

**2013 Final Report  
Soil Removal Action at Residential Properties  
Eureka Smelter Sites  
Eureka, Eureka County, Nevada**



**TDD No.: TO2-09-13-08-0001  
Project No.: EE-002693-2230**

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**Prepared for:**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
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## List of Abbreviations and Acronyms

BLM	United States Bureau of Land Management
CSPs	consolidated slag pile
U.S. DOI	United States Department of Interior
E & E	Ecology and Environment, Inc.
ERS	Emergency Response Section
ERRS	Emergency and Rapid Response Services
Esri	Environmental Systems Research Institute
FOSC	Federal On-Scene Coordinator
mg/kg	milligrams per kilogram
NDEP	Nevada Division of Environmental Protection
RSL	Regional Screening Level
QA/QC	Quality Assurance/Quality Control
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedures
SRM	standard reference material
SSLs	site-specific screening levels
START	Superfund Technical Assessment and Response Team
U.S. EPA	United States Environmental Protection Agency
XRF	X-Ray Fluorescence

# 1 Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 9 Federal On-Scene Coordinator (FOSC) Tom Dunkelman tasked Ecology and Environment, Inc.'s (E & E's) Superfund Technical Assessment and Response Team (START) to support a U.S. EPA-funded soil removal action at residential properties in the Town of Eureka (Eureka) located in Eureka County, Nevada.

In October 2012 and May 2013, the U.S. EPA, Nevada Division of Environmental Protection (NDEP) and START collected surface and subsurface soil, surface water, and ore smelting waste (slag) samples in Eureka as part of a U.S. EPA Emergency Response Section (ERS) removal and human health risk assessment. The data collected during this assessment provided evidence of elevated lead and arsenic soil concentrations throughout the town and highly elevated lead and arsenic soil concentrations at numerous residential properties. The removal assessment activities are documented in the reports: *Eureka Smelter Site Removal Assessment Report, Eureka, Eureka County, Nevada*, February 2013 (E & E 2013a); and in a supplemental, *Addendum Letter Report to Eureka Smelter Site Removal Assessment Report*, September 2013 (E & E 2013b). Based on U.S. EPA human health risk assessment criteria, areas of immediate concern were initially defined at 19 residential properties in Eureka where removal actions would be required to mitigate potential human health risks from exposure to lead and arsenic compounds in residential soils associated with historic ore milling and smelter operations.

Between September 9 and November 8, 2013, the U.S. EPA Region 9 ERS, the START and Emergency and Rapid Response Services (ERRS) contractors completed soil removal and capping at 18 properties where highly elevated lead and arsenic soil concentrations in surface soil were found. The properties remediated include 13 of the original 19 identified high-priority residential properties identified in the removal assessments and four properties identified by supplemental assessments in September and October 2013. Additionally an area at the Eureka elementary school was remediated. The remaining six properties that were initially targeted for removal are to be addressed in 2014.

During the 2013 removal action, START documented soil removal volumes and areas, documented backfill areas, sampled imported backfill to ensure the materials were acceptable for use, sampled soils at previously assessed properties to better define excavation boundaries, and sampled soils at additionally identified properties that had not been previously assessed. All collected samples were field analyzed using U.S. EPA SW-846 Method 6200 (U.S. EPA, 2007) and X-ray fluorescence (XRF) analysis, with 10 percent of the field analyzed samples analyzed by U.S. EPA SW-846 Method 6010C at the U.S. EPA regional laboratory as a confirmation analysis. START additionally performed real-time air particulate monitoring, air sampling, and air sample analysis to document ambient air contaminant concentrations in order to establish that contaminants did not migrate from work zones at concentrations that exceeded the project's action level. This report documents soil removal volumes, capped areas, and results of the sampling and analysis performed during the 2013 removal action.

## **2 Site Background**

### **2.1 Site Location and Description**

Eureka is an unincorporated community situated in the southern part Eureka County, Nevada, which occupies approximately 480 acres of land and is primarily accessed by U.S. Highway 50. The geographic coordinates for the approximate center of Eureka are 39° 30' 45" Latitude North and 115° 57' 39" Longitude West (Figure 2-1).

The community of Eureka is situated in a historical mining district with at least ten known former ore milling and smelter operations and three significantly sized consolidated slag piles (CSPs). Based on a review of Eureka County Tax Assessor parcel information and historical land maps, there are more than 400 residential, public, and commercial parcels in the community of Eureka that are either on, adjacent to, or in close proximity to the sites of the former ore smelters and milling operations.

The areas of concern within Eureka which were addressed by this removal action include 17 residential properties and a school district property. Soils containing elevated lead and arsenic concentrations removed from these properties were transported to a constructed temporary stockpile located adjacent to and just south of the northernmost CSP in Eureka. Locations of the properties and temporary soil stockpile are shown on Figure 2-2. Photographic documentation of the 2013 removal action is included as Appendix A.

These removal areas and 31 additional residential properties that were identified and assessed during the removal action are described in the following subsections.

#### **2.1.1 Eureka Elementary School**

During this removal action, remediation activities were completed at the Eureka Elementary School. Based upon the removal assessment, a landscaped area situated along a fenced boundary with a neighboring property had elevated concentrations of lead and arsenic in the surface soil. The specific area of concern was a narrow shelf at the top of an embankment. The area was approximately 100 feet long and situated along the fence line with an estimated area of 300 square feet of surface soil.

#### **2.1.2 Residential Removal Properties**

During this removal action, remediation activities were completed at a total of 17 residential properties. Based upon the removal assessment of these 17 properties, a total volume of approximately 5,000 cubic yards of surface soil was documented to be contaminated. The residential properties and associated estimations of the volume of contaminated soil are indicated in Table 2-1. Locations of the removal properties are shown on Figure 2-2.

<b>Table 2-1</b> <b>Residential Removal Property Areas</b>  <b>Eureka Smelter Sites</b> <b>Removal Support</b> <b>Eureka, Eureka County, Nevada</b>		
<b>Project No.EE-002693-2230</b>		<b>TDD No. TO2-09-13-08-0001</b>
<b>Location</b> <b>(in order of their remediation)</b>	<b>APN</b>	<b>Initial Volume Estimate</b> <b>(Cubic Yards)</b>
<b>Wittenburg Street</b>	001-037-03	803
<b>East Robins Street</b>	001-038-10	201
<b>North Spring</b>	001-074-03	104
<b>South Main Street</b>	001-161-01	164
<b>Reno Avenue</b>	001-011-07	492
<b>South Main Street</b>	001-165-01	136
<b>South Edwards Street</b>	001-154-01	758
<b>South Spring Street</b>	001-131-05	146
<b>South Spring Street</b>	001-131-06	47
<b>South Spring Street</b>	001-136-03	140
<b>South Spring Street</b>	001-136-09	396
<b>South Spring Street</b>	001-136-12	373
<b>South Spring Street</b>	001-136-05	299
<b>Reno Avenue</b>	001-037-02	392
<b>South Main Street</b>	001-162-01	141
<b>South Main Street</b>	001-166-01	333
<b>South Spring Street</b>	001-135-01	76
<b>Assessment Total Square Footage</b>		5,001
APN = Assessor's Parcel Number		Ecology and Environment Inc. 2013

### 2.1.3 Newly Assessed Areas and Properties

During this removal action, access was granted for removal assessment at 29 properties within Eureka and two properties north of Eureka that had not been previously assessed. Additional samples were also collected at 5 previously sampled parcels. Locations of the newly assessed areas and properties are shown on Figure 2-3.

## 2.2 Site History

According to information obtained from the United States Bureau of Land Management (BLM) document *A Historic View of the BLM Shosone-Eureka Resource Area, Nevada, Technical Report 7* (BLM 1991), between 1866 and 1910, mining for geological deposits of silver and lead took place in the Ruby Hill area, which is located approximately 2 miles west of Eureka. During this period, over one-million tons of ore were extracted from Ruby Hill primarily by the Eureka Consolidated Mining Company and Richmond Consolidated Mining Company. The ore mined

from Ruby Hill was then transported via railcar to various mill and smelter operations historically located throughout Eureka. The following historical ore milling and smelter operations were identified in Eureka:

- Lemon Mill
- McCoys Mill
- Eureka Consolidated Smelter
- Matamoras Smelter
- Hoosac Smelter
- Atlas Smelter
- Richmond Company Smelter
- Jackson Smelter
- Silver West Smelter
- Taylor Mill

As a result of ore processing at these former mill and smelter sites, waste product known as slag was produced and consolidated into a number of separate piles located throughout Eureka. The two largest CSPs (Eureka Company CSP and Richmond Company CSP) are located along U.S. Highway 50 on the north and south ends of town. The location of mill, smelters and CSPs are shown in Figures 2-2 and 2-3.

### **2.3 Previous Investigations**

In 1978, the United States Department of the Interior (U.S. DOI) Geological Survey collected 593 samples that identified a 3-kilometer by 6-kilometer area of contamination within the Eureka mining district. The data were published in a 1978 report titled *Geochemical Analyses of Rock and Soil Samples, Eureka Mining District and Vicinity, Eureka and White Pine Counties* (U.S. DOI 1978) and discussed in a 2004 U.S. DOI publication, *Hydrogeochemical Studies of Historical Mining Areas in the Humboldt River Basin and Adjacent Areas, Northern Nevada* (U.S. DOI 2004).

In 2012, the U.S. EPA and NDEP personnel collected 38 surface soil samples from publically accessible locations around Eureka for lead and arsenic analysis. Analysis of these 38 samples was performed in the field by the NDEP with a field portable XRF, by START with an XRF following U.S. EPA method 6200, and by the U.S. EPA Region 9 Laboratory following U.S. EPA Method 6010C, Inductively Coupled Plasma Analysis. The sample analysis results were similar across analysis methods. Analytical laboratory results from these 38 surface soil samples indicated that 10 samples had lead concentrations below 400 milligrams per kilogram (mg/kg), 20 samples had lead concentrations between 400 mg/kg and 5,000 mg/kg, and 8 samples had lead concentrations above 5,000 mg/kg. Results ranged from 44 mg/kg to 45,000 mg/kg. Analytical laboratory results for arsenic indicated that 5 samples had arsenic concentrations below 60 mg/kg, 23 samples had arsenic concentrations between 60 mg/kg and 600 mg/kg, and 10 samples had arsenic concentrations above 600 mg/kg. Results ranged from 10 mg/kg to 6,700 mg/kg. The highest lead and arsenic soil concentrations were detected from the CSPs located on both the north and south ends of Eureka, and at former smelter site locations.

During October 2012 and May 2013, the U.S. EPA, NDEP and START conducted removal assessment sampling throughout Eureka. The February 2013 assessment report (E & E 2013a)



## 2. Site Background

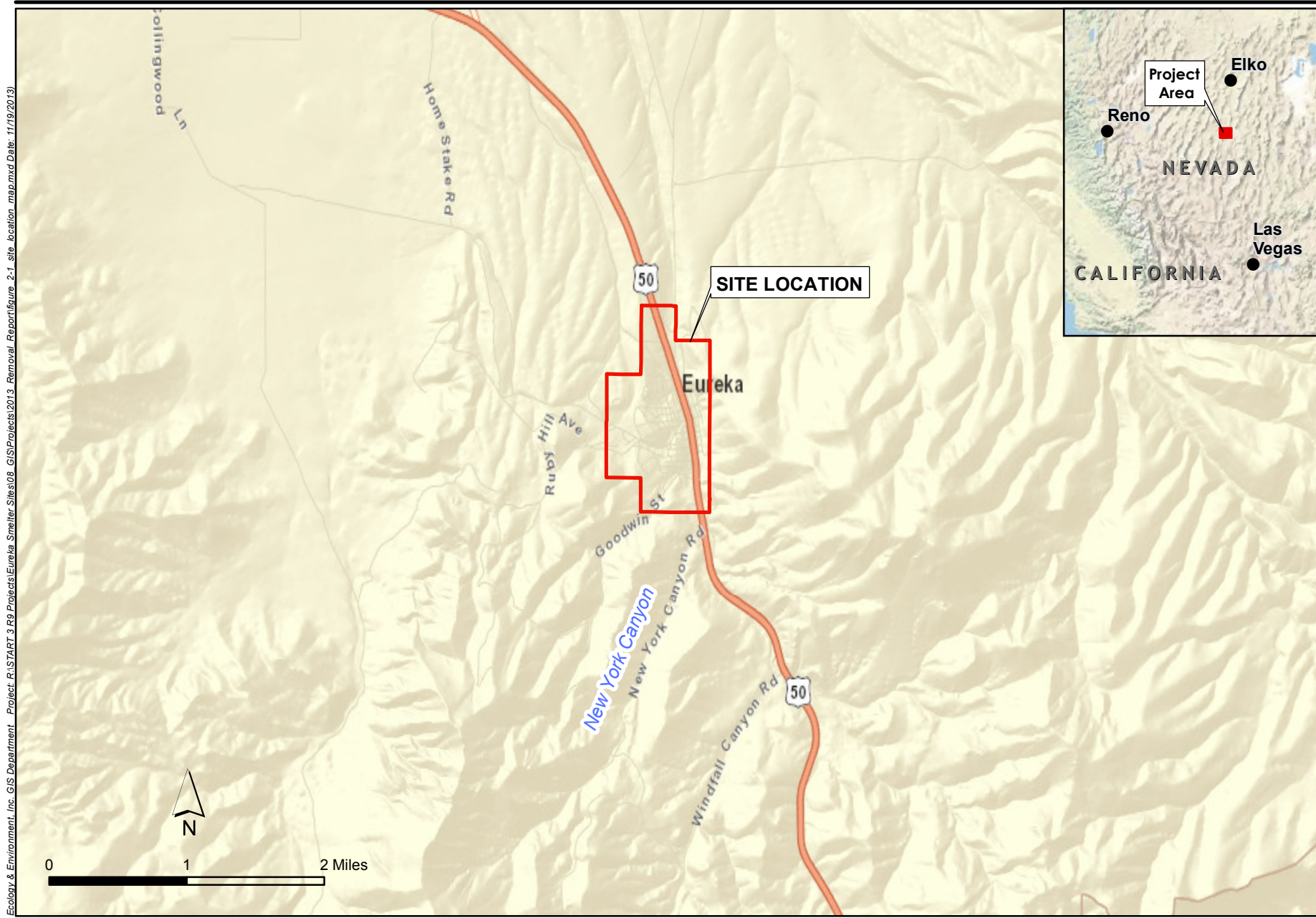
and an August 2013 report addendum (E & E 2013b) documented the collection of 1,335 unique soil samples for analysis by field XRF (U.S. EPA method 6200). A total of 319 soil samples were submitted to the U.S. EPA Region 9 laboratory for confirmation analysis by U.S. EPA Methods 6010C and 7471A. Additionally, 40 soil samples were submitted for bio-accessibility extraction followed by U.S. EPA Method 6010C analysis. Three prepared composite soil samples with highly elevated arsenic and lead concentrations were subjected to toxicity characteristic leaching procedure and synthetic precipitation leaching procedure extractions followed by U.S. EPA Method 6010C analysis.

Based on evaluation of results from the U.S. EPA removal assessment actions, the following conclusions were reached:

- Soil sampling data indicated that arsenic and lead concentrations exceeded their respective U.S. EPA site-specific screening levels (SSLs) protective of human health throughout much of Eureka. In general, the majority of residential properties sampled in established town areas had arsenic and lead concentrations that were significantly greater than their respective SSLs. The SSLs for lead and arsenic were set at 400 mg/kg and 60 mg/kg, respectively.
- A total of 92 of the 109 sampled residential and public properties contained soils with arsenic and/or lead concentrations that exceed the U.S. EPA SSLs.
- A total of 18 occupied residential properties and portions of two Eureka County school district-owned properties contained soils with arsenic and/or lead concentrations 10 times greater than the U.S. EPA SSLs.
- Elevated arsenic and lead concentrations in creek sediments were found nearby and down gradient of the two CSPs located at each end of the town. Arsenic and lead concentrations down gradient of both CSPs were 300 to 400 percent higher than concentrations found up gradient.
- In the surrounding, undeveloped areas of Eureka, arsenic and lead concentrations in surface soils were two to three times greater than concentrations in the underlying subsurface soils. The distribution of elevated arsenic and lead concentrations is greater to the north and northeast of historical ore processing operations and at locations closest to the historical ore processing locations.
- Given that a principal mechanism for the deposition of arsenic and lead contamination is air dispersion, it is reasonable to assume that similar contamination would be found throughout Eureka.

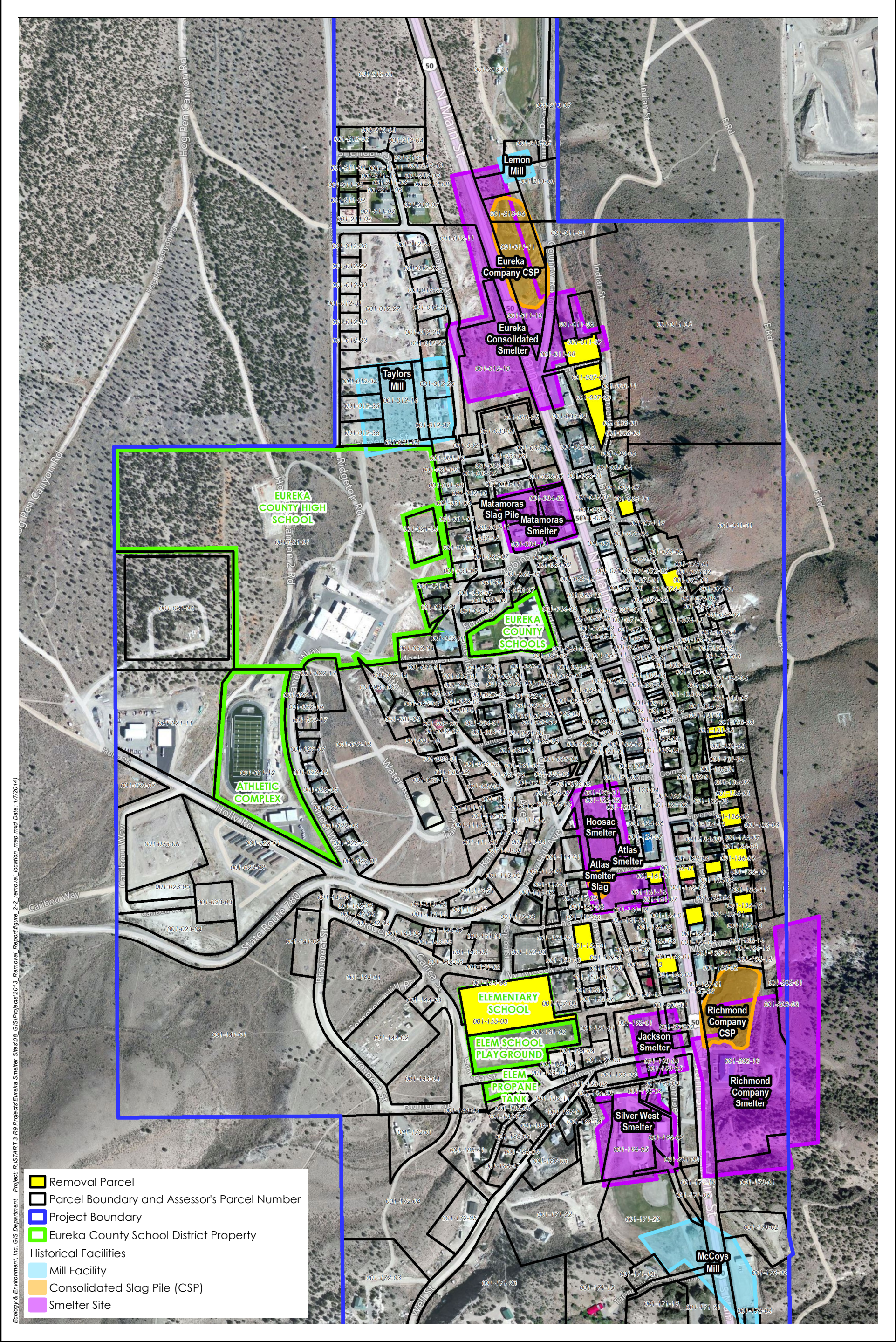
The U.S. EPA removal assessments also indicated that approximately 80 percent of the properties in Eureka were not sampled and that additional removal assessment actions at the remaining properties appeared to be necessary in order to fully document the extent and magnitude of arsenic and lead contamination.

Based on U.S. EPA removal assessment data (E & E 2013a and E & E 2013b), there is regulatory concern that residents in Eureka may be exposed to lead and arsenic soil concentrations above U.S. EPA human health risk exposure criteria. As a result of the investigation a U.S. EPA funded removal action was initiated in August 2013.



**Figure 2-1**  
**Site Location Map**  
**Eureka Smelter Sites**  
Eureka, Eureka County, Nevada





Ecology & Environment, Inc. GIS Department Project R:\START 3 R9 Projects\Eureka Smelter Sites\08\_GIS\Projects\2013\_Removal\_Report\Figure 2-2\_removal\_location\_map.mxd Date: 1/7/2014

Removal Parcel

Parcel Boundary and Assessor's Parcel Number

Project Boundary

Eureka County School District Property

Historical Facilities

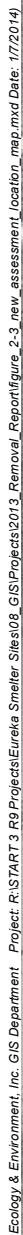
Mill Facility

Consolidated Slag Pile (CSP)

Smelter Site

Figure 2-2  
Removal Locations  
Eureka Smelters Sites  
Eureka, Eureka County, Nevada







## Chapter 3

# 3 Field Activity

The START, U.S. EPA and the ERRS contractors mobilized to Eureka, Nevada for removal activities between August 12, 2013 and November 8, 2013. Soil excavation and stockpiling activities began on September 9, 2013 and were completed on November 3, 2013. The START provided field documentation of property excavation, backfill, and in-place capping activities. START also supported the removal by providing soil sampling and analysis to further delineate contaminated areas, sampling and analysis of backfill materials, and ambient air monitoring and sampling around excavation sites. The START, with the assistance of the U.S. EPA and ERRS contractors, completed the assessment of 27 Eureka properties not previously investigated. Additional sampling was also done at five previously investigated properties. The locations of removal properties and new assessment properties are shown in figures in Appendix B.

All field activities including soil sampling, backfill material sampling, daily real-time particulate monitoring, and co-located air sampling at locations around residential properties during soil excavations were performed in accordance with standard operating procedures (SOPs) and the *Sampling and Analysis Plan for Soil Removal Action at Residential Properties, Eureka, Eureka County, Nevada*, E & E Inc. (E & E 2013c). Field activities were conducted without significant deviations from the Sampling and Analysis Plan (SAP).

The data collection objectives presented within the SAP were developed by the U.S. EPA and START as a pre-determined guidance to provide the most appropriate documentation of the removal support activities. The SAP provides data collection procedures, rationale, and SOPs for sampling and analysis of soil, purchased backfill materials, and ambient air.

This section summarizes the specific removal actions performed by U.S. EPA, START, and ERRS contractors.

## 3.1 Removal Actions

The areas of concern for the removal action were primarily identified during previous U.S. EPA assessments (E & E, 2013a and E & E, 2013b) and located in the field using a mobile map via the Environmental Systems Research Institute, Inc. (Esri), iOS application on an iPad®.

During excavation and backfilling or in-place capping at a property, the START documented the removal activity using a mobile map via an Esri iOS application on an iPad® to draw geographically referenced polygons. Activities were also documented in log books and with photos as described in the SAP.

Contaminated soil was excavated from areas of concern to a maximum depth of 1 foot below ground surface (bgs). Excavated soil was transported to the soil repository located at the north end of Eureka adjacent to the Eureka Company CSP. Excavated locations were then backfilled with purchased fill materials, compacted, graded, and restored to original landscaping. At several locations the area of concern was not excavated, but capped in place with crushed rock. All fill material was documented to have concentrations of lead, arsenic, barium, cadmium, chromium, mercury, selenium, and silver at concentrations significantly below any health based benchmark.

### 3.1.1 Supplemental Sampling Prior to Removal

Supplemental sampling and analysis was completed at 13 of the 18 removal action properties. The remaining five properties were deemed by the FOSSC and ERRS contractor to be adequately characterized and did not require any additional sampling or analysis prior to excavation. The sampling locations for each of the 18 removal properties are graphically presented in Figures 2-2. The supplemental data along with original data for each of the 18 removal properties is presented in Appendix C, Tables 3-1-1 through 3-1-18.

### 3.1.2 Removal Action Areas and Volumes

During this removal action a total of 17 residential properties and a small area located at the Eureka Elementary School property were addressed by the U.S. EPA. The final excavation and backfill volumes are provided in Table 3-2.

<b>Table 3-2</b> <b>Excavated Soil Volumes</b>  <b>Eureka Smelter Sites</b> <b>Removal Support</b> <b>Eureka, Eureka County, Nevada</b>			
Project No. EE-002693-2230		TDD No. TO2-09-13-08-0001	
Location (in order of their remediation)	APN	Contaminated Soil Removed (Cubic Yards)	Backfill and Cover Materials Used (Cubic Yards)
Wittenburg Street	001-037-03	861	809
East Robins Street	001-038-10	119	185
North Spring	001-074-03	112	115
South Main Street	001-161-01	154	134
Reno Avenue	001-011-07	345	327
South Main Street	001-165-01	210	190
South Edwards Street	001-154-01	442	648
South Spring Street	001-131-05	119	145
South Spring Street	001-131-06	14	14
South Spring Street	001-136-03	21	77
South Spring Street	001-136-09	63	530
South Spring Street	001-136-12	203	287
South Spring Street	001-136-05	175	300
Eureka Elementary	001-155-03	14	42
Reno Avenue	001-037-02	563	1,007
South Main Street	001-162-01	109	185
South Main Street	001-166-01	202	294
South Spring Street	001-135-01	Less than 1	35
<b>Assessment Total Cubic Yard</b>		<b>3,726</b>	<b>5,354</b>
APN = Assessor's Parcel Number			
Ecology and Environment Inc. 2013			

### **3.1.3 Post-Excavation Confirmation Sampling**

Prior to backfilling at each of the removal parcel locations, START conducted surface soil sampling at each of the original decision units in order to document the concentration of arsenic and lead at the limit of excavation in those areas. The arsenic and lead concentrations left in place under the backfill for each excavated property are presented in Table 3-3.

