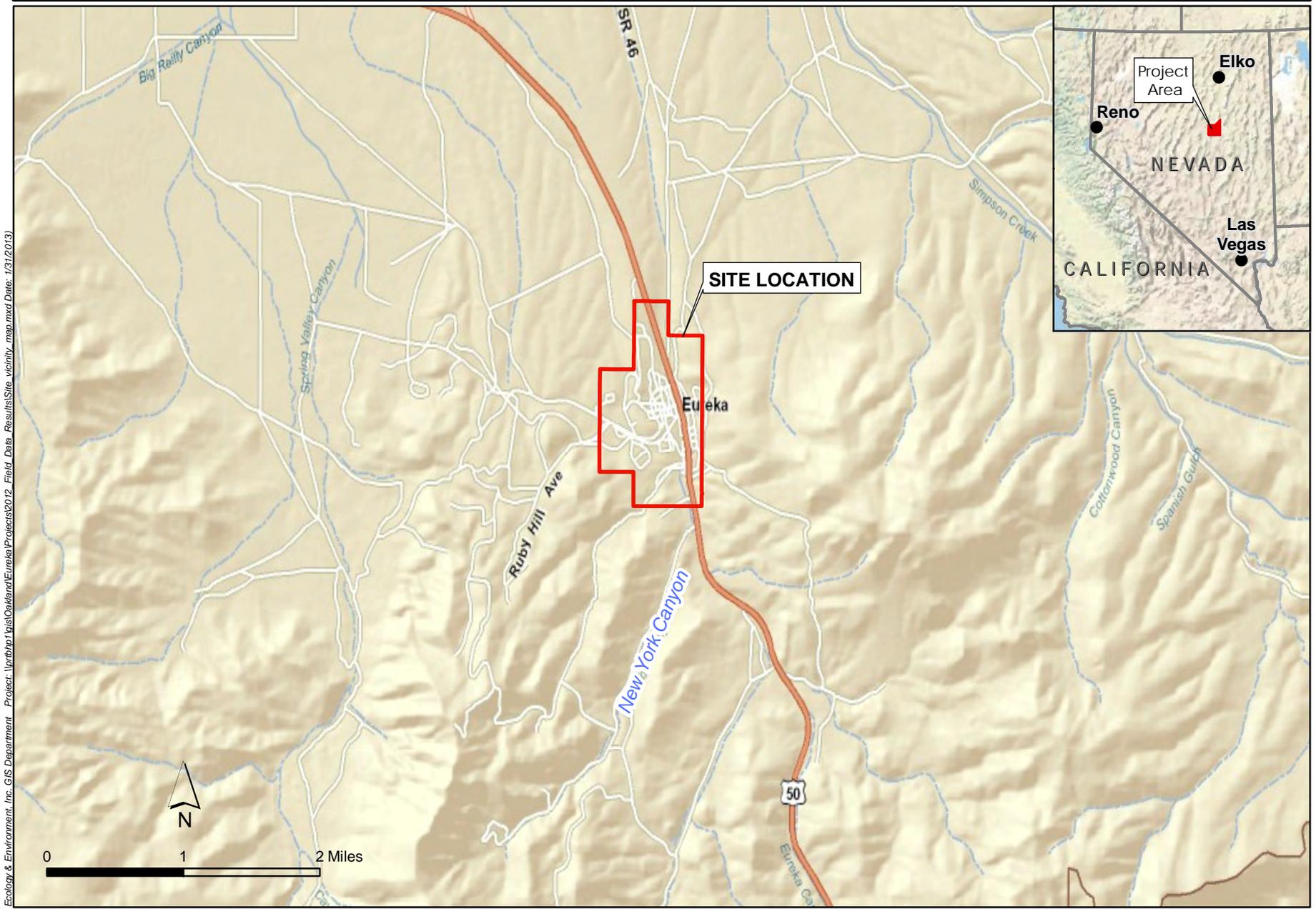
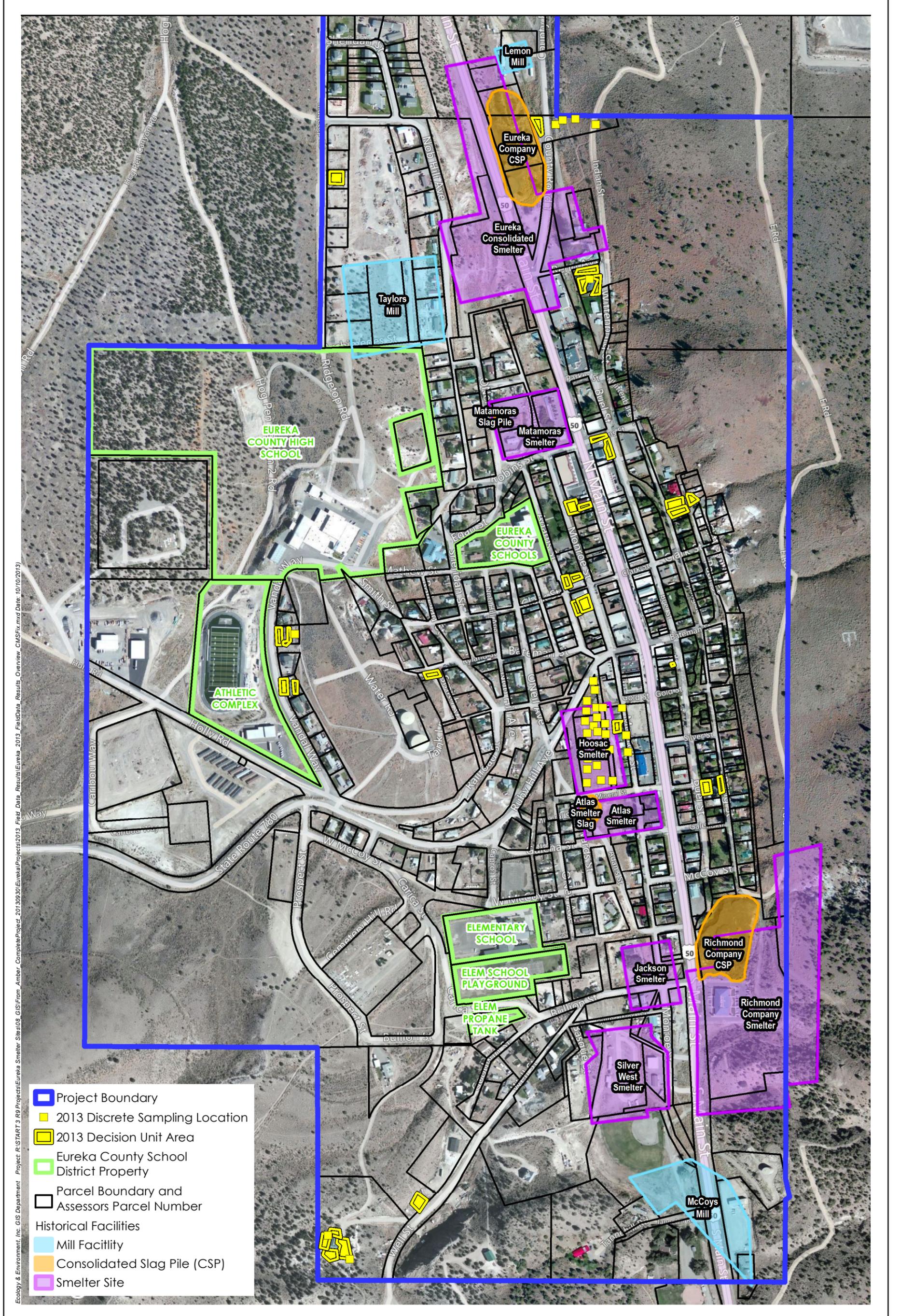


Figure 1  
**Site Location Map**  
**Eureka Smelter Sites**  
Eureka, Eureka County, Nevada



Ecology & Environment, Inc. GIS Department Project: R:\START 3 R9 Projects\Eureka Smelter\_Sites08\_GIS\From\_Amber\_Complete\Project\_20130930\Eureka\Projects\2013\_FieldData\_Results\Eureka\_2013\_FieldData\_Results\_CMSFix.mxd Date: 10/10/2013

Figure 2-1  
**2013 Sample Locations**  
**Eureka Smelter Sites**  
 Eureka, Eureka County, Nevada

## **Attachment 2**

### **Tables**

<b>Data Summary Tables:</b>	<b>Tables 1-1 through 1-20</b>
<b>TCLP Data:</b>	<b>Table 2-1</b>
<b>SPLP Data:</b>	<b>Table 2-2</b>
<b>Property Re-Sampling Data:</b>	<b>Table 3</b>

**Table 1-1 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-011-01</b>				
ESS-101101-S0-0	S0	0 to 2 inches	<b>740</b>	<b>170</b>
ESS-101101-S0-2	S0	2 to 6 inches	390	<b>86</b>
ESS-101101-S0-6	S0	6 to 12 inches	<b>550</b>	<b>100</b>
ESS-101101-G6-0	G6	0 to 2 inches	260	60
ESS-101101-G6-2	G6	2 to 6 inches	250	56
ESS-101101-G6-6	G6	6 to 12 inches	110	46
ESS-101101-G7-0	G7	0 to 2 inches	<b>2,500</b>	<b>420</b>
ESS-101101-G7-2	G7	2 to 6 inches	<b>520</b>	<b>98</b>
ESS-101101-G7-6	G7	6 to 12 inches	<b>450</b>	<b>84</b>
ESS-101101-G8-0	G8	0 to 2 inches	<b>9,150</b>	<b>1,750</b>
ESS-101101-G8-2	G8	2 to 6 inches	<b>1,600</b>	<b>300</b>
ESS-101101-G8-6	G8	6 to 12 inches	<b>1,400</b>	<b>280</b>
ESS-101101-G9-0	G9	0 to 2 inches	<b>6,800</b>	<b>1,300</b>
ESS-101101-G9-2	G9	2 to 6 inches	<b>2,100</b>	<b>420</b>
Not Sampled	G9	6 to 12 inches	No Sample	No Sample
Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL	
S0	3,481	1	129	
G6	5,187	0.5	96	
G7	5,187	1	192	
G8	5,187	1	192	
G9	5,187	1	192	

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-2 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-012-30</b>				
ESS-101230-S0-0	S0	0 to 2 inches	145	32
ESS-101230-S0-2	S0	2 to 6 inches	180	39
ESS-101230-S0-6	S0	6 to 12 inches	<b>470</b>	<b>110</b>
Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL	
S0	0	0	0	

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-3 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-022-17</b>				
ESS-102217-S0-0	S0	0 to 2 inches	230	36
ESS-102217-S0-2	S0	2 to 6 inches	160	42
ESS-102217-S0-6	S0	6 to 12 inches	110	23
ESS-102217-S1-0	S1	0 to 2 inches	<b>750</b>	<b>98</b>
ESS-102217-S1-2	S1	2 to 6 inches	<b>720</b>	<b>120</b>
ESS-102217-S1-6	S1	6 to 12 inches	100	25
ESS-102217-P6-0	P6	0 to 2 inches	70	13
ESS-102217-P6-2	P6	2 to 6 inches	32	11
ESS-102217-P6-2	P6	6 to 12 inches	30	8

<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>
S0	0	0	0
S1	1,915	1	71
P6	0	0	0

Notes:  
 mg/kg = milligrams per kilogram  
 START = Superfund Technical Assessment and Response Team  
 XRF = X-Ray Fluorescence  
 APN = Assessor's Parcel Number  
 SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
 NA = Sample was not analyzed or the size of the area associated with the locations is not known  
 Bold = Above the SSL  
 Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
 Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
 \* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
 \*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-4 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-022-06</b>				
ESS-102206-S0-0	S0	0 to 2 inches	56	16
ESS-102206-S0-2	S0	2 to 6 inches	94	17
ESS-102206-S0-6	S0	6 to 12 inches	45	17
ESS-102206-S1-0	S1	0 to 2 inches	49	10
ESS-102206-S1-2	S1	2 to 6 inches	37	14
ESS-102206-S1-6	S1	6 to 12 inches	28	9
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	0	0	0	
S1	0	0	0	

Notes:  
 mg/kg = milligrams per kilogram  
 START = Superfund Technical Assessment and Response Team  
 XRF = X-Ray Fluorescence  
 APN = Assessor's Parcel Number  
 SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
 NA = Sample was not analyzed or the size of the area associated with the locations is not known  
 Bold = Above the SSL  
 Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
 Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
 \* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
 \*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-5 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-037-02</b>				
ESS-103702-P6-0	P6	0 to 2 inches	<b>1,400</b>	<b>210</b>
ESS-103702-P6-2	P6	2 to 6 inches	<b>1,600</b>	<b>220</b>
ESS-103702-P6-6	P6	6 to 12 inches	<b>2,900</b>	<b>460</b>
ESS-103702-S0-0	S0	0 to 2 inches	<b>1,600</b>	<b>200</b>
ESS-103702-S0-2	S0	2 to 6 inches	<b>2,500</b>	<b>390</b>
ESS-103702-S0-6	S0	6 to 12 inches	<b>2,700</b>	<b>410</b>
ESS-103702-S1-0	S1	0 to 2 inches	<b>740</b>	<b>100</b>
ESS-103702-S1-2	S1	2 to 6 inches	<b>1,100</b>	<b>170</b>
ESS-103702-S1-6	S1	6 to 12 inches	<b>1,500</b>	<b>210</b>
ESS-103702-S2-0	S2	0 to 2 inches	<b>1,300</b>	<b>190</b>
ESS-103702-S2-2	S2	2 to 6 inches	<b>1,700</b>	<b>270</b>
ESS-103702-S2-6	S2	6 to 12 inches	<b>2,000</b>	<b>300</b>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
P6	NA	1	NA	
S0	3,751	1	139	
S1	3,276	1	121	
S2	3,566	1	132	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known.

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead.

Bold, underlined and italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-6 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-064-05</b>				
ESS-106405-S0-0	S0	0 to 2 inches	260	39
ESS-106405-S0-2	S0	2 to 6 inches	<b>610</b>	<b>69</b>
ESS-106405-S0-6	S0	6 to 12 inches	<b>840</b>	<b>120</b>
ESS-106405-S1-0	S1	0 to 2 inches	<b>460</b>	<b>61</b>
ESS-106405-S1-2	S1	2 to 6 inches	400	<b>79</b>
ESS-106405-S1-6	S1	6 to 12 inches	<b>930</b>	<b>140</b>

Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL
S0	1,982	1	73
S1	2,481	1	92

Notes:  
 mg/kg = milligrams per kilogram  
 START = Superfund Technical Assessment and Response Team  
 XRF = X-Ray Fluorescence  
 APN = Assessor's Parcel Number  
 SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
 NA = Sample was not analyzed or the size of the area associated with the locations is not known  
 Bold = Above the SSL  
 Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
 Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
 \* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
 \*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-7 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-065-12</b>				
ESS-106512-S0-0	S0	0 to 2 inches	<b><i>2,400</i></b>	<b><i>250</i></b>
Not Sampled	S0	2 to 6 inches	No Sample	No Sample
ESS-106512-S0-6	S0	6 to 12 inches	<b><i>4,000</i></b>	<b><i>540</i></b>
ESS-106512-S1-0	S1	0 to 2 inches	<b><i>640</i></b>	<b><i>85</i></b>
ESS-106512-S1-2	S1	2 to 6 inches	<b><i>1,200</i></b>	<b><i>190</i></b>
ESS-106512-S1-6	S1	6 to 12 inches	<b><i>4,600</i></b>	<b><i>1,000</i></b>
Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL	
S0	4,596	1	170	
S1	1,827	1	68	

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known.

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead.

Bold, underlined and italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-8 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-071-01</b>				
ESS-107101-S0-0	S0	0 to 2 inches	360	57
ESS-107101-S0-2	S0	2 to 6 inches	<b>530</b>	<b>75</b>
ESS-107101-S0-6	S0	6 to 12 inches	<b>1,400</b>	<b>180</b>
ESS-107101-S1-0	S1	0 to 2 inches	<b>940</b>	<b>97</b>
ESS-107101-S1-2	S1	2 to 6 inches	190	30
ESS-107101-S1-6	S1	6 to 12 inches	260	38

Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL
S0	3,580	1	133
S1	1,771	0.5	33

Notes:  
mg/kg = milligrams per kilogram  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence  
APN = Assessor's Parcel Number  
SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
NA = Sample was not analyzed or the size of the area associated with the locations is not known  
Bold = Above the SSL  
Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-9 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-074-04</b>				
ESS-107404-S0-0	S0	0 to 2 inches	<b>920</b>	<b>96</b>
ESS-107404-S0-2	S0	2 to 6 inches	<b>1,700</b>	<b>220</b>
ESS-107404-S0-6	S0	6 to 12 inches	<b>2,400</b>	<b>320</b>
Not Sampled	S1	0 to 2 inches	No Sample	No Sample
ESS-107404-S1-2	S1	2 to 6 inches	<b>1,400</b>	<b>140</b>
ESS-107404-S1-6	S1	6 to 12 inches	<b><u>3,500</u></b>	<b>500</b>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	5,555	1	206	
S1	4,024	1	149	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-10 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-075-04</b>				
ESS-107504-S0-0	S0	0 to 2 inches	<b>1,200</b>	<b>200</b>
ESS-107504-S0-2	S0	2 to 6 inches	<b>930</b>	<b>140</b>
ESS-107504-S0-6	S0	6 to 12 inches	<b>1,100</b>	<b>190</b>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S01	2,603	1	96	

Notes:  
 mg/kg = milligrams per kilogram  
 START = Superfund Technical Assessment and Response Team  
 XRF = X-Ray Fluorescence  
 APN = Assessor's Parcel Number  
 SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
 NA = Sample was not analyzed or the size of the area associated with the locations is not known  
 Bold = Above the SSL  
 Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
 Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
 \* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
 \*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-11 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-094-01</b>				
ESS-109401-S0-0	S0	0 to 2 inches	<b>530</b>	<b>100</b>
ESS-109401-S0-2	S0	2 to 6 inches	<b>490</b>	<b>98</b>
ESS-109401-S0-6	S0	6 to 12 inches	270	49
ESS-109401-S1-0	S1	0 to 2 inches	<b><i>2,600</i></b>	<b><i>420</i></b>
ESS-109401-S1-2	S1	2 to 6 inches	<b><i>3,300</i></b>	<b><i>600</i></b>
ESS-109401-S1-6	S1	6 to 12 inches	<b><i>2,200</i></b>	<b><i>400</i></b>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	5,320	1	197	
S1	2,584	1	96	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-12 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-107-04</b>				
ESS-110704-S0-0	S0	0 to 2 inches	<b>460</b>	<b>86</b>
ESS-110704-S0-2	S0	2 to 6 inches	<b>660</b>	<b>110</b>
ESS-110704-S0-6	S0	6 to 12 inches	<b>700</b>	<b>93</b>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	312	1	12	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

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**Table 1-13 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-122-01</b>				
ESS-112201-G6-0	G6	0 to 2 inches	<i>1,700</i>	<i>220</i>
ESS-112201-G6-2	G6	2 to 6 inches	<i>2,400</i>	<i>340</i>
ESS-112201-G6-6	G6	6 to 12 inches	<u><i>4,000</i></u>	<u><i>640</i></u>
ESS-112201-G7-0	G7	0 to 2 inches	<i>830</i>	<i>90</i>
ESS-112201-G7-2	G7	2 to 6 inches	120	20
ESS-112201-G7-6	G7	6 to 12 inches	130	17
ESS-112201-G8-0	G8	0 to 2 inches	<u><i>3,800</i></u>	<i>510</i>
ESS-112201-G8-2	G8	2 to 6 inches	<u><i>6,100</i></u>	<u><i>850</i></u>
ESS-112201-G8-6	G8	6 to 12 inches	<u><i>5,600</i></u>	<u><i>940</i></u>
ESS-112201-G9-0	G9	0 to 2 inches	<i>16,500</i>	<i>2,700</i>
ESS-112201-G9-2	G9	2 to 6 inches	<u><i>31,000</i></u>	<u><i>6,000</i></u>
ESS-112201-G9-6	G9	6 to 12 inches	<i>1,900</i>	<i>280</i>
ESS-112201-G10-0	G10	0 to 2 inches	<u><i>6,200</i></u>	<i>360</i>
ESS-112201-G10-2	G10	2 to 6 inches	<i>1,700</i>	<i>87</i>
ESS-112201-G10-6	G10	6 to 12 inches	<i>1,200</i>	<i>87</i>

Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL
G6	3,473	1	129
G7	3,473	0.5	64
G8	3,473	1	129
G9	3,473	1	129
G10	3,473	1	129

Notes:  
mg/kg = milligrams per kilogram  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence  
APN = Assessor's Parcel Number  
SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
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Bold = Above the SSL  
Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
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**Table 1-14 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-085-01</b>				
ESS-108501-S0-0	S0	0 to 2 inches	270	39
ESS-108501-S0-2	S0	2 to 6 inches	300	38
ESS-108501-S0-6	S0	6 to 12 inches	<b>490</b>	41
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	0	0	0	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

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\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-15 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-122-02</b>				
ESS-112202-G6-0	G6	0 to 2 inches	<b><i>6,700</i></b>	<b><i>1,000</i></b>
ESS-112202-G6-2	G6	2 to 6 inches	<b><i>4,600</i></b>	<b><i>720</i></b>
ESS-112202-G6-6	G6	6 to 12 inches	<b><i>2,000</i></b>	<b><i>350</i></b>
ESS-112202-G7-0	G7	0 to 2 inches	<b><i>27,000</i></b>	<b><i>3,500</i></b>
ESS-112202-G7-2	G7	2 to 6 inches	<b><i>19,000</i></b>	<b><i>2,000</i></b>
Not Sampled	G7	6 to 12 inches	No Sample	No Sample
Not Sampled	G8	0 to 2 inches	No Sample	No Sample
ESS-112202-G8-2	G8	2 to 6 inches	<b><i>6,700</i></b>	<b><i>560</i></b>
ESS-112202-G8-6	G8	6 to 12 inches	<b><i>1,400</i></b>	<b><i>140</i></b>
ESS-102202-G9-0	G9	0 to 2 inches	<b><i>980</i></b>	<b><i>170</i></b>
ESS-102202-G9-2	G9	2 to 6 inches	360	<b><i>69</i></b>
ESS-102202-G9-6	G9	6 to 12 inches	150	47
Not Sampled	G10	0 to 2 inches	No Sample	No Sample
ESS-102202-G10-2	G10	2 to 6 inches	<b><i>66,000</i></b>	<b><i>16,000</i></b>
ESS-102202-G10-6	G10	6 to 12 inches	<b><i>30,000</i></b>	<b><i>6,200</i></b>
Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL	
G6	5,462	1	202	
G7	5,462	1	202	
G8	5,462	1	202	
G9	5,462	1	202	
G10	5,462	1	202	

Notes:  
 mg/kg = milligrams per kilogram  
 START = Superfund Technical Assessment and Response Team  
 XRF = X-Ray Fluorescence  
 APN = Assessor's Parcel Number  
 SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
 NA = Sample was not analyzed or the size of the area associated with the locations is not known  
 Bold = Above the SSL  
 Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
 Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
 \* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
 \*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-16 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-123-03</b>				
ESS-112303-S0-0	S0	0 to 2 inches	<u>10,000</u>	<u>1,650</u>
ESS-112303-S0-2	S0	2 to 6 inches	<u>9,800</u>	<u>1,600</u>
ESS-112303-S0-6	S0	6 to 12 inches	<u>2,600</u>	<u>400</u>
ESS-112303-G6-0	G6	0 to 2 inches	<u>63,500</u>	<u>18,000</u>
ESS-112303-G6-2	G6	2 to 6 inches	<u>100,000</u>	<u>38,000</u>
ESS-112303-G6-6	G6	6 to 12 inches	<u>&gt;100,000</u>	<u>32,000</u>
ESS-112303-G7-0	G7	0 to 2 inches	<u>7,600</u>	<u>1,300</u>
ESS-112303-G7-2	G7	2 to 6 inches	<u>13,000</u>	<u>2,000</u>
ESS-112303-G7-6	G7	6 to 12 inches	<u>11,000</u>	<u>1,700</u>
ESS-112303-G8-2	G8	0 to 2 inches	<u>11,000</u>	<u>1,500</u>
ESS-112303-G8-2	G8	2 to 6 inches	<u>10,500</u>	<u>1,300</u>
ESS-112303-G8-6	G8	6 to 12 inches	<u>36,000</u>	<u>6,100</u>
ESS-112303-G9-0	G9	0 to 2 inches	<u>8,100</u>	<u>1,300</u>
ESS-112303-G9-2	G9	2 to 6 inches	<u>10,000</u>	<u>1,700</u>
ESS-112303-G9-6	G9	6 to 12 inches	<u>4,500</u>	<u>690</u>
ESS-112303-G10-0	G10	0 to 2 inches	<u>2,100</u>	<u>160</u>
ESS-112303-G10-2	G10	2 to 6 inches	<u>1,300</u>	<u>150</u>
ESS-112303-G10-6	G10	6 to 12 inches	<u>1,600</u>	<u>170</u>
ESS-112303-P6-0	P6	0 to 2 inches	<u>5,000</u>	<u>760</u>
ESS-112303-P6-2	P6	2 to 6 inches	<u>6,600</u>	<u>950</u>
ESS-112303-P6-6	P6	6 to 12 inches	<u>4,500</u>	<u>710</u>
ESS-112303-P7-0	P7	0 to 2 inches	<u>2,100</u>	<u>270</u>
ESS-112303-P7-2	P7	2 to 6 inches	<u>7,500</u>	<u>1,100</u>
ESS-112303-P7-6	P7	6 to 12 inches	<u>7,500</u>	<u>1,000</u>
ESS-112303-P8-0	P8	0 to 2 inches	<u>5,300</u>	<u>870</u>
ESS-112303-P8-2	P8	2 to 6 inches	<u>4,500</u>	<u>670</u>
ESS-112303-P8-6	P8	6 to 12 inches	<u>2,300</u>	<u>360</u>

Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL
S0	2,396	1	89
G6	7,983	1	296
G7	7,983	1	296
G8	7,983	1	296
G9	7,983	1	296
G10	7,983	1	296
P6	NA	1	NA
P7	NA	1	NA
P8	NA	1	NA

Notes:  
mg/kg = milligrams per kilogram  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence  
APN = Assessor's Parcel Number  
SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg  
NA = Sample was not analyzed or the size of the area associated with the locations is not known  
BOLD = Above the SSL  
Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead  
Bold, underlined and italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead  
\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.  
\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-17 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-126-01</b>				
ESS-112601-G6-0	G6	0 to 2 inches	<i><b>1,700</b></i>	<i><b>240</b></i>
ESS-112601-G6-2	G6	2 to 6 inches	<i><b>2,200</b></i>	<i><b>300</b></i>
ESS-112601-G6-6	G6	6 to 12 inches	<i><b>940</b></i>	<i><b>130</b></i>
ESS-112601-G7-0	G7	0 to 2 inches	<i><b>20,000</b></i>	<i><b>4,100</b></i>
ESS-112601-G7-2	G7	2 to 6 inches	<i><b>18,000</b></i>	<i><b>3,400</b></i>
ESS-112601-G7-6	G7	6 to 12 inches	<i><b>15,000</b></i>	<i><b>2,700</b></i>
ESS-112601-G8-0	G8	0 to 2 inches	<i><b>17,000</b></i>	<i><b>3,600</b></i>
ESS-112601-G8-2	G8	2 to 6 inches	<i><b>7,900</b></i>	<i><b>1,500</b></i>
ESS-112601-G8-6	G8	6 to 12 inches	<i><b>8,300</b></i>	<i><b>1,700</b></i>
ESS-112601-G9-0	G9	0 to 2 inches	<i><b>11,500</b></i>	<i><b>2,000</b></i>
ESS-112601-G9-2	G9	2 to 6 inches	<i><b>8,400</b></i>	<i><b>1,400</b></i>
ESS-112601-G9-6	G9	6 to 12 inches	<i><b>1,000</b></i>	<i><b>190</b></i>
ESS-112601-G10-0	G10	0 to 2 inches	<i><b>21,000</b></i>	<i><b>4,000</b></i>
ESS-112601-G10-2	G10	2 to 6 inches	<i><b>5,300</b></i>	<i><b>790</b></i>
ESS-112601-G10-6	G10	6 to 12 inches	<i><b>3,600</b></i>	<i><b>550</b></i>
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
G6	7,113	1	263	
G7	7,113	1	263	
G8	7,113	1	263	
G9	7,113	1	263	
G10	7,113	1	263	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-18 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
<b>APN: 001-135-01</b>				
ESS-113501-S0-0	S0	0 to 2 inches	<b>500</b>	60
ESS-113501-S0-2	S0	2 to 6 inches	<b>440</b>	<b>63</b>
ESS-113501-S0-6	S0	6 to 12 inches	200	44
ESS-113501-S1-0	S1	0 to 2 inches	160	47
ESS-113501-S1-2	S1	2 to 6 inches	70	27
ESS-113501-S1-6	S1	6 to 12 inches	73	32
Decision Unit or Sample Location	Square Feet of Arsenic and Lead Over SSL*	Estimated Depth of Arsenic and Lead Over SSL (feet) **	Estimated Cubic Yards of Arsenic and Lead Over SSL	
S0	2,155	1	80	
S1	0	0	0	

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-19 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-172-03</b>				
ESS-117203-S0-0	S0	0 to 2 inches	140	33
ESS-117203-S0-2	S0	2 to 6 inches	98	24
ESS-117203-S0-6	S0	6 to 12 inches	160	27
ESS-117203-S1-0	S1	0 to 2 inches	250	39
ESS-117203-S1-2	S1	2 to 6 inches	200	30
ESS-117203-S1-6	S1	6 to 12 inches	160	23
ESS-117203-S2-0	S2	0 to 2 inches	160	34
ESS-117203-S2-2	S2	2 to 6 inches	160	50
ESS-117203-S2-6	S2	6 to 12 inches	120	<b>87</b>
ESS-117203-S3-0	S3	0 to 2 inches	130	34
ESS-117203-S3-2	S3	2 to 6 inches	160	47
ESS-117203-S3-6	S3	6 to 12 inches	230	51
ESS-117203-P6-0	P6	0 to 2 inches	<b>460</b>	56
ESS-117203-P6-2	P6	2 to 6 inches	<b>480</b>	60
ESS-117203-P6-6	P6	6 to 12 inches	<b>570</b>	<b>86</b>
ESS-117203-P7-0	P7	0 to 2 inches	64	27
Not Sampled	P7	2 to 6 inches	No Sample	No Sample
Not Sampled	P7	6 to 12 inches	No Sample	No Sample
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	0	0	0	
S1	0	0	0	
S2	0	0	0	
S3	0	0	0	
P6	NA	NA	NA	
P7	NA	NA	NA	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics, and underlined = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

**Table 1-20 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample Identification Number</b>	<b>Decision Unit or Sample Location</b>	<b>Depth Interval</b>	<b>START XRF Lead Results (mg/kg) dry weight</b>	<b>START XRF Arsenic Results (mg/kg) dry weight</b>
<b>APN: 001-172-04</b>				
ESS-117204-S0-0	S0	0 to 2 inches	<b>690</b>	<b>120</b>
Not Sampled	S0	2 to 6 inches	No Sample	No Sample
Not Sampled	S0	6 to 12 inches	No Sample	No Sample
<b>Decision Unit or Sample Location</b>	<b>Square Feet of Arsenic and Lead Over SSL*</b>	<b>Estimated Depth of Arsenic and Lead Over SSL (feet) **</b>	<b>Estimated Cubic Yards of Arsenic and Lead Over SSL</b>	
S0	5,173	1	192	

**Notes:**

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known

Bold = Above the SSL

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,400 mg/kg for lead

Bold, italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

\* The square footage for grid sample locations of undeveloped properties are estimates based upon the square footage of the property divided by the number of sample locations.

\*\* Depth of arsenic and lead over the SSL are for a removal volume estimate which assumes the removal action level is 60 mg/kg for arsenic by XRF and 400 mg/kg for lead by XRF. Depth is based upon documented arsenic and lead concentrations over the SSL. Arsenic and lead concentrations over the SSL at 0 to 2 inches is considered contaminated to 0.5 feet. Arsenic and lead concentrations over the SSL at 2 inches or more is considered contaminated to 1 foot. If the 0 to 6 inch interval is not contaminated above the SSL then the excavation depth is 0.0 feet.

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**Table 2-1 Toxicity Characteristic Leaching Procedure (TCLP) Survey Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

TDD No. TO2-09-12-04-0002

Sample	Total Arsenic	Total Lead	Type of Sample	Arsenic	Lead	Barium	Cadmium	Chromium	Selenium	Silver	Mercury
RCRA Criteria	NA	NA		5.0	5.0	100	1.0	5.0	1.0	5.0	0.2
Quantitation Limit	NA	NA		2	3	5	0.5	1	2	0.5	0.001
Units	mg/kg	mg/kg		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ESS-C1-SSL	<b>260J</b>	<b>1,300</b>	Above Site Screening Level	1.1 J	0.35J	1.3	0.36J	ND	ND	ND	ND
ESS-C3-3SSL	<b>590</b>	<b>3,100</b>	Above Elevated Site Screening Level	0.78	1.0	1.7	0.084	ND	ND	ND	ND
ESS-C2-ESSL	<b>1,400</b>	<b>12,000</b>	Above Three Times the Site Screening Level	0.48	1.4	1.4	0.11	ND	ND	ND	ND

Notes:

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

START = Superfund Technical Assessment and Response Team

RCRA = Resource Conservation and Recovery Act

NA = Not Applicable

Bold = Above the benchmark.

J = Value is estimated.

**Table 2-2 Synthetic Precipitation Leaching Procedure (SPLP) Survey Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sample</b>	<b>Total Arsenic</b>	<b>Total Lead</b>	<b>Type of Sample</b>	<b>Arsenic</b>	<b>Lead</b>	<b>Barium</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Selenium</b>	<b>Silver</b>	<b>Mercury</b>
RCRA Criteria	NA	NA		5.0	5.0	100	1.0	5.0	1.0	5.0	0.2
Quantitation Limit	NA	NA		2	3	5	0.5	1	2	0.5	0.001
Units	mg/kg	mg/kg		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ESS-C1-SSL	<b>260</b>	<b>1,300</b>	Above Site Screening Level	0.26J	0.38	0.16	.0002J	ND	ND	ND	0.00031
ESS-C3-ESSL	<b>590</b>	<b>3,100</b>	Above Elevated Site Screening Level	0.44	0.79	0.15	0.007J	ND	ND	ND	0.00064
ESS-C2-3SSL	<b>1,400</b>	<b>12,000</b>	Above Three Times the Site Screening Level	0.44	1.5	0.13	0.008	ND	ND	ND	0.00079

**Notes:**

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

START = Superfund Technical Assessment and Response Team

RCRA = Resource Conservation and Recovery Act

NA = Not Applicable

Bold = Above the benchmark.

J = Value is estimated.

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**Table 3 Property Re-Sampling Data  
Eureka Smelter Sites  
Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

**561 Ridgetop Road (APN: 001-012-30)**

<b>Sample Identification Number</b>	<b>Depth Interval</b>	<b>2012 START XRF Arsenic Results (mg/kg) dry weight</b>	<b>2013 START XRF Arsenic Results (mg/kg) dry weight</b>	<b>Percent (%) Reduction</b>
ESS-101230-S0-0	0 to 2 inches	<b>430</b>	32	93%
ESS-101230-S0-2	2 to 6 inches	<b>360</b>	39	89%
ESS-101230-S0-6	6 to 12 inches	<b>220</b>	<b>110</b>	50%
ESS-101230-S01-0	0 to 2 inches	<b>1300</b>	145	89%
ESS-101230-S01-2	2 to 6 inches	<b>990</b>	180	82%
ESS-101230-S01-6	6 to 12 inches	<b>610</b>	<b>470</b>	23%

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

NA = Sample was not analyzed or the size of the area associated with the locations is not known.

Bold = Above the SSL

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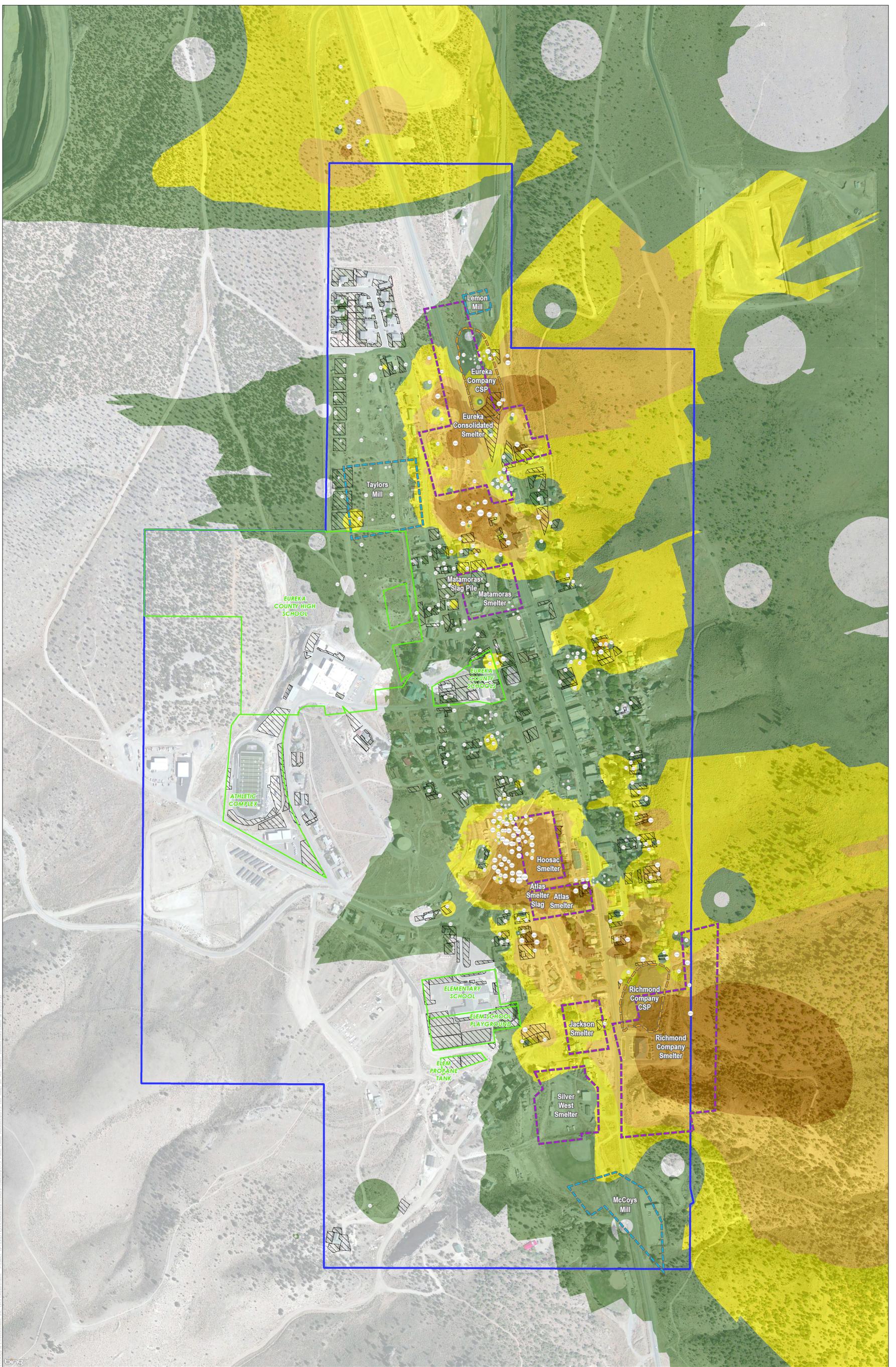
## **Attachment 3**

### **Town of Eureka Maps**

**Iso-Concentration for Arsenic:      Figure 3**

**Iso-Concentration for Lead:         Figure 4**

**Elevated Contamination on  
Developed Properties:                 Figure 5**



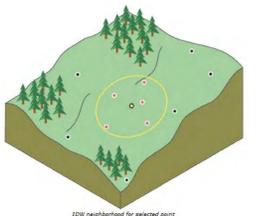
**Legend**

- |   |   |   |
|---|---|---|
| <p><b>Arsenic Concentration (mg/kg)</b></p> <ul style="list-style-type: none"> <li>□ Non detect to 60</li> <li>■ 60 to 300</li> <li>■ 300 to 600</li> <li>■ 600 to 1,200</li> <li>■ greater than 1,200</li> </ul> <p>Levels of arsenic in soil are measured in units of milligrams per kilogram (mg/kg)</p> | <p><b>Historical Facilities</b></p> <ul style="list-style-type: none"> <li>□ Historic Mill Facility</li> <li>□ Historic Smelter Site</li> <li>□ Consolidated Slag Pile (CSP)</li> </ul> | <ul style="list-style-type: none"> <li>□ Project Site</li> <li>□ Eureka County School District Property</li> <li>□ Sampled Areas (2012-2013)</li> <li>○ Sample Concentration Value</li> </ul> |
|---|---|---|

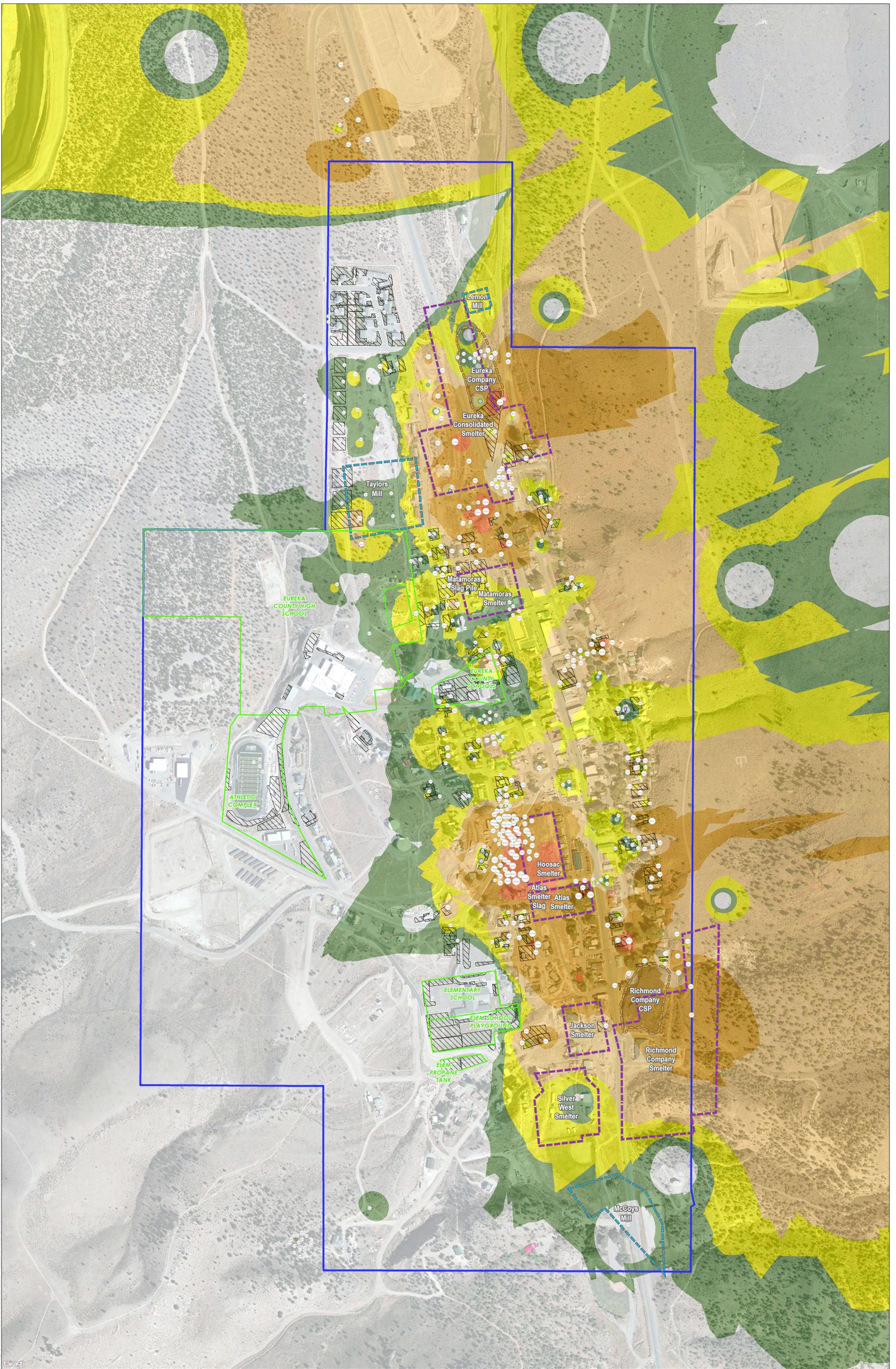
**Surface Creation: GIS Analysis**

ESRI ArcGIS v10.1 Inverse distance weighted (IDW) interpolation determines cell values using a linearly weighted combination of a set of sample points. The weight is a function of inverse distance. The surface being interpolated should be that of a locationally dependent variable. This method assumes that the variable being mapped decreases in influence with distance from its sampled location.

For each surface/contour map created for Eureka Pb or As levels, the nearest 12 concentration values were used.