## **3.2 Fill Material Sampling and Analysis**

Prior to site mobilization, the U.S. EPA and ERRS identified sources for backfill materials. Prior to use, the START collected or received samples of the fill materials and documented the concentrations of lead, arsenic, barium, cadmium, chromium, mercury, selenium, and silver in the fill material. The data for each fill sample, as well as the calculated average concentration for each metal, are presented in Table 3-4. All average concentrations of metals other than arsenic in the fill material were below the U.S. EPA residential Regional Screening Levels (RSLs); the average concentration of arsenic in fill material was documented to be below the background concentration.

## **3.3 New Property Assessments**

A total of 31 additional properties, not previously sampled, were assessed between August 8 and November 31, 2013 at the direction of the U.S. EPA FOSC.

Once identified, the decision units on each property were documented and a multi-point composite sample was collected at each identified decision unit. All collected samples were field analyzed by XRF following U.S. EPA 6200 to determine the arsenic and lead concentration. Ten percent of these field analyzed samples were also sent to the U.S. EPA regional laboratory for conformational analysis by U.S. EPA method 6010C.

The arsenic and lead concentration data for each property were evaluated in the field by the U.S. EPA FOSC immediately following analysis in order to determine if immediate removal actions were warranted at the property. The FOSC determined that four of the 31 properties required immediate removal action due to the documented elevated arsenic and lead concentrations and the property's use. The assessment data for the four remediated properties are presented in Appendix C, Tables 3-1-8, 3-1-12, 3-1-15, and 3-1-17. The assessment data for the remaining 27 properties are graphically presented in Tables 3-5-1 through 3-5-27 in Appendix C.

## **3.4 Additional Sampling and Analysis**

### **3.4.1 Supplemental Assessment Sampling**

Additional sampling and analysis was also completed at five previously sampled parcels which were not excavated. These properties were deemed by the FOSC and ERRS contractor to need additional characterization and thus required additional sampling. Three of the parcels were residential properties, one was a Eureka School District property, and one was an undeveloped residential property. All the assessment data for these five properties are presented in Appendix C, Tables 3-6-1 through 3-6-5.

**Table 3-3**  
**Post Excavation Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

Project No. EE-002693-2230

TDD No. TO2-09-13-08-0001

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>Reno Avenue (APN: 001-011-07)</b>				
101107-S01-CONF	S01	Under Backfill	1,400	320
101107-S02-CONF	S02	Under Backfill	1,400	280
101107-S03-CONF	S03	Under Backfill	1,700	360
101107-S04-CONF	S04	Under Backfill	1,300	150
<b>Reno Avenue (APN: 001-037-02)</b>				
103702-S0-CONF	S0	Under Backfill	1,400	220
103702-S1-CONF	S1	Under Backfill	1,300	210
103702-S2-CONF	S2	Under Backfill	1,300	200
<b>Wittenburg Street (APN: 001-037-03)</b>				
103703-S01-CONF	S01	Under Backfill	240	50
103703-S02-CONF	S02	Under Backfill	2,900	430
103703-S03-CONF	S03	Under Backfill	3,100	500
<b>East Robins Street (APN: 001-038-10)</b>				
103810-S02-CONF	S02	Under Backfill	1,100	170
103810-S03-CONF	S03	Under Backfill	1,700	280
<b>North Spring Street (APN: 001-074-03)</b>				
107403-P1-CONF	P1	Under Backfill	780	84
107403-S01-CONF	S01	Under Backfill	1,300	160
107403-S03-CONF	S03	Under Backfill	1,100	170
<b>South Spring Street (APN: 001-131-05)</b>				
113105-S01-CONF	S01	Under Backfill	560	63
113105-S02-CONF	S02	Under Backfill	900	130
113105-S03-CONF	S03	Under Backfill	4,100	610
<b>South Spring Street (APN: 001-131-06)</b>				
113106-S01-CONF	S01	Under Backfill	1,500	210
113106-S02-CONF	S02	Under Backfill	670	87
<b>South Spring Street (APN: 001-135-01)</b>				
113501-P03-CONF	P03	Under Backfill	3,400	480
<b>South Spring Street (APN: 001-136-03)</b>				
113603-S01-CONF	S01	Under Backfill	4,500	760
<b>South Spring Street (APN: 001-136-05)</b>				
113605-S01-CONF	S01	Under Backfill	2,700	330
113605-S02-CONF	S02	Under Backfill	610	110
113605-S03-CONF	S03	Under Backfill	2,200	300
113605-S04-CONF	S04	Under Backfill	2,000	290
<b>South Spring Street (APN: 001-136-09)</b>				
113609-S01-CONF	S01	Under Backfill	1,600	220
113609-S02-CONF	S02	Under Backfill	5,100	650
113609-S03-CONF	S03	Under Backfill	1,500	220
113609-S04-CONF	S04	Under Backfill	1,900	250
<b>South Spring Street (APN: 001-136-12)</b>				
113612-S01-CONF	S01	Under Backfill	3,200	370
113612-S02-CONF	S02	Under Backfill	1,600	190
113612-S03-CONF	S03	Under Backfill	1,100	150
113612-S04-CONF	S04	Under Backfill	4,600	780
<b>South Edwards Street (APN: 001-154-01)</b>				
115401-S01-CONF	S01	Under Backfill	5,600	870
115401-S02-CONF	S02	Under Backfill	4,400	680
115401-S03-CONF	S03	Under Backfill	4,400	770
115401-S04-CONF	S04	Under Backfill	8,000	1,200
115401-P01-CONF	P01	Under Backfill	8,800	1,300
115401-P02-CONF	P02	Under Backfill	3,600	490
<b>South Main Street (APN: 001-161-01)</b>				
116101-S01-CONF	S01	Under Backfill	4,900	770
116101-S02-CONF	S02	Under Backfill	1,700	430
116101-P01-CONF	P01	Under Backfill	1,700	260
116101-P02-CONF	P02	Under Backfill	11,000	2,200
116101-P03-CONF	P03	Under Backfill	1,100	310



**Table 3-3**  
**Post Excavation Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main Street (APN: 001-162-01)</b>				
116201-S01-CONF	S01	Under Backfill	380	110
116201-S02-CONF	S02	Under Backfill	260	380
116201-S03-CONF	S03	Under Backfill	1,100	150
116201-S05-CONF	S05	Under Backfill	1,800	250
116201-S06-CONF	S06	Under Backfill	960	140
116201-P01-CONF	P01	Under Backfill	1,600	240
<b>South Main Street (APN: 001-165-01)</b>				
116501-S01-CONF	S01	Under Backfill	1,800	280
116501-S02-CONF	S02	Under Backfill	4,100	620
<b>South Main Street (APN: 001-166-01)</b>				
116601-S01-CONF	S01	Under Backfill	5,000	760
116601-S02-CONF	S02	Under Backfill	1,700	230
116601-S03-CONF	S03	Under Backfill	5,800	1,000
<b>Eureka School District Owned Property (APN: 001-155-03)</b>				
115503-P01-CONF	P01	Under Backfill	64	51
115503-P02-CONF	P02	Under Backfill	39	23
<p>Notes:</p> <p>The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.</p> <p><b>Bold</b> = Above the SSL</p> <p><b>Bold and italics</b> = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF</p> <p>APN = Assessor's Parcel Number</p> <p>mg/kg = milligrams per kilogram</p> <p>NA = Sample was not analyzed or the size of the area associated with the locations is not known.</p> <p>START = Superfund Technical Assessment and Response Team</p> <p>XRF = X-Ray Fluorescence</p>				
Ecology and Environment Inc. 2013				

**Table 3-4**  
**Backfill and Cover Materials Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

Project No. EE-002693-2230

TDD No. TO2-09-13-08-0001

	Date Collected	Lead	Arsenic	Chromium	Selenium	Silver	Cadmium	Barium	Mercury
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
<b>2013 U.S. EPA RSL</b>		<b>400</b>	<b>Background</b>	<b>1,200</b>	<b>39</b>	<b>39</b>	<b>7</b>	<b>1,500</b>	<b>2.3</b>
<b>Background</b>		<b>52</b>	<b>38</b>	<b>11</b>	<b>&lt;2</b>	<b>1.3</b>	<b>1.2</b>	<b>360</b>	<b>NA</b>
<b>Borrow Source #1</b>	<b>9/4/2013</b>	8.8	16	13	<1.4	<0.087	0.37J	300	0.019J
<b>Borrow Source #2</b>	<b>9/4/2013</b>	12	13	16	<1.4	<0.087	0.49J	350	0.028J
<b>Humus</b>	<b>9/4/2013</b>	22	4.7	24	<1.4	<0.087	0.37J	200	0.047J
<b>Mushroom</b>	<b>9/4/2013</b>	2.4	1.4	18	<1.4	<0.087	<0.18	94	0.015J
<b>Base Material</b>	<b>9/24/2013</b>	13	18	20	<2.3	<1.1	<0.56	260	0.034J
<b>Top Soil Mix</b>	<b>9/27/2013</b>	12	19	21	<2.3	<1.1	<0.56	220	0.024J
<b>Top Soil Mix</b>	<b>10/2/2013</b>	14	17	19	< 2.2	<1.1	0.4	230	0.023J
<b>Coarse Mix</b>	<b>10/3/2013</b>	29	21	17	< 2.0	<1.0	0.47	310	0.031J
<b>Base Material</b>	<b>10/7/2013</b>	11	16	17	< 2.0	<1.0	0.31	270	0.02J
<b>Sand</b>	<b>10/7/2013</b>	8.9	22	19	< 2.0	<1.0	<0.51	200	<0.025
<b>Top Soil Mix</b>	<b>10/7/2013</b>	30	16	22	< 2.0	<1.0	0.58	230	0.021J
<b>Coarse Mix</b>	<b>10/7/2013</b>	24	19	16	< 2.0	<1.0	0.36	280	0.021J
<b>Top Soil Mix</b>	<b>10/16/2013</b>	14	14	20	< 2.0	<1.0	0.49	330	0.039J
<b>Sand</b>	<b>10/16/2013</b>	17	18	16	< 2.0	<1.0	0.3	250	0.017J
<b>Coarse Mix</b>	<b>10/16/2013</b>	10	17	16	< 2.0	<1.0	0.34	310	0.028J
<b>Base Material</b>	<b>10/22/2013</b>	10	17	17	< 2.0	<1.0	0.32	270	0.018J
<b>Top Soil Mix</b>	<b>10/22/2013</b>	14	13	20	< 2.0	<1.0	0.58	320	0.036J
<b>Sand</b>	<b>10/31/2013</b>	9.8	16	15	< 2.0	<1.0	0.3	250	0.027J
<b>Top Soil Mix</b>	<b>11/3/2013</b>	26	16	20	< 2.0	<1.0	0.58	330	0.043J
<b>Sand</b>	<b>11/3/2013</b>	13	18	16	<2.0	<1.0	0.33	250	0.02J
<b>AVERAGE</b>		15.1	16.6	18.1	<2.0	<1.0	0.398	263	0.268J

mg/kg = milligrams per kilogram

NA = Background concentration for mercury is not known.

START = Superfund Technical Assessment and Response Team

Ecology and Environment Inc. 2013

### **3.4.2 Air Sampling and Particulate Monitoring**

START collected daily real-time particulate monitoring data and co-located air samples at locations around residential properties during soil excavations. The monitoring and sample collection was done in accordance with the SAP. The average daily particulate concentration did not exceed the project action level of 1.0 milligram per cubic meter at any excavation location. Lead and arsenic were not found at detectable concentrations in any of the 23 ambient air samples submitted for analysis. A summary of air monitoring data is presented in Figure 3-4. The air sampling data for lead and arsenic is presented in Appendix D.

### **3.5 Sampling and Analysis Quality Assurance/Quality Control**

During the removal action, 716 samples were collected and field analyzed by using an Innov-X Systems XRF unit operated in accordance with the manufacturer's guidance, U.S. EPA SW-846 Method 6200, and Quality Assurance/Quality Control (QA/QC) procedures provided in the SAP.

All site sample locations were logged using an iPad® and uploaded to a site database immediately following collection. Samples were processed by homogenizing and sieving prior to XRF analysis. Organic matter, twigs, and rocks or pebbles were first removed from the samples, and then each sample was homogenized while in the sample bag by kneading, crushing, and shaking the sample until mixing of the sample was complete. After homogenization, all samples were passed through a 250 micron mesh sieve (#60) to remove large particles considered less respirable as an airborne particulate. The remaining 250 micron-sieved aliquot was transferred to a pre-labeled polyethylene cup, covered with Mylar film, and analyzed by XRF for arsenic and lead concentrations. All XRF sample analyses were performed in the intrusive soil mode with a 120 second count time for measurement, within a designated field laboratory.

The QA/QC procedures for XRF analysis were performed in accordance with the SAP. Before operation of the XRF each day, the unit was allowed the manufacturer-recommended warm up time of 25 to 30 minutes. To determine whether the XRF instrument was within resolution and stability tolerances, an energy calibration check was run with a pure manganese element standard at the beginning of each day as the first XRF analysis, and at any time at which the instrument detected that the characteristic x-ray lines were shifting. To check the accuracy of the instrument and to assess the stability and consistency of analyses for the analytes of interest (arsenic and lead), a standard reference material (SRM) sample (NIST 2702) and site specific reference sample used during the removal assessment were analyzed each day the XRF unit was utilized. The measured values for each SRM sample run during field XRF analysis for the project were within  $\pm 20$  percent standard deviation of the true value and considered acceptable.

Two types of blank samples were analyzed to provide quality control for XRF analysis:

- A pre-prepared "clean" silica sand sample served as an analysis blank sample. An analysis blank sample was used to verify that no contamination existed on the probe window during XRF analysis. The instrument blank sample was analyzed after each set of 10 samples and at the beginning and end of each day the XRF unit was utilized. No arsenic or lead concentrations above the method detection limits were found during instrument blank sample analyses.

- Method/preparation blank samples were prepared daily using “clean” silica. Method/preparation blank samples were used to monitor for sample preparation-induced contaminants or interferences. Each method blank sample was prepared by following the same preparation procedure as the site samples. Method/preparation blank samples were prepared each day that samples were prepared. The method/preparation blank samples analyzed as samples. No arsenic or lead concentrations above the method detection limits were found during method blank sample analyses.

In addition, one out of every ten site samples was selected for preparation duplicate analysis. Preparation duplicates were collected by splitting a single site sample, after homogenization and sieving occurred, and then preparing two separate sample aliquots for XRF analysis. Preparation duplicates were labeled and recorded with a “PD” following the corresponding sample identifier for identification. The measured values for each preparation duplicate sample analysis were within  $\pm 20$  percent standard deviation of the original site sample value and considered acceptable.

### **3.5.1 XRF and Laboratory Data Correlation Study**

U.S. EPA SW-846 Method 6200 suggests that a minimum of 5 to 10 percent of the XRF-analyzed samples be submitted to an analytical laboratory for confirmatory analysis to verify the quality of the XRF data. Out of the approximately 716 soil samples collected from Eureka properties and analyzed by XRF during the removal, 79 samples (11 percent) were submitted to the U.S. EPA Region 9 Laboratory for confirmatory analysis by U.S. EPA Method 6010C for arsenic and lead.

Once data were generated by the U.S. EPA Region 9 Laboratory, a data review was completed, and the laboratory data were validated using the *Region 9 Draft Superfund Data Evaluation/Validation Guidance* (U.S. EPA, 2001c). All laboratory analytical results were provided by the U.S. EPA Region 9 Laboratory with Tier 1 data validation. A START chemist then conducted Tier 2 data validation for all laboratory-generated data in accordance with the EPA guidance *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) April 1990 (U.S. EPA, 1990). Tier 2 data validation included evaluation of criteria such as laboratory QA/QC summaries, holding times, and matrix-related recoveries. Data qualifiers were applied by START according to the *U.S. EPA CLP National Functional Guidelines for Inorganic Data Review* (OSWER 9240.1-45, EPA 540-R-04-004) October 2004 (U.S. EPA, 2004). All data were found to be acceptable for use with qualifiers. Laboratory analysis and data validation reports are provided in Appendix D.

### **Lead Data Correlation**

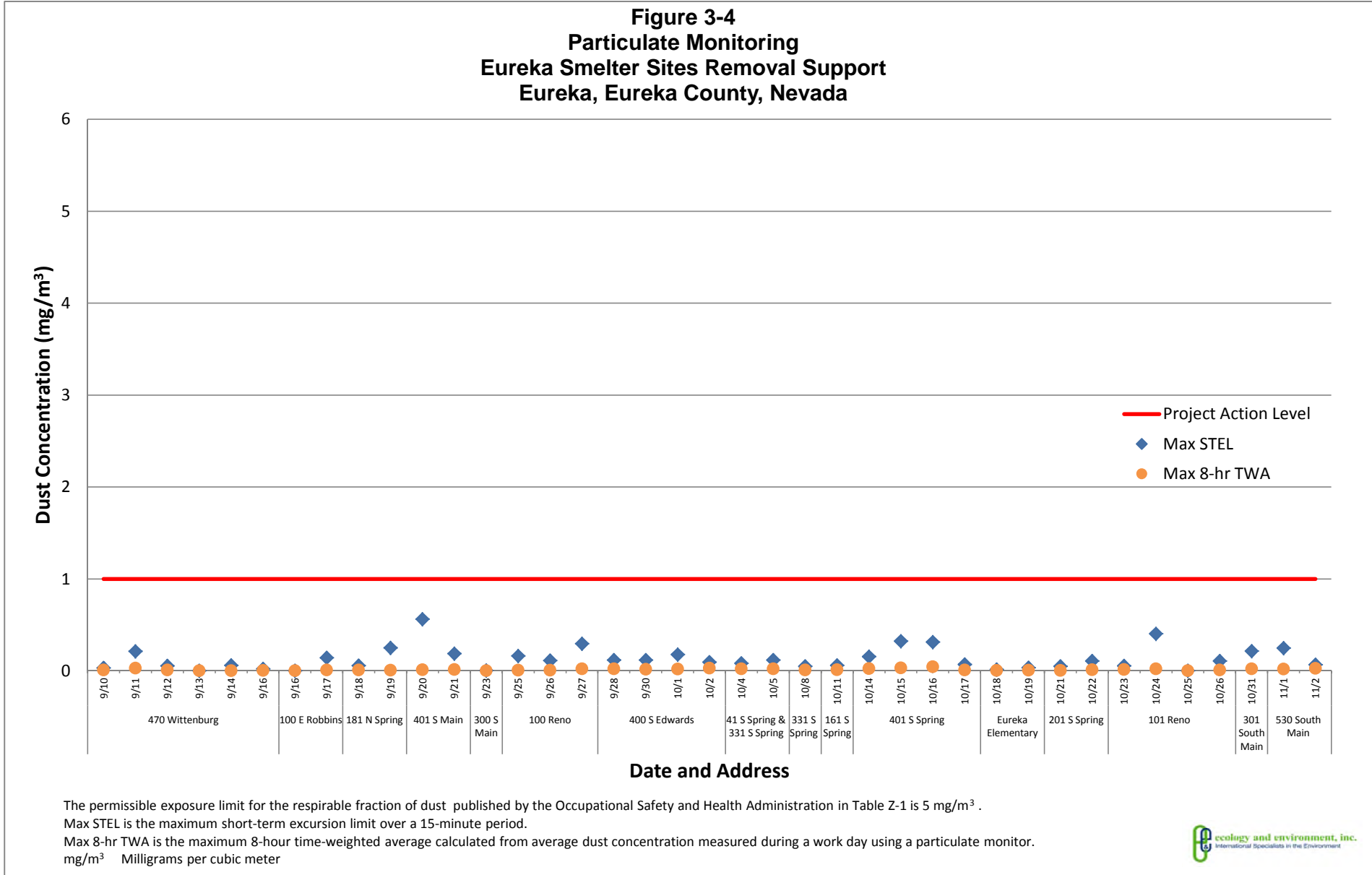
Linear regression analysis between field XRF and laboratory results for lead from 79 unique soil samples submitted to the laboratory generated a final coefficient of determination ( $R^2$ ) value of 0.9967 and slope value of 1.0866. Based on the strong positive correlation of 0.9967 between XRF and laboratory 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 ( $R^2 \geq 0.7$ ). Based upon the calculated slope of 1.0866, 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.

**Arsenic Data Correlation**

Linear regression analysis between field XRF and laboratory results for arsenic from 79 unique soil samples submitted to the laboratory generated a final coefficient of determination ( $R^2$ ) value of 0.9806 and slope value of 1.1244. Based on the strong positive correlation of 0.9806 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 ( $R^2 \geq 0.7$ ). Based upon the calculated slope of 1.1244, the XRF concentrations for arsenic are documented as exhibiting a 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 used to calculate correlation are presented in Table 3-5. The linear regression analysis for lead and arsenic are provided as Figure 3-5 and Figure 3-6, respectively.

**Figure 3-4**  
**Particulate Monitoring**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**



**Table 3-5**  
**Laboratory Data Summary**  
**With XRF Results**  
**Eureka Smelter Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. O2-09-13-08-0001**

<b>Analysis Identification Number</b>	<b>U.S. EPA Region 9 Laboratory Arsenic Results by EPA Method 6010C (mg/kg)</b>	<b>START XRF Arsenic Results by EPA 6200 (mg/kg)</b>	<b>U.S. EPA Region 9 Laboratory Lead Results by EPA Method 6010C (mg/kg)</b>	<b>START XRF Lead Results by EPA 6200 (mg/kg)</b>
200 Bullion Hill-02, 0"-2"	5,600	5,300	29,000	27,000
101210-G4-0	4,900	4,600	25,000	22,000
119103-P2-0	2,300	1,800	10,000	8,900
115807-S3-2	1,800	1,200	7,700	6,900
200 Bullion Hill-01, 2"-6"	1,500	1,200	6,800	6,500
115401-S01-CONF	1,100	870	5,400	5,600
112904-S04-2	1,100	710	5,300	4,500
116101-S01-CONF	1,200	770	5,100	4,900
115806-S02-0	890	720	4,700	5,000
470 Whittenberg-01, 0"-2"	1,000	770	4,400	4,100
331 S. Spring, 0"-2"	830	690	4,300	4,400
100 Reno-01, 2"-6"	710	490	3,700	3,500
115702-S01-6	850	530	3,600	2,300
106404-S02-2	630	470	3,400	3,600
113612-S02-0	590	420	3,300	3,300
113610-S01-2	520	390	3,200	3,300
113702-S03-CONF	670	500	3,200	3,100
P12 6-12	580	450	2,900	3,000
115303-S01-2	530	380	2,700	2,700
100 E. Robbins-02, 0"-2"	440	300	2,500	2,400
112903-S02-2	480	350	2,500	2,300
116601-S01-1	460	300	2,500	2,200
115503-G22-S	510	320	2,400	2,200
31 Spring Street-01, 0"-2"	450	300	2,300	2,200
111321-S01-2	480	330	2,300	2,200
111701-S02-6	410	290	2,300	1,900
401 S. Main Street, 0"-2"	400	270	2,100	2,100
112903-S03-6	440	280	2,100	1,900
116203-S4-2	410	270	2,100	1,800
111702-S04-0	360	220	2,000	1,900
115303-S04-6	440	340	2,000	2,200
116201-S01-2	390	300	2,000	2,100
116501-S01-CONF	420	280	2,000	1,800
112902-S2-0	470	320	1,900	1,700
113609-S04-CONF	350	250	1,900	1,900
113612-S02-CONF	330	190	1,800	1,600
119103-P4-2	390	270	1,700	1,600
110801-S02-2	260	180	1,600	1,000
101107-S02-CONF	390	280	1,500	1,400
113406-S03-0	300	200	1,500	1,300
116201-S02-2	270	150	1,500	1,600
100 E. Robbins-01, 6"-12"	280	210	1,400	1,400
115503-G0-S	320	240	1,400	1,400
470 Wittenburg-P1	280	190	1,400	1,100
107402-S1-2	270	180	1,300	1,300
107403-S01-CONF	210	160	1,300	1,300
101222-S02-2	230	190	1,200	1,200
111702-S01-2	240	200	1,200	1,100
100 Robins-S02-CONF	240	170	1,100	1,100
110801-S02-0	180	110	1,100	1,000
113613-S03-2	210	110	1,000	940
107402-S3-6	190	180	990	1,100
100 Robins-08-6-12	190	160	960	950
122108-S04-2	180	140	880	910
111321-G3-6	160	100	860	870
115303-S06-6	190	140	860	1,000
111603-S01-2	170	97	790	700
122108-S02-2	140	130	750	780
116201-S06-0	150	100	700	600
107402-S3-0	110	90	680	730

**Table 3-5**  
**Laboratory Data Summary**  
**With XRF Results**  
**Eureka Smelter Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. O2-09-13-08-0001**

<b>Analysis Identification Number</b>	<b>U.S. EPA Region 9 Laboratory Arsenic Results by EPA Method 6010C (mg/kg)</b>	<b>START XRF Arsenic Results by EPA 6200 (mg/kg)</b>	<b>U.S. EPA Region 9 Laboratory Lead Results by EPA Method 6010C (mg/kg)</b>	<b>START XRF Lead Results by EPA 6200 (mg/kg)</b>
113605-S02-CONF	140	110	680	610
450 Dibble 03-0-2	140	82	630	540
113408-S06-0	110	100	580	600
115503-G14-S	150	100	570	550
181 Spring UnderRock 02	100	82	560	590
112904-S1-0	140	110	550	530
P4 6-12	110	84	520	540
115806-S03-6	150	120	440	420
102211-S02-0	97	70	420	450
1115808-S3-6 (115808-S3-6)	82	67	300	180
113501-S04-0	78	64	270	270
113501-P2-2	59	46	250	290
114202-S02-2	36	27	180	180
520 Nob Hill-02, 6"-12"	32	65	130	400
111321-P01-6	34	32	100	85
116201-S04-6	30	25	63	79
117203-G1-2	23	23	59	73
737008-BG50-0	18	15	38	50
113501-S02-6	45	35	36	50
<b>Notes:</b> mg/kg = milligrams per kilogram U.S. EPA = United States Environmental Protection Agency START = Superfund Technical Assessment and Response Team XRF = X-Ray Fluorescence				
Ecology and Environment Inc. 2013				



**Figure 3-5**  
**XRF/ICP**  
**Lead**  
**Correlation Data**

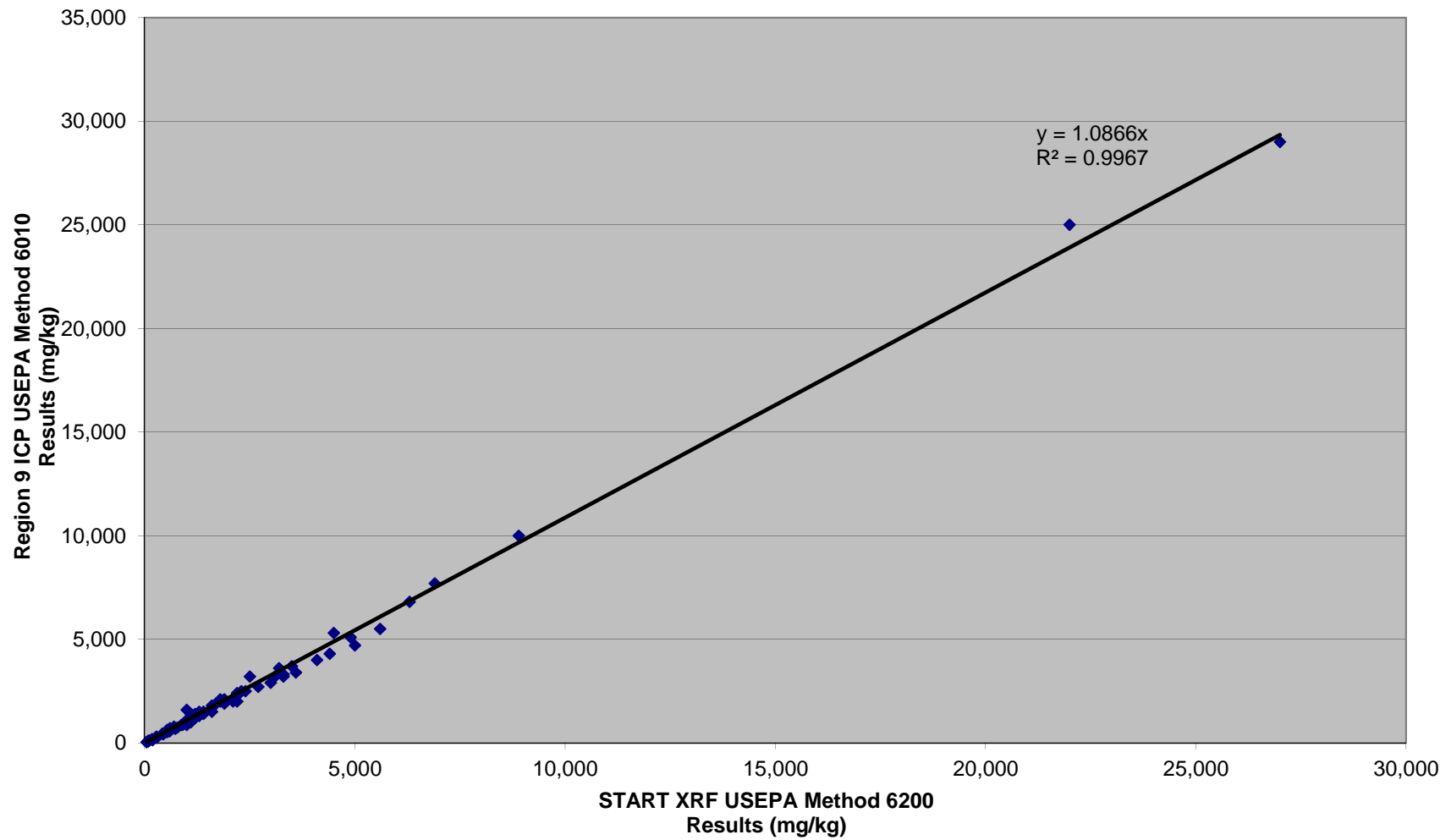
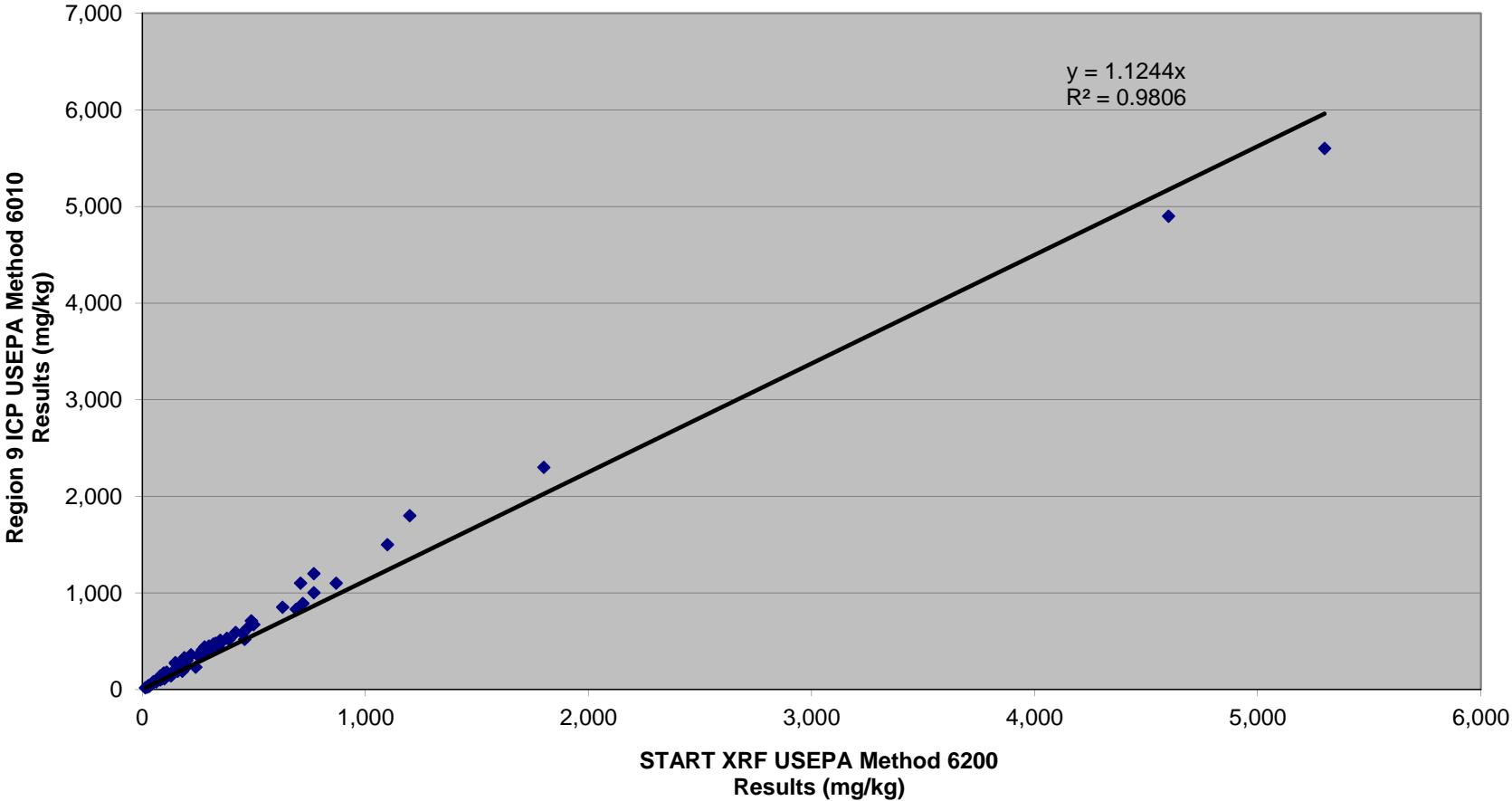


Figure 3-6  
XRF/ICP  
Arsenic  
Correlation Data



Insert

**Figure 3-6    Linear Regression Analysis for Arsenic**

## 4 Conclusions

Between September 9 and November 8, 2013, the U.S. EPA Region 9 ERS, the START and ERRS contractors completed soil removal and capping at 18 properties where highly elevated lead and arsenic soil concentrations in surface soil had been identified. The properties remediated include 17 residential properties identified in the removal assessments and an area at the Eureka Elementary School.

Removal activities consisted of either excavation of soil up to 1 foot bgs followed by backfill or in-place capping without excavation. Approximately 144,000 square feet at 18 locations were excavated or capped. A total of 3,726 cubic yards of contaminated surface soil was excavated and stockpiled. A total of 5,354 cubic yards of backfill and cover material was used to complete the remediation. All materials used for backfill and cover were sampled, analyzed, and documented by the START to have metal concentrations (for the eight Resource Conservation and Recovery Act metals), at concentration well below U.S. EPA RSLs and below the documented soil background concentrations for the area.

The removal actions in Eureka in 2013 were performed to reduce human health risks from exposure to elevated arsenic and lead concentrations in surface soils at residential and school properties. Additional removal of contaminated surface soil at residential properties is scheduled by the U.S. EPA for the spring of 2014.

## 5 References

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***Appendix A:***  
***Photographic Documentation***

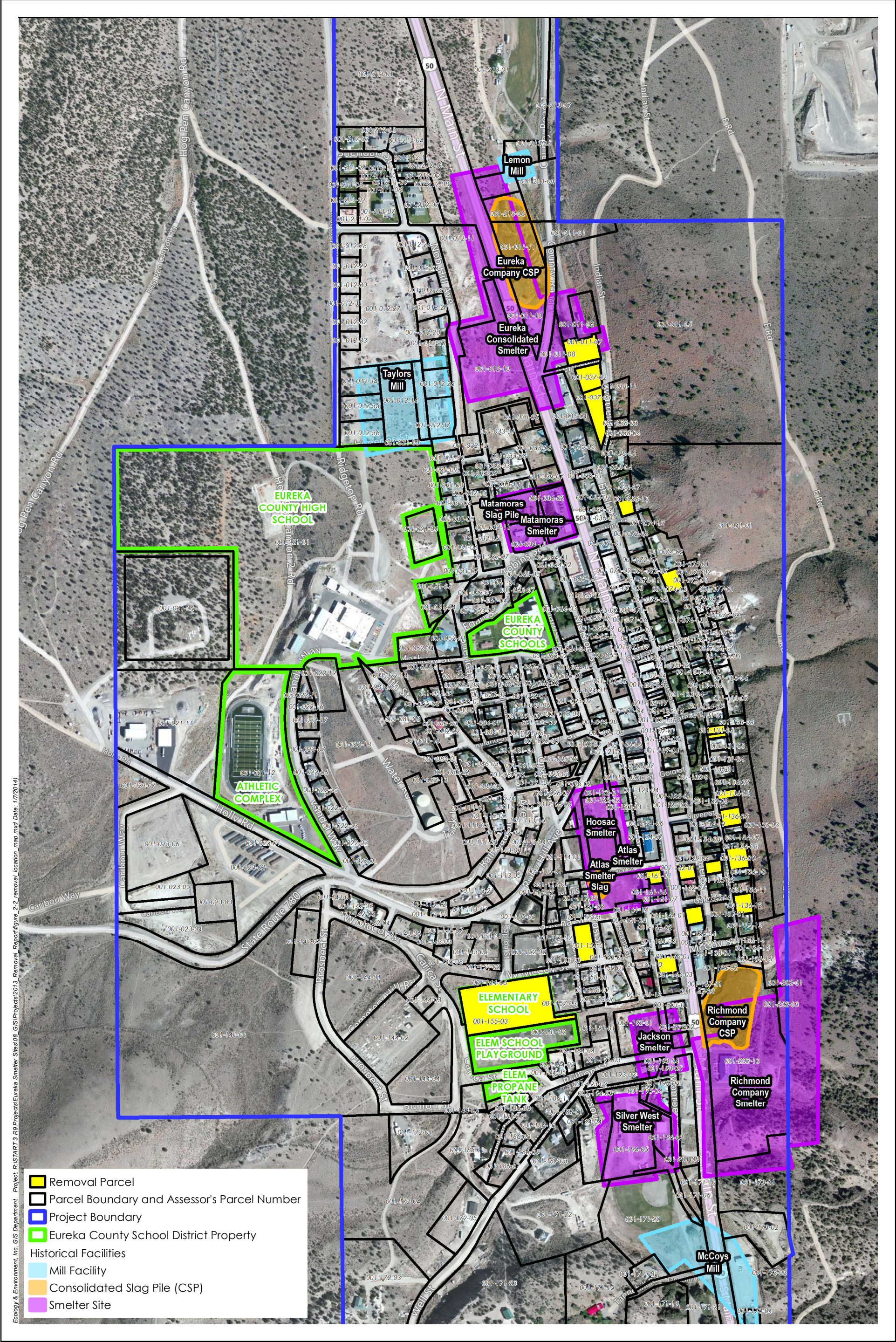
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***Appendix B:***  
**Figures**

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**Removal Property Map**





Ecology & Environment, Inc. GIS Department Project: R:\START 3 R9 Projects\Eureka Smelter Sites\08\_GIS\Projects\2013 Removal\_Report\Figure 2-2\_removal\_location\_map.mxd Date: 1/7/2014

Figure B-1  
Removal Locations  
Eureka Smelters Sites  
Eureka, Eureka County, Nevada



## ***Appendix B:*** **Figures**

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### **Removal Assessment Map for New Properties**



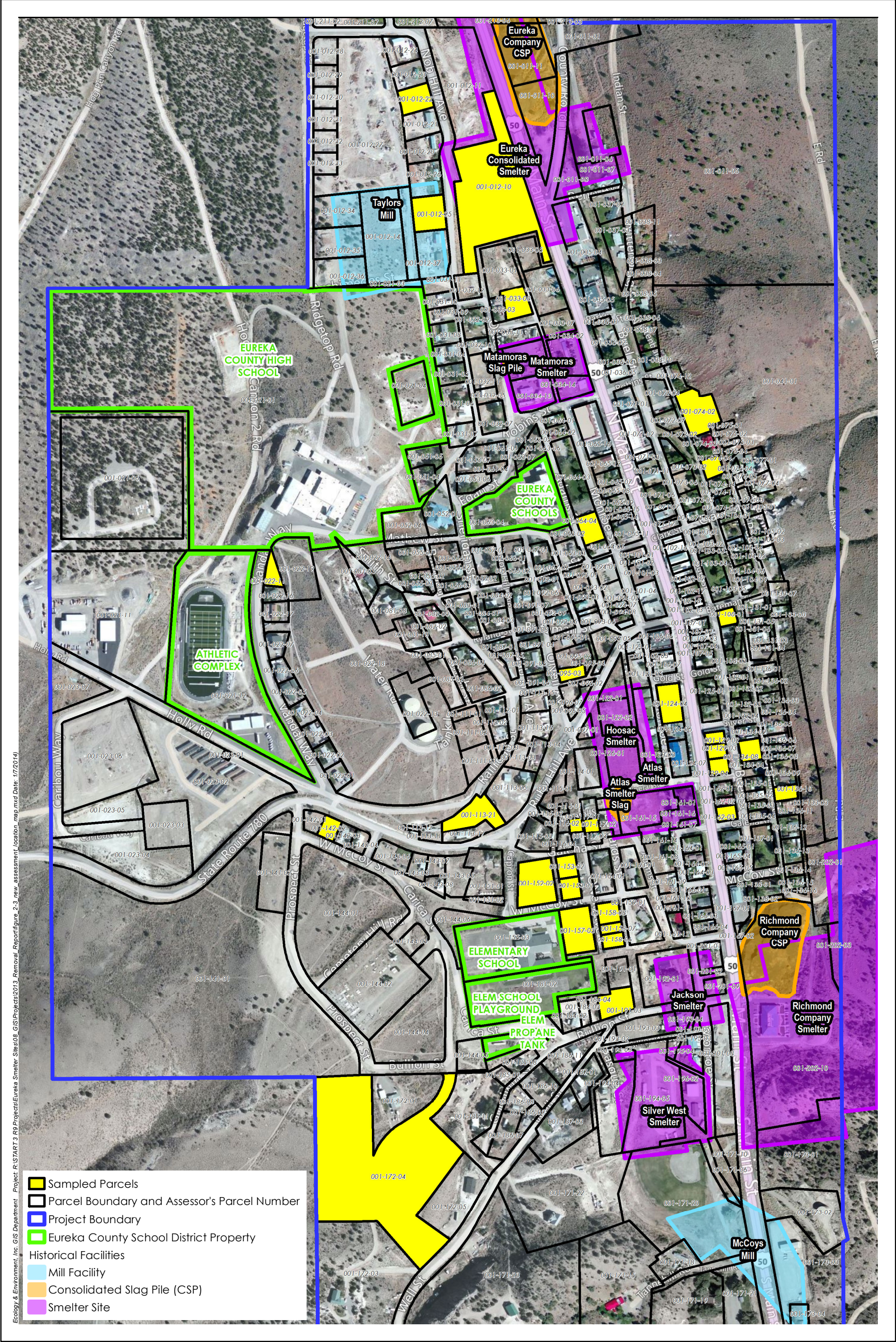
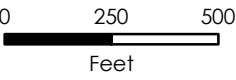


Figure B-2  
New Assessment Location Map  
Eureka Smelters Sites  
Eureka, Eureka County, Nevada





***Appendix C:  
Data  
Summary Tables***

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**Table 3-1-1 through 3-1-18**

**Removal Assessment Data for  
Eureka Removal Properties**

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

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Reno Avenue (APN: 001-011-07)</b>				
ESS-101107-S01-0	S01	0 to 2 inches	<b><i>1,600</i></b>	<b><i>440</i></b>
ESS-101107-S01-2	S01	2 to 6 inches	<b><i>1,700</i></b>	<b><i>370</i></b>
ESS-101107-S01-6	S01	6 to 12 inches	<b><i>7,700</i></b>	<b><i>1,600</i></b>
ESS-101107-S02-0	S02	0 to 2 inches	<b><i>1,500</i></b>	<b><i>270</i></b>
ESS-101107-S02-2	S02	2 to 6 inches	<b><i>2,300</i></b>	<b><i>400</i></b>
ESS-101107-S02-6	S02	6 to 12 inches	<b><i>1,600</i></b>	<b><i>310</i></b>
ESS-101107-S03-0	S03	0 to 2 inches	<b><i>300</i></b>	<b><i>56</i></b>
ESS-101107-S03-6	S03	6 to 12 inches	<b><i>1,600</i></b>	<b><i>270</i></b>
ESS-101107-S04-0	S04	0 to 2 inches	<b><i>780</i></b>	<b><i>100</i></b>
ESS-101107-S04-2	S04	2 to 6 inches	<b><i>1,600</i></b>	<b><i>210</i></b>
ESS-101107-S04-6	S04	6 to 12 inches	<b><i>2,200</i></b>	<b><i>320</i></b>
101107-P1-0	Flower Bed	0 to 2 inches	<b><i>1,000</i></b>	<b><i>170</i></b>
101107-P1-2	Flower Bed	2 to 6 inches	<b><i>1,000</i></b>	<b><i>140</i></b>
101107-P1-6	Flower Bed	6 to 12 inches	<b><i>1,200</i></b>	<b><i>200</i></b>
100-RENO-01 (0"-2")	Front Area	0 to 2 inches	<b><i>970</i></b>	<b><i>130</i></b>
100-RENO-01 (2"-6")	Front Area	2 to 6 inches	<b><i>3,500</i></b>	<b><i>490</i></b>
100-RENO-02 (0"-2")	Raised Backyard Area	0 to 6 inches	<b><i>1,600</i></b>	<b><i>260</i></b>

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	3,010	1	111
S02	8,968	1	332
S03	540	1	20
S04	180	1	7
Flowerbed	20	1	1
100-RENO-01	200	1	7
100-RENO-02	750	0.5	14

**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 1,200 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.

Ecology and Environment Inc. 2013

**Table 3-1-2 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>Reno Avenue (APN: 001-037-02)</b>				
ESS-103702-P6-0	P6	0 to 2 inches	<b><i>1,400</i></b>	<b><i>210</i></b>
ESS-103702-P6-2	P6	2 to 6 inches	<b><i>1,600</i></b>	<b><i>220</i></b>
ESS-103702-P6-6	P6	6 to 12 inches	<b><i>2,900</i></b>	<b><i>460</i></b>
ESS-103702-S0-0	S0	0 to 2 inches	<b><i>1,600</i></b>	<b><i>200</i></b>
ESS-103702-S0-2	S0	2 to 6 inches	<b><i>2,500</i></b>	<b><i>390</i></b>
ESS-103702-S0-6	S0	6 to 12 inches	<b><i>2,700</i></b>	<b><i>410</i></b>
ESS-103702-S1-0	S1	0 to 2 inches	<b><i>740</i></b>	<b><i>100</i></b>
ESS-103702-S1-2	S1	2 to 6 inches	<b><i>1,100</i></b>	<b><i>170</i></b>
ESS-103702-S1-6	S1	6 to 12 inches	<b><i>1,500</i></b>	<b><i>210</i></b>
ESS-103702-S2-0	S2	0 to 2 inches	<b><i>1,300</i></b>	<b><i>190</i></b>
ESS-103702-S2-2	S2	2 to 6 inches	<b><i>1,700</i></b>	<b><i>270</i></b>
ESS-103702-S2-6	S2	6 to 12 inches	<b><i>2,000</i></b>	<b><i>300</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>
P6	NA	0	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 1,200 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.