**Figure 3**  
 Town of Eureka  
 Iso-Concentration Map For Arsenic With Data Points  
 Eureka Smelter Sites  
 Eureka, Eureka County, Nevada



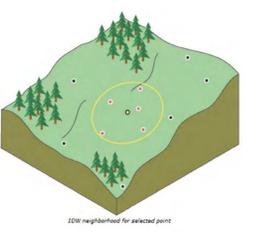
**Legend**

- |   |  |   |
|---|--|---|
| <p>Lead Concentration (mg/kg)</p> <ul style="list-style-type: none"> <li>□ Non detect to 400</li> <li>■ 400 to 800</li> <li>■ 800 to 1,500</li> <li>■ 1,500 to 3,000</li> <li>■ 3,000 to 10,000</li> <li>■ greater than 10,000</li> </ul> | <p>Historical Facilities</p> <ul style="list-style-type: none"> <li>□ Historic Mill Facility</li> <li>□ Historic Smelter Site</li> <li>□ Consolidated Slag Pile (CSP)</li> </ul> | <ul style="list-style-type: none"> <li>□ Project Site</li> <li>□ Eureka County School District Property</li> <li>□ Sampled Areas (2012-2013)</li> <li>● Sample Concentration Value</li> </ul> |
|---|--|---|
- Levels of lead in soil are measured in units of milligrams per kilogram (mg/kg)

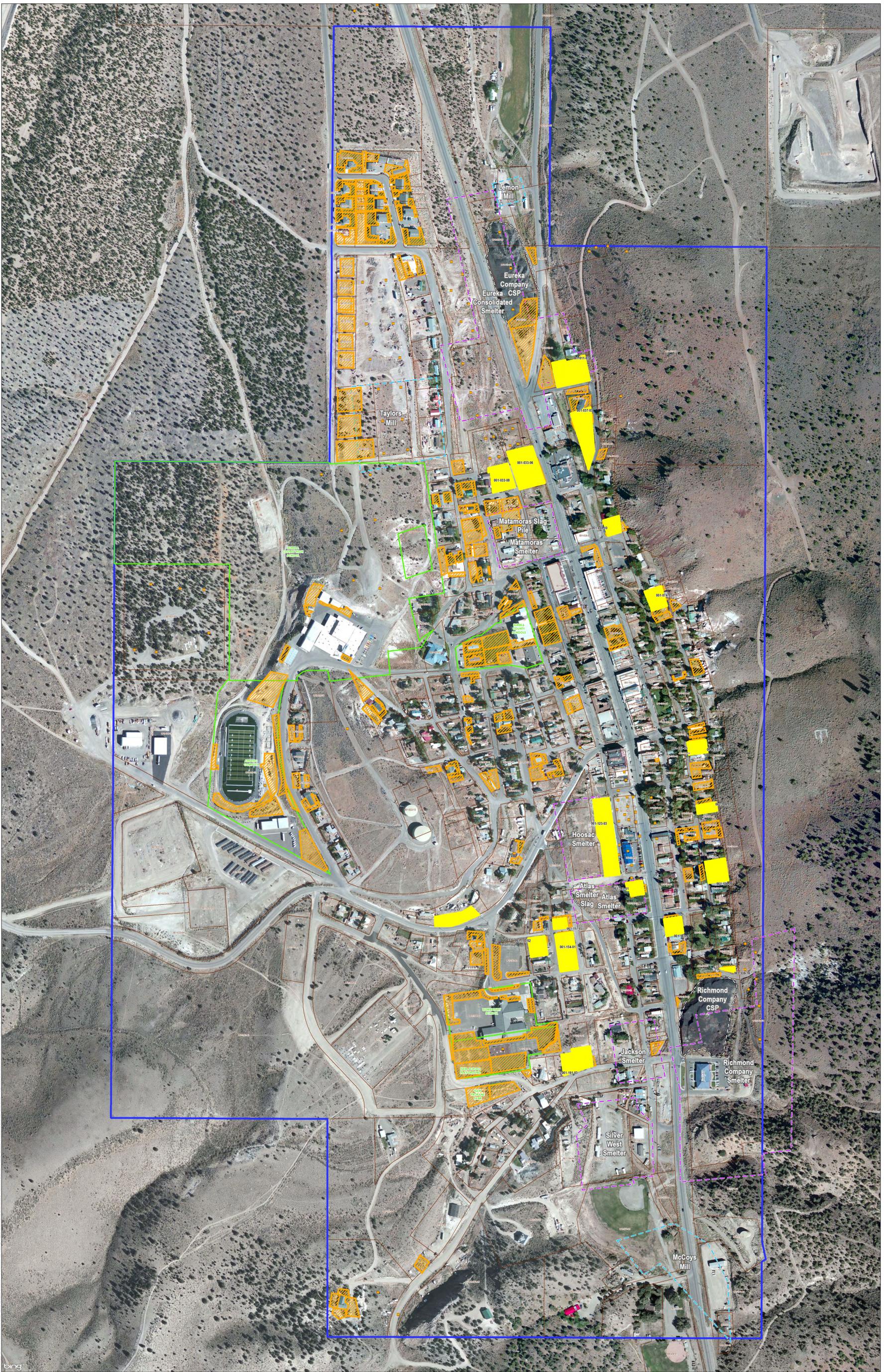
**Surface Creation: GIS Analysis**

ESRI ArcGIS v10.1 Inverse distance weighted (IDW) interpolation determines cell values using a linearly weighted combination of a set of sample points. The weight is a function of inverse distance. The surface being interpolated should be that of a locationally dependent variable. This method assumes that the variable being mapped decreases in influence with distance from its sampled location.

For each surface/contour map created for Eureka Pb or As levels, the nearest 12 concentration values were used.



**Figure 4**  
 Town of Eureka  
 Iso-Concentration Map For Lead With Data Points  
 Eureka Smelter Sites  
 Eureka, Eureka County, Nevada



**Legend**

- Project Site
- Parcel Boundary
- Eureka County School District Property
- Historical Facilities
- Historic Smelter Site
- Consolidated Slag Pile (CSP)
- 19 Residential Properties with Arsenic Above 600 mg/kg and Lead Above 3,000 mg/kg
- Discrete Sampling Location
- Decision Unit Area

"P" samples are point samples  
 "S" samples are composite samples  
 Pb: Lead Concentration  
 As: Arsenic Concentration  
 Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Figure 5  
 Town of Eureka  
 Elevated Contamination Location Map  
 Eureka Smelter Sites  
 Eureka, Eureka County, Nevada

## **Attachment 4**

### **Confirmatory Summary of XRF to ICP Data**

**Laboratory Data Summary: Table 4**

**Correlation for Lead: Figure 6**

**Correlation for Arsenic: Figure 7**

**Table 4 Laboratory Data Summary  
With XRF Result  
Eureka Smelter Sites Assessment  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2177**

**TDD No. TO2-09-12-04-0002**

<b>Sampling Location Identification Number</b>	<b>U.S. EPA Region 9 Laboratory Lead Results by EPA Method 6010B (mg/kg) sieved/cup</b>	<b>START XRF Lead Results by EPA 6200(mg/kg) sieved/cup</b>	<b>U.S. EPA Region 9 Laboratory Arsenic Results by EPA Method 6010B (mg/kg) sieved/cup</b>	<b>START XRF Arsenic Results by EPA 6200(mg/kg) sieved/cup</b>
ESS-112303-G06-0	<u>67,000</u>	<u>63,500</u>	<u>13,000</u>	<u>18,000</u>
ESS-112202-G10-6	<u>35,000</u>	<u>30,000</u>	<u>6,400</u>	<u>6,200</u>
ESS-112202-G10-6	<u>38,000</u>	<u>32,000</u>	<u>6,400</u>	<u>6,700</u>
ESS-112601-G10-6	<u>19,000</u>	<u>17,000</u>	<u>3,600</u>	<u>3,600</u>
ESS-112601-G09-0	<u>12,000</u>	<u>11,500</u>	<u>2,200</u>	<u>2,000</u>
ESS-112303-S00-0	<u>10,000</u>	<u>10,000</u>	<u>1,800</u>	<u>1,650</u>
ESS-101101-G08-0	<u>8,800</u>	<u>9,150</u>	<u>1,900</u>	<u>1,750</u>
ESS-112201-G10-0	<u>6,900</u>	<u>6,200</u>	<u>660</u>	<u>360</u>
ESS-101101-G09-0	<u>6,700</u>	<u>6,800</u>	<u>1,500</u>	<u>1,300</u>
ESS-106512-S01-6	<u>4,800</u>	<u>4,600</u>	<u>1,500</u>	<u>1,000</u>
ESS-109401-S01-2	<u>3,500</u>	<u>3,300</u>	<u>770</u>	<u>600</u>
ESS-109401-S01-0	<u>2,500</u>	<u>2,600</u>	<u>530</u>	<u>420</u>
ESS-106512-S00-0	<u>2,400</u>	<u>2,400</u>	<u>360</u>	<u>250</u>
ESS-103702-S00-0	<u>1,600</u>	<u>1,600</u>	<u>310</u>	<u>200</u>
ESS-107504-S00-6	<u>1,100</u>	<u>1,100</u>	<u>200</u>	<u>190</u>
ESS-107504-S00-2	<u>950</u>	<u>930</u>	<u>180</u>	<u>140</u>
ESS-112601-G07-0	<u>850</u>	<u>940</u>	<u>180</u>	<u>130</u>
ESS-117204-S00-0	<u>840</u>	<u>690</u>	<u>200</u>	<u>120</u>
ESS-102217-S01-2	<u>690</u>	<u>720</u>	<u>140</u>	<u>120</u>
ESS-106405-S00-2	<u>600</u>	<u>610</u>	<u>110</u>	<u>67</u>
ESS-107101-S00-2	<u>500</u>	<u>530</u>	<u>100</u>	<u>75</u>
ESS-117203-P06-0	<u>500</u>	<u>460</u>	<u>89</u>	<u>56</u>
ESS-113501-S00-0	<u>460</u>	<u>500</u>	<u>86</u>	<u>60</u>
ESS-106405-S01-2	<u>450</u>	<u>400</u>	<u>120</u>	<u>79</u>
ESS-101230-S00-6	<u>440</u>	<u>470</u>	<u>130</u>	<u>110</u>
ESS-101230-S00-6	<u>870</u>	<u>460</u>	<u>130</u>	<u>100</u>
ESS-110704-S00-0	<u>440</u>	<u>460</u>	<u>99</u>	<u>86</u>
ESS-113501-S00-2	<u>400</u>	<u>440</u>	<u>84</u>	<u>63</u>
ESS-112202-G09-2	<u>390</u>	<u>370</u>	<u>100</u>	<u>69</u>
ESS-112202-G09-2	<u>350</u>	<u>340</u>	<u>97</u>	<u>72</u>
ESS-101101-G06-0	<u>300</u>	<u>260</u>	<u>86</u>	<u>60</u>
ESS-101101-G06-2	<u>270</u>	<u>250</u>	<u>80</u>	<u>56</u>
ESS-117203-S01-2	<u>180</u>	<u>200</u>	<u>42</u>	<u>30</u>
ESS-117203-S01-2	<u>180</u>	<u>200</u>	<u>40</u>	<u>31</u>
ESS-112202-G09-6	<u>150</u>	<u>150</u>	<u>63</u>	<u>47</u>
ESS-101101-G06-6	<u>120</u>	<u>110</u>	<u>56</u>	<u>46</u>
ESS-117203-S00-2	<u>91</u>	<u>98</u>	<u>35</u>	<u>24</u>
ESS-102206-S00-0	<u>40</u>	<u>56</u>	<u>19</u>	<u>16</u>
ESS-102206-S01-0	<u>35</u>	<u>49</u>	<u>14</u>	<u>10</u>

**Notes:**

mg/kg = milligrams per kilogram

U.S. EPA = United States Environmental Protection Agency

START = Superfund Technical Assessment and Response Team

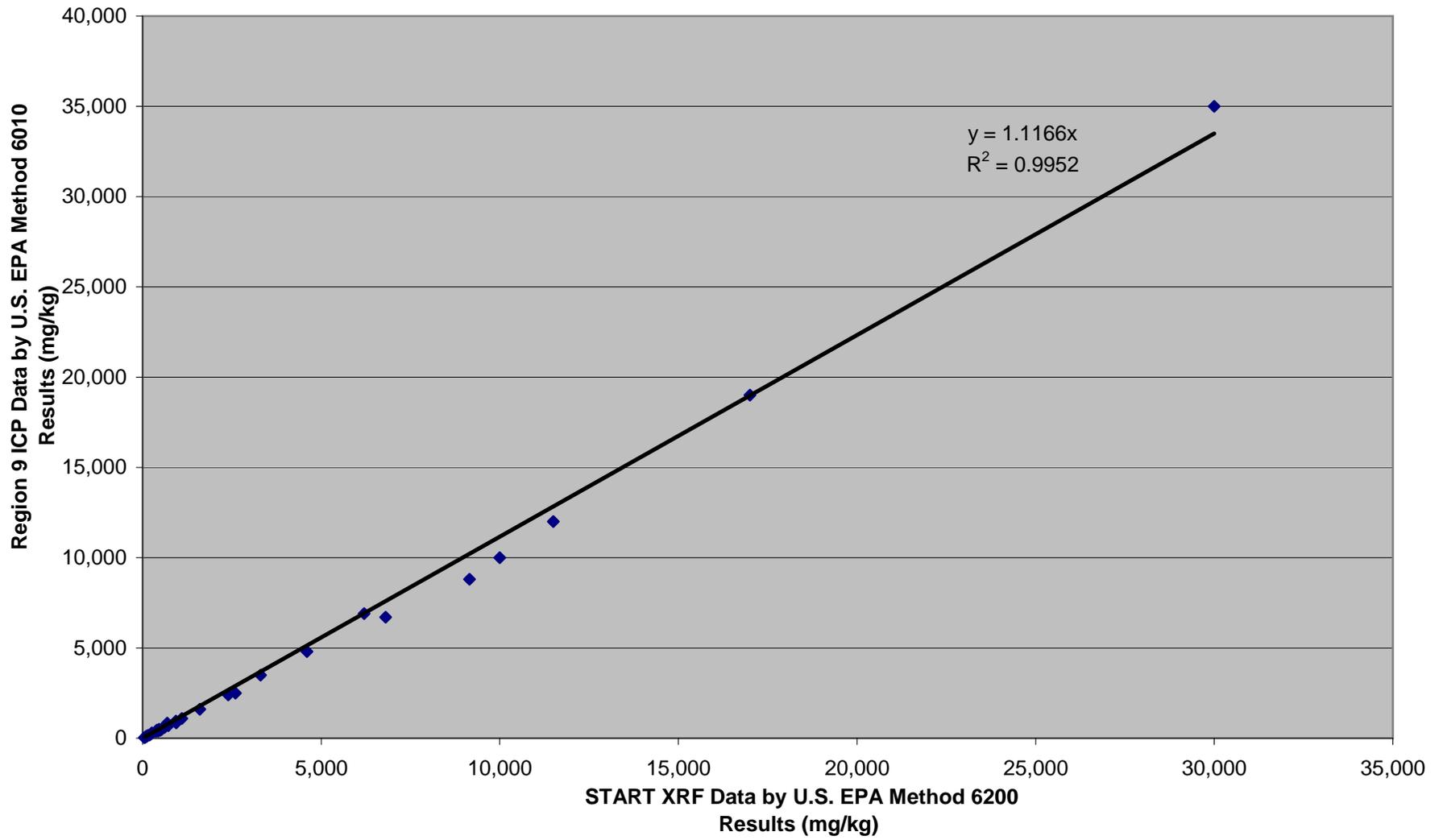
XRF = X-Ray Fluorescence

SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg

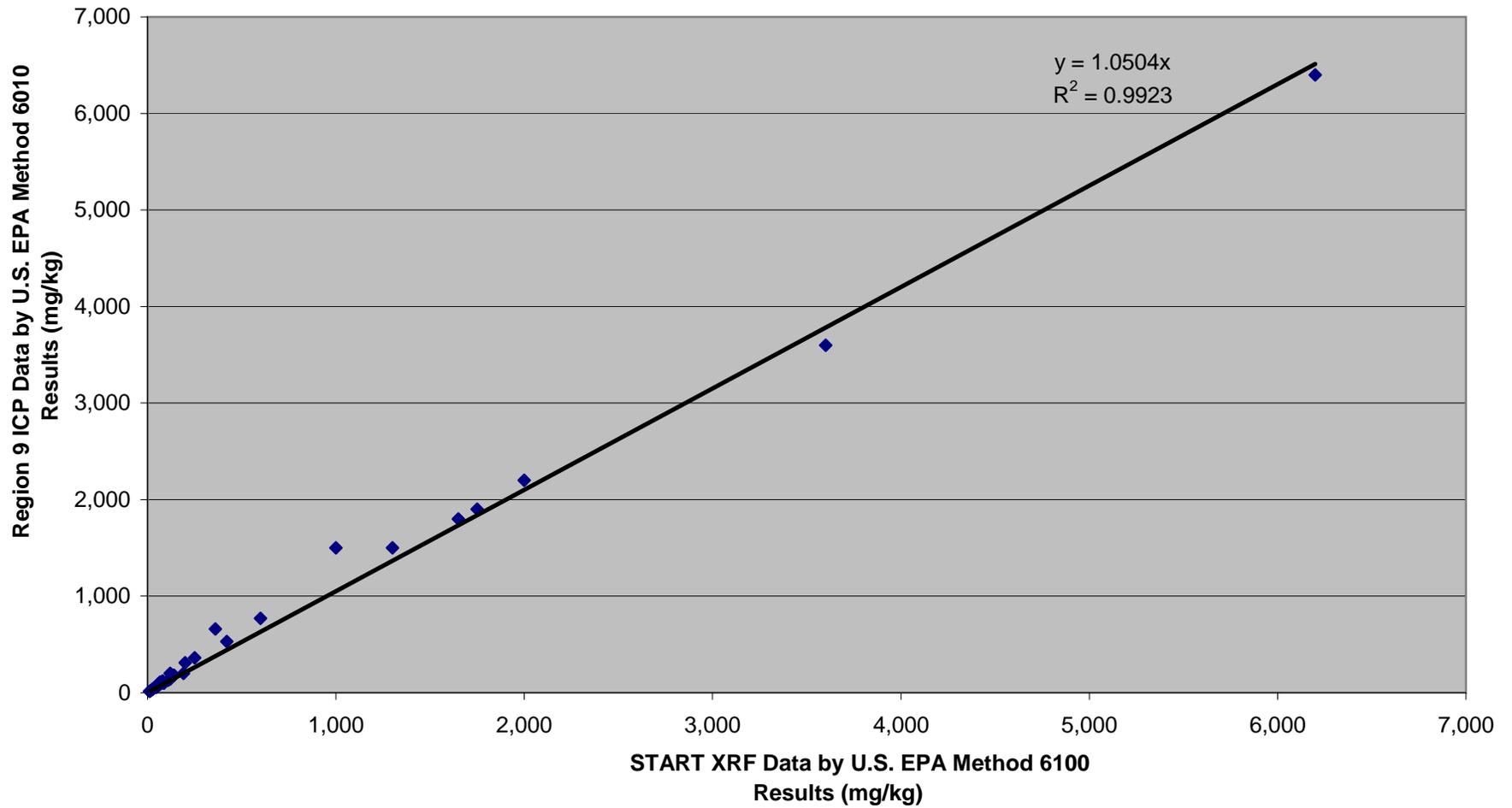
Bold = Above the SSL

Bold, underlined and italics = Equal to or above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

Figure 6  
XRF/ICP  
Lead  
Data Correlation



**Figure 7**  
**XRF/ICP**  
**Arsenic**  
**Data Correlation**



## **Attachment 5**

### **Laboratory Analysis and Data Validation Reports**

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

Laboratory: EPA Region 9 Laboratory	Lab Project No: SDG 13155E, 1306008
Sampling Dates: 05/19/2013	Sample Matrix: Water
Analytical Method: CAM Metals / As & Pb	Data Reviewer: M. Song

### REVIEW AND APPROVAL:

Data Reviewer:           Mindy Song           Date: 7/12/13  
 Technical QA Reviewer:           Howard Edwards           Date: \_\_\_\_\_  
 Project Manager:           Howard Edwards           Date: \_\_\_\_\_

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	ESS-052913-EB	1306008-01
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

- Included: no problems
- \* Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

#### Case Narrative:

- Case Narrative present

#### Quality Control Summary Package:

- Data Summary sheets
- Initial and Continuing Calibration results
- NR CRDL Standard results
- Preparation Blank and Calibration Blank results
- ICP Interference Check Sample results
- Matrix Spike recoveries
- Matrix Duplicate results
- Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- NR ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- Preparation Log
- Analysis Run Log

#### Raw QC Data Package Section

- Chain-of-Custody Records
- Instrument Printouts
- Sample Preparation Notebook Pages
- Logbook and Worksheet Pages
- Percent Solids Determination

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

Comments: N/A: Not Applicable.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 1. HOLDING TIMES

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

#### All Sample Matrices:

Mercury: 28 days (from collection) for analysis.  
Hexavalent chromium: 24 hours (from collection) for analysis.  
All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

### 2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 3. LABORATORY CONTROL SAMPLE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Percent recoveries of LCS were within the control limits.

### 4. MATRIX SPIKE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%.

For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Sample ESS-052913-EB was used for matrix spike and matrix spike duplicate analysis and the recoveries were within the control limits

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 5. BLANKS AND BACKGROUND SAMPLES

- Acceptable  
 Detection Limits Adjusted

The following blanks were analyzed:

- Method (preparation) Blanks  
 Field Blanks  
 Calibration Blanks  
 Rinsate Blanks  
 Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

**Comments:** No contamination was found in the method blank at method blank reporting limit level.

### 6. DUPLICATE ANALYSES

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Duplicates Analyzed

Type of duplicates analyzed:

- Field Duplicates  
 Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(\text{Value 1} - \text{Value 2})}{\text{Value 1} + \text{Value 2}} \times 100\%$$

**Comments:** The RPDs of MS & MSD <25%.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 Not required

**Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.**

**Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).**

**Comments:** ICS recoveries were within the control limit.  
Serial Dilution Analysis: Not required.

### 8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 Not required

**Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).**

**Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).**

**Comments:**

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

<b>Water samples:</b> ug/L = $\frac{(\text{Instrument printout concentration, mg/L})(1000 \text{ ug/mg})(\text{final volume of extract, mL})}{(\text{initial volume of extract, mL})}$
<b>Soil samples:</b> mg/kg = $\frac{(\text{Instrument printout concentration, mg/L})(\text{final volume of extract, mL})(0.001 \text{ L/mL})}{(\text{weight of sample extracted, g})(0.001 \text{ kg/g})(\text{fraction solids})}$

Comments: Not applicable due to no detection of analytes.

### 10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

- Acceptable
- Acceptable with Qualification
- Rejected

Accepted data meet the minimum requirements for the following EPA data category:

- ERS Screening
- Non-definitive with 10 % Confirmation by Definitive Methodology
- Definitive, Comprehensive Statistical Error Determination was performed.
- Definitive, Comprehensive Statistical Error Determination was not performed.

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 11. USABILITY OF DATA

**A. These data are considered usable for the data use objectives stated in the SAMPLING AND ANALYSIS PLAN, EUREKA SMELTER SITES ASSESSMENT, EUREKA COUNTY, NEVADA, SEPTEMBER 2012 (SAP).**

**The following data use objective was indicated in the SAP:**

- Determine average concentrations of lead and arsenic in the shallow soil at locations within the Town of Eureka.
- Determine average concentrations of lead and arsenic in the roadway material in unpaved roads within the Town of Eureka.
- Document concentrations of lead and arsenic in the shallow soil in areas potentially downwind of Eureka.
- Document concentrations of lead and arsenic in the shallow creek sediments and in shallow soil in creek flood plain areas.
- Document concentrations of lead and arsenic in the creek surface water.
- Document background concentrations of lead and arsenic in the soil around Eureka.
- Document and determine the areal spatial distribution of arsenic and lead on large undeveloped properties within and around the Town of Eureka.
- Determine the vertical spatial distribution between shallow ground surface soil and the soil at depth between 2 to 12 inches below ground surface (bgs) for arsenic and lead on all properties.
- Determine whether unacceptable risks to human health or the environment are present at locations within the Town of Eureka due to elevated lead and arsenic concentrations.

*THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.*

**B. These data meet quality objectives stated in the SAP.**

*AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE DEFINITIVE DATA AND TABLE 3-1 AND 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVES. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.*

### 12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

**Problem:** No problems requiring corrective action were found.

**Resolution:** Not required.

**Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.**



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13155E
Project Number: R13S77	75 Hawthorne Street	Reported: 07/10/13 10:07
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1306008-01							Water - Sampled: 05/29/13 18:30	
Sample ID: ESS-052913-EB							Metals by EPA 200 Series Methods	
Antimony		ND	U	20	ug/L	B13F015	06/05/13	06/11/13 200.7/SOP505
Arsenic	RE1	ND	U	20	"	"	"	06/30/13 200.7/SOP505
Barium		ND	U	10	"	"	"	06/11/13 200.7/SOP505
Beryllium		ND	U	0.50	"	"	"	200.7/SOP505
Cadmium		ND	U	5	"	"	"	200.7/SOP505
Chromium		ND	U	10	"	"	"	200.7/SOP505
Cobalt		ND	U	5	"	"	"	200.7/SOP505
Copper		ND	U	10	"	"	"	200.7/SOP505
Lead		ND	U	20	"	"	"	200.7/SOP505
Molybdenum		ND	U	20	"	"	"	200.7/SOP505
Nickel		ND	U	10	"	"	"	200.7/SOP505
Selenium		ND	U	20	"	"	"	200.7/SOP505
Silver	RE1	ND	U	5	"	"	06/30/13	200.7/SOP505
Thallium		ND	U	20	"	"	06/11/13	200.7/SOP505
Vanadium		ND	U	4	"	"	"	200.7/SOP505
Zinc		ND	U	10	"	"	"	200.7/SOP505

*[Handwritten Signature]*  
7/12/13



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13155E
Project Number: R13S77	75 Hawthorne Street	Reported: 07/10/13 10:07
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
---------	--------	--------------------------	-----------------------	-------	----------------	------------------	------	----------------	-----	--------------

Batch B13F015 - 200 Series Digest - Metals by 200.7

Prepared: 06/05/13 Analyzed: 06/11/13  
Metals by EPA 200 Series Methods - Quality Control

### Blank (B13F015-BLK1)

Antimony	ND	U		20 ug/L						
Arsenic	ND	U		20 "						
Barium	ND	U		10 "						
Beryllium	ND	U		0.5 "						
Cadmium	ND	U		5 "						
Chromium	ND	U		10 "						
Cobalt	ND	U		5 "						
Copper	ND	U		10 "						
Lead	ND	U		20 "						
Molybdenum	ND	U		20 "						
Nickel	ND	U		10 "						
Selenium	ND	U		20 "						
Silver	ND	U		5 "						
Thallium	ND	U		20 "						
Vanadium	7.5			4 "						
Zinc	ND	U		10 "						

### Blank (B13F015-BLK2)

Antimony	ND	U		20 ug/L						
Arsenic	ND	U		20 "						
Barium	ND	U		10 "						
Beryllium	ND	U		0.5 "						
Cadmium	ND	U		5 "						
Chromium	ND	U		10 "						
Cobalt	ND	U		5 "						
Copper	ND	U		10 "						
Lead	ND	U		20 "						
Molybdenum	24			20 "						
Nickel	ND	U		10 "						
Selenium	ND	U		20 "						
Silver	ND	U		5 "						
Thallium	ND	U		20 "						
Vanadium	ND	U		4 "						
Zinc	ND	U		10 "						

*[Handwritten Signature]* 7/12/13

### LCS (B13F015-BS1)

Antimony	868			20 ug/L	800		108	85-115		200
Barium	212			10 "	200		106	85-115		200
Beryllium	208			0.5 "	200		104	85-115		200
Boron	317			100 "	300		106	85-115		200
Cadmium	208			5 "	200		104	85-115		200
Calcium	1,070			100 "	1000		107	85-115		200
Chromium	397			10 "	400		99	85-115		200



# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

Laboratory: EPA Region 9 Laboratory	Lab Project No: 1306029 SDG 13162A
Sampling Dates: 06/05/2013	Sample Matrix: Soil
Analytical Method: As & Pb by EPA 6010C	Data Reviewer: M. Song

### REVIEW AND APPROVAL:

Data Reviewer: Mindy Song   
Technical QA Reviewer: Howard Edwards  
Project Manager: Howard Edwards

Date: 7/26/13  
Date: \_\_\_\_\_  
Date: \_\_\_\_\_

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	A-19	1306029-01
2	A-21	1306029-02
3	A-20	1306029-03
4	A-22	1306029-04
5	A-28	1306029-05
6	A-31	1306029-06
7	A-50	1306029-07
8	A-03	1306029-08
9	A-103	1306029-09
10	A-66	1306029-10
11	A-67	1306029-11
12	A-55	1306029-12
13	A-63	1306029-13
14	A-61	1306029-14
15	A-52	1306029-15
16	B-76	1306029-16
17	B-84	1306029-17
18	B-87	1306029-18
19	A-87	1306029-19
20	EM-08	1306029-20
21	IS 3273	1306029-21

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

- Included: no problems
- \* Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

#### Case Narrative:

- Case Narrative present

#### Quality Control Summary Package:

- Data Summary sheets
- Initial and Continuing Calibration results
- NR CRDL Standard results
- Preparation Blank and Calibration Blank results
- ICP Interference Check Sample results
- \* Matrix Spike recoveries
- \* Matrix Duplicate results
- Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- NR ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- Preparation Log
- Analysis Run Log

#### Raw QC Data Package Section

- Chain-of-Custody Records
- Instrument Printouts
- Sample Preparation Notebook Pages
- Logbook and Worksheet Pages
- Percent Solids Determination

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	NO
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	NO

**Comments:** N/A: Not Applicable.

Samples were received at the laboratory in XRF cups. The soil had already been dried and sieved when field XRF testing was performed. Results were reported "as received" at the laboratory.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 1. HOLDING TIMES

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

#### **All Sample Matrices:**

Mercury: 28 days (from collection) for analysis.

Hexavalent chromium: 24 hours (from collection) for analysis.

All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

### 2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 3. LABORATORY CONTROL SAMPLE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Percent recoveries of LCS were within the control limits generated by the laboratory.

### 4. MATRIX SPIKE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%.

For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Samples A-28 and A-52 were used for matrix spike and matrix spike duplicate analysis. The recoveries Pb were outside of control limits. Qualification was not required for Pb since the amount of Pb present in both parent samples was greater than 4X the amount spiked

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 5. BLANKS AND BACKGROUND SAMPLES

- Acceptable  
 Detection Limits Adjusted

The following blanks were analyzed:

- Method (preparation) Blanks  
 Field Blanks  
 Calibration Blanks  
 Rinsate Blanks  
 Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at method blank reporting limit level.

### 6. DUPLICATE ANALYSES

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Duplicates Analyzed

Type of duplicates analyzed:

- Field Duplicates  
 Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(\text{Value 1} - \text{Value 2})}{\text{Value 1} + \text{Value 2}} \times 100\%$$

Analyte (mg/kg)	A-03	A-103	RPD (%)
Arsenic	130	130	0
Lead	440	870	66*

\*: RPD>35%

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

**Comments:** Sample A-103 was a field duplicate of sample A-03 and the RPD of Pb was outside of control limit (>35%). The detected Pb results in A-03 and A-103 were qualified as estimated (J).

### 7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

Acceptable  
 Acceptable with qualification  
 Unacceptable  
 Not required

**Interference Check Samples (ICS) -** Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

**Serial Dilution Analysis -** Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

**Comments:** ICS recoveries were within the control limit.  
Serial Dilution Analysis: Not required.

### 8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

Acceptable  
 Acceptable with qualification  
 Unacceptable  
 Not required

**Post-digestion spikes -** If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

**Method of Standard Additions -** If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

**Comments:**

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

**Water samples:**

$$\text{ug/L} = \frac{(\text{Instrument printout concentration, mg/L})(1000 \text{ ug/mg})(\text{final volume of extract, mL})}{(\text{Initial volume of extract, mL})}$$

**Soil samples:**

$$\text{mg/kg} = \frac{(\text{Instrument printout concentration, mg/L})(\text{final volume of extract, mL})(0.001 \text{ L/mL})}{(\text{weight of sample extracted, g})(0.001 \text{ kg/g})(\text{fraction solids})}$$

**Comments:** Analyte quantitation was acceptable.

Sample A-22

As: (18.69 mg/L) (0.05L/1.0g) (2) = 1.869 mg/g= 1869 mg/kg.

Lab reported 1900 mg/kg.

Pb: (88.4 mg/L) (0.05L/1.0g) (2) = 8.84 mg/g= 8840 mg/kg.

Lab reported 8800 mg/kg.

Sample B-87

As: (2.06 mg/L) (0.05L/1.03g) (2) = 0.200 mg/g= 200 mg/kg.

Lab reported 200 mg/kg.

Pb: (8.605 mg/L) (0.05L/1.03g) (2) = 0.8354 mg/g= 835.4 mg/kg.

Lab reported 840 mg/kg.

### 10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

- Acceptable  
 Acceptable with Qualification  
 Rejected

Accepted data meet the minimum requirements for the following EPA data category:

- ERS Screening  
 Non-definitive with 10 % Confirmation by Definitive Methodology  
 Definitive, Comprehensive Statistical Error Determination was performed.  
 Definitive, Comprehensive Statistical Error Determination was not performed.

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

**Comments:** Data as reported are valid.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 11. USABILITY OF DATA

**A. These data are considered usable for the data use objectives stated in the SAMPLING AND ANALYSIS PLAN, EUREKA SMELTER SITES ASSESSMENT, EUREKA COUNTY, NEVADA, SEPTEMBER 2012 (SAP).**

**The following data use objective was indicated in the SAP:**

- Determine average concentrations of lead and arsenic in the shallow soil at locations within the Town of Eureka.
- Determine average concentrations of lead and arsenic in the roadway material in unpaved roads within the Town of Eureka.
- Document concentrations of lead and arsenic in the shallow soil in areas potentially downwind of Eureka.
- Document concentrations of lead and arsenic in the shallow creek sediments and in shallow soil in creek flood plain areas.
- Document concentrations of lead and arsenic in the creek surface water.
- Document background concentrations of lead and arsenic in the soil around Eureka.
- Document and determine the areal spatial distribution of arsenic and lead on large undeveloped properties within and around the Town of Eureka.
- Determine the vertical spatial distribution between shallow ground surface soil and the soil at depth between 2 to 12 inches below ground surface (bgs) for arsenic and lead on all properties.
- Determine whether unacceptable risks to human health or the environment are present at locations within the Town of Eureka due to elevated lead and arsenic concentrations.

*THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.*

**B. These data meet quality objectives stated in the SAP.**

*AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE DEFINITIVE DATA AND TABLE 3-1 AND 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVES. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.*

### 12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

**Problem:** No problems requiring corrective action were found.

**Resolution:** Not required.

**Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.**



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13162A
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:40
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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Lab ID:	1306029-01								Soil - Sampled: 06/05/13 00:00
Sample ID:	A-19								Metals by EPA 6000/7000 Series Methods
Antimony	RE1	3.9		2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	86		2	"	"	"	"	6010C/SOP503
Barium		440		5	"	"	07/03/13		6010C/SOP503
Beryllium		0.74		0.10	"	"	"	"	6010C/SOP503
Cadmium		1.7		0.50	"	"	"	"	6010C/SOP503
Chromium		12		1	"	"	"	"	6010C/SOP503
Cobalt		4.1		2	"	"	"	"	6010C/SOP503
Copper		17		4	"	"	"	"	6010C/SOP503
Lead		300		3	"	"	"	"	6010C/SOP503
Molybdenum		2.6	Cl, J	5	"	"	"	"	6010C/SOP503
Nickel		13		5	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	07/09/13		6010C/SOP503
Silver		1.1		1	"	"	07/03/13		6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		26		2	"	"	"	"	6010C/SOP503
Zinc		140		8	"	"	"	"	6010C/SOP503

Lab ID:	1306029-02								Soil - Sampled: 06/05/13 00:00
Sample ID:	A-21								Metals by EPA 6000/7000 Series Methods
Antimony	RE1	1.9	Cl, J	2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	56		2	"	"	"	"	6010C/SOP503
Barium		500		5	"	"	07/03/13		6010C/SOP503
Beryllium		0.75		0.10	"	"	"	"	6010C/SOP503
Cadmium		0.87		0.50	"	"	"	"	6010C/SOP503
Chromium		11		1	"	"	"	"	6010C/SOP503
Cobalt		3.7		2	"	"	"	"	6010C/SOP503
Copper		12		4	"	"	"	"	6010C/SOP503
Lead		120		3	"	"	"	"	6010C/SOP503
Molybdenum		ND	U	5	"	"	"	"	6010C/SOP503
Nickel		11		5	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	07/09/13		6010C/SOP503
Silver		0.57	Cl, J	1	"	"	07/03/13		6010C/SOP503
Thallium		ND	U	5	"	"	"	"	6010C/SOP503
Vanadium		24		2	"	"	"	"	6010C/SOP503
Zinc		90		8	"	"	"	"	6010C/SOP503

Lab ID:	1306029-03								Soil - Sampled: 06/05/13 00:00
Sample ID:	A-20								Metals by EPA 6000/7000 Series Methods
Antimony	RE1	3.2		2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	80		2	"	"	"	"	6010C/SOP503
Barium		460		5	"	"	07/03/13		6010C/SOP503
Beryllium		0.76		0.10	"	"	"	"	6010C/SOP503

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**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
<b>Lab ID:</b> 1306029-03							<b>Soil - Sampled: 06/05/13 00:00</b>	
<b>Sample ID:</b> A-20							<b>Metals by EPA 6000/7000 Series Methods</b>	
Cadmium		1.6		0.50	mg/kg wet	B13F062	06/13/13	07/03/13 6010C/SOP503
Chromium		11		1	"	"	"	6010C/SOP503
Cobalt		4.1		2	"	"	"	6010C/SOP503
Copper		14		4	"	"	"	6010C/SOP503
Lead		270		3	"	"	"	6010C/SOP503
Molybdenum		2.9	CI, J	5	"	"	"	6010C/SOP503
Nickel		12		5	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	07/09/13	6010C/SOP503
Silver		1.2		1	"	"	07/03/13	6010C/SOP503
Thallium		ND	U	5	"	"	"	6010C/SOP503
Vanadium		26		2	"	"	"	6010C/SOP503
Zinc		120		8	"	"	"	6010C/SOP503
<b>Lab ID:</b> 1306029-04							<b>Soil - Sampled: 06/05/13 00:00</b>	
<b>Sample ID:</b> A-22							<b>Metals by EPA 6000/7000 Series Methods</b>	
Antimony	RE1	76		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	1,900		2	"	"	"	6010C/SOP503
Barium		380		5	"	"	07/03/13	6010C/SOP503
Beryllium		0.70		0.10	"	"	"	6010C/SOP503
Cadmium		54		0.50	"	"	"	6010C/SOP503
Chromium		13		1	"	"	"	6010C/SOP503
Cobalt		5.4		2	"	"	"	6010C/SOP503
Copper		110		4	"	"	"	6010C/SOP503
Lead	RE1	8,800		3	"	"	07/09/13	6010C/SOP503
Molybdenum		67		5	"	"	07/03/13	6010C/SOP503
Nickel		8.5		5	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	07/09/13	6010C/SOP503
Silver		25		1	"	"	07/03/13	6010C/SOP503
Thallium		ND	U	5	"	"	"	6010C/SOP503
Vanadium		40		2	"	"	"	6010C/SOP503
Zinc		1,600		8	"	"	"	6010C/SOP503
<b>Lab ID:</b> 1306029-05							<b>Soil - Sampled: 06/05/13 00:00</b>	
<b>Sample ID:</b> A-28							<b>Metals by EPA 6000/7000 Series Methods</b>	
Antimony	RE1	59	J, Q4	2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	1,500		2	"	"	"	6010C/SOP503
Barium		330		5	"	"	07/03/13	6010C/SOP503
Beryllium		0.78		0.10	"	"	"	6010C/SOP503
Cadmium		44		0.50	"	"	"	6010C/SOP503
Chromium		15		1	"	"	"	6010C/SOP503
Cobalt		6.5		2	"	"	"	6010C/SOP503
Copper		98		4	"	"	"	6010C/SOP503

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# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162A <b>Reported:</b> 07/19/13 15:40
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID:</b> 1306029-05							<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-28							<b>Metals by EPA 6000/7000 Series Methods</b>
Lead	RE1	6,700		3	mg/kg wet	B13F062	06/13/13 07/09/13 6010C/SOP503
Molybdenum		45		5	"	"	07/03/13 6010C/SOP503
Nickel	RE1	9.2		5	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	6010C/SOP503
Silver		18		1	"	"	07/03/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13 6010C/SOP503
Vanadium		40		2	"	"	07/03/13 6010C/SOP503
Zinc		1,200		8	"	"	6010C/SOP503

<b>Lab ID:</b> 1306029-06							<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-31							<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	6.4		2	mg/kg wet	B13F062	06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	100		2	"	"	6010C/SOP503
Barium		340		5	"	"	07/04/13 6010C/SOP503
Beryllium		0.48		0.10	"	"	6010C/SOP503
Cadmium		2.0		0.50	"	"	6010C/SOP503
Chromium		11		1	"	"	6010C/SOP503
Cobalt		3.9		2	"	"	6010C/SOP503
Copper		30		4	"	"	6010C/SOP503
Lead	RE1	500		3	"	"	07/09/13 6010C/SOP503
Molybdenum		5.8		5	"	"	07/04/13 6010C/SOP503
Nickel	RE1	12		5	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	6010C/SOP503
Silver		2.0		1	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13 6010C/SOP503
Vanadium		29		2	"	"	07/04/13 6010C/SOP503
Zinc		210		8	"	"	6010C/SOP503

<b>Lab ID:</b> 1306029-07							<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-50							<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	56		2	mg/kg wet	B13F062	06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	1,500		2	"	"	6010C/SOP503
Barium		710		5	"	"	07/04/13 6010C/SOP503
Beryllium		0.60		0.10	"	"	6010C/SOP503
Cadmium		7.8		0.50	"	"	6010C/SOP503
Chromium		17		1	"	"	6010C/SOP503
Cobalt		3.6		2	"	"	6010C/SOP503
Copper		130		4	"	"	6010C/SOP503
Lead	RE1	4,800		3	"	"	07/09/13 6010C/SOP503
Molybdenum		62		5	"	"	07/04/13 6010C/SOP503
Nickel	RE1	13		5	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	6010C/SOP503



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162A <b>Reported:</b> 07/19/13 15:40
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method	
<b>Lab ID: 1306029-07</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-50</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Silver		15		1	mg/kg wet	B13F062	06/13/13	07/04/13 6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		26		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		970		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306029-08</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-03</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	4.1		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	130		2	"	"	"	6010C/SOP503	
Barium		230		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.67		0.10	"	"	"	6010C/SOP503	
Cadmium		4.5		0.50	"	"	"	6010C/SOP503	
Chromium		11		1	"	"	"	6010C/SOP503	
Cobalt		4.4		2	"	"	"	6010C/SOP503	
Copper		16		4	"	"	"	6010C/SOP503	
Lead	RE1	440	J	3	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		3.3	Cl, J	5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	11		5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		1.2		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		30		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		150		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306029-09</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-103</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	5.6		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	130		2	"	"	"	6010C/SOP503	
Barium		240		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.56		0.10	"	"	"	6010C/SOP503	
Cadmium		4.3		0.50	"	"	"	6010C/SOP503	
Chromium		6.2		1	"	"	"	6010C/SOP503	
Cobalt		2.2		2	"	"	"	6010C/SOP503	
Copper		20		4	"	"	"	6010C/SOP503	
Lead	RE1	870	J	3	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		3.3	Cl, J	5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	4.4	Cl, J	5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		2.1		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		14		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		270		8	"	"	"	6010C/SOP503	

*m* *A* 7/26/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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**Lab ID:** 1306029-10 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-66

**Metals by EPA 6000/7000 Series Methods**

Antimony	RE1	4.0		2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	86		2	"	"	"	"	6010C/SOP503
Barium		410		5	"	"		07/04/13	6010C/SOP503
Beryllium		0.45		0.10	"	"	"	"	6010C/SOP503
Cadmium		3.0		0.50	"	"	"	"	6010C/SOP503
Chromium		8.4		1	"	"	"	"	6010C/SOP503
Cobalt		3.2		2	"	"	"	"	6010C/SOP503
Copper		21		4	"	"	"	"	6010C/SOP503
Lead	RE1	460		3	"	"	"	07/09/13	6010C/SOP503
Molybdenum		10		5	"	"	"	07/04/13	6010C/SOP503
Nickel	RE1	7.3		5	"	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	"	6010C/SOP503
Silver		1.6		1	"	"	"	07/04/13	6010C/SOP503
Thallium	RE1	2.5	CI, J	5	"	"	"	07/09/13	6010C/SOP503
Vanadium		22		2	"	"	"	07/04/13	6010C/SOP503
Zinc		250		8	"	"	"	"	6010C/SOP503

**Lab ID:** 1306029-11 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-67

**Metals by EPA 6000/7000 Series Methods**

Antimony	RE1	3.9		2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	84		2	"	"	"	"	6010C/SOP503
Barium		890		5	"	"		07/04/13	6010C/SOP503
Beryllium		0.51		0.10	"	"	"	"	6010C/SOP503
Cadmium		2.7		0.50	"	"	"	"	6010C/SOP503
Chromium		8.5		1	"	"	"	"	6010C/SOP503
Cobalt		3.2		2	"	"	"	"	6010C/SOP503
Copper		19		4	"	"	"	"	6010C/SOP503
Lead	RE1	400		3	"	"	"	07/09/13	6010C/SOP503
Molybdenum		8.8		5	"	"	"	07/04/13	6010C/SOP503
Nickel	RE1	8.5		5	"	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	"	6010C/SOP503
Silver		1.5		1	"	"	"	07/04/13	6010C/SOP503
Thallium	RE1	3.1	CI, J	5	"	"	"	07/09/13	6010C/SOP503
Vanadium		23		2	"	"	"	07/04/13	6010C/SOP503
Zinc		200		8	"	"	"	"	6010C/SOP503

**Lab ID:** 1306029-12 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-55

**Metals by EPA 6000/7000 Series Methods**

Antimony	RE1	3.2		2	mg/kg wet	B13F062	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	120		2	"	"	"	"	6010C/SOP503
Barium		310		5	"	"		07/04/13	6010C/SOP503
Beryllium		0.73		0.10	"	"	"	"	6010C/SOP503

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**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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**Lab ID:** 1306029-12 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-55 **Metals by EPA 6000/7000 Series Methods**

Cadmium		4.5		0.50	mg/kg wet	B13F062	06/13/13	07/04/13 6010C/SOP503
Chromium		14		1	"	"	"	6010C/SOP503
Cobalt		5.6		2	"	"	"	6010C/SOP503
Copper		21		4	"	"	"	6010C/SOP503
Lead	RE1	450		3	"	"	07/09/13	6010C/SOP503
Molybdenum		3.0	C1, J	5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	14		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		1.7		1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503
Vanadium		25		2	"	"	07/04/13	6010C/SOP503
Zinc		240		8	"	"	"	6010C/SOP503

**Lab ID:** 1306029-13 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-63 **Metals by EPA 6000/7000 Series Methods**

Antimony	RE1	4.4		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	99		2	"	"	"	6010C/SOP503
Barium		420		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.44		0.10	"	"	"	6010C/SOP503
Cadmium		2.9		0.50	"	"	"	6010C/SOP503
Chromium		11		1	"	"	"	6010C/SOP503
Cobalt		3.4		2	"	"	"	6010C/SOP503
Copper		26		4	"	"	"	6010C/SOP503
Lead	RE1	440		3	"	"	07/09/13	6010C/SOP503
Molybdenum		7.0		5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	10		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		1.6		1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503
Vanadium		24		2	"	"	07/04/13	6010C/SOP503
Zinc		250		8	"	"	"	6010C/SOP503

**Lab ID:** 1306029-14 **Soil - Sampled: 06/05/13 00:00**

**Sample ID:** A-61 **Metals by EPA 6000/7000 Series Methods**

Antimony	RE1	39		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	770		2	"	"	"	6010C/SOP503
Barium		250		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.87		0.10	"	"	"	6010C/SOP503
Cadmium		20		0.50	"	"	"	6010C/SOP503
Chromium		9.4		1	"	"	"	6010C/SOP503
Cobalt		3.8		2	"	"	"	6010C/SOP503
Copper		60		4	"	"	"	6010C/SOP503



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13162A
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:40
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID: 1306029-14</b>		<b>Soil - Sampled: 06/05/13 00:00</b>						
<b>Sample ID: A-61</b>		<b>Metals by EPA 6000/7000 Series Methods</b>						
Lead	RE1	3,500		3	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Molybdenum		14		5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	8.0		5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		10		1	"	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		25		2	"	"	"	07/04/13 6010C/SOP503
Zinc		800		8	"	"	"	6010C/SOP503