Ecology and Environment Inc. 2013

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

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>Wittenburg Street (APN: 001-037-03)</b>				
ESS-103703-P1-0	P1	0 to 2 inches	<b>1,800</b>	<b>270</b>
ESS-103703-P1-2	P1	2 to 6 inches	<b>1,100</b>	<b>170</b>
ESS-103703-P1-6	P1	6 to 12 inches	370	58
ESS-103703-S01-0	S01	0 to 2 inches	<b>1,850</b>	<b>300</b>
ESS-103703-S01-2	S01	2 to 6 inches	<b>3,300</b>	<b>540</b>
ESS-103703-S01-6	S01	6 to 12 inches	<b>1,600</b>	<b>270</b>
ESS-103703-S02-0	S02	0 to 2 inches	<b>1,300</b>	<b>210</b>
ESS-103703-S02-2	S02	2 to 6 inches	<b>910</b>	<b>150</b>
ESS-103703-S02-6	S02	6 to 12 inches	260	67
ESS-103703-S03-0	S03	0 to 2 inches	<b>2,500</b>	<b>410</b>
ESS-103703-S03-2	S03	2 to 6 inches	<b>4,300</b>	<b>710</b>
ESS-103703-S03-6	S03	6 to 12 inches	<b>7,700</b>	<b>1,400</b>
470-WITTENBURG-01 (0"-2")	"01"	0 to 2 inches	<b>4,100</b>	<b>770</b>
470-WITTENBURG-02 (0"-2")	"02"	0 to 2 inches	<b>1,700</b>	<b>280</b>
470 Wittenburg - P3	P3	0 to 2 inches	<b>1,100</b>	<b>190</b>
470 Wittenburg - P2	P2	6 to 12 inches	<b>930</b>	<b>140</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>
P1	NA	1	NA
P2	NA	1	NA
P3	NA	1	NA
S01	4,634	1	172
S02	3,361	1	124
S03	10,109	1	374
"01"	1,940	1	72
"02"	1,650	1	61

**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 1,200 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 3-1-4 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>East Robins Street (APN: 001-038-10)</b>				
ESS-103810-P1-0	P1	0 to 2 inches	140	25
ESS-103810-P1-2	P1	2 to 6 inches	310	50
ESS-103810-P1-6	P1	6 to 12 inches	290	55
ESS-103810-S01-0	S01	0 to 2 inches	<b>480</b>	<b>77</b>
ESS-103810-S01-2	S01	2 to 6 inches	<b>450</b>	<b>69</b>
ESS-103810-S01-6	S01	6 to 12 inches	270	48
ESS-103810-S02-0	S02	0 to 2 inches	<b>730</b>	<b>130</b>
ESS-103810-S02-2	S02	2 to 6 inches	<b>4,500</b>	<b>720</b>
ESS-103810-S02-6	S02	6 to 12 inches	<b>3,300</b>	<b>490</b>
ESS-103810-S03-0	S03	0 to 2 inches	380	64
ESS-103810-S03-2	S03	2 to 6 inches	<b>1,400</b>	<b>260</b>
ESS-103810-S03-6	S03	6 to 12 inches	<b>1,900</b>	<b>330</b>
100 E.Robins - 04	"04"	0 to 2 inches	<b>510</b>	<b>74</b>
100 E.Robins - 04	"04"	2 to 6 inches	<b>510</b>	<b>66</b>
101 E.Robins - 05	"05"	0 to 2 inches	250	48
100 E.Robins - 05	"05"	2 to 6 inches	280	56
100 E.Robins - 06	"06"	0 to 2 inches	<b>800</b>	<b>140</b>
100 E.Robins - 06	"06"	2 to 6 inches	<b>590</b>	<b>99</b>
100 E.Robins - 07	"07"	0 to 2 inches	190	31
100 E.Robins - 07	"07"	2 to 6 inches	150	28
100 E.Robins - 07	"07"	6 to 12 inches	300	56
100 E.Robins - 08	"08"	0 to 2 inches	<b>450</b>	<b>63</b>
101 E.Robins - 08	"08"	2 to 6 inches	360	59
102 E.Robins - 08	"08"	6 to 12 inches	<b>950</b>	<b>160</b>
100-E.Robins ST-01	"01"	0 to 2 inches	<b>890</b>	<b>120</b>
100-E.Robins ST-01	"01"	2 to 6 inches	<b>1,200</b>	<b>150</b>
100-E.Robins ST-01	"01"	6 to 12 inches	<b>1,400</b>	<b>210</b>
100-E.Robins ST-02	"02"	0 to 2 inches	<b>2,400</b>	<b>300</b>
100-E.Robins ST-02	"02"	2 to 6 inches	<b>2,600</b>	<b>350</b>
100-E.Robins ST-02	"02"	0 to 2 inches	<b>1,700</b>	<b>230</b>
100-E.Robins ST-03	"03"	2 to 6 inches	250	39

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
P1	NA	0	0
S01	1,839	1	68
S02	1,365	1	51
S03	1,688	1	63
"01"	251	1	9
"02"	257	1	10
"03"	0	0	0
"04"	NA	1	0
"05"	NA	0	0
"06"	NA	1	0
"07"	NA	0	0
"08"	NA	1	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 1,200 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 3-1-5 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

Project No. EE-002693-2230

TDD No. TO2-09-13-08-0001

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>North Spring Street (APN: 001-074-03)</b>				
ESS-107403-P1-0	P1	0 to 2 inches	<b>730</b>	<b>110</b>
ESS-107403-P1-2	P1	2 to 6 inches	<b>1,100</b>	<b>150</b>
ESS-107403-P1-6	P1	6 to 12 inches	<b>1,400</b>	<b>190</b>
ESS-107403-P2-0	P2	0 to 2 inches	<b>1,500</b>	<b>200</b>
ESS-107403-P2-2	P2	2 to 6 inches	<b>1,300</b>	<b>170</b>
ESS-107403-P2-6	P2	6 to 12 inches	<b>1,800</b>	<b>250</b>
ESS-107403-P3-0	P3	0 to 2 inches	<b>1,300</b>	<b>190</b>
ESS-107403-P3-2	P3	2 to 6 inches	<b>1,900</b>	<b>240</b>
ESS-107403-P3-6	P3	6 to 12 inches	<b>1,300</b>	<b>180</b>
ESS-107403-S01-0	S01	0 to 2 inches	<b>1,200</b>	<b>160</b>
ESS-107403-S01-2	S01	2 to 6 inches	<b>2,700</b>	<b>330</b>
ESS-107403-S01-6	S01	6 to 12 inches	<b>2,700</b>	<b>430</b>
ESS-107403-S02-0	S02	0 to 2 inches	<b>2,600</b>	<b>330</b>
ESS-107403-S02-2	S02	2 to 6 inches	<b>3,900</b>	<b>590</b>
ESS-107403-S02-6	S02	6 to 12 inches	<b>12,000</b>	<b>1,900</b>
ESS-107403-S03-0	S03	0 to 2 inches	<b>1,400</b>	<b>170</b>
ESS-107403-S03-2	S03	2 to 6 inches	<b>910</b>	<b>150</b>
ESS-107403-S03-6	S03	6 to 12 inches	<b>1,100</b>	<b>170</b>
181 N.Spring - Under Rock - 01	Rock 1	0 to 2 inches	<b>1,300</b>	<b>160</b>
181 N.Spring - Under Rock - 02	Rock 2	0 to 2 inches	<b>590</b>	<b>82</b>
181 N.Spring - Under Mulch - 01	Mulch 1	0 to 2 inches	<b>950</b>	<b>130</b>
181 N.Spring - Under Tree - 01	Mulch 2	0 to 2 inches	<b>890</b>	<b>110</b>
181 N.Spring - ROW	ROW	0 to 2 inches	<b>560</b>	<b>78</b>
181 N.Spring - Planter - 02	Planter 02	0 to 2 inches	<b>1,500</b>	<b>200</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
P1	NA	1	NA
P2	NA	1	NA
P3	NA	1	NA
S01	1,244	1	46
S02	1,556	1	58
S03	2,738	1	101
Rock 1	NA	0.5	NA
Rock 2	NA	0.5	NA
Mulch 1	NA	0.5	NA
Mulch 2	NA	0.5	NA
ROW	NA	0.5	NA
Planter 02	NA	0.5	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 1,200 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 3-1-6 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring Street (APN: 001-131-05)</b>				
ESS-113105-S01-0	S01	0 to 2 inches	<b>1,150</b>	<b>150</b>
ESS-113105-S01-2	S01	2 to 6 inches	<b>1,200</b>	<b>180</b>
ESS-113105-S01-6	S01	6 to 12 inches	<b>4,100</b>	<b>610</b>
ESS-113105-S02-0	S02	0 to 2 inches	<b>1,500</b>	<b>220</b>
ESS-113105-S02-2	S02	2 to 6 inches	<b>360</b>	<b>55</b>
ESS-113105-S02-6	S02	6 to 12 inches	<b>570</b>	<b>83</b>
ESS-113105-S03-0	S03	0 to 2 inches	<b>1,900</b>	<b>250</b>
ESS-113105-S03-2	S03	2 to 6 inches	<b>2,600</b>	<b>330</b>
ESS-113105-S03-6	S03	6 to 12 inches	<b>2,200</b>	<b>350</b>
31-SPRING ST-01	"01"	2 to 6 inches	<b>2,200</b>	<b>300</b>
31-SPRING ST-02	"02"	2 to 6 inches	<b>2,100</b>	<b>320</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
S01	814	1	30
S02	800	1	30
S03	717	1	27
"01"	1,240	1	46
"02"	340	1	13

**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 1,200 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 3-1-7 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Removal Support  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>South Spring Street (APN: 001-131-06)</b>				
ESS-113106-S01-0	S01	0 to 2 inches	<b>2,500</b>	<b>410</b>
ESS-113106-S01-2	S01	2 to 6 inches	<b>2,700</b>	<b>390</b>
ESS-113106-S01-6	S01	6 to 12 inches	<b>3,500</b>	<b>620</b>
ESS-113106-S02-0	S02	0 to 2 inches	<b>4,000</b>	<b>690</b>
ESS-113106-S02-2	S02	2 to 6 inches	<b>3,300</b>	<b>620</b>
ESS-113106-S02-6	S02	6 to 12 inches	<b>1,000</b>	<b>170</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	704	1	26	
S02	580	1	21	

**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 1,200 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.

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**Table 3-1-8 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring Street (APN: 001-135-01)</b>				
113501-S0-0	S0	0 to 2 inches	<b>500</b>	<b>60</b>
113501-S0-2	S0	2 to 6 inches	<b>440</b>	<b>63</b>
113501-S0-6	S0	6 to 12 inches	<b>200</b>	<b>44</b>
113501-S1-0	S1	0 to 2 inches	160	47
113501-S1-2	S1	2 to 6 inches	70	27
113501-S1-6	S1	6 to 12 inches	73	32
113501-S01-0	S01	0 to 2 inches	<b>870</b>	<b>130</b>
113501-S01-2	S01	2 to 6 inches	<b>710</b>	<b>120</b>
113501-S01-6	S01	6 to 12 inches	<b>400</b>	<b>72</b>
113501-S02-0	S02	0 to 2 inches	160	35
113501-S02-2	S02	2 to 6 inches	67	35
113501-S02-6	S02	6 to 12 inches	50	35
113501-S03-0	S03	0 to 2 inches	<b>1,900</b>	<b>210</b>
113501-S03-2	S03	2 to 6 inches	<b>2,000</b>	<b>210</b>
113501-S03-6	S03	6 to 12 inches	<b>780</b>	<b>100</b>
113501-S04-0	S04	0 to 2 inches	270	<b>64</b>
113501-S04-2	S04	2 to 6 inches	130	43
113501-S04-6	S04	6 to 12 inches	75	39
113501-P1-0	P1	0 to 2 inches	<b>410</b>	47
113501-P1-2	P1	2 to 6 inches	320	48
113501-P1-6	P1	6 to 12 inches	140	53
113501-P2-0	P2	0 to 2 inches	360	53
113501-P2-2	P2	2 to 6 inches	290	46
113501-P2-6	P2	6 to 12 inches	200	45
113501-P3-0	P3	0 to 2 inches	<b>3,300</b>	<b>410</b>
113501-P3-2	P3	2 to 6 inches	<b>780</b>	<b>130</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	2,155	1	80
S1	0	0	0
S01	1,140	1	42
S02	0	0	0
S03	2,043	1	76
S04	0	0	0
P1	0	0	NA
P2	0	0	NA
P3	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 1,200 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 3-1-9 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring Street (APN: 001-136-03)</b>				
ESS-113603-S01-0	S01	0 to 2 inches	<b>970</b>	<b>150</b>
ESS-113603-S01-2	S01	2 to 6 inches	<b><u>5,800</u></b>	<b><u>950</u></b>
ESS-113603-S01-6	S01	6 to 12 inches	<b><u>10,000</u></b>	<b><u>2,100</u></b>
ESS-113603-S02-0	S02	0 to 2 inches	<b><u>3,700</u></b>	<b><u>590</u></b>
ESS-113603-S02-2	S02	2 to 6 inches	<b><u>2,900</u></b>	<b><u>440</u></b>
ESS-113603-S02-6	S02	6 to 12 inches	<b><u>3,000</u></b>	<b><u>490</u></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
S01	1,672	1	62
S02	2,101	1	78

**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 1,200 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 3-1-10 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>South Spring Street (APN: 001-136-05)</b>				
ESS-113605-S01-0	S01	0 to 2 inches	<b>1,300</b>	<b>140</b>
ESS-113605-S01-2	S01	2 to 6 inches	<b>2,000</b>	<b>240</b>
ESS-113605-S01-6	S01	6 to 12 inches	<b>2,100</b>	<b>280</b>
ESS-113605-S02-0	S02	0 to 2 inches	<b>920</b>	<b>140</b>
ESS-113605-S02-2	S02	2 to 6 inches	<b>1,800</b>	<b>250</b>
ESS-113605-S02-6	S02	6 to 12 inches	<b>2,400</b>	<b>260</b>
ESS-113605-S03-0	S03	0 to 2 inches	<b>1,600</b>	<b>210</b>
ESS-113605-S03-2	S03	2 to 6 inches	<b>2,200</b>	<b>300</b>
ESS-113605-S03-6	S03	6 to 12 inches	<b>2,500</b>	<b>430</b>
ESS-113605-S04-0	S04	0 to 2 inches	<b>2,300</b>	<b>320</b>
ESS-113605-S04-2	S04	2 to 6 inches	<b>2,900</b>	<b>450</b>
ESS-113605-S04-6	S04	6 to 12 inches	<b>2,100</b>	<b>400</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	429	1	16
S02	1,896	1	70
S03	4,969	1	184
S04	796	1	29

**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 1,200 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.

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**Table 3-1-11 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring Street (APN: 001-136-09)</b>				
ESS-113609-S01-0	S01	0 to 2 inches	<b><i>4,000</i></b>	<b><i>600</i></b>
ESS-113609-S01-2	S01	2 to 6 inches	<b><i>5,500</i></b>	<b><i>800</i></b>
ESS-113609-S01-6	S01	6 to 12 inches	<b><i>5,300</i></b>	<b><i>700</i></b>
ESS-113609-S02-0	S02	0 to 2 inches	<b><i>1,900</i></b>	<b><i>310</i></b>
ESS-113609-S02-2	S02	2 to 6 inches	<b><i>3,000</i></b>	<b><i>370</i></b>
ESS-113609-S02-6	S02	6 to 12 inches	<b><i>3,500</i></b>	<b><i>600</i></b>
ESS-113609-S03-0	S03	0 to 2 inches	<b><i>4,800</i></b>	<b><i>850</i></b>
ESS-113609-S03-2	S03	2 to 6 inches	<b><i>5,400</i></b>	<b><i>890</i></b>
ESS-113609-S03-6	S03	6 to 12 inches	<b><i>6,300</i></b>	<b><i>1,100</i></b>
ESS-113609-S04-0	S04	0 to 2 inches	<b><i>1,800</i></b>	<b><i>250</i></b>
ESS-113609-S04-2	S04	2 to 6 inches	<b><i>1,600</i></b>	<b><i>250</i></b>
ESS-113609-S04-6	S04	6 to 12 inches	<b><i>2,400</i></b>	<b><i>410</i></b>
331SSpring-01	Spring-01	0 to 2 inches	<b><i>4,400</i></b>	<b><i>690</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
S01	1,630	1	60
S02	2,435	1	90
S03	5,710	1	211
S04	942	1	35
Spring-01	3,225	1	119

**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 1,200 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 3-1-12 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring Street (APN: 001-136-12)</b>				
113612-S01-0	S01	0 to 2 inches	2,200	290
113612-S01-2	S01	2 to 6 inches	19,000	4,000
113612-S01-6	S01	6 to 12 inches	3,900	660
113612-S02-0	S02	0 to 2 inches	3,300	420
113612-S02-2	S02	2 to 6 inches	6,500	1,100
113612-S02-6	S02	6 to 12 inches	4,600	750
113612-S03-0	S03	0 to 2 inches	1,100	150
113612-S03-2	S03	2 to 6 inches	940	110
113612-S03-6	S03	6 to 12 inches	1,300	180
113612-S04-0	S04	0 to 2 inches	3,600	500
113612-S04-2	S04	2 to 6 inches	6,400	970
113612-S04-6	S04	6 to 12 inches	16,000	3,200
113612-S05-0	S05	0 to 2 inches	1,800	250
113612-S05-2	S05	2 to 6 inches	1,100	150
113612-S05-6	S05	6 to 12 inches	1,200	190
113612-P02-0	Cave	0 to 2 inches	140	51
113612-P01-0	Child's Sand Box	0 to 2 inches	4,500	650
113612-CS01-0	Crawl Space	0 to 2 inches	100	49

Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	3,008	1	111
S02	3,752	1	139
S03	504	1	19
S04	1,473	1	55
S05	1,305	1	48
Cave	0	0	0
Child's Sand Box	15	1	1
Crawl Space under house	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 1,200 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 3-1-13 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Edwards Street (APN: 001-154-01)</b>				
ESS-115401-P1-0	P1	0 to 2 inches	<u><b>8,900</b></u>	<u><b>1,400</b></u>
ESS-115401-P1-2	P1	2 to 6 inches	<u><b>9,700</b></u>	<u><b>1,600</b></u>
ESS-115401-P1-6	P1	6 to 12 inches	<u><b>14,000</b></u>	<u><b>2,500</b></u>
ESS-115401-P2-0	P2	0 to 2 inches	<u><b>3,800</b></u>	<u><b>530</b></u>
ESS-115401-P2-2	P2	2 to 6 inches	<u><b>4,800</b></u>	<u><b>740</b></u>
ESS-115401-P2-2	P2	6 to 12 inches	<u><b>NA</b></u>	<u><b>NA</b></u>
ESS-115401-S01-0	S01	0 to 2 inches	<u><b>5,500</b></u>	<u><b>800</b></u>
ESS-115401-S01-2	S01	2 to 6 inches	<u><b>5,100</b></u>	<u><b>750</b></u>
ESS-115401-S01-6	S01	6 to 12 inches	<u><b>10,000</b></u>	<u><b>1,800</b></u>
ESS-115401-S02-0	S02	0 to 2 inches	<u><b>5,200</b></u>	<u><b>810</b></u>
ESS-115401-S02-2	S02	2 to 6 inches	<u><b>6,000</b></u>	<u><b>1,000</b></u>
ESS-115401-S02-6	S02	6 to 12 inches	<u><b>6,800</b></u>	<u><b>1,300</b></u>
ESS-115401-S03-0	S03	0 to 2 inches	<u><b>4,300</b></u>	<u><b>710</b></u>
ESS-115401-S03-2	S03	2 to 6 inches	<u><b>2,300</b></u>	<u><b>410</b></u>
ESS-115401-S03-6	S03	6 to 12 inches	<u><b>2,600</b></u>	<u><b>410</b></u>
ESS-115401-S04-0	S04	0 to 2 inches	<u><b>8,300</b></u>	<u><b>1,100</b></u>
ESS-115401-S04-2	S04	2 to 6 inches	<u><b>6,600</b></u>	<u><b>980</b></u>
ESS-115401-S04-6	S04	6 to 12 inches	<u><b>6,100</b></u>	<u><b>870</b></u>
115401-S05-0	S05	0 to 2 inches	<u><b>8,300</b></u>	<u><b>1,300</b></u>
115401-S05-2	S05	2 to 6 inches	<u><b>6,400</b></u>	<u><b>960</b></u>
115401-S05-6	S05	6 to 12 inches	<u><b>910</b></u>	<u><b>120</b></u>
115401-S06-0	S06	0 to 2 inches	<u><b>9,000</b></u>	<u><b>1,600</b></u>
115401-S06-2	S06	2 to 6 inches	<u><b>9,600</b></u>	<u><b>1,800</b></u>
115401-S06-6	S06	6 to 12 inches	<u><b>5,200</b></u>	<u><b>840</b></u>
115401-S07-0	S07	0 to 2 inches	<u><b>5,200</b></u>	<u><b>820</b></u>
115401-S07-2	S07	2 to 6 inches	<u><b>3,800</b></u>	<u><b>610</b></u>
115401-S07-6	S07	6 to 12 inches	<u><b>9,500</b></u>	<u><b>1,900</b></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
P1	NA	1	NA
P2	NA	1	NA
S01	3,726	1	138
S02	1,593	1	59
S03	10,025	1	371
S04	1,465	1	54
S05	1,100	1	41
S06	791	1	29
S07	1,772	1	66

**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 1,200 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 3-1-14 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main Street (APN: 001-161-01)</b>				
ESS-116101-P1-0	P1	0 to 2 inches	<b>1,700</b>	<b>250</b>
ESS-116101-P1-2	P1	2 to 6 inches	<b><u>4,100</u></b>	<b><u>600</u></b>
ESS-116101-P1-6	P1	6 to 12 inches	<b><u>4,700</u></b>	<b><u>700</u></b>
ESS-116101-P2-0	P2	0 to 2 inches	<b>1,000</b>	<b>160</b>
ESS-116101-P2-2	P2	2 to 6 inches	<b>900</b>	<b>150</b>
ESS-116101-P2-6	P2	6 to 12 inches	<b>2,700</b>	<b>400</b>
ESS-116101-P3-0	P3	0 to 2 inches	<b>2,200</b>	<b>340</b>
ESS-116101-P3-2	P3	2 to 6 inches	<b><u>4,600</u></b>	<b><u>640</u></b>
ESS-116101-P3-6	P3	6 to 12 inches	<b><u>5,100</u></b>	<b><u>730</u></b>
ESS-116101-S01-0	S01	0 to 2 inches	<b><u>5,200</u></b>	<b><u>720</u></b>
ESS-116101-S01-2	S01	2 to 6 inches	<b><u>10,500</u></b>	<b><u>1,700</u></b>
ESS-116101-S01-6	S01	6 to 12 inches	<b><u>11,500</u></b>	<b><u>2,100</u></b>
ESS-116101-S02-0	S02	0 to 2 inches	<b>2,000</b>	<b>300</b>
ESS-116101-S02-2	S02	2 to 6 inches	<b><u>5,400</u></b>	<b><u>930</u></b>
ESS-116101-S02-6	S02	6 to 12 inches	<b><u>12,500</u></b>	<b><u>2,200</u></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
P1	NA	1	NA
P2	NA	1	NA
P3	NA	1	NA
S01	2,771	1	103
S02	1,648	1	61

**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 1,200 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 3-1-15 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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
South Main Street (APN: 001-162-01)				
116201-S01-0	S01	0 to 2 inches	1,400	170
116201-S01-2	S01	2 to 6 inches	2,100	300
116201-S01-6	S01	6 to 12 inches	1,800	270
116201-S02-0	S02	0 to 2 inches	590	87
116201-S02-2	S02	2 to 6 inches	1,600	150
116201-S02-6	S02	6 to 12 inches	740	93
116201-S03-0	S03	0 to 2 inches	780	95
116201-S03-2	S03	2 to 6 inches	780	96
116201-S03-6	S03	6 to 12 inches	1,300	190
116201-S04-0	S04	0 to 2 inches	130	26
116201-S04-2	S04	2 to 6 inches	110	26
116201-S04-6	S04	6 to 12 inches	79	25
116201-S05-0	S05	0 to 2 inches	470	92
116201-S05-2	S05	2 to 6 inches	290	55
116201-S05-6	S05	6 to 12 inches	1,800	460
116201-S06-0	S06	0 to 2 inches	600	100
116201-P02-0	Child's Sand Box	0 to 2 inches	35	ND
116201-P01-0	Planter	0 to 2 inches	1,400	200
116201-P01-2	Planter	2 to 6 inches	1,600	280
116201-P01-6	Planter	6 to 12 inches	1,500	260
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	
S01	1467	0.5	27	
S02	900	1	33	
S03	645	1	24	
S04	0	1	0	
S05	850	1	31	
S06	665	1	25	
Child's Sand Box	0	1	0	
Planter	24	1	1	
<div>Notes:</div> <div>mg/kg = milligrams per kilogram</div> <div>START = Superfund Technical Assessment and Response Team</div> <div>XRF = X-Ray Fluorescence</div> <div>APN = Assessor's Parcel Number</div> <div>SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg</div> <div>NA = Sample was not analyzed or the size of the area associated with the locations is not known.</div> <div>Bold = Above the SSL</div> <div>Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,200 mg/kg for lead.</div> <div>Bold, underlined and italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead</div> <div>* 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.</div> <div>** 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.</div> <div>Ecology and Environment Inc. 2013</div>				



**Table 3-1-16 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main Street (APN: 001-165-01)</b>				
ESS-116501-S01-0	S01	0 to 2 inches	<b><i>1,600</i></b>	<b><i>230</i></b>
ESS-116501-S01-2	S01	2 to 6 inches	<b><i>2,400</i></b>	<b><i>310</i></b>
ESS-116501-S01-6	S01	6 to 12 inches	<b><i>800</i></b>	<b><i>150</i></b>
ESS-116501-S02-0	S02	0 to 2 inches	<b><i>600</i></b>	<b><i>91</i></b>
ESS-116501-S02-2	S02	2 to 6 inches	<b><i>3,600</i></b>	<b><i>580</i></b>
ESS-116501-S02-6	S02	6 to 12 inches	<b><i>3,300</i></b>	<b><i>520</i></b>
401-S.MAIN ST-01 (0"-2")	"01"	0 to 2 inches	<b><i>2,100</i></b>	<b><i>270</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	
S01	2,665	1	99	
S02	3,090	1	114	
"01"	614	1	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

Bold and italics = Above 180 mg/kg for arsenic by XRF and 1,200 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.