<b>Lab ID: 1306029-15</b>		<b>Soil - Sampled: 06/05/13 00:00</b>						
<b>Sample ID: A-52</b>		<b>Metals by EPA 6000/7000 Series Methods</b>						
Antimony	RE1	6.9	I, Q4	2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	110		2	"	"	"	6010C/SOP503
Barium		280		5	"	"	"	07/04/13 6010C/SOP503
Beryllium		0.76		0.10	"	"	"	6010C/SOP503
Cadmium		3.4		0.50	"	"	"	6010C/SOP503
Chromium		10		1	"	"	"	6010C/SOP503
Cobalt		3.7		2	"	"	"	6010C/SOP503
Copper		24		4	"	"	"	6010C/SOP503
Lead	RE1	600		3	"	"	"	07/09/13 6010C/SOP503
Molybdenum		5.2		5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	9.3		5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		1.9		1	"	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		24		2	"	"	"	07/04/13 6010C/SOP503
Zinc		240		8	"	"	"	6010C/SOP503

<b>Lab ID: 1306029-16</b>		<b>Soil - Sampled: 06/05/13 00:00</b>						
<b>Sample ID: B-76</b>		<b>Metals by EPA 6000/7000 Series Methods</b>						
Antimony	RE1	6.4		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	140		2	"	"	"	6010C/SOP503
Barium		270		5	"	"	"	07/04/13 6010C/SOP503
Beryllium		0.79		0.10	"	"	"	6010C/SOP503
Cadmium		4.4		0.50	"	"	"	6010C/SOP503
Chromium		11		1	"	"	"	6010C/SOP503
Cobalt		3.9		2	"	"	"	6010C/SOP503
Copper		25		4	"	"	"	6010C/SOP503
Lead	RE1	690		3	"	"	"	07/09/13 6010C/SOP503
Molybdenum		7.0		5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	9.4		5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503



**United States Environmental Protection Agency  
Region 9 Laboratory**

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<b>Project Manager:</b> Thomas Dunkelmann	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID:</b> 1306029-16	<b>Soil - Sampled: 06/05/13 00:00</b>							
<b>Sample ID:</b> B-76	<b>Metals by EPA 6000/7000 Series Methods</b>							
Silver		2.1		1	mg/kg wet	B13F062	06/13/13	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		27		2	"	"	"	07/04/13 6010C/SOP503
Zinc		260		8	"	"	"	6010C/SOP503

<b>Lab ID:</b> 1306029-17	<b>Soil - Sampled: 06/05/13 00:00</b>							
<b>Sample ID:</b> B-84	<b>Metals by EPA 6000/7000 Series Methods</b>							
Antimony	RE1	ND	U	2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	14		2	"	"	"	6010C/SOP503
Barium		220		5	"	"	"	07/04/13 6010C/SOP503
Beryllium		0.86		0.10	"	"	"	6010C/SOP503
Cadmium		0.43	CI, J	0.50	"	"	"	6010C/SOP503
Chromium		8.3		1	"	"	"	6010C/SOP503
Cobalt		3.7		2	"	"	"	6010C/SOP503
Copper		11		4	"	"	"	6010C/SOP503
Lead	RE1	35		3	"	"	"	07/09/13 6010C/SOP503
Molybdenum		ND	U	5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	6.8		5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		28		2	"	"	"	07/04/13 6010C/SOP503
Zinc		90		8	"	"	"	6010C/SOP503

<b>Lab ID:</b> 1306029-18	<b>Soil - Sampled: 06/05/13 00:00</b>							
<b>Sample ID:</b> B-87	<b>Metals by EPA 6000/7000 Series Methods</b>							
Antimony	RE1	8.8		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	200		2	"	"	"	6010C/SOP503
Barium		350		5	"	"	"	07/04/13 6010C/SOP503
Beryllium		0.69		0.10	"	"	"	6010C/SOP503
Cadmium		3.4		0.50	"	"	"	6010C/SOP503
Chromium		14		1	"	"	"	6010C/SOP503
Cobalt		4.2		2	"	"	"	6010C/SOP503
Copper		32		4	"	"	"	6010C/SOP503
Lead	RE1	840		3	"	"	"	07/09/13 6010C/SOP503
Molybdenum		28		5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	12		5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		3.0		1	"	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		28		2	"	"	"	07/04/13 6010C/SOP503



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162A <b>Reported:</b> 07/19/13 15:40
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method	
<b>Lab ID: 1306029-18</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: B-87</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Zinc		370		8	mg/kg wet	B13F062	06/13/13 07/04/13	6010C/SOP503	
<b>Lab ID: 1306029-19</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-87</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	6.0		2	mg/kg wet	B13F062	06/13/13 07/09/13	6010C/SOP503	
Arsenic	RE1	89		2	"	"	"	6010C/SOP503	
Barium		170		5	"	"	07/04/13	6010C/SOP503	
Beryllium		0.56		0.10	"	"	"	6010C/SOP503	
Cadmium		2.1		0.50	"	"	"	6010C/SOP503	
Chromium		9.0		1	"	"	"	6010C/SOP503	
Cobalt		3.1		2	"	"	"	6010C/SOP503	
Copper		45		4	"	"	"	6010C/SOP503	
Lead	RE1	500		3	"	"	07/09/13	6010C/SOP503	
Molybdenum		3.4	Cl, J	5	"	"	07/04/13	6010C/SOP503	
Nickel	RE1	6.4		5	"	"	07/09/13	6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		1.4		1	"	"	07/04/13	6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503	
Vanadium		17		2	"	"	07/04/13	6010C/SOP503	
Zinc		210		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306029-20</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: EM-08</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	3.7		2	mg/kg wet	B13F062	06/13/13 07/09/13	6010C/SOP503	
Arsenic	RE1	83		2	"	"	"	6010C/SOP503	
Barium		250		5	"	"	07/04/13	6010C/SOP503	
Beryllium		1.1		0.10	"	"	"	6010C/SOP503	
Cadmium		2.7		0.50	"	"	"	6010C/SOP503	
Chromium		13		1	"	"	"	6010C/SOP503	
Cobalt		5.8		2	"	"	"	6010C/SOP503	
Copper		20		4	"	"	"	6010C/SOP503	
Lead	RE1	510		3	"	"	07/09/13	6010C/SOP503	
Molybdenum		3.9	Cl, J	5	"	"	07/04/13	6010C/SOP503	
Nickel	RE1	10		5	"	"	07/09/13	6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		1.3		1	"	"	07/04/13	6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503	
Vanadium		32		2	"	"	07/04/13	6010C/SOP503	
Zinc		150		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306029-21</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: IS 3273</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	1.7	Cl, J	2	mg/kg wet	B13F062	06/13/13 07/09/13	6010C/SOP503	



**United States Environmental Protection Agency  
Region 9 Laboratory**

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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
<b>Lab ID:</b> 1306029-21							<b>Soil - Sampled: 06/05/13 00:00</b>	
<b>Sample ID:</b> IS 3273							<b>Metals by EPA 6000/7000 Series Methods</b>	
Arsenic	RE1	71		2	mg/kg wet	B13F062	06/13/13	07/09/13 6010C/SOP503
Barium		170		5	"	"	"	07/04/13 6010C/SOP503
Beryllium		0.07	Cl, J	0.10	"	"	"	6010C/SOP503
Cadmium		1.1		0.50	"	"	"	6010C/SOP503
Chromium		3.9		1	"	"	"	6010C/SOP503
Cobalt		5.1		2	"	"	"	6010C/SOP503
Copper		580		4	"	"	"	6010C/SOP503
Lead	RE1	820		3	"	"	"	07/09/13 6010C/SOP503
Molybdenum		6.3		5	"	"	"	07/04/13 6010C/SOP503
Nickel	RE1	4.8	Cl, J	5	"	"	"	07/09/13 6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	07/04/13 6010C/SOP503
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503
Vanadium		170		2	"	"	"	07/04/13 6010C/SOP503
Zinc		930		8	"	"	"	6010C/SOP503

*mdj*  
7/26/13



**United States Environmental Protection Agency  
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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13162A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:40
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC.	%REC Limits	RPD	RPD Limit
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Batch B13F062 - 3050B Sld Acid Dig - Metals by 6010

Prepared: 06/13/13 Analyzed: 07/03/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

**Blank (B13F062-BLK1)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

**Blank (B13F062-BLK2)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

**Blank (B13F062-BLK3)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						

*[Handwritten Signature]*  
7/26/13



# United States Environmental Protection Agency Region 9 Laboratory

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Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162A <b>Reported:</b> 07/19/13 15:40
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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD Limit
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Batch B13F062 - 3050B Sld Acid Dig - Metals by 6010

Prepared: 06/13/13 Analyzed: 07/09/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

**Blank (B13F062-BLK3)**

Cobalt	ND	U		2 "
Copper	ND	U		4 "
Lead	ND	U		3 "
Molybdenum	ND	U		5 "
Nickel	ND	U		5 "
Selenium	ND	U		2 "
Silver	ND	U		1 "
Thallium	ND	U		5 "
Vanadium	ND	U		2 "
Zinc	ND	U		8 "

**Blank (B13F062-BLK4)**

Antimony	ND	U		2 mg/kg wet
Arsenic	ND	U		2 "
Barium	ND	U		5 "
Beryllium	ND	U		0.1 "
Cadmium	ND	U		0.5 "
Chromium	ND	U		1 "
Cobalt	ND	U		2 "
Copper	ND	U		4 "
Lead	ND	U		3 "
Molybdenum	ND	U		5 "
Nickel	ND	U		5 "
Selenium	ND	U		2 "
Silver	ND	U		1 "
Thallium	ND	U		5 "
Vanadium	ND	U		2 "
Zinc	ND	U		8 "

*[Handwritten Signature]* 7/26/13

**Matrix Spike (B13F062-MS1)**

Source: 1306029-05

Barium	727			5 mg/kg wet	396	332	100	75-125	20
Beryllium	10.3			0.1 "	9.90	0.776	96	75-125	20
Cadmium	54	Q10		0.5 "	9.90	44.1	100	75-125	20
Chromium	54.9			1 "	39.6	14.6	102	75-125	20
Cobalt	95.7			2 "	99.0	6.54	90	75-125	20
Copper	144			4 "	49.5	97.6	94	75-125	20
Molybdenum	122			5 "	99.0	45	78	75-125	20
Silver	28.3			1 "	9.90	18.2	102	75-125	20
Vanadium	136			2 "	99.0	39.6	98	75-125	20
Zinc	1,350	Q10		8 "	99.0	1,230	118	75-125	20

**Matrix Spike (B13F062-MS2)**

Source: 1306029-15

CHAIN OF CUSTODY RECORD

PROJECT NO. A13577		PROJECT NAME Eureka		NO. OF CONTAINERS XRF CUPS	REMARKS
SAMPLERS: (Signature) Nancy J. Sals...		SAMPLE IDENTIFICATION			
DATE	TIME	MATRIX	GRAB		
6/5/2013		SO		1	Pb mg/kg As mg/kg 260 60
				1	110 46
				2	250 60
				1	9150 1750
				1	6800 1300
				1	530 72
				1	4600 1000
				1	470 110
				2	460 100
				1	610 67
				1	440 63
				1	400 79
				2	470 80
				1	3300 600
				1	610 67

Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 6/7/13 1536	Received by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received for Laboratory (Signature) <i>[Signature]</i>	Date / Time 6/7/13 1536	Temp 23°C	Seals Intact (Y/N) Hand delivered	Conditions / Remarks		

As-Pb

TR 6010  
Bio Extraction

Distributor: Original Accompanies Shipment; Copy of *[Signature]* Files 6/7/13

9-3021 Box 1



# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

Laboratory: EPA Region 9 Laboratory	Lab Project No: 1306030 SDG 13162B
Sampling Dates: 06/05/2013	Sample Matrix: Soil
Analytical Method: Aa & Pb by EPA 6010C	Data Reviewer: M. Song

### REVIEW AND APPROVAL:

Data Reviewer: Mindy Song   
Technical QA Reviewer: Howard Edwards  
Project Manager: Howard Edwards

Date: 7/26/13  
Date: \_\_\_\_\_  
Date: \_\_\_\_\_

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	A-85	1306030-01
2	B-26	1306030-02
3	A-44	1306030-03
4	A-04	1306030-04
5	A-43	1306030-05
6	B-36	1306030-06
7	A-45	1306030-07
8	A-60	1306030-08
9	A-56	1306030-09
10	A-76	1306030-10
11	A-176	1306030-11
12	B-13	1306030-12
13	B-25	1306030-13
14	B-125	1306030-14
15	B-32	1306030-15
16	B-45	1306030-16
17	B-29	1306030-17
18	B-129	1306030-18
19	B-39	1306030-19
20	B-60	1306030-20
21	B-81	1306030-21

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

- Included: no problems
- \* Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

#### Case Narrative:

- Case Narrative present

#### Quality Control Summary Package:

- Data Summary sheets
- Initial and Continuing Calibration results
- NR CRDL Standard results
- Preparation Blank and Calibration Blank results
- ICP Interference Check Sample results
- \* Matrix Spike recoveries
- \* Matrix Duplicate results
- Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- NR ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- Preparation Log
- Analysis Run Log

#### Raw QC Data Package Section

- Chain-of-Custody Records
- Instrument Printouts
- Sample Preparation Notebook Pages
- Logbook and Worksheet Pages
- Percent Solids Determination

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	YES
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	YES
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	YES

**Comments:** N/A: Not Applicable.

Samples were received at the laboratory in XRF cups. The soil had already been dried and sieved when field XRF testing was performed. Results were reported "as received" at the laboratory.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 1. HOLDING TIMES

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

#### All Sample Matrices:

Mercury: 28 days (from collection) for analysis.

Hexavalent chromium: 24 hours (from collection) for analysis.

All other metals: 180 days (from collection) for analysis.

Comments: All holding times were met.

### 2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

- Acceptable  
 Acceptable with qualification  
 Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

Comments: All recoveries of metals in initial and continuing calibration verifications were within the control limits.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 3. LABORATORY CONTROL SAMPLE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Percent recoveries of LCS were within the control limits generated by the laboratory.

### 4. MATRIX SPIKE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%.

For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Samples A-76 and B-60 were used for matrix spike and matrix spike duplicate analysis. The recoveries of Pb were outside of control limits. Qualification was not required for Pb since the amount of Pb present in both parent samples was greater than 4X the amount spiked.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 5. BLANKS AND BACKGROUND SAMPLES

- Acceptable
- Detection Limits Adjusted

The following blanks were analyzed:

- Method (preparation) Blanks
- Field Blanks
- Calibration Blanks
- Rinsate Blanks
- Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

**Comments:** No contamination was found in the method blank at method blank reporting limit level.

### 6. DUPLICATE ANALYSES

- Acceptable
- Acceptable with qualification
- Unacceptable
- No Duplicates Analyzed

Type of duplicates analyzed:

- Field Duplicates
- Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Analyte (mg/kg)	A-76	A-176	RPD (%)
Arsenic	42	40	5
Lead	180	180	0

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

**Comments:** Sample A-176 was a field duplicate of sample A-76 and the RPDs were within the control limit (<35%).

Analyte (mg/kg)	B-25	B-125	RPD (%)
Arsenic	100	97	3
Lead	390	350	11

**Comments:** Sample B-125 was a field duplicate of sample B-25 and the RPDs were within the control limit (<35%).

Analyte (mg/kg)	B-29	B-129	RPD (%)
Arsenic	6400	6400	0
Lead	35000	38000	8

**Comments:** Sample B-129 was a field duplicate of sample B-29 and the RPDs were within the control limit (<35%).

## 7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 Not required

**Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.**

**Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).**

**Comments:** ICS recoveries were within the control limit.  
Serial Dilution Analysis: Not required.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

- Acceptable
- Acceptable with qualification
- Unacceptable
- Not required

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

Comments:

### 9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

**Water samples:**

$$\text{ug/L} = \frac{(\text{Instrument printout concentration, mg/L})(1000 \text{ ug/mg})(\text{final volume of extract, mL})}{(\text{Initial volume of extract, mL})}$$

**Soil samples:**

$$\text{mg/kg} = \frac{(\text{Instrument printout concentration, mg/L})(\text{final volume of extract, mL})(0.001 \text{ L/mL})}{(\text{weight of sample extracted, g})(0.001 \text{ kg/g})(\text{fraction solids})}$$

Comments: Analyte quantitation was acceptable.

Sample B-36

As:  $(36.09 \text{ mg/L})(0.05\text{L}/1.0\text{g})(2) = 3.609 \text{ mg/g} = 3609 \text{ mg/kg}$ .

Lab reported 3600 mg/kg.

Pb:  $(38.63 \text{ mg/L})(0.05\text{L}/1.0\text{g})(10) = 19.315 \text{ mg/g} = 19315 \text{ mg/kg}$ .

Lab reported 19000 mg/kg.

Sample A-56

As:  $(36.41 \text{ mg/L})(0.05\text{L}/1.02\text{g})(2) = 3.5696 \text{ mg/g} = 3569.6 \text{ mg/kg}$ .

Lab reported 3600 mg/kg.

Pb:  $(37.41 \text{ mg/L})(0.05\text{L}/1.02\text{g})(10) = 18.338 \text{ mg/g} = 18338 \text{ mg/kg}$ .

Lab reported 18000 mg/kg.

Sample B-29

As:  $(63.55 \text{ mg/L})(0.05\text{L}/1.0\text{g})(2) = 6.355 \text{ mg/g} = 6355 \text{ mg/kg}$ .

Lab reported 6400 mg/kg.

Pb:  $(70.81 \text{ mg/L})(0.05\text{L}/1.0\text{g})(10) = 35.405 \text{ mg/g} = 35405 \text{ mg/kg}$ .

Lab reported 35000 mg/kg.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

- Acceptable
- Acceptable with Qualification
- Rejected

Accepted data meet the minimum requirements for the following EPA data category:

- ERS Screening
- Non-definitive with 10 % Conformation by Definitive Methodology
- Definitive, Comprehensive Statistical Error Determination was performed.
- Definitive, Comprehensive Statistical Error Determination was not performed.

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 11. USABILITY OF DATA

**A. These data are considered usable for the data use objectives stated in the SAMPLING AND ANALYSIS PLAN, EUREKA SMELTER SITES ASSESSMENT, EUREKA COUNTY, NEVADA, SEPTEMBER 2012 (SAP).**

**The following data use objective was indicated in the SAP:**

- Determine average concentrations of lead and arsenic in the shallow soil at locations within the Town of Eureka.
- Determine average concentrations of lead and arsenic in the roadway material in unpaved roads within the Town of Eureka.
- Document concentrations of lead and arsenic in the shallow soil in areas potentially downwind of Eureka.
- Document concentrations of lead and arsenic in the shallow creek sediments and in shallow soil in creek flood plain areas.
- Document concentrations of lead and arsenic in the creek surface water.
- Document background concentrations of lead and arsenic in the soil around Eureka.
- Document and determine the areal spatial distribution of arsenic and lead on large undeveloped properties within and around the Town of Eureka.
- Determine the vertical spatial distribution between shallow ground surface soil and the soil at depth between 2 to 12 inches below ground surface (bgs) for arsenic and lead on all properties.
- Determine whether unacceptable risks to human health or the environment are present at locations within the Town of Eureka due to elevated lead and arsenic concentrations.

*THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.*

**B. These data meet quality objectives stated in the SAP.**

*AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE DEFINITIVE DATA AND TABLE 3-1 AND 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVES. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.*

### 12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

**Problem:** The laboratory was requested to re-analyze sample A-56 due to a big difference between XRF screening data and definitive data.

**Resolution:** The metals data of sample A-56 from this SDG was void and re-analysis to follow.

**Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.**



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID:</b> 1306030-01								<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-85								<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	2.7		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	35		2	"	"	"	6010C/SOP503
Barium		180		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.87		0.10	"	"	"	6010C/SOP503
Cadmium		0.59		0.50	"	"	"	6010C/SOP503
Chromium		2.8		1	"	"	"	6010C/SOP503
Cobalt		2.9		2	"	"	"	6010C/SOP503
Copper		7.6		4	"	"	"	6010C/SOP503
Lead	RE1	91		3	"	"	07/09/13	6010C/SOP503
Molybdenum		2.9	Cl, J	5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	3.6	Cl, J	5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503
Vanadium		18		2	"	"	07/04/13	6010C/SOP503
Zinc		61		8	"	"	"	6010C/SOP503

<b>Lab ID:</b> 1306030-02								<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> B-26								<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	9.3		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	63		2	"	"	"	6010C/SOP503
Barium		160		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.83		0.10	"	"	"	6010C/SOP503
Cadmium		1.2		0.50	"	"	"	6010C/SOP503
Chromium		13		1	"	"	"	6010C/SOP503
Cobalt		3.5		2	"	"	"	6010C/SOP503
Copper		14		4	"	"	"	6010C/SOP503
Lead	RE1	150		3	"	"	07/09/13	6010C/SOP503
Molybdenum		ND	U	5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	12		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		1.9		1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	4.9	Cl, J	5	"	"	07/09/13	6010C/SOP503
Vanadium		22		2	"	"	07/04/13	6010C/SOP503
Zinc		200		8	"	"	"	6010C/SOP503

<b>Lab ID:</b> 1306030-03								<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-44								<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	12		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	200		2	"	"	"	6010C/SOP503
Barium		170		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.63		0.10	"	"	"	6010C/SOP503

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# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelmann	Emergency Response Section	SDG: 13162B
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:44
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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Lab ID:	1306030-03							Soil - Sampled: 06/05/13 00:00
Sample ID:	A-44							Metals by EPA 6000/7000 Series Methods
Cadmium		6.4		0.50	mg/kg wet	B13F063	06/13/13 07/04/13	6010C/SOP503
Chromium		7.5		1	"	"	" "	6010C/SOP503
Cobalt		2.3		2	"	"	" "	6010C/SOP503
Copper		22		4	"	"	" "	6010C/SOP503
Lead	RE1	1,100		3	"	"	" 07/09/13	6010C/SOP503
Molybdenum		4.8	CI, J	5	"	"	" 07/04/13	6010C/SOP503
Nickel	RE1	3.8	CI, J	5	"	"	" 07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	" "	6010C/SOP503
Silver		2.4		1	"	"	" 07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	" 07/09/13	6010C/SOP503
Vanadium		14		2	"	"	" 07/04/13	6010C/SOP503
Zinc		270		8	"	"	" "	6010C/SOP503

Lab ID:	1306030-04							Soil - Sampled: 06/05/13 00:00
Sample ID:	A-04							Metals by EPA 6000/7000 Series Methods
Antimony	RE1	19		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	310		2	"	"	" "	6010C/SOP503
Barium		310		5	"	"	" 07/04/13	6010C/SOP503
Beryllium		0.65		0.10	"	"	" "	6010C/SOP503
Cadmium		8.6		0.50	"	"	" "	6010C/SOP503
Chromium		12		1	"	"	" "	6010C/SOP503
Cobalt		4.0		2	"	"	" "	6010C/SOP503
Copper		35		4	"	"	" "	6010C/SOP503
Lead	RE1	1,600		3	"	"	" 07/09/13	6010C/SOP503
Molybdenum		17		5	"	"	" 07/04/13	6010C/SOP503
Nickel	RE1	9.1		5	"	"	" 07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	" "	6010C/SOP503
Silver		4.5		1	"	"	" 07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	" 07/09/13	6010C/SOP503
Vanadium		28		2	"	"	" 07/04/13	6010C/SOP503
Zinc		440		8	"	"	" "	6010C/SOP503

Lab ID:	1306030-05							Soil - Sampled: 06/05/13 00:00
Sample ID:	A-43							Metals by EPA 6000/7000 Series Methods
Antimony	RE1	10		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	180		2	"	"	" "	6010C/SOP503
Barium		250		5	"	"	" 07/04/13	6010C/SOP503
Beryllium		0.58		0.10	"	"	" "	6010C/SOP503
Cadmium		6.2		0.50	"	"	" "	6010C/SOP503
Chromium		7.2		1	"	"	" "	6010C/SOP503
Cobalt		2.6		2	"	"	" "	6010C/SOP503
Copper		22		4	"	"	" "	6010C/SOP503

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# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelmann	Emergency Response Section	SDG: 13162B
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:44
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis/ Extract	Result	Qualifiers/ Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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Lab ID:	1306030-05		Soil - Sampled: 06/05/13 00:00
Sample ID:	A-43		Metals by EPA 6000/7000 Series Methods
Lead	RE1	950	3 mg/kg wet B13F063 06/13/13 07/09/13 6010C/SOP503
Molybdenum		5.8	5 " " " 07/04/13 6010C/SOP503
Nickel	RE1	5.3	5 " " " 07/09/13 6010C/SOP503
Selenium	RE1	ND U	2 " " " 6010C/SOP503
Silver		2.5	1 " " " 07/04/13 6010C/SOP503
Thallium	RE1	ND U	5 " " " 07/09/13 6010C/SOP503
Vanadium		19	2 " " " 07/04/13 6010C/SOP503
Zinc		240	8 " " " 6010C/SOP503

Lab ID:	1306030-06		Soil - Sampled: 06/05/13 00:00
Sample ID:	B-36		Metals by EPA 6000/7000 Series Methods
Antimony	RE1	310	2 mg/kg wet B13F063 06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	3,600	2 " " " 6010C/SOP503
Barium		330	5 " " " 07/04/13 6010C/SOP503
Beryllium		0.87	0.10 " " " 6010C/SOP503
Cadmium		72	0.50 " " " 6010C/SOP503
Chromium		9.0	1 " " " 6010C/SOP503
Cobalt		3.8	2 " " " 6010C/SOP503
Copper		210	4 " " " 6010C/SOP503
Lead	RE2	19,000	15 " " " 07/09/13 6010C/SOP503
Molybdenum		130	5 " " " 07/04/13 6010C/SOP503
Nickel	RE1	6.7	5 " " " 07/09/13 6010C/SOP503
Selenium	RE1	ND U	2 " " " 6010C/SOP503
Silver		48	1 " " " 07/04/13 6010C/SOP503
Thallium	RE1	3.5 CI, J	5 " " " 07/09/13 6010C/SOP503
Vanadium		29	2 " " " 07/04/13 6010C/SOP503
Zinc		2,600	8 " " " 6010C/SOP503

Lab ID:	1306030-07		Soil - Sampled: 06/05/13 00:00
Sample ID:	A 45		Metals by EPA 6000/7000 Series Methods
Antimony	RE1	46	2 mg/kg wet B13F063 06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	360	2 " " " 6010C/SOP503
Barium		280	5 " " " 07/04/13 6010C/SOP503
Beryllium		0.68	0.10 " " " 6010C/SOP503
Cadmium		8.8	0.50 " " " 6010C/SOP503
Chromium		12	1 " " " 6010C/SOP503
Cobalt		3.1	2 " " " 6010C/SOP503
Copper		42	4 " " " 6010C/SOP503
Lead	RE1	2,400	3 " " " 07/09/13 6010C/SOP503
Molybdenum		11	5 " " " 07/04/13 6010C/SOP503
Nickel	RE1	7.0	5 " " " 07/09/13 6010C/SOP503
Selenium	RE1	ND U	2 " " " 6010C/SOP503

*[Signature]* 7/26/13



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method	
<b>Lab ID: 1306030-07</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A 45</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Silver		7.1		1	mg/kg wet	B13F063	06/13/13	07/04/13 6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		20		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		490		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306030-08</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-60</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	38		2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	530		2	"	"	"	6010C/SOP503	
Barium		260		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.77		0.10	"	"	"	6010C/SOP503	
Cadmium		14		0.50	"	"	"	6010C/SOP503	
Chromium		9.8		1	"	"	"	6010C/SOP503	
Cobalt		3.5		2	"	"	"	6010C/SOP503	
Copper		53		4	"	"	"	6010C/SOP503	
Lead	RE1	2,500		3	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		17		5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	7.1		5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		7.5		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		23		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		800		8	"	"	"	6010C/SOP503	
<b>Lab ID: 1306030-09</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: A-56</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	310		2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	3,600		2	"	"	"	6010C/SOP503	
Barium		330		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.88		0.10	"	"	"	6010C/SOP503	
Cadmium		72		0.50	"	"	"	6010C/SOP503	
Chromium		9.5		1	"	"	"	6010C/SOP503	
Cobalt		3.7		2	"	"	"	6010C/SOP503	
Copper		210		4	"	"	"	6010C/SOP503	
Lead	RE2	18,000		15	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		140		5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	6.6		5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		47		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	3.8	C1, J	5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		29		2	"	"	"	07/04/13 6010C/SOP503	
Zinc		2,600		8	"	"	"	6010C/SOP503	

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# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis/ Extract	Result	Qualifiers/ Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID:</b> 1306030-10									<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-76									<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	3.9	J, Q4	2	mg/kg wet	B13F063	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	42		2	"	"	"	"	6010C/SOP503
Barium		130		5	"	"	07/04/13	6010C/SOP503	
Beryllium		0.73		0.10	"	"	"	6010C/SOP503	
Cadmium		1.1		0.50	"	"	"	6010C/SOP503	
Chromium		3.9		1	"	"	"	6010C/SOP503	
Cobalt		3.0		2	"	"	"	6010C/SOP503	
Copper		7.9		4	"	"	"	6010C/SOP503	
Lead	RE1	180		3	"	"	07/09/13	6010C/SOP503	
Molybdenum		ND	U	5	"	"	07/04/13	6010C/SOP503	
Nickel	RE1	3.5	Cl, J	5	"	"	07/09/13	6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		0.60	Cl, J	1	"	"	07/04/13	6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503	
Vanadium		18		2	"	"	07/04/13	6010C/SOP503	
Zinc		78		8	"	"	"	6010C/SOP503	

<b>Lab ID:</b> 1306030-11									<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> A-176									<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	3.6		2	mg/kg wet	B13F063	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	40		2	"	"	"	"	6010C/SOP503
Barium		120		5	"	"	07/04/13	6010C/SOP503	
Beryllium		0.69		0.10	"	"	"	6010C/SOP503	
Cadmium		1.0		0.50	"	"	"	6010C/SOP503	
Chromium		3.8		1	"	"	"	6010C/SOP503	
Cobalt		2.8		2	"	"	"	6010C/SOP503	
Copper		7.6		4	"	"	"	6010C/SOP503	
Lead	RE1	180		3	"	"	07/09/13	6010C/SOP503	
Molybdenum		ND	U	5	"	"	07/04/13	6010C/SOP503	
Nickel	RE1	3.4	Cl, J	5	"	"	07/09/13	6010C/SOP503	
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503	
Silver		ND	U	1	"	"	07/04/13	6010C/SOP503	
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503	
Vanadium		17		2	"	"	07/04/13	6010C/SOP503	
Zinc		73		8	"	"	"	6010C/SOP503	

<b>Lab ID:</b> 1306030-12									<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> B-13									<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	53		2	mg/kg wet	B13F063	06/13/13	07/09/13	6010C/SOP503
Arsenic	RE1	660		2	"	"	"	"	6010C/SOP503
Barium		260		5	"	"	07/04/13	6010C/SOP503	
Beryllium		1.0		0.10	"	"	"	6010C/SOP503	

*Handwritten signature and date: 7/26/13*



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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<b>Lab ID:</b> 1306030-12		<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> B-13		<b>Metals by EPA 6000/7000 Series Methods</b>
Cadmium		18 0.50 mg/kg wet B13F063 06/13/13 07/04/13 6010C/SOP503
Chromium		12 1 " " " " 6010C/SOP503
Cobalt		5.0 2 " " " " 6010C/SOP503
Copper		75 4 " " " " 6010C/SOP503
Lead	RE1	6,900 3 " " " 07/09/13 6010C/SOP503
Molybdenum		30 5 " " " 07/04/13 6010C/SOP503
Nickel	RE1	10 5 " " " 07/09/13 6010C/SOP503
Selenium	RE1	ND U 2 " " " 6010C/SOP503
Silver		17 1 " " " 07/04/13 6010C/SOP503
Thallium	RE1	ND U 5 " " " 07/09/13 6010C/SOP503
Vanadium		28 2 " " " 07/04/13 6010C/SOP503
Zinc		780 8 " " " 6010C/SOP503

<b>Lab ID:</b> 1306030-13		<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> B-25		<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	7.9 2 mg/kg wet B13F063 06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	100 2 " " " " 6010C/SOP503
Barium		200 5 " " " 07/04/13 6010C/SOP503
Beryllium		0.95 0.10 " " " " 6010C/SOP503
Cadmium		2.2 0.50 " " " " 6010C/SOP503
Chromium		9.9 1 " " " " 6010C/SOP503
Cobalt		4.0 2 " " " " 6010C/SOP503
Copper		19 4 " " " " 6010C/SOP503
Lead	RE1	390 3 " " " 07/09/13 6010C/SOP503
Molybdenum		5.3 5 " " " 07/04/13 6010C/SOP503
Nickel	RE1	9.4 5 " " " 07/09/13 6010C/SOP503
Selenium	RE1	ND U 2 " " " 6010C/SOP503
Silver		2.0 1 " " " 07/04/13 6010C/SOP503
Thallium	RE1	3.5 C1, J 5 " " " 07/09/13 6010C/SOP503
Vanadium		26 2 " " " 07/04/13 6010C/SOP503
Zinc		260 8 " " " 6010C/SOP503

<b>Lab ID:</b> 1306030-14		<b>Soil - Sampled:</b> 06/05/13 00:00
<b>Sample ID:</b> B-125		<b>Metals by EPA 6000/7000 Series Methods</b>
Antimony	RE1	7.9 2 mg/kg wet B13F063 06/13/13 07/09/13 6010C/SOP503
Arsenic	RE1	97 2 " " " " 6010C/SOP503
Barium		190 5 " " " 07/04/13 6010C/SOP503
Beryllium		0.96 0.10 " " " " 6010C/SOP503
Cadmium		2.2 0.50 " " " " 6010C/SOP503
Chromium		10 1 " " " " 6010C/SOP503
Cobalt		3.8 2 " " " " 6010C/SOP503
Copper		17 4 " " " " 6010C/SOP503

*[Handwritten Signature]* 7/26/13



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13162B
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:44
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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Lab ID:	1306030-14							Soil - Sampled: 06/05/13 00:00
Sample ID:	B-125							Metals by EPA 6000/7000 Series Methods
Lead	RE1	350		3	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Molybdenum		2.8	C1, J	5	"	"	" 07/04/13	6010C/SOP503
Nickel	RE1	9.7		5	"	"	" 07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	" "	6010C/SOP503
Silver		1.7		1	"	"	" 07/04/13	6010C/SOP503
Thallium	RE1	3.1	C1, J	5	"	"	" 07/09/13	6010C/SOP503
Vanadium		27		2	"	"	" 07/04/13	6010C/SOP503
Zinc		240		8	"	"	" "	6010C/SOP503

Lab ID:	1306030-15							Soil - Sampled: 06/05/13 00:00
Sample ID:	B-32							Metals by EPA 6000/7000 Series Methods
Antimony	RE1	14		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE1	180		2	"	"	" "	6010C/SOP503
Barium		240		5	"	"	" 07/04/13	6010C/SOP503
Beryllium		1.0		0.10	"	"	" "	6010C/SOP503
Cadmium		4.2		0.50	"	"	" "	6010C/SOP503
Chromium		11		1	"	"	" "	6010C/SOP503
Cobalt		4.4		2	"	"	" "	6010C/SOP503
Copper		22		4	"	"	" "	6010C/SOP503
Lead	RE1	850		3	"	"	" 07/09/13	6010C/SOP503
Molybdenum		14		5	"	"	" 07/04/13	6010C/SOP503
Nickel	RE1	10		5	"	"	" 07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	" "	6010C/SOP503
Silver		2.4		1	"	"	" 07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	" 07/09/13	6010C/SOP503
Vanadium		24		2	"	"	" 07/04/13	6010C/SOP503
Zinc		220		8	"	"	" "	6010C/SOP503

Lab ID:	1306030-16							Soil - Sampled: 06/05/13 00:00
Sample ID:	B-45							Metals by EPA 6000/7000 Series Methods
Antimony	RE1	1,700		2	mg/kg wet	B13F063	06/13/13 07/09/13	6010C/SOP503
Arsenic	RE2	13,000		10	"	"	" 07/09/13	6010C/SOP503
Barium		370		5	"	"	" 07/04/13	6010C/SOP503
Beryllium		0.84		0.10	"	"	" "	6010C/SOP503
Cadmium		210		0.50	"	"	" "	6010C/SOP503
Chromium		8.0		1	"	"	" "	6010C/SOP503
Cobalt		3.0		2	"	"	" "	6010C/SOP503
Copper		620		4	"	"	" "	6010C/SOP503
Lead	RE3	67,000		30	"	"	" 07/10/13	6010C/SOP503
Molybdenum		210		5	"	"	" 07/04/13	6010C/SOP503
Nickel	RE1	8.4		5	"	"	" 07/09/13	6010C/SOP503
Selenium	RE1	4.5		2	"	"	" "	6010C/SOP503

*[Handwritten Signature]* 7/26/13



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis/ Extract	Result	Qualifiers/ Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method	
<b>Lab ID: 1306030-16</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: B-45</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Silver		160		1	mg/kg wet	B13F063	06/13/13	07/04/13 6010C/SOP503	
Thallium	RE1	21		5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		34		2	"	"	"	07/04/13 6010C/SOP503	
Zinc	RE3	7,700		80	"	"	"	07/10/13 6010C/SOP503	
<b>Lab ID: 1306030-17</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: B-29</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	520		2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	6,400		2	"	"	"	6010C/SOP503	
Barium		660		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.81		0.10	"	"	"	6010C/SOP503	
Cadmium		150		0.50	"	"	"	6010C/SOP503	
Chromium		7.8		1	"	"	"	6010C/SOP503	
Cobalt		3.2		2	"	"	"	6010C/SOP503	
Copper		680		4	"	"	"	6010C/SOP503	
Lead	RE2	35,000		15	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		210		5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	6.8		5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	2.1		2	"	"	"	6010C/SOP503	
Silver		120		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	8.7		5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		30		2	"	"	"	07/04/13 6010C/SOP503	
Zinc	RE3	9,800		40	"	"	"	07/10/13 6010C/SOP503	
<b>Lab ID: 1306030-18</b>							<b>Soil - Sampled: 06/05/13 00:00</b>		
<b>Sample ID: B-129</b>							<b>Metals by EPA 6000/7000 Series Methods</b>		
Antimony	RE1	510		2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503	
Arsenic	RE1	6,400		2	"	"	"	6010C/SOP503	
Barium		630		5	"	"	"	07/04/13 6010C/SOP503	
Beryllium		0.79		0.10	"	"	"	6010C/SOP503	
Cadmium		150		0.50	"	"	"	6010C/SOP503	
Chromium		7.7		1	"	"	"	6010C/SOP503	
Cobalt		3.1		2	"	"	"	6010C/SOP503	
Copper		680		4	"	"	"	6010C/SOP503	
Lead	RE2	38,000		15	"	"	"	07/09/13 6010C/SOP503	
Molybdenum		230		5	"	"	"	07/04/13 6010C/SOP503	
Nickel	RE1	6.6		5	"	"	"	07/09/13 6010C/SOP503	
Selenium	RE1	2.2		2	"	"	"	6010C/SOP503	
Silver		120		1	"	"	"	07/04/13 6010C/SOP503	
Thallium	RE1	8.7		5	"	"	"	07/09/13 6010C/SOP503	
Vanadium		31		2	"	"	"	07/04/13 6010C/SOP503	
Zinc	RE3	9,600		40	"	"	"	07/10/13 6010C/SOP503	



# United States Environmental Protection Agency Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13162B <b>Reported:</b> 07/19/13 15:44
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## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
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**Lab ID:** 1306030-19 **Soil - Sampled:** 06/05/13 00:00

<b>Sample ID:</b> B-39	<b>Metals by EPA 6000/7000 Series Methods</b>							
Antimony	RE1	190		2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	2,200		2	"	"	"	6010C/SOP503
Barium		320		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.94		0.10	"	"	"	6010C/SOP503
Cadmium		46		0.50	"	"	"	6010C/SOP503
Chromium		9.5		1	"	"	"	6010C/SOP503
Cobalt		4.1		2	"	"	"	6010C/SOP503
Copper		120		4	"	"	"	6010C/SOP503
Lead	RE2	12,000		15	"	"	07/09/13	6010C/SOP503
Molybdenum		180		5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	7.9		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		28		1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	2.9	CI, J	5	"	"	07/09/13	6010C/SOP503
Vanadium		29		2	"	"	07/04/13	6010C/SOP503
Zinc		1,600		8	"	"	"	6010C/SOP503

**Lab ID:** 1306030-20 **Soil - Sampled:** 06/05/13 00:00

<b>Sample ID:</b> B-60	<b>Metals by EPA 6000/7000 Series Methods</b>							
Antimony	RE1	190	I, Q4	2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	1,800		2	"	"	"	6010C/SOP503
Barium		330		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.77		0.10	"	"	"	6010C/SOP503
Cadmium		45		0.50	"	"	"	6010C/SOP503
Chromium		11		1	"	"	"	6010C/SOP503
Cobalt		3.6		2	"	"	"	6010C/SOP503
Copper		170		4	"	"	"	6010C/SOP503
Lead	RE2	10,000		15	"	"	07/09/13	6010C/SOP503
Molybdenum		45		5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	8.5		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		34		1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	4.0	CI, J	5	"	"	07/09/13	6010C/SOP503
Vanadium		34		2	"	"	07/04/13	6010C/SOP503
Zinc		2,200		8	"	"	"	6010C/SOP503

**Lab ID:** 1306030-21 **Soil - Sampled:** 06/05/13 00:00

<b>Sample ID:</b> B-81	<b>Metals by EPA 6000/7000 Series Methods</b>							
Antimony	RE1	1.4	CI, J	2	mg/kg wet	B13F063	06/13/13	07/09/13 6010C/SOP503
Arsenic	RE1	19		2	"	"	"	6010C/SOP503
Barium		220		5	"	"	07/04/13	6010C/SOP503
Beryllium		0.88		0.10	"	"	"	6010C/SOP503

*[Handwritten Signature]* 7/26/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13162B
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:44
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID:	1306030-21							Soil - Sampled: 06/05/13 00:00
Sample ID:	B-81							Metals by EPA 6000/7000 Series Methods
Cadmium		0.50		0.50	mg/kg wet	B13F063	06/13/13	07/04/13 6010C/SOP503
Chromium		9.9		1	"	"	"	6010C/SOP503
Cobalt		3.7		2	"	"	"	6010C/SOP503
Copper		11		4	"	"	"	6010C/SOP503
Lead	RE1	40		3	"	"	07/09/13	6010C/SOP503
Molybdenum		ND	U	5	"	"	07/04/13	6010C/SOP503
Nickel	RE1	6.1		5	"	"	07/09/13	6010C/SOP503
Selenium	RE1	ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	07/04/13	6010C/SOP503
Thallium	RE1	ND	U	5	"	"	07/09/13	6010C/SOP503
Vanadium		35		2	"	"	07/04/13	6010C/SOP503
Zinc		73		8	"	"	"	6010C/SOP503

*m J.*  
7/26/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13162B
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 07/19/13 15:44
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13F063 - 3050B Sld Acid Dig - Metals by 6010

Prepared: 06/13/13 Analyzed: 07/04/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

**Blank (B13F063-BLK1)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

**Blank (B13F063-BLK2)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

**Blank (B13F063-BLK3)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						

*[Handwritten signature]* 7/26/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Thomas Dunkelman	Emergency Response Section	SDG: 13162B
Project Number: R13S77	75 Hawthorne Street	Reported: 07/19/13 15:44
Project: Eureka Smelter Sites May 2013 Sampling	San Francisco CA, 94105	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD Limit
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Batch B13F063 - 3050B Std Acid Dig - Metals by 6010

Prepared: 06/13/13 Analyzed: 07/09/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

**Blank (B13F063-BLK3)**

Cobalt	ND	U		2 "					
Copper	ND	U		4 "					
Lead	ND	U		3 "					
Molybdenum	ND	U		5 "					
Nickel	ND	U		5 "					
Selenium	ND	U		2 "					
Silver	ND	U		1 "					
Thallium	ND	U		5 "					
Vanadium	ND	U		2 "					
Zinc	ND	U		8 "					

**Blank (B13F063-BLK4)**

Antimony	ND	U		2 mg/kg wet					
Arsenic	ND	U		2 "					
Barium	ND	U		5 "					
Beryllium	ND	U		0.1 "					
Cadmium	ND	U		0.5 "					
Chromium	ND	U		1 "					
Cobalt	ND	U		2 "					
Copper	ND	U		4 "					
Lead	ND	U		3 "					
Molybdenum	ND	U		5 "					
Nickel	ND	U		5 "					
Selenium	ND	U		2 "					
Silver	ND	U		1 "					
Thallium	ND	U		5 "					
Vanadium	ND	U		2 "					
Zinc	ND	U		8 "					

*[Signature]*  
7/26/13

**Matrix Spike (B13F063-MS1)**

Source: 1306030-10

Barium	498			5 mg/kg wet	400	127	93	75-125	20
Beryllium	10.2			0.1 "	10.0	0.728	95	75-125	20
Cadmium	10.8			0.5 "	10.0	1.08	97	75-125	20
Chromium	44.3			1 "	40.0	3.88	101	75-125	20
Cobalt	89			2 "	100	2.98	86	75-125	20
Copper	51.1			4 "	50.0	7.91	86	75-125	20
Molybdenum	89.7			5 "	100	ND	90	75-125	20
Silver	10.1			1 "	10.0	0.599	95	75-125	20
Vanadium	116			2 "	100	18.1	98	75-125	20
Zinc	164			8 "	100	78.3	85	75-125	20

**Matrix Spike (B13F063-MS2)**

Source: 1306030-20





# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

Laboratory: EPA Region 9 Laboratory	Lab Project No: 1307011 SDG 13190A
Sampling Dates: 07/08/2013	Sample Matrix: Soil
Analytical Method: Total RCRA Metals, TCLP Metals, and SPLP Metals (EPA 6010C/7471A/7473/1311/1312)	Data Reviewer: M. Song

### REVIEW AND APPROVAL:

Data Reviewer: Mindy Song

Technical QA Reviewer: Howard Edwards

Project Manager: Howard Edwards

Date: 8/22/13

Date: \_\_\_\_\_

Date: \_\_\_\_\_

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	ESS-C1-SSL	1307011-01
2	ESS-C3-SSL	1307011-02
3	ESS-C2-ESSL	1307001-03
4		
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18		
19		
20		

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

- Included: no problems
- \* Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

#### Case Narrative:

- Case Narrative present

#### Quality Control Summary Package:

- Data Summary sheets
- Initial and Continuing Calibration results
- NR CRDL Standard results
- Preparation Blank and Calibration Blank results
- ICP Interference Check Sample results
- \* Matrix Spike recoveries
- \* Matrix Duplicate results
- Laboratory Control Sample recoveries
- NR Method of Standard Additions results
- NR ICP Serial Dilution results
- NR Instrument Detection Limits
- NR ICP Interelement Correction Factors
- NR ICP Linear Ranges
- Preparation Log
- Analysis Run Log

#### Raw QC Data Package Section

- Chain-of-Custody Records
- Instrument Printouts
- Sample Preparation Notebook Pages
- Logbook and Worksheet Pages
- Percent Solids Determination

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990).