Ecology and Environment Inc. 2013

**Table 3-1-17 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Removal Support  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main Street (APN: 001-166-01)</b>				
116601-S01-0	S01	0 to 2 inches	<b><i>2,200</i></b>	<b><i>300</i></b>
116601-S01-2	S01	2 to 6 inches	<b><i>3,700</i></b>	<b><i>520</i></b>
116601-S01-6	S01	6 to 12 inches	<b><i>2,600</i></b>	<b><i>450</i></b>
116601-S02-0	S02	0 to 2 inches	<b><i>980</i></b>	<b><i>130</i></b>
116601-S02-2	S02	2 to 6 inches	<b><i>930</i></b>	<b><i>140</i></b>
116601-S02-6	S02	6 to 12 inches	<b><i>960</i></b>	<b><i>160</i></b>
116601-S03-0	S03	0 to 2 inches	<b><i>1,500</i></b>	<b><i>230</i></b>
116601-S03-2	S03	2 to 6 inches	<b><i>8,100</i></b>	<b><i>1,200</i></b>
116601-S03-6	S03	6 to 12 inches	<b><i>9,900</i></b>	<b><i>2,300</i></b>
116601-S04-0	S04	0 to 2 inches	<b><i>240</i></b>	<b><i>54</i></b>
116601-S04-2	S04	2 to 6 inches	<b><i>590</i></b>	<b><i>95</i></b>
116601-S04-6	S04	6 to 12 inches	<b><i>600</i></b>	<b><i>97</i></b>
116601-P1-0	Planter	0 to 2 inches	<b><i>190</i></b>	<b><i>36</i></b>
116601-P1-2	Planter	2 to 6 inches	<b><i>280</i></b>	<b><i>60</i></b>
116601-P1-6	Planter	6 to 12 inches	<b><i>110</i></b>	<b><i>43</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
S01	1,423	1	53
S02	2,823	1	105
S03	3,552	1	132
S04	2,308	0.5	43
planter	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 1,200 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 3-1-18 Eureka Residential Property Sampling Data  
Eureka Smelter Sites  
Removal Support  
Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Eureka School District Owned Property (APN: 001-155-03)</b>				
School - P1 - 0"- 2"	north-south slope	0 to 2 inches	140	47
School - P1 - 2"- 6"	north-south slope	2 to 6 inches	38	28
School - P1 - 6"- 12"	north-south slope	6 to 12 inches	59	33
School - P2 - 0"- 2"	north-south slope	0 to 2 inches	150	52
School - P2 - 2"- 6"	north-south slope	2 to 6 inches	69	53
School - P2 - 6"- 12"	north-south slope	6 to 12 inches	140	<b>74</b>
School - P3 - 0"- 2"	east-west slope	0 to 2 inches	330	<b>74</b>
School - P3 - 2"- 6"	east-west slope	2 to 6 inches	76	30
School - P3 - 6"- 12"	east-west slope	6 to 12 inches	120	41
School - P5 - 0"-1/2"	north-south top shelf	0-0.5 inches	360	<b>78</b>
School - P6 - 0"-1/2"	north-south top shelf	0-0.5 inches	<b>1,500</b>	<b>240</b>
115503-G0-S	north-south top shelf	0 to 1 inches	<b>1,400</b>	<b>240</b>
115503-G0-1	north-south top shelf	1 to 2 inches	<b>4,600</b>	<b>790</b>
115503-G1-S	north-south top shelf	0 to 1 inches	<b>1,400</b>	<b>220</b>
115503-G1-1	north-south top shelf	1 to 2 inches	<b>4,100</b>	<b>630</b>
115503-G2-S	north-south top shelf	0 to 1 inches	<b>2,200</b>	<b>320</b>
115503-G2-1	north-south top shelf	1 to 2 inches	<b>4,000</b>	<b>640</b>
115503-G3-S	north-south top shelf	0 to 1 inches	<b>2,700</b>	<b>430</b>
115503-G3-1	north-south top shelf	1 to 2 inches	<b>3,700</b>	<b>660</b>
115503-G4-S	north-south top shelf	0 to 1 inches	<b>1,600</b>	<b>280</b>
115503-G4-1	north-south top shelf	1 to 2 inches	<b>3,500</b>	<b>620</b>
115503-G5-S	north-south top shelf	0 to 1 inches	<b>1,000</b>	<b>150</b>
115503-G5-1	north-south top shelf	1 to 2 inches	<b>850</b>	<b>120</b>
115503-G6-S	north-south top shelf	0 to 1 inches	<b>2,000</b>	<b>350</b>
115503-G6-1	north-south top shelf	1 to 2 inches	220	79
115503-G7-S	east-west top shelf	0 to 1 inches	<b>2,300</b>	<b>360</b>
115503-G7-1	east-west top shelf	1 to 2 inches	280	93
115503-G8-S	east-west top shelf	0 to 1 inches	<b>3,900</b>	<b>990</b>
115503-G8-1	east-west top shelf	1 to 2 inches	210	63
115503-G9-S	east-west top shelf	0 to 1 inches	<b>6,500</b>	<b>1,200</b>
115503-G9-1	east-west top shelf	1 to 2 inches	<b>4,200</b>	<b>750</b>
115503-G21-S	east-west top shelf	0 to 1 inches	220	<b>140</b>
115503-G21-1	east-west top shelf	1 to 2 inches	<b>3,800</b>	<b>670</b>
115503-G10-S	north-south slope	0 to 1 inches	120	65
115503-G11-S	north-south slope	0 to 1 inches	<b>550</b>	<b>110</b>
115503-G12-S	north-south slope	0 to 1 inches	180	54
115503-G13-S	north-south slope	0 to 1 inches	420	88
115503-G14-S	north-south slope	0 to 1 inches	<b>550</b>	<b>100</b>
115503-G15-S	north-south slope	0 to 1 inches	<b>710</b>	<b>130</b>
115503-G16-S	north-south slope	0 to 1 inches	420	88
115503-G17-S	east-west slope	0 to 1 inches	320	80
115503-G18-S	east-west slope	0 to 1 inches	240	57
115503-G19-S	east-west slope	0 to 1 inches	280	<b>60</b>
115503-G31-S	east-west slope	0 to 1 inches	210	<b>56</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
north-south top shelf	180	0.5	3
north-south slope	0	1	0
east-west slope	120	0.5	2
east-west top shelf	0	1	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 1,200 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.



***Appendix C:  
Data  
Summary Tables***

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**Table 3-2-1 through 3-2-27**

**Removal Assessment Data for New  
Eureka Properties**

**Table 3-2-1**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>North Main Street (APN: 001-012-10)</b>				
101210-G1-0	G1	0-2 inches bgs	<b>14,000</b>	<b>2800</b>
101210-G1-2	G1	2-6 inches bgs	<b>28,000</b>	<b>6200</b>
101210-G1-6	G1	6-12 inches bgs	<b>29,000</b>	<b>7700</b>
101210-G2-0	G2	0-2 inches bgs	<b>14,000</b>	<b>2700</b>
101210-G2-2	G2	2-6 inches bgs	<b>3,700</b>	<b>710</b>
101210-G2-6	G2	6-12 inches bgs	<b>1,700</b>	<b>360</b>
101210-G3-0	G3	0-2 inches bgs	<b>20,000</b>	<b>4000</b>
101210-G3-2	G3	2-6 inches bgs	<b>12,000</b>	<b>2200</b>
101210-G3-6	G3	6-12 inches bgs	<b>5,100</b>	<b>930</b>
101210-G4-0	G4	0-2 inches bgs	<b>22,000</b>	<b>4600</b>
101210-G4-2	G4	2-6 inches bgs	<b>36,000</b>	<b>8300</b>
101210-G4-6	G4	6-12 inches bgs	<b>45,000</b>	<b>11,000</b>
101210-G5-0	G5	0-2 inches bgs	<b>9,000</b>	<b>1,600</b>
101210-G5-2	G5	2-6 inches bgs	<b>14,000</b>	<b>2,600</b>
101210-G5-6	G5	6-12 inches bgs	<b>5,400</b>	<b>760</b>
101210-P1-0	P1	0-2 inches bgs	<b>3,300</b>	<b>530</b>
101210-P1-2	P1	2-6 inches bgs	<b>6,900</b>	<b>1,100</b>
101210-P1-6	P1	6-12 inches bgs	<b>4,900</b>	<b>890</b>
101210-P2-0	P2	0-2 inches bgs	<b>630</b>	<b>110</b>
101210-P2-2	P2	2-6 inches bgs	<b>430</b>	<b>120</b>
101210-P2-6	P2	6-12 inches bgs	<b>280</b>	<b>95</b>
101210-P3-0	P3	0-2 inches bgs	<b>5,200</b>	<b>900</b>
101210-P3-2	P3	2-6 inches bgs	<b>4,300</b>	<b>690</b>
101210-P3-6	P3	6-12 inches bgs	<b>4,400</b>	<b>790</b>
101210-P4-0	P4	0-2 inches bgs	<b>4,100</b>	<b>710</b>
101210-P4-2	P4	2-6 inches bgs	<b>3,600</b>	<b>630</b>
101210-P4-6	P4	6-12 inches bgs	<b>2,100</b>	<b>380</b>
101210-P5-0	P5	0-2 inches bgs	<b>9,100</b>	<b>1,800</b>
101210-P5-2	P5	2-6 inches bgs	<b>12,000</b>	<b>2,700</b>
101210-P5-6	P5	6-12 inches bgs	<b>17,000</b>	<b>3,800</b>
101210-P6-0	P6	0-2 inches bgs	<b>3,000</b>	<b>500</b>
101210-P6-2	P6	2-6 inches bgs	<b>3,900</b>	<b>760</b>
101210-P6-6	P6	6-12 inches bgs	<b>1,600</b>	<b>330</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	
P1	34,000	1	1,259	
P2	34,000	1	1,259	
P3	34,000	1	1,259	
P4	34,000	1	1,259	
P5	34,000	1	1,259	
P6	34,000	1	1,259	
Area Along Highway	5,000	1	185	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

**Table 3-2-2**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Nob Hill (APN: 001-012-22)</b>				
101222-S01-0	S01	0-2 inches bgs	<b>800</b>	<b>120</b>
101222-S01-2	S01	2-6 inches bgs	<b>1,100</b>	<b>190</b>
101222-S01-6	S01	6-12 inches bgs	<b>1,600</b>	<b>310</b>
101222-S02-0	S02	0-2 inches bgs	<b>980</b>	<b>160</b>
101222-S02-2	S02	2-6 inches bgs	<b>1,200</b>	<b>190</b>
101222-S02-6	S02	6-12 inches bgs	<b>930</b>	<b>160</b>
101222-S03-0	S03	0-2 inches bgs	<b>1,600</b>	<b>270</b>
101222-S03-2	S03	2-6 inches bgs	<b>1,600</b>	<b>510</b>
101222-S03-6	S03	6-12 inches bgs	<b>2,000</b>	<b>370</b>
101222-S04-0	S04	0-2 inches bgs	250	<b>76</b>
101222-S04-2	S04	2-6 inches bgs	260	<b>79</b>
101222-S04-6	S04	6-12 inches bgs	150	<b>64</b>
101222-S05-0	S05	0-2 inches bgs	<b>410</b>	<b>75</b>
101222-S05-2	S05	2-6 inches bgs	<b>1,100</b>	<b>180</b>
101222-S05-6	S05	6-12 inches bgs	<b>980</b>	<b>180</b>
101222-S06-0	S06	0-2 inches bgs	280	<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	
S01	5216	1	193	
S02	1791	1	66	
S03	6023	1	223	
S04	3940	1	146	
S05	721	1	27	
S06	2012	1	75	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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**Table 3-2-3**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Nob Hill (APN: 001-012-25)</b>				
520-NOB HILL-01 (0"-2")	01	0-2 inches bgs	175	29
520-NOB HILL-01 (2"-6")	01	2-6 inches bgs	190	29
520-NOB HILL-01 (6"-12")	01	6-12 inches bgs	130	22
520-NOB HILL-02 (0"-2")	02	0-2 inches bgs	280	54
520-NOB HILL-02 (2"-6")	02	2-6 inches bgs	<b>440</b>	<b>70</b>
520-NOB HILL-02 (6"-12")	02	6-12 inches bgs	<b>400</b>	<b>65</b>
520-NOB HILL-03 (0"-2")	03	0-2 inches bgs	200	30
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	
01	0	0	0	
02	2,902	1	107	
03	0	0	0	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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**Table 3-2-4**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Vandal Way (APN: 001-022-11)</b>				
102211-S01-0	S01	0-2 inches bgs	210	33
102211-S01-2	S01	2-6 inches bgs	190	37
102211-S01-6	S01	6-12 inches bgs	170	37
102211-S02-0	S02	0-2 inches bgs	<b>450</b>	<b>70</b>
102211-S02-2	S02	2-6 inches bgs	<b>510</b>	<b>77</b>
102211-S02-6	S02	6-12 inches bgs	180	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	
S01	0	1	0	
S02	3344	1	124	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

**Table 3-2-5**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>North Monroe St. (APN: 001-064-04)</b>				
106404-S01-0	S01	0-2 inches bgs	<b>950</b>	<b>120</b>
106404-S01-2	S01	2-6 inches bgs	<b>1,000</b>	<b>110</b>
106404-S01-6	S01	6-12 inches bgs	<b>1,200</b>	<b>130</b>
106404-S02-0	S02	0-2 inches bgs	<b>1,900</b>	<b>210</b>
106404-S02-2	S02	2-6 inches bgs	<b>3,600</b>	<b>470</b>
106404-S02-6	S02	6-12 inches bgs	<b>3,100</b>	<b>390</b>
106404-S03-0	S03	0-2 inches bgs	<b>410</b>	<b>62</b>
106404-S03-2	S03	2-6 inches bgs	<b>920</b>	<b>140</b>
106404-S03-6	S03	6-12 inches bgs	<b>1,000</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
S01	2,631	1	97
S02	1,887	1	70
S03	1,837	1	68

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-6**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>North Spring St. (APN: 001-074-02)</b>				
107402-S01-0	S01	0-2 inches bgs	<b>870</b>	<b>170</b>
107402-S01-2	S01	2-6 inches bgs	<b>1,300</b>	<b>180</b>
107402-S01-6	S01	6-12 inches bgs	<b>1,300</b>	<b>200</b>
107402-S02-0	S02	0-2 inches bgs	<b>810</b>	<b>95</b>
107402-S02-2	S02	2-6 inches bgs	<b>910</b>	<b>130</b>
107402-S02-6	S02	6-12 inches bgs	<b>1,500</b>	<b>230</b>
107402-S03-0	S03	0-2 inches bgs	<b>730</b>	<b>90</b>
107402-S03-2	S03	2-6 inches bgs	<b>1,100</b>	<b>130</b>
107402-S03-6	S03	6-12 inches bgs	<b>1,100</b>	<b>180</b>
107402-P1-0	P1	0-2 inches bgs	<b>630</b>	<b>62</b>
107402-P1-2	P1	2-6 inches bgs	320	50
107402-P2-0	P2	0-2 inches bgs	97	18
107402-P2-2	P2	2-6 inches bgs	<b>1,200</b>	<b>200</b>
107402-P2-6	P2	6-12 inches bgs	120	37

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
S01	1,836	1	68
S02	4,514	1	167
S03	3,734	1	138

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-7**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>North O'Neil (APN: 001-095-03)</b>				
109503-S01-0	S01	0-2 inches bgs	<b>1,100</b>	<b>160</b>
109503-S01-2	S01	2-6 inches bgs	<b>1,400</b>	<b>270</b>
109503-S01-6	S01	6-12 inches bgs	<b>1,100</b>	<b>210</b>
109503-S02-0	S02	0-2 inches bgs	<b>4,100</b>	<b>690</b>
109503-S02-2	S02	2-6 inches bgs	<b>3,400</b>	<b>700</b>
109503-S02-6	S02	6-12 inches bgs	<b>2,700</b>	<b>500</b>
109503-S03-0	S03	0-2 inches bgs	<b>1,700</b>	<b>270</b>
109503-S03-2	S03	2-6 inches bgs	<b>1,500</b>	<b>240</b>
109503-S03-6	S03	6-12 inches bgs	<b>1,300</b>	<b>230</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
S01	2,473	1	92
S02	2,560	1	95
S03	1,741	1	64

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

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**Table 3-2-8**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Buel St. (APN: 001-108-01)</b>				
110801-S01-0	S01	0-2 inches bgs	<b>1,300</b>	<b>130</b>
110801-S01-2	S01	2-6 inches bgs	<b>1,500</b>	<b>170</b>
110801-S01-6	S01	6-12 inches bgs	<b>1,700</b>	<b>210</b>
110801-S02-0	S02	0-2 inches bgs	<b>1,000</b>	<b>110</b>
110801-S02-2	S02	2-6 inches bgs	<b>1,000</b>	<b>180</b>
110801-S02-6	S02	6-12 inches bgs	<b>740</b>	<b>85</b>
110801-S03-0	S03	0-2 inches bgs	<b>480</b>	<b>64</b>
110801-S03-2	S03	2-6 inches bgs	<b>360</b>	<b>54</b>
110801-S03-6	S03	6-12 inches bgs	<b>770</b>	<b>94</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
S01	4,101	1	152
S02	1,702	1	63
S03	1,561	1	58

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-9**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Railroad St. (APN: 001-113-21)</b>				
111321-S01-0	S01	0-2 inches bgs	<b>1,100</b>	<b>150</b>
111321-S01-2	S01	2-6 inches bgs	<b>2,200</b>	<b>330</b>
111321-S01-6	S01	6-12 inches bgs	<b>1,700</b>	<b>210</b>
111321-S02-0	S02	0-2 inches bgs	62	15
111321-S02-2	S02	2-6 inches bgs	100	17
111321-S02-6	S02	6-12 inches bgs	160	27
111321-S03-0	S03	0-2 inches bgs	170	27
111321-S04-0	S04	0-2 inches bgs	350	49
111321-G01-0	G01	0-2 inches bgs	<b>690</b>	<b>94</b>
111321-G01-2	G01	2-6 inches bgs	<b>420</b>	58
111321-G01-6	G01	6-12 inches bgs	56	<b>380</b>
111320-G02-0	G02	0-2 inches bgs	<b>440</b>	46
111321-G02-2	G02	2-6 inches bgs	150	32
111321-G02-6	G02	6-12 inches bgs	160	24
111321-G03-0	G03	0-2 inches bgs	<b>830</b>	<b>110</b>
111321-G03-2	G03	2-6 inches bgs	<b>730</b>	<b>83</b>
111321-G03-6	G03	6-12 inches bgs	<b>870</b>	<b>100</b>
111321-G04-0	G04	0-2 inches bgs	<b>450</b>	<b>180</b>
111321-G04-2	G04	2-6 inches bgs	<b>2,900</b>	<b>390</b>
111321-G04-6	G04	6-12 inches bgs	<b>790</b>	<b>90</b>
111321-G05-0	G05	0-2 inches bgs	<b>1,600</b>	<b>200</b>
111321-G05-2	G05	2-6 inches bgs	<b>1,500</b>	<b>220</b>
111321-G05-6	G05	6-12 inches bgs	<b>440</b>	<b>72</b>
111321-P1-0	P1	0-2 inches bgs	86	40
111321-P1-2	P1	2-6 inches bgs	90	40
111321-P1-6	P1	6-12 inches bgs	85	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
S01	1,241	1	46
S02	0	0	0
S03	0	1	0
S04	0	1	0
Area southeast of house	2,000	1	74
P01	0	0	0

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF  
APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

**Table 3-2-10**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South O'Neil St. (APN: 001-116-03)</b>				
111603-S01-0	S01	0-2 inches bgs	<b>830</b>	<b>150</b>
111603-S01-2	S01	2-6 inches bgs	<b>700</b>	<b>97</b>
111603-S01-6	S01	6-12 inches bgs	<b>2,000</b>	<b>270</b>
111603-S02-0	S02	0-2 inches bgs	<b>1,100</b>	<b>180</b>
111603-S02-2	S02	2-6 inches bgs	<b>570</b>	<b>100</b>
111603-S02-6	S02	6-12 inches bgs	390	<b>100</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	
S01	3,436	1	127	
S02	3,998	1	148	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-11**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Edwards St. (APN: 001-117-02)</b>				
111702-S01-0	S01	0-2 inches bgs	<b>650</b>	<b>140</b>
111702-S01-2	S01	2-6 inches bgs	<b>1,100</b>	<b>200</b>
111702-S01-6	S01	6-12 inches bgs	<b>1,100</b>	<b>150</b>
111702-S02-0	S02	0-2 inches bgs	<b>480</b>	<b>74</b>
111702-S02-2	S02	2-6 inches bgs	<b>1,400</b>	<b>200</b>
111702-S02-6	S02	6-12 inches bgs	<b>2,200</b>	<b>290</b>
111702-S03-0	S03	0-2 inches bgs	<b>840</b>	<b>180</b>
111702-S03-2	S03	2-6 inches bgs	<b>670</b>	<b>130</b>
111702-S03-6	S03	6-12 inches bgs	290	<b>65</b>
111702-S04-0	S04	0-2 inches bgs	<b>1,900</b>	<b>220</b>
111702-S04-2	S04	2-6 inches bgs	<b>2,000</b>	<b>260</b>
111702-S04-6	S04	6-12 inches bgs	<b>1,000</b>	<b>130</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
S01	1,187	1	44
S02	2,244	1	83
S03	2,030	1	75
S04	364	1	13

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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**Table 3-2-12**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main St. (APN: 001-124-04)</b>				
112404-S01-0	S01	0-2 inches bgs	230	55
112404-S01-2	S01	2-6 inches bgs	<b>1,200</b>	<b>210</b>
112404-S01-6	S01	6-12 inches bgs	<b>1,700</b>	<b>340</b>
112404-S02-0	S02	0-2 inches bgs	<b>1,200</b>	<b>220</b>
112404-S02-2	S02	2-6 inches bgs	<b>2,000</b>	<b>320</b>
112404-S02-6	S02	6-12 inches bgs	<b>4,400</b>	<b>850</b>
112404-S03-0	S03	0-2 inches bgs	<b>1,300</b>	<b>180</b>
112404-S03-2	S03	2-6 inches bgs	<b>740</b>	<b>180</b>
112404-S03-6	S03	6-12 inches bgs	<b>1,200</b>	<b>250</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
S01	2,920	1	108
S02	7,284	1	270
S03	6,000	1	222

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-13**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main St. (APN: 001-129-02)</b>				
112902-S01-0	S01	0-2 inches bgs	<b>1,300</b>	<b>110</b>
112902-S01-2	S01	2-6 inches bgs	<b>2,300</b>	<b>330</b>
112902-S01-6	S01	6-12 inches bgs	<b>1,200</b>	<b>220</b>
112902-S02-0	S02	0-2 inches bgs	<b>1,700</b>	<b>320</b>
112902-S02-2	S02	2-6 inches bgs	<b>1,400</b>	<b>200</b>
112902-S02-6	S02	6-12 inches bgs	<b>740</b>	<b>150</b>
112902-S03-0	S03	0-2 inches bgs	<b>1,500</b>	<b>250</b>
112902-S03-2	S03	2-6 inches bgs	<b>1,600</b>	<b>230</b>
112902-S03-6	S03	6-12 inches bgs	<b>1,600</b>	<b>220</b>
112902-S04-0	S04	0-2 inches bgs	<b>6,600</b>	<b>1,400</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	
S01	779	1	29	
S02	1,178	1	44	
S03	1,235	1	46	
S04	4,669	1	173	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

**Table 3-2-14**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main St. (APN: 001-129-03)</b>				
112903-S01-0	S01	0-2 inches bgs	200	270
112903-S01-2	S01	2-6 inches bgs	<b>6,800</b>	100
112903-S01-6	S01	6-12 inches bgs	1,300	210
112903-S02-0	S02	0-2 inches bgs	2,000	280
112903-S02-2	S02	2-6 inches bgs	2,300	350
112903-S02-6	S02	6-12 inches bgs	3,000	380
112903-S03-0	S03	0-2 inches bgs	1,300	200
112903-S03-2	S03	2-6 inches bgs	2,900	460
112903-S03-6	S03	6-12 inches bgs	1,900	280
112903-S04-0	S04	0-2 inches bgs	2,000	350
112903-S04-2	S04	2-6 inches bgs	2,800	480
112903-S04-6	S04	6-12 inches bgs	3,900	660
112903-P1-0	P1	0-2 inches bgs	830	150
112903-P1-2	P1	2-6 inches bgs	2,200	290
112903-P1-6	P1	6-12 inches bgs	1,200	190

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
S01	549	1	20
S02	895	1	33
S03	916	1	34
S04	2,508	1	93

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-15**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>East Mineral St. (APN: 001-129-04)</b>				
112904-S01-0	S01	0-2 inches bgs	<b>530</b>	<b>110</b>
112904-S01-2	S01	2-6 inches bgs	230	57
112904-S01-6	S01	6-12 inches bgs	180	48
112904-S02-0	S02	0-2 inches bgs	<b>1,000</b>	<b>190</b>
112904-S02-2	S02	2-6 inches bgs	<b>5,800</b>	<b>980</b>
112904-S02-6	S02	6-12 inches bgs	<b>13,000</b>	<b>2,600</b>
112904-S03-0	S03	0-2 inches bgs	<b>1,100</b>	<b>170</b>
112904-S03-2	S03	2-6 inches bgs	<b>2,400</b>	<b>390</b>
112904-S03-6	S03	6-12 inches bgs	<b>4,800</b>	<b>830</b>
112904-S04-0	S04	0-2 inches bgs	<b>2,300</b>	<b>320</b>
112904-S04-2	S04	2-6 inches bgs	<b>4,500</b>	<b>710</b>
112904-S04-6	S04	6-12 inches bgs	<b>4,700</b>	<b>820</b>
112904-S05-0	S05	0-2 inches bgs	<b>1,600</b>	<b>260</b>
112904-S05-2	S05	2-6 inches bgs	<b>1,300</b>	<b>200</b>
112904-S05-6	S05	6-12 inches bgs	270	<b>84</b>
112904-S06-0	S06	0-2 inches bgs	66	31
112904-S06-2	S06	2-6 inches bgs	120	29
112904-S06-6	S06	6-12 inches bgs	<b>590</b>	<b>130</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
S01	2,477	0.5	46
S02	1,180	1	44
S03	520	1	19
S04	1,422	1	53
S05	150	1	6
S06	0	0	0

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF  
APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence