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times	NO
2	Initial and Continuing Calibrations	YES
3	Laboratory Control Sample	YES
4	Matrix Spike	NO
5	Blanks and Background Samples	YES
6	Duplicate Analyses	YES
7	Interference Check Samples and Serial Dilution Analysis	YES
8	Post Digestion Spike and Standard Addition Analysis	N/A
9	Analyte Quantitation	YES
10	Overall Assessment of Data	YES
11	Usability of Data	NO

Comments: N/A: Not Applicable.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 1. HOLDING TIMES

Acceptable  
 Acceptable with qualification  
 Unacceptable

Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample preservation or custody unless specified. For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the nondetected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgement.

#### **All Sample Matrices:**

Mercury: 28 days (from collection) for analysis.  
Hexavalent chromium: 24 hours (from collection) for analysis.  
All other metals: 180 days (from collection) for analysis.

**Comments:** All holding times were met. Samples were received at 23 degrees C which is above the recommended temperature of 0 to 6 degrees C. Since the thermal preservation was required for Hg, the detected total Hg results were qualified as estimated (J).

### 2. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Acceptable  
 Acceptable with qualification  
 Unacceptable

Unless flagged below, an initial calibration verification (ICV) and a calibration blank were analyzed at the beginning of the run, and a continuing calibration verification (CCV) and a calibration blank were analyzed after every ten samples, and at the end of the run. ICV and CCV recoveries were within a range of 80-120% for mercury and tin, and 90-110% for all other metals. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 65% or above 135% (for mercury and tin) or below 75% or above 125% (for all other metals), all associated data are rejected (R).

**Comments:** All recoveries of metals in initial and continuing calibration verifications were within the control limits.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 3. LABORATORY CONTROL SAMPLE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Percent recoveries of LCS were within the control limits generated by the laboratory.

### 4. MATRIX SPIKE

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Matrix Spikes Analyzed

Matrix spike recoveries are used for a qualitative indication of accuracy (bias) due to matrix effects. Unless flagged below, one laboratory control sample was analyzed at a rate of one per batch or one per 20 samples. Recoveries were within a range of 75-125%.

For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). In cases where the recovery was below 30%, all associated nondetected results are rejected (R) and detected results are qualified as estimated (J).

**Comments:** Sample ESS-C1-SSL was used for MS/MSD analysis for total RCRA metals. Recovery of As, Pb, and Ag was outside control limits. Qualification was not required for Pb since the amount of Pb present in parent samples was greater than 4X the amount spiked. The detected total As and total Ag results were qualified as estimated (J). Also, sample ESS-C3-SSL was used for total Hg MS/MSD analysis and the recovery of Hg was outside control limits. The detected total Hg results were qualified as estimated (J). Sample ESS-C1-SSL was used for MS/MSD analysis of TCLP and SPLP Metals and the recoveries were within the control limits.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 5. BLANKS AND BACKGROUND SAMPLES

- Acceptable  
 Detection Limits Adjusted

The following blanks were analyzed:

- Method (preparation) Blanks  
 Field Blanks  
 Calibration Blanks  
 Rinsate Blanks  
 Background Samples

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

**Comments:** No contamination was found in the method blank at method blank reporting limit level.

### 6. DUPLICATE ANALYSES

- Acceptable  
 Acceptable with qualification  
 Unacceptable  
 No Duplicates Analyzed

Type of duplicates analyzed:

- Field Duplicates  
 Laboratory Duplicates

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the detected results as estimated (J) for any analyte whose RPD in a laboratory duplicate exceeds 20% for water samples or 35% for soil samples.

$$RPD = \frac{2(\text{Value 1} - \text{Value 2})}{\text{Value 1} + \text{Value 2}} \times 100\%$$

**Comments:** The RPDs of Ag and Hg in MS&MSD of total metals were greater than 35%. The detected total Ag and total Hg results were qualified as estimated (J).

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 7. INTERFERENCE CHECK SAMPLES AND SERIAL DILUTION ANALYSIS

- Acceptable
- Acceptable with qualification
- Unacceptable
- Not required

Interference Check Samples (ICS) - Unless flagged below, an ICS was analyzed at the beginning and end of each run and at least twice every eight hours. Recoveries were within a range of 80-120%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J) if the concentrations of Al, Ca, Fe, or Mg are higher in the sample than in the ICS.

Serial Dilution Analysis - Unless flagged below, a serial dilution analysis was performed at a rate of one per 20 samples on a sample having analyte concentrations greater than 50 times the IDL. Percent differences were within a range of 0-10%. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: ICS recoveries were within the control limit.  
Serial Dilution Analysis: Not required.

### 8. POST DIGESTION SPIKE AND STANDARD ADDITIONS

- Acceptable
- Acceptable with qualification
- Unacceptable
- Not required

Post-digestion spikes - If a furnace AA result was flagged by the laboratory with an E to indicate interference, and the associated post-digestion spike recovery was less than 10%, the associated results are rejected (R).

Method of Standard Additions - If the method of standard additions was required and the correlation coefficient was less than 0.995, the associated results were qualified as estimated (J).

Comments:

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

### 9. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

<b>Water samples:</b> $\text{ug/L} = \frac{(\text{Instrument printout concentration, mg/L})(1000 \text{ ug/mg})(\text{final volume of extract, mL})}{(\text{Initial volume of extract, mL})}$
<b>Soil samples:</b> $\text{mg/kg} = \frac{(\text{Instrument printout concentration, mg/L})(\text{final volume of extract, mL})(0.001 \text{ L/mL})}{(\text{weight of sample extracted, g})(0.001 \text{ kg/g})(\text{fraction solids})}$

**Comments:** Analyte quantitation was acceptable.

Sample ESS-C1-SSL

Total As: (2.527 mg/L) (0.05L/1.01g) (2) (100/95) = 0.263 mg/g= 263 mg/kg.

Lab reported 260 mg/kg.

Total Pb: (12.56 mg/L) (0.05L/1.01g) (2) (100/95) = 1.309 mg/g= 1309 mg/kg.

Lab reported 1300 mg/kg.

TCLP As: (0.1079 mg/L) (20 mL/2 mL) = 1.079 mg/L.

Lab reported 1.1 mg/L.

TCLP Pb: (0.03532 mg/L) (20 mL/2 mL) = 0.3532 mg/L.

Lab reported 0.35 mg/L.

SPLP As: (0.2618 mg/L) (20 mL/20 mL) = 0.2618 mg/L.

Lab reported 0.26 mg/L.

SPLP Pb: (0.3775 mg/L) (20 mL/20 mL) = 0.3775 mg/L.

Lab reported 0.38 mg/L.

### 10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

- Acceptable  
 Acceptable with Qualification  
 Rejected

Accepted data meet the minimum requirements for the following EPA data category:

- ERS Screening  
 Non-definitive with 10 % Confirmation by Definitive Methodology  
 Definitive, Comprehensive Statistical Error Determination was performed.  
 Definitive, Comprehensive Statistical Error Determination was not performed.

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Lead Removal Assessment	Location: Eureka County, Nevada
TDD Number: 09-12-04-0002	Project Number: 002693.2177.01RA

The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid.

## 11. USABILITY OF DATA

**A. These data are considered usable for the data use objectives stated in the SAMPLING AND ANALYSIS PLAN, EUREKA SMELTER SITES ASSESSMENT, EUREKA COUNTY, NEVADA, SEPTEMBER 2012 (SAP).**

The following data use objective was indicated in the SAP:

- Determine average concentrations of lead and arsenic in the shallow soil at locations within the Town of Eureka.
- Determine average concentrations of lead and arsenic in the roadway material in unpaved roads within the Town of Eureka.
- Document concentrations of lead and arsenic in the shallow soil in areas potentially downwind of Eureka.
- Document concentrations of lead and arsenic in the shallow creek sediments and in shallow soil in creek flood plain areas.
- Document concentrations of lead and arsenic in the creek surface water.
- Document background concentrations of lead and arsenic in the soil around Eureka.
- Document and determine the areal spatial distribution of arsenic and lead on large undeveloped properties within and around the Town of Eureka.
- Determine the vertical spatial distribution between shallow ground surface soil and the soil at depth between 2 to 12 inches below ground surface (bgs) for arsenic and lead on all properties.
- Determine whether unacceptable risks to human health or the environment are present at locations within the Town of Eureka due to elevated lead and arsenic concentrations.

*THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.*

**B. These data meet quality objectives stated in the SAP.**

*AS INDICATED IN SECTION 3 OF THE SAP, THE INVESTIGATION WILL GENERATE DEFINITIVE DATA AND TABLE 3-1 AND 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVES. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.*

## 12. DOCUMENTATION OF LABORATORY CORRECTIVE ACTION

**Problem:** None.

**Resolution:** Not required.

**Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.**



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
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Lab ID: 1307011-01 Soil - Sampled: 07/08/13 08:10

Sample ID:	ESS-C1-SSL	Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts							
Arsenic		1.1	J, Q5	0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.3		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.036	C1, J	0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		0.35	J, Q5	0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503
Mercury		ND	U	0.00030	"	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250

Sample ID:	ESS-C1-SSL	Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts							
Arsenic		0.26	J, Q5	0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.16		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.002	C1, J	0.005	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.010	"	"	"	"	6010C/SOP503
Lead		0.38		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		ND	U	0.010	"	"	"	"	6010C/SOP503
Mercury		0.00031		0.00003	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	EPA 1312

Sample ID:	ESS-C1-SSL	Metals by EPA 6000/7000 Series Methods							
Mercury		0.69	A2, J	0.026	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		260	J, Q4	2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		350		5.3	"	"	"	"	6010C/SOP503
Cadmium		6.0		0.53	"	"	"	"	6010C/SOP503
Chromium		9.0		1.1	"	"	"	"	6010C/SOP503
Lead		1,300		3.2	"	"	"	"	6010C/SOP503
Selenium		ND	U	2.1	"	"	"	"	6010C/SOP503
Silver		3.5	J, Q4, Q6	1.1	"	"	"	"	6010C/SOP503

Sample ID:	ESS-C1-SSL	Conventional Chemistry Parameters by APHA/EPA Methods							
% Solids		95		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460

Lab ID: 1307011-02 Soil - Sampled: 07/08/13 08:30

Sample ID:	ESS-C3-3SSL	Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts							
Arsenic		0.78		0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.7		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.084		0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		1.0		0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503

*[Handwritten Signature]* 8/22/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

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Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
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Lab ID: 1307011-02 Soil - Sampled: 07/08/13 08:30

Sample ID:	ESS-C3-3SSL					Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts			
Mercury		ND	U	0.00030	mg/L	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250

Sample ID:	ESS-C3-3SSL					Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts			
Arsenic		0.44		0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.15		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.007		0.005	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.010	"	"	"	"	6010C/SOP503
Lead		0.79		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		ND	U	0.010	"	"	"	"	6010C/SOP503
Mercury	RE2	0.00064		0.00015	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	BPA 1312

Sample ID:	ESS-C3-3SSL					Metals by EPA 6000/7000 Series Methods			
Mercury		1.3	A2, J, Q4, J Q8	0.026	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		590	J	2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		240		5.3	"	"	"	"	6010C/SOP503
Cadmium		15		0.53	"	"	"	"	6010C/SOP503
Chromium		8.5		1.1	"	"	"	"	6010C/SOP503
Lead		3,100		3.2	"	"	"	"	6010C/SOP503
Selenium		2.0	C1, J	2.1	"	"	"	"	6010C/SOP503
Silver		11	J	1.1	"	"	"	"	6010C/SOP503

Sample ID:	ESS-C3-3SSL					Conventional Chemistry Parameters by APHA/EPA Methods			
% Solids		95		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460

Lab ID: 1307011-03 Soil - Sampled: 07/08/13 08:20

Sample ID:	ESS-C2-ESSL					Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts			
Arsenic		0.48		0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.4		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.11		0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		1.4		0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503
Mercury		ND	U	0.00030	"	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250

Sample ID:	ESS-C2-ESSL					Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts			
Arsenic		0.44		0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.13		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.008		0.005	"	"	"	"	6010C/SOP503

*[Handwritten Signature]* 8/22/13



**United States Environmental Protection Agency  
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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
<b>Lab ID:</b>	<b>1307011-03</b>							<b>Soil - Sampled: 07/08/13 08:20</b>	
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>					<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts</b>			
Chromium		ND	U	0.010	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Lead		1.5		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		0.007	Cl, J	0.010	"	"	"	"	6010C/SOP503
Mercury	RE1	0.00079		0.00015	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	EPA 1312
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>								<b>Metals by EPA 6000/7000 Series Methods</b>
Mercury		2.9	A2, J, J	0.027	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		1,400	J	2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		290		5.3	"	"	"	"	6010C/SOP503
Cadmium		39		0.53	"	"	"	"	6010C/SOP503
Chromium		7.8		1.1	"	"	"	"	6010C/SOP503
Lead	RE1	12,000		8	"	"	"	08/12/13	6010C/SOP503
Selenium		ND	U	2.1	"	"	"	08/04/13	6010C/SOP503
Silver		28	J	1.1	"	"	"	"	6010C/SOP503
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>								<b>Conventional Chemistry Parameters by APHA/EPA Methods</b>
% Solids		94		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460

*[Handwritten Signature]*  
8/22/13



**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street, Building 201, Richmond, CA 94804  
Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelmann	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Sau Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers/ Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G012 - 3050B Std Acid Dig - Metals by 6010

Prepared: 07/17/13 Analyzed: 08/04/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

**Blank (B13G012-BLK1)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

**Blank (B13G012-BLK2)**

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

*Handwritten signature and date: 8/22/13*

**Matrix Spike (B13G012-MS3)**

Source: 1307011-01

Arsenic	767			2.1 mg/kg dry	413	263	122	75-125		20
Barium	735			5.3 "	413	346	94	75-125		20
Cadmium	16.6			0.53 "	10.3	5.96	103	75-125		20
Chromium	49.9			1.1 "	41.3	9.04	99	75-125		20
Lead	1,630	Q10		-3.2 "	103	1,310	309	75-125		20
Selenium	438			2.1 "	413	ND	106	75-125		20



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Region 9 Laboratory**

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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G083 - 7473 Hg Prep - Mercury by 7473

Prepared & Analyzed: 07/22/13

Metals by EPA 6000/7000 Series Methods - Quality Control

Blank (B13G083-BLK1)

Mercury	ND	U	0.025	mg/kg wet						
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Blank (B13G083-BLK2)

Mercury	ND	U	0.025	mg/kg wet						
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Matrix Spike (B13G083-MS3)

Source: 1307011-02

Mercury	1.73		0.026	mg/kg dry	0.520	1.29	84	80-120		20
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Matrix Spike Dup (B13G083-MSD3)

Source: 1307011-02

Mercury	2.04		0.026	mg/kg dry	0.502	1.29	151	80-120	57	20
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Reference (B13G083-SRM1)

Mercury	1.23		0.025	mg/kg wet	1.10		112	80-120		
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Reference (B13G083-SRM2)

Mercury	1.2		0.025	mg/kg wet	1.10		109	80-120		
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Batch B13G087 - 1312 SPLP - SPLP Extraction

Prepared: 07/23/13 Analyzed: 08/14/13

Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control

Blank (B13G087-BLK1)

SPLP Extraction	Performed				1	N/A				
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Duplicate (B13G087-DUP1)

Source: 1307011-01

SPLP Extraction	Performed				1	N/A			Performed	200
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Batch B13G098 - Leachate Digest - Metals, TCLP, ICP

Prepared: 07/25/13 Analyzed: 08/12/13

Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

Blank (B13G098-BLK1)

Arsenic	ND	U	0.2	mg/L						
Barium	ND	U	0.5	"						
Cadmium	ND	U	0.05	"						
Chromium	ND	U	0.1	"						
Lead	ND	U	0.3	"						
Selenium	ND	U	0.2	"						
Silver	ND	U	0.1	"						

*[Signature]* 8/22/13

LCS (B13G098-BS1)

Arsenic	21.5		0.2	mg/L	20.0		107	80-120		200
Barium	21.4		0.5	"	20.0		107	80-120		200
Cadmium	0.492		0.05	"	0.500		98	80-120		200
Chromium	1.99		0.1	"	2.00		100	80-120		200
Lead	4.96		0.3	"	5.00		99	80-120		200
Selenium	20.6		0.2	"	20.0		103	80-120		200
Silver	0.481		0.1	"	0.500		96	80-120		200

Duplicate (B13G098-DUP1)

Source: 1307011-01

Arsenic	0.85		0.2	mg/L		1.08			24	20
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<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G098 - Leachate Digest - Metals, TCLP, ICP Prepared: 07/25/13 Analyzed: 08/12/13

Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

Duplicate (B13G098-DUP1)		Source: 1307011-01								
Barium	1.38		0.5	"		1.3			6	20
Cadmium	0.039	Cl, J	0.05	"		0.036			5	20
Chromium	ND	U	0.1	"		ND				20
Lead	0.748		0.3	"		0.353			72	20
Selenium	ND	U	0.2	"		ND				20
Silver	ND	U	0.1	"		ND				20

Matrix Spike (B13G098-MSI)		Source: 1307011-01								
Arsenic	23.1		0.2	mg/L	20.0	1.08	110	75-125		20
Barium	21.1		0.5	"	20.0	1.3	99	75-125		20
Cadmium	0.524		0.05	"	0.500	0.036	98	75-125		20
Chromium	2.01		0.1	"	2.00	ND	101	75-125		20
Lead	5.28		0.3	"	5.00	0.353	98	75-125		20
Selenium	21.1		0.2	"	20.0	ND	106	75-125		20
Silver	0.485		0.1	"	0.500	ND	97	75-125		20

Matrix Spike Dup (B13G098-MSD1)		Source: 1307011-01								
Arsenic	23.2		0.2	mg/L	20.0	1.08	111	75-125	0.5	20
Barium	22.6		0.5	"	20.0	1.3	106	75-125	7	20
Cadmium	0.527		0.05	"	0.500	0.036	98	75-125	0.6	20
Chromium	2.02		0.1	"	2.00	ND	101	75-125	0.2	20
Lead	5.3		0.3	"	5.00	0.353	99	75-125	0.4	20
Selenium	21.2		0.2	"	20.0	ND	106	75-125	0.6	20
Silver	0.492		0.1	"	0.500	ND	98	75-125	1	20

Batch B13G099 - Leachate Digest - Metals, SPLP, ICP Prepared: 07/25/13 Analyzed: 08/13/13

Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control

Blank (B13G099-BLK1)										
Arsenic	ND	U	0.02	mg/L						
Barium	ND	U	0.05	"						
Cadmium	ND	U	0.005	"						
Chromium	ND	U	0.01	"						
Lead	ND	U	0.03	"						
Selenium	ND	U	0.02	"						
Silver	ND	U	0.01	"						

*[Handwritten Signature]* 8/22/13

LCS (B13G099-BS1)										
Arsenic	2.14		0.02	mg/L	2.00		107	80-120		200
Barium	2.14		0.05	"	2.00		107	80-120		200
Cadmium	0.05		0.005	"	0.0500		100	80-120		200
Chromium	0.208		0.01	"	0.200		104	80-120		200
Lead	0.505		0.03	"	0.500		101	80-120		200
Selenium	2.04		0.02	"	2.00		102	80-120		200
Silver	0.049		0.01	"	0.0500		98	80-120		200

Duplicate (B13G099-DUP1) Source: 1307011-01



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<b>Project Manager:</b> Thomas Dunkelmann	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G099 - Leachate Digest - Metals, SPLP, ICP

Prepared: 07/25/13 Analyzed: 08/13/13

Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control

Duplicate (B13G099-DUP1)		Source: 1307011-01								
Arsenic	0.393		0.02	mg/L		0.262			40	20
Barium	0.162		0.05	"		0.164			1	20
Cadmium	0.002	Cl, J	0.005	"		ND				20
Chromium	ND	U	0.01	"		ND				20
Lead	0.393		0.03	"		0.377			4	20
Selenium	ND	U	0.02	"		ND				20
Silver	ND	U	0.01	"		ND				20

Matrix Spike (B13G099-MS1)		Source: 1307011-01								
Arsenic	2.4		0.02	mg/L	2.00	0.262	107	75-125		20
Barium	2.3		0.05	"	2.00	0.164	107	75-125		20
Cadmium	0.052		0.005	"	0.0500	ND	104	75-125		20
Chromium	0.212		0.01	"	0.200	ND	106	75-125		20
Lead	0.874		0.03	"	0.500	0.377	99	75-125		20
Selenium	2.08		0.02	"	2.00	ND	104	75-125		20
Silver	0.05		0.01	"	0.0500	ND	100	70-125		20

Matrix Spike Dup (B13G099-MSD1)		Source: 1307011-01								
Arsenic	2.43		0.02	mg/L	2.00	0.262	108	75-125	1	20
Barium	2.18		0.05	"	2.00	0.164	101	75-125	5	20
Cadmium	0.052		0.005	"	0.0500	ND	105	75-125	1	20
Chromium	0.213		0.01	"	0.200	ND	106	75-125	0.4	20
Lead	0.881		0.03	"	0.500	0.377	101	75-125	0.8	20
Selenium	2.11		0.02	"	2.00	ND	105	75-125	1	20
Silver	0.05		0.01	"	0.0500	ND	100	70-125	0.3	20

Batch B13G126 - Solids, Dry Weight (Prep) - Solids, Dry Weight

Prepared: 07/30/13 Analyzed: 07/31/13

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Blank (B13G126-BLK1)										
% Solids	ND	U		1 %						
Duplicate (B13G126-DUP1)		Source: 1307011-02								
% Solids	95			1 %		95			0.2	20

Batch B13H009 - Leachate Digest - Metals, TCLP, Mercury

Prepared & Analyzed: 08/02/13

Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

Blank (B13H009-BLK1)										
Mercury	ND	U		0.0003 mg/L						
Blank (B13H009-BLK2)										
Mercury	ND	U		0.0003 mg/L						
LCS (B13H009-BS1)										
Mercury	0.00202		0.0003	mg/L	0.00200		101	85-115		200
Duplicate (B13H009-DUP1)		Source: 1307011-01								
Mercury	ND	U		0.0003 mg/L		ND				20
Matrix Spike (B13H009-MS1)		Source: 1307011-02								
Mercury	0.00205		0.0003	mg/L	0.00200	ND	103	70-130		20

*[Handwritten signature]*  
8/25/13



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Region 9 Laboratory**

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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch B13H009 - Leachate Digest - Metals, TCLP, Mercury</b> <span style="float:right">Prepared &amp; Analyzed: 08/02/13</span>										
<span style="float:right">Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control</span>										
<b>Matrix Spike (B13H009-MS1)</b>										
		<b>Source: 1307011-02</b>								
<b>Matrix Spike Dup (B13H009-MSD1)</b>		<b>Source: 1307011-02</b>								
Mercury	0.00208		0.0003	mg/L	0.0020	ND	104	70-130	1	20
<b>Batch B13H010 - Leachate Digest - Metals, SPLP, Mercury</b> <span style="float:right">Prepared &amp; Analyzed: 08/02/13</span>										
<span style="float:right">Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control</span>										
<b>Blank (B13H010-BLK1)</b>										
Mercury	ND	U	0.00003	mg/L						
<b>Blank (B13H010-BLK2)</b>										
Mercury	ND	U	0.00003	mg/L						
<b>LCS (B13H010-BS1)</b>										
Mercury	0.000206		0.00003	mg/L	0.0002		103	85-115		200
<b>Duplicate (B13H010-DUP1)</b>		<b>Source: 1307011-01</b>								
Mercury	0.000311		0.00003	mg/L		0.000311			0.1	20
<b>Matrix Spike (B13H010-MS3)</b>		<b>Source: 1307011-02RE2</b>								
Mercury	0.000783		0.00015	mg/L	0.0002	0.000644	70	70-130		20
<b>Matrix Spike Dup (B13H010-MSD3)</b>		<b>Source: 1307011-02RE2</b>								
Mercury	0.000814		0.00015	mg/L	0.0002	0.000644	85	70-130	4	20

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8/15/13





**United States Environmental Protection Agency  
Region 9 Laboratory**

1337 S. 46th Street Building 201  
Richmond, CA 94804

**Date:** 8/15/2013

**Subject:** Analytical Testing Results - Project R13S77  
SDG: 13190A

**From:** Brenda Bettencourt, Director  
EPA Region 9 Laboratory  
MTS-2

**To:** Thomas Dunkelman  
Emergency Response Section  
SFD-9-2

Attached are the results from the analysis of samples from the **Eureka Smelter Sites May 2013 Sampling** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Eugenia McNaughton at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Electronic CC: Howard Edwards, Ecology and Environment  
Mindy Song, Ecology and Environment

**Analyses included in this report:**

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Mercury by EPA method 7473	Metals by ICP
SPLP Metals by ICP	SPLP Mercury
TCLP Metals by ICP	TCLP Mercury
Percent Solids	SPLP Extraction by Method 1312
TCLP Extraction by 1311	



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<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
ESS-C1-SSL	1307011-01	Soil	07/08/13 08:10	07/09/13 08:45
ESS-C3-3SSL	1307011-02	Soil	07/08/13 08:30	07/09/13 08:45
ESS-C2-ESSL	1307011-03	Soil	07/08/13 08:20	07/09/13 08:45

**SDG ID 13190A**

Mercury: Samples were received at 23 degrees C which is above the recommended temperature range of >0 to 6 degrees C. Mercury results are flagged as estimated.