**Table 3-2-16**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring St. (APN: 001-134-08)</b>				
113408-S01-0	S01	0-2 inches bgs	370	69
113408-S01-2	S01	2-6 inches bgs	760	110
113408-S01-6	S01	6-12 inches bgs	1,700	240
113408-S02-0	S02	0-2 inches bgs	1,600	230
113408-S02-2	S02	2-6 inches bgs	2,100	240
113408-S02-6	S02	6-12 inches bgs	1,800	240
113408-S03-0	S03	0-2 inches bgs	1,300	200
113408-S03-2	S03	2-6 inches bgs	1,900	240
113408-S03-6	S03	6-12 inches bgs	9,500	2,100
113408-S04-0	S04	0-2 inches bgs	890	160
113408-S04-2	S04	2-6 inches bgs	1,200	210
113408-S04-6	S04	6-12 inches bgs	4,000	630
113408-S05-0	S05	0-2 inches bgs	870	130
113408-S05-2	S05	2-6 inches bgs	910	110
113408-S05-6	S05	6-12 inches bgs	1,300	190
113408-S06-0	S06	0-2 inches bgs	600	100
113408-S06-2	S06	2-6 inches bgs	550	94
113408-S06-6	S06	6-12 inches bgs	1,900	260

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
S01	1,230	1	46
S02	638	1	24
S03	919	1	34
S04	1,088	1	40
S05	1,396	1	52
S06	1,456	1	54

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-17**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Spring St. (APN: 001-136-10)</b>				
113610-S01-0	S01	0-2 inches bgs	<b>2,600</b>	<b>710</b>
113610-S01-2	S01	2-6 inches bgs	<b>3,300</b>	<b>390</b>
113610-S01-6	S01	6-12 inches bgs	<b>3,300</b>	<b>450</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	
S01	2,566	1	95	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-18**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>West McCoy (APN: 001-142-02)</b>				
114202-S01-0	S01	0-2 inches bgs	200	39
114202-S01-2	S01	2-6 inches bgs	120	25
114202-S01-6	S01	6-12 inches bgs	110	20
114202-S02-0	S02	0-2 inches bgs	89	25
114202-S02-2	S02	2-6 inches bgs	180	27
114202-S02-6	S02	6-12 inches bgs	81	21
114202-S03-0	S03	0-2 inches bgs	32	33
114202-S03-2	S03	2-6 inches bgs	88	34
114202-S03-6	S03	6-12 inches bgs	240	36
114202-P1-0	P1	0-2 inches bgs	160	33
114202-P1-2	P1	2-6 inches bgs	320	37
114202-P1-6	P1	6-12 inches bgs	380	42

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
S01	0	0	0
S02	0	0	0
S03	0	0	0
P01	0	0	0

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-19**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>West McCoy St. (APN: 001-153-03)</b>				
115303-S01-0	S01	0-2 inches bgs	<b>870</b>	<b>140</b>
115303-S01-2	S01	2-6 inches bgs	<b>2,700</b>	<b>380</b>
115303-S01-6	S01	6-12 inches bgs	<b>930</b>	<b>94</b>
115303-S02-0	S02	0-2 inches bgs	<b>630</b>	<b>82</b>
115303-S02-2	S02	2-6 inches bgs	<b>720</b>	<b>110</b>
115303-S02-6	S02	6-12 inches bgs	370	<b>76</b>
115303-S03-0	S03	0-2 inches bgs	<b>960</b>	<b>140</b>
115303-S03-2	S03	2-6 inches bgs	<b>890</b>	<b>140</b>
115303-S03-6	S03	6-12 inches bgs	<b>990</b>	<b>180</b>
115303-S04-0	S04	0-2 inches bgs	<b>740</b>	<b>99</b>
115303-S04-2	S04	2-6 inches bgs	<b>590</b>	<b>110</b>
115303-S04-6	S04	6-12 inches bgs	<b>2,200</b>	<b>340</b>
115303-S05-0	S05	0-2 inches bgs	<b>540</b>	<b>110</b>
115303-S05-2	S05	2-6 inches bgs	<b>960</b>	<b>140</b>
115303-S05-6	S05	6-12 inches bgs	<b>1,000</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
S01	1,284	1	48
S02	535	1	20
S03	3,697	1	137
S04	1,672	1	62
S05	2,204	1	82

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence



**Table 3-2-20**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>West McCoy St. (APN: 001-157-03)</b>				
115701-P01-0	P01	0-2 inches bgs	<b>1,400</b>	<b>240</b>
115701-P01-2	P01	2-6 inches bgs	<b>1,300</b>	<b>210</b>
115701-P01-6	P01	6-12 inches bgs	<b>1,700</b>	<b>270</b>
115701-S01-0	S01	0-2 inches bgs	<b>6,900</b>	<b>1,000</b>
115701-S01-2	S01	2-6 inches bgs	<b>4,700</b>	<b>720</b>
115701-S01-6	S01	6-12 inches bgs	<b>3,200</b>	<b>530</b>
115701-S02-0	S02	0-2 inches bgs	<b>10,000</b>	<b>1,900</b>
115701-S02-2	S02	2-6 inches bgs	<b>1,400</b>	<b>250</b>
115701-S02-6	S02	6-12 inches bgs	<b>1,100</b>	<b>210</b>
115701-S03-0	S03	0-2 inches bgs	<b>1,500</b>	<b>260</b>
115701-S03-2	S03	2-6 inches bgs	<b>1,300</b>	<b>210</b>
115701-S03-6	S03	6-12 inches bgs	<b>1,100</b>	<b>200</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
S01	5,382.0	1	199
S02	14,753.0	1	546
S03	520	1	19

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-21**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South O'Neill St. (APN: 001-158-06)</b>				
115806-S01-0	S01	0-2 inches bgs	170	32
115806-S01-2	S01	2-6 inches bgs	<b>8,500</b>	<b>1400</b>
115806-S01-6	S01	6-12 inches bgs	<b>4,900</b>	<b>720</b>
115806-S02-0	S02	0-2 inches bgs	<b>5,000</b>	<b>720</b>
115806-S02-2	S02	2-6 inches bgs	<b>6,500</b>	<b>990</b>
115806-S02-6	S02	6-12 inches bgs	<b>4,500</b>	<b>650</b>
115806-S03-0	S03	0-2 inches bgs	<b>630</b>	<b>99</b>
115806-S03-2	S03	2-6 inches bgs	<b>780</b>	<b>96</b>
115806-S03-6	S03	6-12 inches bgs	<b>420</b>	<b>120</b>
115806-S04-0	S04	0-2 inches bgs	360	53
115806-S04-2	S04	2-6 inches bgs	300	46
115806-S04-6	S04	6-12 inches bgs	310	42
115806-P01-0	P01	0-2 inches bgs	<b>580</b>	<b>82</b>
115806-P01-2	P01	2-6 inches bgs	<b>800</b>	<b>120</b>
115806-P01-6	P01	6-12 inches bgs	<b>4,650</b>	<b>680</b>
115806-P02-0	P02	0-2 inches bgs	<b>780</b>	<b>84</b>
115806-P02-2	P02	2-6 inches bgs	<b>3,300</b>	<b>470</b>
115806-P02-6	P02	6-12 inches bgs	<b>13,000</b>	<b>2,300</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
S01	1,259	1	47
S02	1,262	1	47
S03	2,744	1	102
S04	0	0	0

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

**Table 3-2-22**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Edwards St. (APN: 001-158-07)</b>				
115807-S01-0	S01	0-2 inches bgs	<b>1,300</b>	<b>190</b>
115807-S01-2	S01	2-6 inches bgs	<b>1,100</b>	<b>180</b>
115807-S01-6	S01	6-12 inches bgs	<b>2,700</b>	<b>490</b>
115807-S02-0	S02	0-2 inches bgs	<b>710</b>	<b>180</b>
115807-S02-2	S02	2-6 inches bgs	<b>2,000</b>	<b>360</b>
115807-S02-6	S02	6-12 inches bgs	<b>920</b>	<b>160</b>
115807-S03-0	S03	0-2 inches bgs	<b>2,200</b>	<b>390</b>
115807-S03-2	S03	2-6 inches bgs	<b>6,900</b>	<b>1,200</b>
115807-S03-6	S03	6-12 inches bgs	<b>10,000</b>	<b>2,000</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
S01	476	1	18
S02	2,211	1	82
S03	488	1	18

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

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**Table 3-2-23**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>West McCoy St. (APN: 001-158-08)</b>				
115808-S01-0	S01	0-2 inches bgs	230	60
115808-S01-2	S01	2-6 inches bgs	90	53
115808-S01-6	S01	6-12 inches bgs	84	52
115808-S02-0	S02	0-2 inches bgs	<b>890</b>	<b>130</b>
115808-S02-2	S02	2-6 inches bgs	<b>420</b>	<b>74</b>
115808-S02-6	S02	6-12 inches bgs	340	<b>77</b>
115808-S03-0	S03	0-2 inches bgs	290	51
115808-S03-2	S03	2-6 inches bgs	260	54
115808-S03-6	S03	6-12 inches bgs	180	<b>67</b>
115808-S04-0	S04	0-2 inches bgs	<b>690</b>	<b>97</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	
S01	0	0	0	
S02	1,695	1	63	
S03	0	0	0	
S04	2,588	0.5	48	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

**Table 3-2-24**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>South Main St. (APN: 001-162-03)</b>				
116203-S01-0	S01	0-2 inches bgs	<b>810</b>	<b>150</b>
116203-S01-2	S01	2-6 inches bgs	<b>570</b>	<b>93</b>
116203-S01-6	S01	6-12 inches bgs	400	59
116203-S02-0	S02	0-2 inches bgs	<b>1,400</b>	<b>190</b>
116203-S02-2	S02	2-6 inches bgs	<b>1,200</b>	<b>180</b>
116203-S02-6	S02	6-12 inches bgs	<b>1,300</b>	<b>220</b>
116203-S03-0	S03	0-2 inches bgs	<b>1,100</b>	<b>160</b>
116203-S03-2	S03	2-6 inches bgs	<b>820</b>	<b>130</b>
116203-S03-6	S03	6-12 inches bgs	<b>1,100</b>	<b>170</b>
116203-P1-0	P1	0-2 inches bgs	370	<b>73</b>
116203-S04-0	S04	0-2 inches bgs	<b>1,500</b>	<b>210</b>
116203-S04-2	S04	2-6 inches bgs	<b>1,800</b>	<b>270</b>
116203-S04-6	S04	6-12 inches bgs	<b>2,200</b>	<b>300</b>
116203-S05-0	S05	0-2 inches bgs	<b>950</b>	<b>120</b>
116203-S06-0	S06	0-2 inches bgs	<b>1,300</b>	<b>200</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
S01	622	1	23
S02	744	1	28
S03	728	1	27
S04	1,350	1	50
S05	151	1	6
S06	96	1	4

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

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**Table 3-2-25**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Bullion St. (APN: 001-191-03)</b>				
119103-P1-0	P1	0-2 inches bgs	180	39
119103-P1-2	P1	2-6 inches bgs	<b>1,400</b>	<b>280</b>
119103-P1-6	P1	6-12 inches bgs	<b>1,700</b>	<b>290</b>
119103-P2-0	P2	0-2 inches bgs	<b>8,900</b>	<b>1800</b>
119103-P2-2	P2	2-6 inches bgs	<b>3,000</b>	<b>590</b>
119103-P2-6	P2	6-12 inches bgs	<b>2,800</b>	<b>410</b>
119103-P3-0	P3	0-2 inches bgs	<b>940</b>	<b>190</b>
119103-P3-2	P3	2-6 inches bgs	<b>700</b>	<b>170</b>
119103-P3-6	P3	6-12 inches bgs	360	<b>100</b>
119103-P4-0	P4	0-2 inches bgs	<b>770</b>	<b>130</b>
119103-P4-2	P4	2-6 inches bgs	<b>1,600</b>	<b>270</b>
119103-P4-6	P4	6-12 inches bgs	<b>1,800</b>	<b>320</b>
119103-P5-0	P5	0-2 inches bgs	<b>6,500</b>	<b>1200</b>
119103-P5-2	P5	2-6 inches bgs	<b>3,900</b>	<b>680</b>
119103-P5-6	P5	6-12 inches bgs	<b>5,900</b>	<b>1100</b>
119103-S01-0	S01	0-2 inches bgs	<b>8,900</b>	<b>1800</b>
119103-S01-2	S01	2-6 inches bgs	<b>4,900</b>	<b>990</b>
119103-S01-6	S01	6-12 inches bgs	<b>3,900</b>	<b>780</b>
119103-S02-0	S02	0-2 inches bgs	<b>950</b>	<b>200</b>
119103-S02-2	S02	2-6 inches bgs	<b>1,400</b>	<b>250</b>
119103-S02-6	S02	6-12 inches bgs	<b>1,100</b>	<b>220</b>
119103-S03-0	S03	0-2 inches bgs	<b>20,000</b>	<b>3800</b>
119103-S03-2	S03	2-6 inches bgs	<b>20,000</b>	<b>4100</b>
119103-S03-6	S03	6-12 inches bgs	<b>5,600</b>	<b>1100</b>
200-BULLION-HILL-01 (0"-2")	HILL-01	0-2 inches bgs	<b>6,300</b>	<b>1100</b>
200-BULLION-HILL-01 (2"-6")	HILL-01	2-6 inches bgs	<b>6,500</b>	<b>1150</b>
200-BULLION-HILL-01 (6"-12")	HILL-01	6-12 inches bgs	<b>4,700</b>	<b>860</b>
200-BULLION-HILL-01 (12"-18")	HILL-01	12-18 inches bgs	<b>3,500</b>	<b>680</b>
200-BULLION-HILL-02 (0"-2")	HILL-02	0-2 inches bgs	<b>27,000</b>	<b>5300</b>
200-BULLION-HILL-02 (2"-6")	HILL-02	2-6 inches bgs	<b>9,700</b>	<b>1,600</b>
200-BULLION-HILL-02 (6"-12")	HILL-02	6-12 inches bgs	<b>6,800</b>	<b>1,250</b>
200-BULLION-HILL-03 (0"-2")	HILL-03	0-2 inches bgs	<b>14,000</b>	<b>2,600</b>
200-BULLION-HILL-03 (2"-6")	HILL-03	2-6 inches bgs	<b>3,100</b>	<b>520</b>
200-BULLION-HILL-03 (6"-12")	HILL-03	6-12 inches bgs	<b>3,200</b>	<b>560</b>
200-BULLION-BANK-01	BANK-01	0-2 inches bgs	340	<b>93</b>
200-BULLION-BANK-02	BANK-02	0-2 inches bgs	200	<b>90</b>
200-BULLION-BANK-03	BANK-03	0-2 inches bgs	230	<b>91</b>
200-BULLION-BANK-04	BANK-04	0-2 inches bgs	<b>1,800</b>	<b>340</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	
S01	5,281	1	196	
S02	6,615	1	245	
S03	11,289	1	418	

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF  
APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

**Table 3-2-26**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>County Property on Highway 50 (APN: 001-221-08)</b>				
122108-S01-0	S01	0-2 inches bgs	<b>1,400</b>	<b>180</b>
122108-S01-2	S01	2-6 inches bgs	<b>780</b>	<b>130</b>
122108-S01-6	S01	6-12 inches bgs	<b>450</b>	<b>110</b>
122108-S02-0	S02	0-2 inches bgs	<b>2,400</b>	<b>330</b>
122108-S02-2	S02	2-6 inches bgs	<b>780</b>	<b>130</b>
122108-S03-0	S03	0-2 inches bgs	<b>2,000</b>	<b>280</b>
122108-S03-2	S03	2-6 inches bgs	<b>550</b>	<b>100</b>
122108-S04-0	S04	0-2 inches bgs	<b>1,500</b>	<b>220</b>
122108-S04-2	S04	2-6 inches bgs	<b>910</b>	<b>140</b>
122108-S05-0	S05	0-2 inches bgs	<b>2,000</b>	<b>270</b>
122108-S05-2	S05	2-6 inches bgs	<b>1,200</b>	<b>170</b>
122108-S06-0	S06	0-2 inches bgs	<b>1,900</b>	<b>260</b>
122108-S06-2	S06	2-6 inches bgs	<b>940</b>	<b>140</b>
122108-S07-0	S07	0-2 inches bgs	<b>66</b>	<b>34</b>
122108-S08-0	S08	0-2 inches bgs	<b>56</b>	<b>46</b>
122108-S09-0	S09	0-2 inches bgs	<b>880</b>	<b>170</b>
122108-S10-0	S10	0-2 inches bgs	<b>450</b>	<b>80</b>
122108-S11-0	S11	0-2 inches bgs	<b>890</b>	<b>130</b>
122108-S12-0	S12	0-2 inches bgs	<b>450</b>	<b>100</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
S01	20,746	1	768
S02	15,366	1	569
S03	13,479	1	499
S04	19,791	1	733
S05	10,095	1	374
S06	8,100	1	300
S07	0	0	0
S08	0	0	0
S09	20,144	1	746
S10	16,707	1	619
S11	15,149	1	561
S12	13,464	1	499

Notes:  
The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.  
**Bold** = Above the SSL  
**Bold and italics** = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead by XRF

APN = Assessor's Parcel Number  
bgs = below ground surface  
mg/kg = milligrams per kilogram  
NA = Sample was not analyzed or the size of the area associated with the locations is not known.  
START = Superfund Technical Assessment and Response Team  
XRF = X-Ray Fluorescence

**Table 3-2-27**  
**Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>161 State Route 278 (APN: 007-370-08)</b>				
737008-BG50-0	BG50	0-2 inches bgs	50	15
737008-BG50-2	BG50	2-6 inches bgs	36	17
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	
BG50	0	0	0	

**Notes:**

The Site Screening Level (SSL) for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg.

**Bold** = Above the SSL

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

APN = Assessor's Parcel Number

bgs = below ground surface

mg/kg = milligrams per kilogram

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

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

Ecology and Environment Inc. 2013

***Appendix C:  
Data  
Summary Tables***

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**Tables 3-3-1 through 3-3-5**

**Updated Removal Assessment Data  
for Five Eureka Properties**

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

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Dibble Lane (APN: 001-033-08)</b>				
ESS-103308-P01-0	P1	0 to 2 inches	<b>1,200</b>	<b>210</b>
ESS-103308-P01-2	P1	2 to 6 inches	<b>1,600</b>	<b>250</b>
ESS-103308-P01-6	P1	6 to 12 inches	<b>1,500</b>	<b>230</b>
ESS-103308-S01-0	S01	0 to 2 inches	<b>980</b>	<b>160</b>
ESS-103308-S01-2	S01	2 to 6 inches	<b>1,300</b>	<b>220</b>
ESS-103308-S01-6	S01	6 to 12 inches	<b>3,400</b>	<b>530</b>
ESS-103308-S02-0	S02	0 to 2 inches	<b>2,500</b>	<b>390</b>
ESS-103308-S02-2	S02	2 to 6 inches	<b>2,500</b>	<b>380</b>
ESS-103308-S02-6	S02	6 to 12 inches	<b>5,200</b>	<b>780</b>
ESS-103308-S03-0	S03	0 to 2 inches	<b>400</b>	<b>70</b>
ESS-103308-S03-2	S03	2 to 6 inches	<b>500</b>	<b>90</b>
ESS-103308-S03-6	S03	6 to 12 inches	<b>870</b>	<b>170</b>
450 Dibble - 01 - 0"- 2"	"01"	0 to 2 inches	310	56
450 Dibble - 01 - 2"- 6"	"01"	2 to 6 inches	350	73
450 Dibble - 01 - 6"- 12"	"01"	6 to 12 inches	260	47
450 Dibble - 02 - 0"- 2"	"02"	0 to 2 inches	300	58
450 Dibble - 02 - 2"- 6"	"02"	2 to 6 inches	210	47
450 Dibble - 02 - 6"- 12"	"02"	6 to 12 inches	110	37
450 Dibble - 03 - 0"- 2"	"03"	0 to 2 inches	<b>540</b>	<b>82</b>
450 Dibble - 03 - 2"- 6"	"03"	2 to 6 inches	<b>850</b>	<b>140</b>
450 Dibble - 03 - 6"- 12"	"03"	6 to 12 inches	<b>2,300</b>	<b>330</b>
450 Dibble - 04 - 0"- 2"	"04"	0 to 2 inches	<b>440</b>	<b>86</b>
450 Dibble - 04 - 2"- 6"	"04"	2 to 6 inches	<b>880</b>	<b>160</b>
450 Dibble - 04 - 6"- 12"	"04"	6 to 12 inches	<b>340</b>	<b>72</b>
450 Dibble - P1 - 0"- 2"	P1	0 to 2 inches	<b>880</b>	<b>120</b>
450 Dibble - P1 - 2"- 6"	P1	2 to 6 inches	<b>1,200</b>	<b>160</b>
450 Dibble - P1 - 6"- 12"	P1	6 to 12 inches	<b>760</b>	<b>120</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
P01	NA	1	NA
S01	5,480	1	203
S02	1,685	1	62
S03	1,998	1	74
"01"	1,268	0	0
"02"	1,205	0	0
"03"	2,470	1	91
"04"	1,118	1	41
P1	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 1,200 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 3-3-2 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>North Spring Street (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>3,500</b>	<b>500</b>
ESS-107404-S3-0	S03	0 to 2 inches	<b>1,700</b>	<b>210</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	5,555	1	206
S1	4,024	1	149
S3	2,030	1	75

**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 1,200 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.

Ecology and Environment Inc. 2013

**Table 3-3-3 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>O'Neill (APN: 001-153-02)</b>				
ESS-115302-Grab-1	Grab	0 to 2 inches	36	16
ESS-115302-S01-0	S01	0 to 2 inches	740	130
ESS-115302-S01-2	S01	2 to 6 inches	1,100	160
ESS-115302-S01-6	S01	6 to 12 inches	500	110
ESS-115302-S02-0	S02	0 to 2 inches	690	110
ESS-115302-S02-2	S02	2 to 6 inches	1,200	110
ESS-115302-S02-6	S02	6 to 12 inches	930	140
ESS-115302-S03-0	S03	0 to 2 inches	700	100
ESS-115302-S03-2	S03	2 to 6 inches	2,300	370
ESS-115302-S03-6	S03	6 to 12 inches	4,400	800
ESS-115302-S04-0	S04	0 to 2 inches	980	100
ESS-115302-S04-2	S04	2 to 6 inches	1,900	170
ESS-115302-S04-6	S04	6 to 12 inches	560	78
115302-S05-0	S05	0 to 2 inches	960	120
115302-S05-2	S05	2 to 6 inches	2,100	290
115302-S05-6	S05	6 to 12 inches	1,300	200
115302-S06-0	S06	0 to 2 inches	1,200	160
115302-S06-2	S06	2 to 6 inches	2,000	300
115302-S06-6	S06	6 to 12 inches	1,600	260
400 O'Neill - P1 - 0"- 2"	P1	0 to 2 inches	130	20
400 O'Neill - P1 - 6"- 12"	P1	6 to 12 inches	400	54
400 O'Neill - P2 - 0"- 2"	P2	0 to 2 inches	94	16
400 O'Neill - P2 - 6"- 12"	P2	6 to 12 inches	250	36
400 O'Neill - P3 - 0"- 2"	P3	0 to 2 inches	65	11
400 O'Neill - P3 - 6"- 12"	P3	6 to 12 inches	130	23
400 O'Neill - P4 - 0"- 2"	P4	0 to 2 inches	67	9
400 O'Neill - P4 - 6"- 12"	P4	6 to 12 inches	540	84
400 O'Neill - P5 - 0"- 2"	P5	0 to 2 inches	240	41
400 O'Neill - P5 - 6"- 12"	P5	6 to 12 inches	400	69
400 O'Neill - P6 - 0"- 2"	P6	0 to 2 inches	150	22
400 O'Neill - P6 - 6"- 12"	P6	6 to 12 inches	1,200	200
400 O'Neill - P7 - 0"- 2"	P7	0 to 2 inches	100	16
400 O'Neill - P7 - 6"- 12"	P7	6 to 12 inches	910	130
400 O'Neill - P8 - 0"- 2"	P8	0 to 2 inches	470	67
400 O'Neill - P8 - 6"- 12"	P8	6 to 12 inches	1,000	140
400 O'Neill - P9 - 0"- 2"	P9	0 to 2 inches	80	14
400 O'Neill - P9 - 6"- 12"	P9	6 to 12 inches	700	89
400 O'Neill - P10 - 0"- 2"	P10	0 to 2 inches	610	96
400 O'Neill - P11 - 0"- 2"	P11	0 to 2 inches	130	26
400 O'Neill - P11 - 6"- 12"	P11	6 to 12 inches	1,500	240
400 O'Neill - P12 - 0"- 2"	P12	0 to 2 inches	49	7
400 O'Neill - P12 - 6"- 12"	P12	6 to 12 inches	3,000	450
400 O'Neill - P13 - 0"- 2"	P13	0 to 2 inches	210	34
400 O'Neill - P13 - 6"- 12"	P13	6 to 12 inches	370	44
400 O'Neill - P14 - 0"- 2"	P14	0 to 2 inches	340	54
400 O'Neill - P14 - 6"- 12"	P14	6 to 12 inches	460	52
400 O'Neill - P15 - 0"- 2"	P15	0 to 2 inches	140	24
400 O'Neill - P15 - 6"- 12"	P15	6 to 12 inches	280	31

**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 1,200 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 3-3-3 (Continued) Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>
<b>O'Neill (APN: 001-153-02)</b>			
Grab	NA	0	0
S01	646	1	24
S02	758	1	28
S03	2,909	1	108
S04	1,824	1	68
S05	3,096	1	115
S06	2,532	1	94
15 planters	NA	1	NA

**Notes:**

mg/kg = milligrams per kilogram

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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 1,200 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 3-3-4 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Prospect Street (APN: 001-172-04)</b>				
ESS-117204-S0-0	S0	0 to 2 inches	<b>690</b>	<b>120</b>
117203-G1-0	G1	0 to 2 inches	<b>600</b>	<b>92</b>
117203-G1-2	G1	2 to 6 inches	72	23
117203-G1-6	G1	6 to 12 inches	85	27
117203-G2-0	G2	0 to 2 inches	<b>600</b>	<b>95</b>
117203-G2-2	G2	2 to 6 inches	94	28
117203-G2-6	G2	6 to 12 inches	99	23
117203-G3-0	G3	0 to 2 inches	<b>630</b>	<b>62</b>
117203-G3-2	G3	2 to 6 inches	110	30
117203-G3-6	G3	6 to 12 inches	200	42
117203-G4-0	G4	0 to 2 inches	290	47
117203-G4-2	G4	2 to 6 inches	61	26
117203-G4-6	G4	6 to 12 inches	120	31
117203-G5-0	G5	0 to 2 inches	320	51
117203-G5-2	G5	2 to 6 inches	83	33
117203-G5-6	G5	6 to 12 inches	66	27
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	
S01	5,173	1	192	
G1	4,000	0.5	74	
G2	4,000	0.5	74	
G3	4,000	0.5	74	
G4	0	0	0	
G5	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 1,200 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 3-3-4 (Continued) Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Well Street (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	87
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-P0-0	P6	0 to 2 inches	<b>460</b>	56
ESS-117203-P0-2	P6	2 to 6 inches	<b>480</b>	<b>60</b>
ESS-117203-P0-6	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

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
S1	0	0	0
S2	0	0	0
S3	0	0	0
P6	0	0	0
P7	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 1,200 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 3-3-5 Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

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>Eureka School District Owned Property (APN: 001-152-02)</b> <b>Elementary School Parking</b>				
ESS-115202-S01-0	S01	0 to 2 inches	52	16
ESS-115202-S01-2	S01	2 to 6 inches	72	21
ESS-115202-S02-0	S02	0 to 2 inches	140	56
ESS-115202-S02-2	S02	2 to 6 inches	89	<b>69</b>
ESS-115202-S03-0	S03	0 to 2 inches	52	16
ESS-115202-S03-2	S03	2 to 6 inches	49	17
115202-S04-0	S04	0 to 2 inches	340	47
115202-S04-2	S04	2 to 6 inches	240	46
115202-S04-6	S04	6 to 12 inches	79	40
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	
115202-S01	0	0	0	
115202-S02	2,733	1	101	
115202-S03	0	0	0	
115202-S04	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 1,200 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.



<b>Table 3-3-5 (Continued) Eureka Residential Property Sampling Data</b> <b>Eureka Smelter Sites</b> <b>Removal Support</b> <b>Eureka, Eureka County, Nevada</b>				
<b>Project No. EE-002693-2230</b>			<b>TDD No. TO2-09-13-08-0001</b>	
<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>Eureka School District Owned Property (APN: 001-184-05)</b>				
<b>Elementary School Property</b>				
ESS-118405-S01-0	S01	0 to 2 inches	340	69
ESS-118405-S01-2	S01	2 to 6 inches	520	110
<b>Eureka School District Owned Property (APN: 001-155-03)</b>				
<b>Elementary School Facility</b>				
ESS-115503-S01-0	S01	0 to 2 inches	190	45
ESS-115503-S01-2	S01	2 to 6 inches	140	31
ESS-115503-S02-0	S02	0 to 2 inches	28	11
ESS-115503-S02-2	S02	2 to 6 inches	50	17
ESS-115503-S03-0	S03	0 to 2 inches	130	28
ESS-115503-S03-2	S03	2 to 6 inches	120	36
ESS-115503-S04-0	S04	0 to 2 inches	120	44
ESS-115503-S04-2	S04	2 to 6 inches	71	31
ESS-115503-S05-0	S05	0 to 2 inches	83	32
ESS-115503-S05-2	S05	2 to 6 inches	270	52
ESS-115503-S06-0	S06	0 to 2 inches	220	56
ESS-115503-S06-2	S06	2 to 6 inches	280	46
ESS-115503-S07-0	S07	0 to 2 inches	290	45
ESS-115503-S07-2	S07	2 to 6 inches	40	7
ESS-115503-S08-0	S08	0 to 2 inches	120	53
ESS-115503-S08-2	S08	2 to 6 inches	110	47
<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>	
115202-S01	2,705	0	0	
115202-S02	2,733	1	101	
115202-S03	9,558	0	0	
118405-S01	1,465	1	54	
115503-S01	2,705	0	0	
115503-S02	1,590	0	0	
115503-S03	724	0	0	
115503-S04	2,350	0	0	
115503-S05	7,344	0	0	
115503-S06	9,314	0	0	
115503-S07	1,230	0	0	
115503-S08	1,522	0	0	

**Table 3-3-5 (Continued) Eureka Residential Property Sampling Data**  
**Eureka Smelter Sites**  
**Removal Support**  
**Eureka, Eureka County, Nevada**

**Project No. EE-002693-2230**

**TDD No. TO2-09-13-08-0001**

<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>Eureka School District Owned Property (APN: 001-181-02)</b> <b>Elementary School Playing Field</b>				
ESS-118102-P1-0	P1	0 to 2 inches	110	<b>65</b>
ESS-118102-P1-2	P1	2 to 6 inches	110	<b>75</b>
ESS-118102-S01-0	S01	0 to 2 inches	55	10
ESS-118102-S01-2	S01	2 to 6 inches	48	13
ESS-118102-S02-0	S02	0 to 2 inches	240	58
ESS-118102-S02-2	S02	2 to 6 inches	160	<b>61</b>
ESS-118102-S03-0	S03	0 to 2 inches	58	17
ESS-118102-S03-2	S03	2 to 6 inches	110	36
ESS-118102-S04-0	S04	0 to 2 inches	45	18
ESS-118102-S04-2	S04	2 to 6 inches	46	12
ESS-118102-S05-0	S05	0 to 2 inches	140	29
ESS-118102-S05-2	S05	2 to 6 inches	<b>460</b>	<b>89</b>
ESS-118102-S06-0	S06	0 to 2 inches	35	8
ESS-118102-S06-2	S06	2 to 6 inches	61	34
ESS-118102-S07-0	S07	0 to 2 inches	130	<b>73</b>
ESS-118102-S07-2	S07	2 to 6 inches	180	43
ESS-118102-S08-0	S08	0 to 2 inches	<b>1,100</b>	<b>200</b>
ESS-118102-S08-2	S08	2 to 6 inches	<b>1,300</b>	<b>260</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>	
118102-P1	NA	1	NA	
118102-S01	14,718	0	0	
118102-S02	2,617	1	97	
118102-S03	16,872	0	0	
118102-S04	18,807	0	0	
118102-S05	19,208	1	711	
118102-S06	5,334	0	0	
118102-S07	16,996	0.5	315	
118102-S08	5,742	1	213	

**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 1,200 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.

Ecology and Environment Inc. 2013

***Appendix D:***  
***Laboratory Data***

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# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Laboratory: Test America	Lab Project No: 13253E
Sampling Dates: 8/20/13	Sample Matrix: Soil
Analytical Method: RCRA Metals EPA 6010C	Data Reviewer: H. Edwards

### REVIEW AND APPROVAL:

Data Reviewer: Howard Edwards

Date: 12/31/2013

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	100 Reno-01, 2"-6"	1309018-1
2	31 Spring Street-01, 0"-2"	1309018-2
3	401 S. Main Street, 0"-2"	1309018-3
4	470 Whittenberg-01, 0"-2"	1309018-4
5	331 S. Spring, 0"-2"	1309018-5
6	100 E. Robbins-02, 0"-2"	1309018-6
7	520 Nob Hill-02, 6"-12"	1309018-7
8	200 Bullion Hill-02, 0"-2"	1309018-8
9	100 E. Robbins-01, 6"-12"	1309018-9
10	200 Bullion Hill-01, 2"-6"	1309018-10

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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
- ☐ O Initial and Continuing Calibration results
- ☒ 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
- ☒ ICP Serial Dilution results
- ☐ NR Instrument Detection Limits
- ☒ ICP Interelement Correction Factors
- ☒ 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

### 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-

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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	YES
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.

### 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.



## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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 arsenic and lead in initial and continuing calibration verifications were within the control limits.

### 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

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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:** Recoveries of Matrix Spike for arsenic was within the control limits. The spike concentration of the sample for lead was two orders of magnitude less than sample and was thus useless to document the spike recovery for lead.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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 blank spike duplicate for lead and arsenic and the matrix spike duplicate for arsenic were within the control limit (<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

### 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 and Serial Dilution Analysis: recoveries were within the control limit.

### 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: Post digestion spikes had acceptable recoveries.

### 9. ANALYTE QUANTITATION

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

Water samples:

## 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

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

#### 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.

### 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.

### 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 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.

## 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

- 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**

**Date:** 10/18/2013

**Subject:** Analytical Testing Results - Project R13S77  
SDG: 13253E

**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:**

Metals by ICP

Metals by ICP



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  
Project Number: R13S77  
Project: Eureka Smelter Sites May 2013 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13253E  
Reported: 10/18/13 14:41

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
100 RENO-01, 2" - 6"	1309018-01	Soil	08/20/13 08:54	09/10/13 08:16
31 Spring Street-01, 0" - 2"	1309018-02	Soil	08/20/13 09:07	09/10/13 08:16
401 S. Main Street, 0" - 2"	1309018-03	Soil	08/20/13 09:19	09/10/13 08:16
470 Whittenberg-01, 0" - 2"	1309018-04	Soil	08/20/13 09:24	09/10/13 08:16
331 S. Spring, 0" - 2"	1309018-05	Soil	08/20/13 09:15	09/10/13 08:16
100 E. Robbins-02, 0" - 2"	1309018-06	Soil	08/20/13 12:00	09/10/13 08:16
520 Nob Hill-01, 6" - 12"	1309018-07	Soil	08/20/13 09:42	09/10/13 08:16
200 Bullion Hill-02, 0" - 2"	1309018-08	Soil	08/20/13 13:41	09/10/13 08:16
100 E. Robbins-01, 6" - 12"	1309018-09	Soil	08/20/13 11:44	09/10/13 08:16
200 Bullion Hill-01, 2" - 6"	1309018-10	Soil	08/20/13 13:17	09/10/13 08:16

**SDG ID 13253E**

Samples were received in XRF cups. Results are reported "as received", with no correction for percent moisture.

**Work Order(s)**

1309018



# 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

Project Number: R13S77

Project: Eureka Smelter Sites May 2013 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13253E

Reported: 10/18/13 14:41

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1309018-01								Soil - Sampled: 08/20/13 08:54
Sample ID: 100 RENO-01, 2" - 6"								Metals by EPA 6000/7000 Series Methods
Arsenic		710		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		3,700		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-02								Soil - Sampled: 08/20/13 09:07
Sample ID: 31 Spring Street-01, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		450		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		2,300		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-03								Soil - Sampled: 08/20/13 09:19
Sample ID: 401 S. Main Street, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		400		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		2,100		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-04								Soil - Sampled: 08/20/13 09:24
Sample ID: 470 Whittenberg-01, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		1,000		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		4,400		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-05								Soil - Sampled: 08/20/13 09:15
Sample ID: 331 S. Spring, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		830		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		4,300		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-06								Soil - Sampled: 08/20/13 12:00
Sample ID: 100 E. Robbins-02, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		440		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		2,500		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-07								Soil - Sampled: 08/20/13 09:42
Sample ID: 520 Nob Hill-01, 6" - 12"								Metals by EPA 6000/7000 Series Methods
Arsenic		32		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		130		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-08								Soil - Sampled: 08/20/13 13:41
Sample ID: 200 Bullion Hill-02, 0" - 2"								Metals by EPA 6000/7000 Series Methods
Arsenic		5,600		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead	REI	29,000		30	"	"	" 09/20/13	6010C/SOP503
Lab ID: 1309018-09								Soil - Sampled: 08/20/13 11:44
Sample ID: 100 E. Robbins-01, 6" - 12"								Metals by EPA 6000/7000 Series Methods
Arsenic		280		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		1,400		3	"	"	" "	6010C/SOP503
Lab ID: 1309018-10								Soil - Sampled: 08/20/13 13:17
Sample ID: 200 Bullion Hill-01, 2" - 6"								Metals by EPA 6000/7000 Series Methods
Arsenic		1,500		2	mg/kg wet	B13I091	09/17/13 09/19/13	6010C/SOP503
Lead		6,800		3	"	"	" "	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: 13253E
Project Number: R13S77	75 Hawthorne Street	Reported: 10/18/13 14:41
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
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Batch B13I091 - 3050B Std Acid Dig - Metals by 6010

Prepared: 09/17/13 Analyzed: 09/19/13  
Metals by EPA 6000/7000 Series Methods - Quality Control

### Blank (B13I091-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 "

### Matrix Spike (B13I091-MS1)

Source: 1309015-01

Antimony	22.6			2 mg/kg wet	98.0	ND	23	75-125		20
Arsenic	407			2 "	392	7.18	102	75-125		20
Barium	515			5 "	392	183	85	75-125		20
Beryllium	9.98			0.1 "	9.80	0.514	97	75-125		20
Cadmium	9.67			0.5 "	9.80	0.599	93	75-125		20
Chromium	131			1 "	39.2	101	78	75-125		20
Cobalt	99.7			2 "	98.0	17.9	83	75-125		20
Copper	78.5			4 "	49.0	41.3	76	75-125		20
Lead	96.6			3 "	98.0	5.48	93	75-125		20
Molybdenum	76.9			5 "	98.0	ND	78	75-125		20
Nickel	239			5 "	98.0	177	64	75-125		20
Selenium	376			2 "	392	ND	96	75-125		20
Silver	9.86			1 "	9.80	ND	101	75-125		20
Thallium	380			5 "	392	ND	97	75-125		20
Vanadium	161			2 "	98.0	67.9	95	75-125		20
Zinc	217			8 "	98.0	147	72	75-125		20

### Matrix Spike (B13I091-MS2)

Source: 1309018-10

Arsenic	1,960			2 mg/kg wet	385	1,520	114	75-125		20
Lead	6,900	Q10		3 "	96.2	6,840	65	75-125		20

### Matrix Spike (B13I091-MS3)

Source: 1309018-10RE1

Arsenic	2,040			10 mg/kg wet	385	1,620	110	75-125		20
Lead	7,400			15 "	96.2	7,300	106	75-125		20



# 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> 13253E
<b>Project Number:</b> R13S77	<b>75 Hawthorne Street</b>	<b>Reported:</b> 10/18/13 14:41
<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
Batch B13I091 - 3050B Sld Acid Dig - Metals by 6010					Prepared: 09/17/13 Analyzed: 09/19/13					
Matrix Spike Dup (B13I091-MSD1)					Metals by EPA 6000/7000 Series Methods - Quality Control					
Source: 1309015-01										
Antimony	24.4			2 mg/kg wet	100	ND	24	75-125	8	20
Arsenic	398			2 "	400	7.18	98	75-125	2	20
Barium	522			5 "	400	183	85	75-125	1	20
Beryllium	10.1			0.1 "	10.0	0.514	96	75-125	1	20
Cadmium	9.64			0.5 "	10.0	0.599	90	75-125	0.4	20
Chromium	140			1 "	40.0	101	99	75-125	7	20
Cobalt	103			2 "	100	17.9	85	75-125	3	20
Copper	82.9			4 "	50.0	41.3	83	75-125	5	20
Lead	102			3 "	100	5.48	97	75-125	6	20
Molybdenum	78.2			5 "	100	ND	78	75-125	2	20
Nickel	264			5 "	100	177	87	75-125	10	20
Selenium	368			2 "	400	ND	92	75-125	2	20
Silver	9.85			1 "	10.0	ND	99	75-125	0.08	20
Thallium	375			5 "	400	ND	94	75-125	1	20
Vanadium	164			2 "	100	67.9	97	75-125	2	20
Zinc	229			8 "	100	147	82	75-125	5	20
Matrix Spike Dup (B13I091-MSD2)					Source: 1309018-10					
Arsenic	1,920			2 mg/kg wet	396	1,520	101	75-125	2	20
Lead	6,900	Q10		3 "	99.0	6,840	57	75-125	0.1	20
Matrix Spike Dup (B13I091-MSD3)					Source: 1309018-10RE1					
Arsenic	1,990			10 mg/kg wet	396	1,620	92	75-125	3	20
Lead	7,210			15 "	99.0	7,300	NR	75-125	3	20
Reference (B13I091-SRM1)										
Arsenic	271			2 mg/kg wet	253		107	60.9-139		
Barium	ND	U		5 "	1.60			62.5-138		
Beryllium	4.8			0.1 "	4.90		98	61.2-139		
Cadmium	10.5			0.5 "	10.9		96	70.6-128		
Chromium	27.9			1 "	27.1		103	68.3-132		
Cobalt	34.3			2 "	37.4		92	64.7-135		
Copper	1,530			4 "	1770		87	74.6-126		
Lead	54.9			3 "	56.9		96	72.8-127		
Nickel	15.6			5 "	16.3		96	55.2-145		
Selenium	7.08			2 "	10.0		71	41-159		
Silver	6.17			1 "	5.90		105	45.8-154		
Thallium	6.82			5 "	9.50		72	30.5-169		
Vanadium	18			2 "	17.6		102	65.9-135		
Zinc	77.4			8 "	47.5		163	43.2-157		



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

**Project Number:** R13S77

**Project:** Eureka Smelter Sites May 2013 Sampling

**Emergency Response Section**

**75 Hawthorne Street**

**San Francisco CA, 94105**

**SDG:** 13253E

**Reported:** 10/18/13 14:41

**Qualifiers and Comments**

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.

U Not Detected

NR Not Reported

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



# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Laboratory: Test America	Lab Project No: 13291B and 13291C
Sampling Dates: 9/24/13 to 10/18/13	Sample Matrix: Soil
Analytical Method: RCRA Metals EPA 6010C	Data Reviewer: H. Edwards

### REVIEW AND APPROVAL:

Data Reviewer: Howard Edwards

Date: 12/31/2013

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	TS-100213	1310020-01
2	B-01-092413	1310020-02
3	TS-092713	1310020-03
4	TS-100713	1310020-04
5	Sand-100713	1310020-05
6	116201-S02-2	1310020-06
7	116201-S04-6	1310020-07
8	115806-S02-0	1310020-08
9	115806-S03-6	1310020-09
10	115503-G22-S	1310020-10
11	115503-G0-S	1310020-11
12	115503-G14-S	1310020-12
13	101107-S02-CONF	1310020-13
14	116501-S01-CONF	1310020-14
15	100 Robins-S02-CONF	1310020-15

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Sample No.	Sample I.D.	Laboratory I.D.
11	110801-S02-2	1310021-01
12	115303-S06-6	1310021-02
13	115303-S01-2	1310021-03
14	115401-S01-CONF	1310021-04
15	113702-S03-CONF	1310021-05
16	115303-S04-6	1310021-06
17	116101-S01-CONF	1310021-07
18	107403-S01-CONF	1310021-08
19	100 Robins-08-6-12	1310021-09
20	P12 6-12	1310021-10
21	450 Dibble 03-0-2	1310021-11
22	1181 Spring UnderRock 02	1310021-12
23	470 Wittenburg-P1	1310021-13
24	116201-S01-2	1310021-14
25	P4 6-12	1310021-15

## 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
- ☐ O Initial and Continuing Calibration results
- ☒ CRDL Standard results
- ☒ Preparation Blank and Calibration Blank results
- ☒ ICP Interference Check Sample results
- ☒ Matrix Spike recoveries
- ☒ Matrix Duplicate results

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

<u>  X  </u>	Laboratory Control Sample recoveries
<u> NR </u>	Method of Standard Additions results
<u>  X  </u>	ICP Serial Dilution results
<u> NR </u>	Instrument Detection Limits
<u>  X  </u>	ICP Interelement Correction Factors
<u>  X  </u>	ICP Linear Ranges
<u>  X  </u>	Preparation Log
<u>  X  </u>	Analysis Run Log

### Raw QC Data Package Section

<u>  X  </u>	Chain-of-Custody Records
<u>  X  </u>	Instrument Printouts
<u>  X  </u>	Sample Preparation Notebook Pages
<u>  X  </u>	Logbook and Worksheet Pages
<u>  X  </u>	Percent Solids Determination

### 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	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	YES
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 Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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.

### 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. Sample requiring mercury concentration determination were submitted to the laboratory at room temperature and prepared XRF cups. All associated mercury data was qualified as low biased.

### 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 arsenic and lead in initial and continuing calibration verifications were within the control limits.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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:** Recoveries of Matrix Spike for arsenic was within the control limits. The spike concentration of the sample for lead was two orders of magnitude less than sample and was thus useless to document the spike recovery for lead.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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 blank spike duplicate for lead and arsenic and the matrix spike duplicate for arsenic were within the control limit (<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

### 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 and Serial Dilution Analysis: recoveries were within the control limit.

### 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: Post digestion spikes ranged between 90% and 97% recoveries.



## 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.

### 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.

### 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:

## 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

- Determine average concentrations of lead and arsenic in the shallow soil at locations within 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**

**Date:** 12/3/2013

**Subject:** Analytical Testing Results - Project R14S12  
SDG: 13291B

**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 FY14 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  
Percent Solids

Metals by ICP



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13291B  
Reported: 12/03/13 14:57

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
TS-100213	1310020-01	Solid	10/02/13 13:00	10/18/13 13:30
B-01-092413	1310020-02	Solid	09/24/13 13:00	10/18/13 13:30
TS-092713	1310020-03	Solid	09/27/13 13:00	10/18/13 13:30
TS-100713	1310020-04	Solid	10/07/13 13:00	10/18/13 13:30
Sand-100713	1310020-05	Solid	10/07/13 13:15	10/18/13 13:30
116201-S02-2	1310020-06	Solid	10/10/13 00:00	10/18/13 13:30
116201-S04-6	1310020-07	Solid	10/10/13 00:00	10/18/13 13:30
115806-S02-0	1310020-08	Solid	10/10/13 00:00	10/18/13 13:30
115806-S03-6	1310020-09	Solid	10/10/13 00:00	10/18/13 13:30
115503-G22-5	1310020-10	Solid	10/10/13 00:00	10/18/13 13:30
115503-G0-5	1310020-11	Solid	10/10/13 00:00	10/18/13 13:30
115503-G14-5	1310020-12	Solid	10/10/13 00:00	10/18/13 13:30
101107-S02-ConF	1310020-13	Solid	10/10/13 00:00	10/18/13 13:30
116501-S01-ConF	1310020-14	Solid	10/10/13 00:00	10/18/13 13:30
100 Robins S02-ConF	1310020-15	Solid	10/10/13 00:00	10/18/13 13:30

SDG ID 13291B

**Work Order(s)**

1310020

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



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13291B  
Reported: 12/03/13 14:57

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310020-01							Solid - Sampled: 10/02/13 13:00		
Sample ID: TS-100213							Metals by EPA 6000/7000 Series Methods		
Mercury	RE1	0.023	A2, Cl, J	0.027	mg/kg dry	B13J075	10/22/13	10/22/13	7473/SOP535
Arsenic		17		2.2	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Barium		230		5.5	"	"	"	"	6010C/SOP503
Cadmium		0.40	Cl, J	0.55	"	"	"	"	6010C/SOP503
Chromium		19		1.1	"	"	"	"	6010C/SOP503
Lead		14		3.3	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2.2	"	B13K096	11/13/13	11/15/13	6010C/SOP503
Silver		ND	U	1.1	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Sample ID: TS-100213							Conventional Chemistry Parameters by APHA/EPA Methods		
% Solids		91		1	%	B13J100	10/29/13	10/30/13	3550C/SOP460
Lab ID: 1310020-02							Solid - Sampled: 09/24/13 13:00		
Sample ID: B-01-092413							Metals by EPA 6000/7000 Series Methods		
Mercury	RE1	0.034	A2, J	0.028	mg/kg dry	B13J075	10/22/13	10/22/13	7473/SOP535
Arsenic		18		2.3	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Barium		260		5.6	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.56	"	"	"	"	6010C/SOP503
Chromium		20		1.1	"	"	"	"	6010C/SOP503
Lead		13		3.4	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2.3	"	B13K096	11/13/13	11/15/13	6010C/SOP503
Silver		ND	U	1.1	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Sample ID: B-01-092413							Conventional Chemistry Parameters by APHA/EPA Methods		
% Solids		89		1	%	B13J100	10/29/13	10/30/13	3550C/SOP460
Lab ID: 1310020-03							Solid - Sampled: 09/27/13 13:00		
Sample ID: TS-092713							Metals by EPA 6000/7000 Series Methods		
Mercury	RE1	0.024	A2, Cl, J	0.028	mg/kg dry	B13J075	10/22/13	10/22/13	7473/SOP535
Arsenic		19		2.3	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Barium		220		5.6	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.56	"	"	"	"	6010C/SOP503
Chromium		21		1.1	"	"	"	"	6010C/SOP503
Lead		12		3.4	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2.3	"	B13K096	11/13/13	11/15/13	6010C/SOP503
Silver		ND	U	1.1	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Sample ID: TS-092713							Conventional Chemistry Parameters by APHA/EPA Methods		
% Solids		89		1	%	B13J100	10/29/13	10/30/13	3550C/SOP460
Lab ID: 1310020-04							Solid - Sampled: 10/07/13 13:00		
Sample ID: TS-100713							Metals by EPA 6000/7000 Series Methods		
Mercury	RE1	0.025	A2, Cl, J	0.027	mg/kg dry	B13J075	10/22/13	10/22/13	7473/SOP535
Arsenic		17		2.2	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Barium		230		5.4	"	"	"	"	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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13291B  
Reported: 12/03/13 14:57