**Work Order(s)**

**1307011**



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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
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**Lab ID: 1307011-01** **Soil - Sampled: 07/08/13 08:10**

**Sample ID: ESS-C1-SSL** **Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts**

Arsenic		1.1	J, Q5	0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.3		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.036	C1, J	0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		0.35	J, Q5	0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503
Mercury		ND	U	0.00030	"	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250

**Sample ID: ESS-C1-SSL** **Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts**

Arsenic		0.26	J, Q5	0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.16		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.002	C1, J	0.005	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.010	"	"	"	"	6010C/SOP503
Lead		0.38		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		ND	U	0.010	"	"	"	"	6010C/SOP503
Mercury		0.00031		0.00003	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	EPA 1312

**Sample ID: ESS-C1-SSL** **Metals by EPA 6000/7000 Series Methods**

Mercury		0.69	A2, J	0.026	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		260	J, Q4	2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		350		5.3	"	"	"	"	6010C/SOP503
Cadmium		6.0		0.53	"	"	"	"	6010C/SOP503
Chromium		9.0		1.1	"	"	"	"	6010C/SOP503
Lead		1,300		3.2	"	"	"	"	6010C/SOP503
Selenium		ND	U	2.1	"	"	"	"	6010C/SOP503
Silver		3.5	J, Q4, Q6	1.1	"	"	"	"	6010C/SOP503

**Sample ID: ESS-C1-SSL** **Conventional Chemistry Parameters by APHA/EPA Methods**

% Solids		95		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460
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**Lab ID: 1307011-02** **Soil - Sampled: 07/08/13 08:30**

**Sample ID: ESS-C3-3SSL** **Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts**

Arsenic		0.78		0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.7		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.084		0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		1.0		0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503



**United States Environmental Protection Agency  
Region 9 Laboratory**

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Phone:(510) 412-2300 Fax:(510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
<b>Lab ID:</b>	<b>1307011-02</b>							<b>Soil - Sampled: 07/08/13 08:30</b>	
<b>Sample ID:</b>	<b>ESS-C3-3SSL</b>								
Mercury		ND	U	0.00030	mg/L	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250
<b>Sample ID:</b>	<b>ESS-C3-3SSL</b>								
									<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts</b>
Arsenic		0.44		0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.15		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.007		0.005	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.010	"	"	"	"	6010C/SOP503
Lead		0.79		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		ND	U	0.010	"	"	"	"	6010C/SOP503
Mercury	RE2	0.00064		0.00015	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	EPA 1312
<b>Sample ID:</b>	<b>ESS-C3-3SSL</b>								
									<b>Metals by EPA 6000/7000 Series Methods</b>
Mercury		1.3	A2, J, Q4, Q6	0.026	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		590		2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		240		5.3	"	"	"	"	6010C/SOP503
Cadmium		15		0.53	"	"	"	"	6010C/SOP503
Chromium		8.5		1.1	"	"	"	"	6010C/SOP503
Lead		3,100		3.2	"	"	"	"	6010C/SOP503
Selenium		2.0	C1, J	2.1	"	"	"	"	6010C/SOP503
Silver		11		1.1	"	"	"	"	6010C/SOP503
<b>Sample ID:</b>	<b>ESS-C3-3SSL</b>								
									<b>Conventional Chemistry Parameters by APHA/EPA Methods</b>
% Solids		95		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460
<b>Lab ID:</b>	<b>1307011-03</b>								<b>Soil - Sampled: 07/08/13 08:20</b>
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>								
									<b>Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts</b>
Arsenic		0.48		0.20	mg/L	B13G098	07/25/13	08/12/13	6010C/SOP503
Barium		1.4		0.50	"	"	"	"	6010C/SOP503
Cadmium		0.11		0.050	"	"	"	"	6010C/SOP503
Chromium		ND	U	0.10	"	"	"	"	6010C/SOP503
Lead		1.4		0.30	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.20	"	"	"	"	6010C/SOP503
Silver		ND	U	0.10	"	"	"	"	6010C/SOP503
Mercury		ND	U	0.00030	"	B13H009	08/02/13	08/02/13	245.1/SOP515
TCLP Extraction		Performed			N/A	B13G082	07/23/13	07/24/13	1311/SOP250
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>								
									<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts</b>
Arsenic		0.44		0.020	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Barium		0.13		0.050	"	"	"	"	6010C/SOP503
Cadmium		0.008		0.005	"	"	"	"	6010C/SOP503



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<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
<b>Lab ID:</b>	<b>1307011-03</b>							<b>Soil - Sampled: 07/08/13 08:20</b>	
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>					<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts</b>			
Chromium		ND	U	0.010	mg/L	B13G099	07/25/13	08/13/13	6010C/SOP503
Lead		1.5		0.030	"	"	"	"	6010C/SOP503
Selenium		ND	U	0.020	"	"	"	"	6010C/SOP503
Silver		0.007	C1, J	0.010	"	"	"	"	6010C/SOP503
Mercury	RE1	0.00079		0.00015	"	B13H010	08/02/13	08/02/13	245.1/SOP515
SPLP Extraction		Performed		1	N/A	B13G087	07/23/13	08/14/13	EPA 1312
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>						<b>Metals by EPA 6000/7000 Series Methods</b>		
Mercury		2.9	A2, J	0.027	mg/kg dry	B13G083	07/22/13	07/22/13	7473/SOP535
Arsenic		1,400		2.1	"	B13G012	07/17/13	08/04/13	6010C/SOP503
Barium		290		5.3	"	"	"	"	6010C/SOP503
Cadmium		39		0.53	"	"	"	"	6010C/SOP503
Chromium		7.8		1.1	"	"	"	"	6010C/SOP503
Lead	RE1	12,000		8	"	"	"	08/12/13	6010C/SOP503
Selenium		ND	U	2.1	"	"	"	08/04/13	6010C/SOP503
Silver		28		1.1	"	"	"	"	6010C/SOP503
<b>Sample ID:</b>	<b>ESS-C2-ESSL</b>					<b>Conventional Chemistry Parameters by APHA/EPA Methods</b>			
% Solids		94		1	%	B13G126	07/30/13	07/31/13	3550C/SOP460



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<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> 75 Hawthorne Street San Francisco CA, 94105	<b>SDG:</b> 13190A <b>Reported:</b> 08/15/13 13:00
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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G012 - 3050B Sld Acid Dig - Metals by 6010

Prepared: 07/17/13 Analyzed: 08/04/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

### Blank (B13G012-BLK1)

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

### Blank (B13G012-BLK2)

Antimony	ND	U		2 mg/kg wet						
Arsenic	ND	U		2 "						
Barium	ND	U		5 "						
Beryllium	ND	U		0.1 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Cobalt	ND	U		2 "						
Copper	ND	U		4 "						
Lead	ND	U		3 "						
Molybdenum	ND	U		5 "						
Nickel	ND	U		5 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Thallium	ND	U		5 "						
Vanadium	ND	U		2 "						
Zinc	ND	U		8 "						

### Matrix Spike (B13G012-MS3)

Source: 1307011-01

Arsenic	767			2.1 mg/kg dry	413	263	122	75-125		20
Barium	735			5.3 "	413	346	94	75-125		20
Cadmium	16.6			0.53 "	10.3	5.96	103	75-125		20
Chromium	49.9			1.1 "	41.3	9.04	99	75-125		20
Lead	1,630	Q10		3.2 "	103	1,310	<b>309</b>	75-125		20
Selenium	438			2.1 "	413	ND	106	75-125		20



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<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> <b>75 Hawthorne Street</b> <b>San Francisco CA, 94105</b>	<b>SDG:</b> 13190A <b>Reported:</b> 08/15/13 13:00
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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G012 - 3050B Sld Acid Dig - Metals by 6010

Prepared: 07/17/13 Analyzed: 08/04/13

Metals by EPA 6000/7000 Series Methods - Quality Control

<b>Matrix Spike (B13G012-MS3)</b>		<b>Source: 1307011-01</b>								
Silver	14.9		1.1	"	10.3	3.52	110	75-125		20

<b>Matrix Spike Dup (B13G012-MSD3)</b>		<b>Source: 1307011-01</b>								
Arsenic	910		2.1	mg/kg dry	409	263	<b>158</b>	75-125	17	20
Barium	702		5.3	"	409	346	87	75-125	5	20
Cadmium	16.6		0.53	"	10.2	5.96	104	75-125	0.2	20
Chromium	49.8		1.1	"	40.9	9.04	100	75-125	0.1	20
Lead	5,240	Q10	3.2	"	102	1,310	<b>NR</b>	75-125	<b>105</b>	20
Selenium	441		2.1	"	409	ND	108	75-125	0.7	20
Silver	38.6		1.1	"	10.2	3.52	<b>344</b>	75-125	<b>89</b>	20

<b>Reference (B13G012-SRM1)</b>										
Arsenic	289		2	mg/kg wet	252		114	60.9-139		
Barium	ND	U	5	"	1.60			62.5-138		
Cadmium	11.2		0.5	"	10.9		103	70.6-128		
Chromium	28.6		1	"	27.0		106	68.3-132		
Copper	1,670		4	"	1760		94	74.6-126		
Lead	65.5		3	"	56.7		115	72.8-127		
Nickel	17.2		5	"	16.3		106	55.2-145		
Selenium	11.4		2	"	9.97		114	41-159		
Silver	5.83		1	"	5.88		99	45.8-154		
Zinc	52.6		8	"	47.4		111	43.2-157		

<b>Reference (B13G012-SRM2)</b>										
Arsenic	288		2	mg/kg wet	254		114	60.9-139		
Barium	ND	U	5	"	1.60			62.5-138		
Cadmium	11.1		0.5	"	10.9		101	70.6-128		
Chromium	28.2		1	"	27.2		104	68.3-132		
Copper	1,700		4	"	1770		96	74.6-126		
Lead	60		3	"	57.0		105	72.8-127		
Nickel	16.8		5	"	16.3		103	55.2-145		
Selenium	11.5		2	"	10.0		115	41-159		
Silver	7.1		1	"	5.91		120	45.8-154		
Zinc	53.6		8	"	47.6		113	43.2-157		

Batch B13G082 - 1311 TCLP - TCLP extraction

Prepared: 07/23/13 Analyzed: 07/24/13

Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

<b>Blank (B13G082-BLK1)</b>										
TCLP Extraction	Performed				N/A					

<b>Duplicate (B13G082-DUP1)</b>		<b>Source: 1307011-01</b>								
TCLP Extraction	Performed				N/A	Performed				200

Batch B13G083 - 7473 Hg Prep - Mercury by 7473

Prepared & Analyzed: 07/22/13

Metals by EPA 6000/7000 Series Methods - Quality Control



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<b>Project Manager:</b> Thomas Dunkelman	<b>Emergency Response Section</b>	<b>SDG:</b> 13190A
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch B13G083 - 7473 Hg Prep - Mercury by 7473</b>										
<b>Prepared &amp; Analyzed: 07/22/13</b>										
<b>Metals by EPA 6000/7000 Series Methods - Quality Control</b>										
<b>Blank (B13G083-BLK1)</b>										
Mercury	ND	U	0.025	mg/kg wet						
<b>Blank (B13G083-BLK2)</b>										
Mercury	ND	U	0.025	mg/kg wet						
<b>Matrix Spike (B13G083-MS3) Source: 1307011-02</b>										
Mercury	1.73		0.026	mg/kg dry	0.520	1.29	84	80-120		20
<b>Matrix Spike Dup (B13G083-MSD3) Source: 1307011-02</b>										
Mercury	2.04		0.026	mg/kg dry	0.502	1.29	151	80-120	57	20
<b>Reference (B13G083-SRM1)</b>										
Mercury	1.23		0.025	mg/kg wet	1.10		112	80-120		
<b>Reference (B13G083-SRM2)</b>										
Mercury	1.2		0.025	mg/kg wet	1.10		109	80-120		
<b>Batch B13G087 - 1312 SPLP - SPLP Extraction</b>										
<b>Prepared: 07/23/13 Analyzed: 08/14/13</b>										
<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control</b>										
<b>Blank (B13G087-BLK1)</b>										
SPLP Extraction	Performed			1	N/A					
<b>Duplicate (B13G087-DUP1) Source: 1307011-01</b>										
SPLP Extraction	Performed			1	N/A	Performed				200
<b>Batch B13G098 - Leachate Digest - Metals, TCLP, ICP</b>										
<b>Prepared: 07/25/13 Analyzed: 08/12/13</b>										
<b>Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control</b>										
<b>Blank (B13G098-BLK1)</b>										
Arsenic	ND	U	0.2	mg/L						
Barium	ND	U	0.5	"						
Cadmium	ND	U	0.05	"						
Chromium	ND	U	0.1	"						
Lead	ND	U	0.3	"						
Selenium	ND	U	0.2	"						
Silver	ND	U	0.1	"						
<b>LCS (B13G098-BS1)</b>										
Arsenic	21.5		0.2	mg/L	20.0		107	80-120		200
Barium	21.4		0.5	"	20.0		107	80-120		200
Cadmium	0.492		0.05	"	0.500		98	80-120		200
Chromium	1.99		0.1	"	2.00		100	80-120		200
Lead	4.96		0.3	"	5.00		99	80-120		200
Selenium	20.6		0.2	"	20.0		103	80-120		200
Silver	0.481		0.1	"	0.500		96	80-120		200
<b>Duplicate (B13G098-DUP1) Source: 1307011-01</b>										
Arsenic	0.85		0.2	mg/L		1.08			24	20



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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G098 - Leachate Digest - Metals, TCLP, ICP

Prepared: 07/25/13 Analyzed: 08/12/13

### Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

Duplicate (B13G098-DUP1)		Source: 1307011-01								
Barium	1.38		0.5	"		1.3			6	20
Cadmium	0.039	C1, J	0.05	"		0.036			5	20
Chromium	ND	U	0.1	"		ND				20
Lead	0.748		0.3	"		0.353			72	20
Selenium	ND	U	0.2	"		ND				20
Silver	ND	U	0.1	"		ND				20

Matrix Spike (B13G098-MS1)		Source: 1307011-01								
Arsenic	23.1		0.2	mg/L	20.0	1.08	110	75-125		20
Barium	21.1		0.5	"	20.0	1.3	99	75-125		20
Cadmium	0.524		0.05	"	0.500	0.036	98	75-125		20
Chromium	2.01		0.1	"	2.00	ND	101	75-125		20
Lead	5.28		0.3	"	5.00	0.353	98	75-125		20
Selenium	21.1		0.2	"	20.0	ND	106	75-125		20
Silver	0.485		0.1	"	0.500	ND	97	75-125		20

Matrix Spike Dup (B13G098-MSD1)		Source: 1307011-01								
Arsenic	23.2		0.2	mg/L	20.0	1.08	111	75-125	0.5	20
Barium	22.6		0.5	"	20.0	1.3	106	75-125	7	20
Cadmium	0.527		0.05	"	0.500	0.036	98	75-125	0.6	20
Chromium	2.02		0.1	"	2.00	ND	101	75-125	0.2	20
Lead	5.3		0.3	"	5.00	0.353	99	75-125	0.4	20
Selenium	21.2		0.2	"	20.0	ND	106	75-125	0.6	20
Silver	0.492		0.1	"	0.500	ND	98	75-125	1	20

Batch B13G099 - Leachate Digest - Metals, SPLP, ICP

Prepared: 07/25/13 Analyzed: 08/13/13

### Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control

Blank (B13G099-BLK1)										
Arsenic	ND	U	0.02	mg/L						
Barium	ND	U	0.05	"						
Cadmium	ND	U	0.005	"						
Chromium	ND	U	0.01	"						
Lead	ND	U	0.03	"						
Selenium	ND	U	0.02	"						
Silver	ND	U	0.01	"						

LCS (B13G099-BS1)										
Arsenic	2.14		0.02	mg/L	2.00		107	80-120		200
Barium	2.14		0.05	"	2.00		107	80-120		200
Cadmium	0.05		0.005	"	0.0500		100	80-120		200
Chromium	0.208		0.01	"	0.200		104	80-120		200
Lead	0.505		0.03	"	0.500		101	80-120		200
Selenium	2.04		0.02	"	2.00		102	80-120		200
Silver	0.049		0.01	"	0.0500		98	80-120		200

Duplicate (B13G099-DUP1)		Source: 1307011-01								
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# United States Environmental Protection Agency Region 9 Laboratory

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Phone: (510) 412-2300 Fax: (510) 412-2302

<b>Project Manager:</b> Thomas Dunkelman <b>Project Number:</b> R13S77 <b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>Emergency Response Section</b> <b>75 Hawthorne Street</b> <b>San Francisco CA, 94105</b>	<b>SDG:</b> 13190A <b>Reported:</b> 08/15/13 13:00
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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13G099 - Leachate Digest - Metals, SPLP, ICP

Prepared: 07/25/13 Analyzed: 08/13/13

### Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control

Duplicate (B13G099-DUP1)		Source: 1307011-01								
Arsenic	0.393		0.02	mg/L		0.262			40	20
Barium	0.162		0.05	"		0.164			1	20
Cadmium	0.002	C1, J	0.005	"		ND				20
Chromium	ND	U	0.01	"		ND				20
Lead	0.393		0.03	"		0.377			4	20
Selenium	ND	U	0.02	"		ND				20
Silver	ND	U	0.01	"		ND				20

Matrix Spike (B13G099-MS1)		Source: 1307011-01								
Arsenic	2.4		0.02	mg/L	2.00	0.262	107	75-125		20
Barium	2.3		0.05	"	2.00	0.164	107	75-125		20
Cadmium	0.052		0.005	"	0.0500	ND	104	75-125		20
Chromium	0.212		0.01	"	0.200	ND	106	75-125		20
Lead	0.874		0.03	"	0.500	0.377	99	75-125		20
Selenium	2.08		0.02	"	2.00	ND	104	75-125		20
Silver	0.05		0.01	"	0.0500	ND	100	70-125		20

Matrix Spike Dup (B13G099-MSD1)		Source: 1307011-01								
Arsenic	2.43		0.02	mg/L	2.00	0.262	108	75-125	1	20
Barium	2.18		0.05	"	2.00	0.164	101	75-125	5	20
Cadmium	0.052		0.005	"	0.0500	ND	105	75-125	1	20
Chromium	0.213		0.01	"	0.200	ND	106	75-125	0.4	20
Lead	0.881		0.03	"	0.500	0.377	101	75-125	0.8	20
Selenium	2.11		0.02	"	2.00	ND	105	75-125	1	20
Silver	0.05		0.01	"	0.0500	ND	100	70-125	0.3	20

Batch B13G126 - Solids, Dry Weight (Prep) - Solids, Dry Weight

Prepared: 07/30/13 Analyzed: 07/31/13

### Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Blank (B13G126-BLK1)										
% Solids	ND	U	1	%						

Duplicate (B13G126-DUP1)		Source: 1307011-02								
% Solids	95		1	%		95			0.2	20

Batch B13H009 - Leachate Digest - Metals, TCLP, Mercury

Prepared & Analyzed: 08/02/13

### Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control

Blank (B13H009-BLK1)										
Mercury	ND	U	0.0003	mg/L						

Blank (B13H009-BLK2)										
Mercury	ND	U	0.0003	mg/L						

LCS (B13H009-BS1)										
Mercury	0.00202		0.0003	mg/L	0.00200		101	85-115		200

Duplicate (B13H009-DUP1)		Source: 1307011-01								
Mercury	ND	U	0.0003	mg/L		ND				20

Matrix Spike (B13H009-MS1)		Source: 1307011-02								
Mercury	0.00205		0.0003	mg/L	0.00200	ND	103	70-130		20



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<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 08/15/13 13:00
<b>Project:</b> Eureka Smelter Sites May 2013 Sampling	<b>San Francisco CA, 94105</b>	

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch B13H009 - Leachate Digest - Metals, TCLP, Mercury</b>										
<b>Prepared &amp; Analyzed: 08/02/13</b>										
<b>Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control</b>										
<b>Matrix Spike (B13H009-MS1)</b>			<b>Source: 1307011-02</b>							
<b>Matrix Spike Dup (B13H009-MSD1)</b>			<b>Source: 1307011-02</b>							
Mercury	0.00208		0.0003	mg/L	0.0020	ND	104	70-130	1	20
<b>Batch B13H010 - Leachate Digest - Metals, SPLP, Mercury</b>										
<b>Prepared &amp; Analyzed: 08/02/13</b>										
<b>Analysis of Synthetic Precipitation Leaching Procedure (SPLP) Extracts - Quality Control</b>										
<b>Blank (B13H010-BLK1)</b>										
Mercury	ND	U	0.00003	mg/L						
<b>Blank (B13H010-BLK2)</b>										
Mercury	ND	U	0.00003	mg/L						
<b>LCS (B13H010-BS1)</b>										
Mercury	0.000206		0.00003	mg/L	0.0002		103	85-115		200
<b>Duplicate (B13H010-DUP1)</b>			<b>Source: 1307011-01</b>							
Mercury	0.000311		0.00003	mg/L		0.000311			0.1	20
<b>Matrix Spike (B13H010-MS3)</b>			<b>Source: 1307011-02RE2</b>							
Mercury	0.000783		0.00015	mg/L	0.0002	0.000644	70	70-130		20
<b>Matrix Spike Dup (B13H010-MSD3)</b>			<b>Source: 1307011-02RE2</b>							
Mercury	0.000814		0.00015	mg/L	0.0002	0.000644	85	70-130	4	20



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**Emergency Response Section**

**75 Hawthorne Street**

**San Francisco CA, 94105**

**SDG:** 13190A

**Reported:** 08/15/13 13:00

**Qualifiers and Comments**

- Q6 Matrix spike/matrix spike duplicate precision criteria were not met for this analyte (see MS/MSD results for this batch in QC summary).
- Q5 Sample duplicate precision criteria were not met for this analyte (see duplicate results for this batch in QC summary).
- Q4 The matrix spike and/or matrix spike duplicate associated with this sample did not meet recovery criteria for this analyte (see MS/MSD results for this batch in QC summary)
- Q10 The analyte concentration in the unfortified sample is significantly greater than the concentration spiked into the matrix spike and matrix spike duplicate. The reported spike recovery is not a meaningful measure of the dataset's analytical accuracy.
- J The reported result for this analyte should be considered an estimated value.
- C1 The reported concentration for this analyte is below the quantitation limit.
- A2 The sample was received above the recommended temperature range.

U Not Detected

NR Not Reported

RE1, RE2, etc: Result is from a sample re-analysis.

## **Attachment 6**

**Photo Documentation  
DVD Disk (attached)**