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310020-04							Solid - Sampled: 10/07/13 13:00		
Sample ID: TS-100713							Metals by EPA 6000/7000 Series Methods		
Cadmium		0.33	C1, J	0.54	mg/kg dry	B13J082	10/23/13	11/11/13	6010C/SOP503
Chromium		21		1.1	"	"	"	"	6010C/SOP503
Lead		15		3.3	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2.2	"	B13K096	11/13/13	11/15/13	6010C/SOP503
Silver		ND	U	1.1	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Sample ID: TS-100713							Conventional Chemistry Parameters by APHA/EPA Methods		
% Solids		92		1	%	B13J100	10/29/13	10/30/13	3550C/SOP460
Lab ID: 1310020-05							Solid - Sampled: 10/07/13 13:15		
Sample ID: Sand-100713							Metals by EPA 6000/7000 Series Methods		
Mercury	RE1	ND	A2, J, U	0.025	mg/kg dry	B13J075	10/22/13	10/22/13	7473/SOP535
Arsenic		22		2	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Barium		200		5.1	"	"	"	"	6010C/SOP503
Cadmium		ND	U	0.51	"	"	"	"	6010C/SOP503
Chromium		19		1	"	"	"	"	6010C/SOP503
Lead		8.9		3.1	"	"	"	"	6010C/SOP503
Selenium	RE1	ND	U	2	"	B13K096	11/13/13	11/15/13	6010C/SOP503
Silver		ND	U	1	"	B13J082	10/23/13	11/11/13	6010C/SOP503
Sample ID: Sand-100713							Conventional Chemistry Parameters by APHA/EPA Methods		
% Solids		98		1	%	B13J100	10/29/13	10/30/13	3550C/SOP460
Lab ID: 1310020-06							Solid - Sampled: 10/10/13 00:00		
Sample ID: 116201-S02-2							Metals by EPA 6000/7000 Series Methods		
Arsenic		270		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		1,500		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-07							Solid - Sampled: 10/10/13 00:00		
Sample ID: 116201-S04-6							Metals by EPA 6000/7000 Series Methods		
Arsenic		30		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		63		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-08							Solid - Sampled: 10/10/13 00:00		
Sample ID: 115806-S02-0							Metals by EPA 6000/7000 Series Methods		
Arsenic		890		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		4,700		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-09							Solid - Sampled: 10/10/13 00:00		
Sample ID: 115806-S03-6							Metals by EPA 6000/7000 Series Methods		
Arsenic		150		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		440		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-10							Solid - Sampled: 10/10/13 00:00		
Sample ID: 115503-G22-5							Metals by EPA 6000/7000 Series Methods		
Arsenic		510		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		2,400		3	"	"	"	"	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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 132918  
Reported: 12/03/13 14:57

**Sample Results**

Analyte	Reanalysts / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1310020-11									Solid - Sampled: 10/10/13 00:00
Sample ID: 115503-G0-5									Metals by EPA 6000/7000 Series Methods
Arsenic		320		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		1,400		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-12									Solid - Sampled: 10/10/13 00:00
Sample ID: 115503-G14-5									Metals by EPA 6000/7000 Series Methods
Arsenic		150		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		570		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-13									Solid - Sampled: 10/10/13 00:00
Sample ID: 101107-S02-Conf									Metals by EPA 6000/7000 Series Methods
Arsenic		390		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		1,500		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-14									Solid - Sampled: 10/10/13 00:00
Sample ID: 116501-S01-Conf									Metals by EPA 6000/7000 Series Methods
Arsenic		420		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		2,000		3	"	"	"	"	6010C/SOP503
Lab ID: 1310020-15									Solid - Sampled: 10/10/13 00:00
Sample ID: 100 Robins S02-Conf									Metals by EPA 6000/7000 Series Methods
Arsenic		240		2	mg/kg wet	B13J082	10/23/13	11/11/13	6010C/SOP503
Lead		1,100		3	"	"	"	"	6010C/SOP503

*Handwritten signature* 12-31-13



# 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: 13291B
Project Number: R14S12	75 Hawthorne Street	Reported: 12/03/13 14:57
Project: Eureka Smelter Sites FY14 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 B13J075 - 7473 Hg Prep - Mercury by 7473					Prepared & Analyzed: 10/22/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13J075-BLK1)										
Mercury	ND	U		0.025 mg/kg wet						
Matrix Spike (B13J075-MS1) Source: 1310020-02RE1										
Mercury	0.617			0.028 mg/kg dry	0.536	0.0344	109	80-120		20
Matrix Spike Dup (B13J075-MSD1) Source: 1310020-02RE1										
Mercury	0.649			0.028 mg/kg dry	0.568	0.0344	108	80-120	0.4	20
Reference (B13J075-SRM1)										
Mercury	1.22			0.025 mg/kg wet	1.10		110	80-120		
Batch B13J082 - 3050B Sld Acid Dig - Metals by 6010					Prepared: 10/23/13 Analyzed: 11/11/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13J082-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Matrix Spike (B13J082-MS1) Source: 1310020-10										
Arsenic	905			2 mg/kg wet	381	510	104	75-125		20
Lead	2,440	Q10		3 "	95.2	2,400	45	75-125		20
Matrix Spike Dup (B13J082-MSD1) Source: 1310020-10										
Arsenic	942			2 mg/kg wet	400	510	108	75-125	4	20
Lead	2,550	Q10		3 "	100	2,400	147	75-125	4	20
Reference (B13J082-SRM1)										
Arsenic	202			2 mg/kg wet	253		80	60.9-139		
Barium	ND	U		5 "	1.60			62.5-138		
Cadmium	8.03			0.5 "	10.9		74	70.6-128		
Chromium	22.1			1 "	27.1		81	68.3-132		
Lead	41.9			3 "	56.9		74	72.8-127		
Silver	4.44			1 "	5.90		75	45.8-154		
Batch B13J100 - Solids, Dry Weight (Prep) - Solids, Dry Weight					Prepared: 10/29/13 Analyzed: 10/30/13 Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control					
Blank (B13J100-BLK1)										
% Solids	ND	U		1 %						
Duplicate (B13J100-DUP1) Source: 1310020-02										
% Solids	88			1 %		89			1	20



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13291B  
Reported: 12/03/13 14:57

**Quality Control**

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13K096 - 3050B Sid Acid Dig - Metals by 6010										
Prepared: 11/13/13 Analyzed: 11/15/13 Metals by EPA 6000/7000 Series Methods - Quality Control										
Blank (B13K096-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Reference (B13K096-SRM1)										
Selenium	5.48			2 mg/kg wet	9.95		55	41-159		



United States Environmental Protection Agency  
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Project Manager: Thomas Dunkelman

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13291B

Reported: 12/03/13 14:57

**Qualifiers and Comments**

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.

CI 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.



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

**1337 S. 46th Street Building 201**

**Richmond, CA 94804**

**Date:** 12/3/2013

**Subject:** Analytical Testing Results - Project R14S12  
SDG: 13291C

**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 FY14 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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Metals by ICP

Percent Solids



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> RI4S12 <b>Project:</b> Eureka Smelter Sites FY14 Sampling	<b>Emergency Response Section</b> <b>75 Hawthorne Street</b> <b>San Francisco CA, 94105</b>	<b>SDG:</b> 13291C <b>Reported:</b> 12/03/13 15:03
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
110801-S02-2	1310021-01	Solid	10/10/13 00:00	10/18/13 13:30
115303-S06-6	1310021-02	Solid	10/10/13 00:00	10/18/13 13:30
115303-S01-2	1310021-03	Solid	10/10/13 00:00	10/18/13 13:30
115401-S01-ConF	1310021-04	Solid	10/10/13 00:00	10/18/13 13:30
103703-S03-ConF	1310021-05	Solid	10/10/13 00:00	10/18/13 13:30
115303-S04-6	1310021-06	Solid	10/10/13 00:00	10/18/13 13:30
116101-S01-ConF	1310021-07	Solid	10/10/13 00:00	10/18/13 13:30
107403-S01-ConF	1310021-08	Solid	10/10/13 00:00	10/18/13 13:30
100 Robbins-08-6-12	1310021-09	Solid	10/10/13 00:00	10/18/13 13:30
P12 6-12	1310021-10	Solid	10/10/13 00:00	10/18/13 13:30
450 Dibble 03-0-2	1310021-11	Solid	10/10/13 00:00	10/18/13 13:30
181 Spring UnderRock 02	1310021-12	Solid	10/10/13 00:00	10/18/13 13:30
470 Wittenburg-P1	1310021-13	Solid	10/10/13 00:00	10/18/13 13:30
116201-S01-2	1310021-14	Solid	10/10/13 00:00	10/18/13 13:30
P4 6-12	1310021-15	Solid	10/10/13 00:00	10/18/13 13:30

**SDG ID 13291C**

**Work Order(s)**

**1310021**

Arsenic and lead results for sample 116101-S01-ConF (Lab ID1310021-07) (As = 1200 mg/kg, Pb = 5100 mg/kg) were substantially higher than the field XRF results (As = 280 mg/kg, Pb = 1800 mg/kg) reported on the chain of custody form. Sample 1310021-07 (RE2) and a duplicate B13K151 (DUP1) were redigested and analyzed and results were comparable to the original results. Results from the original analysis are reported.



# 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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13291C

Reported: 12/03/13 15:03

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1310021-01							Solid - Sampled: 10/10/13 00:00	
Sample ID: 110801-S02-2							Metals by EPA 6000/7000 Series Methods	
Arsenic		260		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		1,600		3	"	"	"	6010C/SOP503
Lab ID: 1310021-02							Solid - Sampled: 10/10/13 00:00	
Sample ID: 115303-S06-6							Metals by EPA 6000/7000 Series Methods	
Arsenic		190		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		860		3	"	"	"	6010C/SOP503
Lab ID: 1310021-03							Solid - Sampled: 10/10/13 00:00	
Sample ID: 115303-S01-2							Metals by EPA 6000/7000 Series Methods	
Arsenic		530		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		2,700		3	"	"	"	6010C/SOP503
Lab ID: 1310021-04							Solid - Sampled: 10/10/13 00:00	
Sample ID: 115401-S01-Conf							Metals by EPA 6000/7000 Series Methods	
Arsenic		1,100		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Arsenic	REI	1,100		2	"	"	" 11/20/13	6010C/SOP503
Lead		5,500		3	"	"	" 11/11/13	6010C/SOP503
Lead	REI	5,400		3	"	"	" 11/20/13	6010C/SOP503
Lab ID: 1310021-05							Solid - Sampled: 10/10/13 00:00	
Sample ID: 103703-S03-Conf							Metals by EPA 6000/7000 Series Methods	
Arsenic		670		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		3,200		3	"	"	"	6010C/SOP503
Lab ID: 1310021-06							Solid - Sampled: 10/10/13 00:00	
Sample ID: 115303-S04-6							Metals by EPA 6000/7000 Series Methods	
Arsenic		440		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		2,000		3	"	"	"	6010C/SOP503
Lab ID: 1310021-07							Solid - Sampled: 10/10/13 00:00	
Sample ID: 116101-S01-Conf							Metals by EPA 6000/7000 Series Methods	
Arsenic		1,200		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		5,100		3	"	"	"	6010C/SOP503
Lab ID: 1310021-08							Solid - Sampled: 10/10/13 00:00	
Sample ID: 107403-S01-Conf							Metals by EPA 6000/7000 Series Methods	
Arsenic		210		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		1,300		3	"	"	"	6010C/SOP503
Lab ID: 1310021-09							Solid - Sampled: 10/10/13 00:00	
Sample ID: 100 Robbins-08-6-12							Metals by EPA 6000/7000 Series Methods	
Arsenic		190		2	mg/kg wet	B13J083	10/23/13 11/11/13	6010C/SOP503
Lead		960		3	"	"	"	6010C/SOP503
Lab ID: 1310021-10							Solid - Sampled: 10/10/13 00:00	
Sample ID: P12 6-12							Metals by EPA 6000/7000 Series Methods	
Arsenic		580			mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503

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12-31-13



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 Dunkelmann  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13291C  
Reported: 12/03/13 15:03

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1310021-10							Solid - Sampled: 10/10/13 00:00	
Sample ID: P12 6-12							Metals by EPA 6000/7000 Series Methods	
Lead		2,900		3	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lab ID: 1310021-11							Solid - Sampled: 10/10/13 00:00	
Sample ID: 450 Dibble 03-0-2							Metals by EPA 6000/7000 Series Methods	
Arsenic		140		2	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lead		630		3	"	"	"	6010C/SOP503
Lab ID: 1310021-12							Solid - Sampled: 10/10/13 00:00	
Sample ID: 181 Spring UnderRock 02							Metals by EPA 6000/7000 Series Methods	
Arsenic		100		2	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lead		560		3	"	"	"	6010C/SOP503
Lab ID: 1310021-13							Solid - Sampled: 10/10/13 00:00	
Sample ID: 470 Wittenburg-P1							Metals by EPA 6000/7000 Series Methods	
Arsenic		280		2	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lead		1,400		3	"	"	"	6010C/SOP503
Lab ID: 1310021-14							Solid - Sampled: 10/10/13 00:00	
Sample ID: 116201-S01-2							Metals by EPA 6000/7000 Series Methods	
Arsenic		390		2	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lead		2,000		3	"	"	"	6010C/SOP503
Lab ID: 1310021-15							Solid - Sampled: 10/10/13 00:00	
Sample ID: P4 6-12							Metals by EPA 6000/7000 Series Methods	
Arsenic		110		2	mg/kg wet	B13J083	10/23/13 11/12/13	6010C/SOP503
Lead		520		3	"	"	"	6010C/SOP503

*7/18* 12-31-13





# 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> R14S12 <b>Project:</b> Eureka Smelter Sites FY14 Sampling	<b>Emergency Response Section</b> <b>75 Hawthorne Street</b> <b>San Francisco CA, 94105</b>	<b>SDG:</b> 13291C <b>Reported:</b> 12/03/13 15:03
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## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B13J083 - 3050B Std Acid Dig - Metals by 6010					Prepared: 10/23/13 Analyzed: 11/11/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13J083-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Matrix Spike (B13J083-MS1)		Source: 1310021-05								
Arsenic	1,150			2 mg/kg wet	400	673	118	75-125		20
Lead	3,530	Q10		3 "	100	3,220	310	75-125		20
Matrix Spike Dup (B13J083-MSD1)		Source: 1310021-05								
Arsenic	1,130			2 mg/kg wet	396	673	116	75-125	1	20
Lead	3,500	Q10		3 "	99.0	3,220	278	75-125	1	20
Reference (B13J083-SRM1)										
Arsenic	210			2 mg/kg wet	253		83	60.9-139		
Lead	42.7			3 "	56.9		75	72.8-127		
Batch B13K151 - 3050B Std Acid Dig - Metals by 6010					Prepared: 11/26/13 Analyzed: 12/02/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13K151-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Duplicate (B13K151-DUP1)		Source: 1310021-07RE2								
Arsenic	1,220			2 mg/kg wet		1,230			0.7	20
Lead	5,400			3 "		5,490			2	20
Reference (B13K151-SRM1)										
Arsenic	280			2 mg/kg wet	253		111	60.9-139		
Lead	55.7			3 "	56.9		98	72.8-127		



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: 13291C

Project Number: R14S12

75 Hawthorne Street

Reported: 12/03/13 15:03

Project: Eureka Smelter Sites FY14 Sampling

San Francisco CA, 94105

**Qualifiers and Comments**

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.

U Not Detected

NR Not Reported

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

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Laboratory: Test America	Lab Project No: 13312C, D and E
Sampling Dates: 10/7/13 to 11/3/13	Sample Matrix: Soil
Analytical Method: RCRA Metals EPA 6010C	Data Reviewer: H. Edwards

### REVIEW AND APPROVAL:

Data Reviewer: Howard Edwards



Date: 12/31/2013

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	107402-S3-0	1311028-01
2	101222-S02-2	1311028-02
3	115807-S3-2	1311028-03
4	107402-S3-6	1311028-04
5	111321-S01-2	1311028-05
6	111321-G3-6	1311028-06
7	1115808-S3-6 (115808-S3-6)	1311028-07
8	116201-S06-0	1311028-08
9	113501-P2-2	1311028-09
10	111701-S02-6	1311028-10
11	122108-S02-2	1311028-11
12	107402-S1-2	1311028-12
13	115702-S01-6	1311028-13
14	113501-S04-0	1311028-14
15	737008-BG50-0	1311028-15
16	119103-P2-0X-0-PD	1311028-16
17	119103-P2-0-PD	1311028-17
18	119103-P2-0	1311028-18
19	113408-S06-0	1311028-19
20	111603-S01-2	1311028-20



# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Sample No.	Sample I.D.	Laboratory I.D.
41	112903-S02-2	1311030-01
42	111321-P01-6	1311030-02
43	111321-P01-6-PD	1311030-03
44	106404-S02-2	1311030-04
45	110801-S02-0	1311030-05
46	113501-S02-6D	1311030-06
47	113501-S02-6	1311030-07
48	102211-S02-0	1311030-08
49	113613-S03-2	1311030-09
50	113602-S03-0	1311030-10
51	117203-G1-2	1311030-11
52	110313-Pitrum	1311030-12
53	103113-Sand	1311030-13
54	103113-Sand-PD	1311030-14
55	101613-Topsoil	1311030-15
56	102213-Base	1311030-16
57	110313-Topsoil	1311030-17
58	102213-Topsoil	1311030-18
59	110313-Sand	1311030-19
60	101613-Sand	1311030-20
61	100713-Base	1311030-21
62	100713-Topsoil	1311030-22
63	101613-PitRun	1311030-23
64	100713-PitRun	1311030-24

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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
- ☐ O Initial and Continuing Calibration results
- ☒ 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
- ☒ ICP Serial Dilution results
- ☐ NR Instrument Detection Limits
- ☒ ICP Interelement Correction Factors
- ☒ 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

### 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).

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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	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	YES
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.

### 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. Sample requiring mercury concentration determination were submitted to the laboratory at room temperature and prepared XRF cups. All associated mercury data was qualified as low biased.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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 arsenic and lead in initial and continuing calibration verifications were within the control limits.

### 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%.



## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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:** Recoveries of Matrix Spike for arsenic was within the control limits. The spike concentration of lead was two orders of magnitude less than sample concentration of lead and was thus useless to document the spike recovery for lead.

### 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.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

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

### RCRA Metals

Analyte	103113-Sand (mg/kg)	103113-Sand-PD (mg/kg)	RPD (%)
Arsenic	16	19	17
Lead	9.8	7.5	1.1
Chromium	15	18	27
Selenium	ND	ND	0
Silver	ND	ND	0
Cadmium	0.30	<0.5 (ND)	0
Barium	250	170	38
Mercury	0.027	<0.025 (ND)	8

### Arsenic and Lead

Analyte	111321-P01-6 (mg/kg)	111321-P01-6-PD (mg/kg)	RPD (%)
Arsenic	34	30	12.5
Lead	100	90	11

Analyte	113501-S02-6 (mg/kg)	113501-S02-6-d (mg/kg)	RPD (%)
Arsenic	45	44	2.2
Lead	36	34	5.7

**Comments:** The RPDs of blank spike duplicate for lead and arsenic and the matrix spike duplicate for arsenic were within the control limit (<35%). All barium data was J qualified based upon field duplicate RPD.

## 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 and Serial Dilution Analysis: recoveries were within the control limit.

### 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: Post digestion spikes had acceptable recoveries.

### 9. ANALYTE QUANTITATION

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

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

## 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

(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.

### 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.

### 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 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.

## 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

- 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**

**Date:** 12/9/2013  
**Subject:** Analytical Testing Results - Project R14S12  
SDG: 13312C  
**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 FY14 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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Metals by ICP



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13312C  
Reported: 12/09/13 14:30

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
107402-S3-0	1311028-01	soil	11/03/13 12:00	11/08/13 10:30
101222-S02-2	1311028-02	soil	11/03/13 12:00	11/08/13 10:30
115807-S3-2	1311028-03	soil	11/03/13 12:00	11/08/13 10:30
107402-S3-6	1311028-04	soil	11/03/13 12:00	11/08/13 10:30
111321-S01-2	1311028-05	soil	11/03/13 12:00	11/08/13 10:30
111321-G3-6	1311028-06	soil	11/03/13 12:00	11/08/13 10:30
1115808-S3-0	1311028-07	soil	11/03/13 12:00	11/08/13 10:30
116201-S06-0	1311028-08	soil	11/03/13 12:00	11/08/13 10:30
113501-P2-2	1311028-09	soil	11/03/13 12:00	11/08/13 10:30
111702-S02-6	1311028-10	soil	11/03/13 12:00	11/08/13 10:30
122108-S02-2	1311028-11	soil	11/03/13 12:00	11/08/13 10:30
107402-S1-2	1311028-12	soil	11/03/13 12:00	11/08/13 10:30
115702-S01-6	1311028-13	soil	11/03/13 12:00	11/08/13 10:30
113501-S04-0	1311028-14	soil	11/03/13 12:00	11/08/13 10:30
737008-BG50-0	1311028-15	soil	11/03/13 12:00	11/08/13 10:30
119103-P2-0X-PD	1311028-16	soil	11/03/13 12:00	11/08/13 10:30
119103-P2-0-PD	1311028-17	soil	11/03/13 12:00	11/08/13 10:30
119103-P2-0	1311028-18	soil	11/03/13 12:00	11/08/13 10:30
113408-S06-0	1311028-19	soil	11/03/13 12:00	11/08/13 10:30
111603-S01-2	1311028-20	soil	11/03/13 12:00	11/08/13 10:30

**SDG ID 13312C**

**Work Order(s)**

**1311028**





# 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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13312C  
Reported: 12/09/13 14:30

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311028-01								soil - Sampled: 11/03/13 12:00
Sample ID: 107402-S3-0								Metals by EPA 6000/7000 Series Methods
Arsenic		110		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		680		3	"	"	"	6010C/SOP503
Lab ID: 1311028-02								soil - Sampled: 11/03/13 12:00
Sample ID: 101222-S02-2								Metals by EPA 6000/7000 Series Methods
Arsenic		230		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		1,200		3	"	"	"	6010C/SOP503
Lab ID: 1311028-03								soil - Sampled: 11/03/13 12:00
Sample ID: 115807-S3-2								Metals by EPA 6000/7000 Series Methods
Arsenic		1,800		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		7,700		3	"	"	"	6010C/SOP503
Lab ID: 1311028-04								soil - Sampled: 11/03/13 12:00
Sample ID: 107402-S3-6								Metals by EPA 6000/7000 Series Methods
Arsenic		190		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		990		3	"	"	"	6010C/SOP503
Lab ID: 1311028-05								soil - Sampled: 11/03/13 12:00
Sample ID: 111321-S01-2								Metals by EPA 6000/7000 Series Methods
Arsenic		480		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		2,300		3	"	"	"	6010C/SOP503
Lab ID: 1311028-06								soil - Sampled: 11/03/13 12:00
Sample ID: 111321-G3-6								Metals by EPA 6000/7000 Series Methods
Arsenic		160		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		860		3	"	"	"	6010C/SOP503
Lab ID: 1311028-07								soil - Sampled: 11/03/13 12:00
Sample ID: 1115808-S3-0								Metals by EPA 6000/7000 Series Methods
Arsenic		82		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		300		3	"	"	"	6010C/SOP503
Lab ID: 1311028-08								soil - Sampled: 11/03/13 12:00
Sample ID: 116201-S06-0								Metals by EPA 6000/7000 Series Methods
Arsenic		150		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		700		3	"	"	"	6010C/SOP503
Lab ID: 1311028-09								soil - Sampled: 11/03/13 12:00
Sample ID: 113501-P2-2								Metals by EPA 6000/7000 Series Methods
Arsenic		59		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		250		3	"	"	"	6010C/SOP503
Lab ID: 1311028-10								soil - Sampled: 11/03/13 12:00
Sample ID: 111702-S02-6								Metals by EPA 6000/7000 Series Methods
Arsenic		410		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		2,300		3	"	"	"	6010C/SOP503
Lab ID: 1311028-11								soil - Sampled: 11/03/13 12:00



# 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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13312C

Reported: 12/09/13 14:30

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311028-11								soil - Sampled: 11/03/13 12:00
Sample ID: 122108-S02-2								Metals by EPA 6000/7000 Series Methods
Arsenic		140		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		750		3	"	"	"	6010C/SOP503
Lab ID: 1311028-12								soil - Sampled: 11/03/13 12:00
Sample ID: 107402-S1-2								Metals by EPA 6000/7000 Series Methods
Arsenic		270		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		1,300		3	"	"	"	6010C/SOP503
Lab ID: 1311028-13								soil - Sampled: 11/03/13 12:00
Sample ID: 115702-S01-6								Metals by EPA 6000/7000 Series Methods
Arsenic		850		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		3,600		3	"	"	"	6010C/SOP503
Lab ID: 1311028-14								soil - Sampled: 11/03/13 12:00
Sample ID: 113501-S04-0								Metals by EPA 6000/7000 Series Methods
Arsenic		78		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		270		3	"	"	"	6010C/SOP503
Lab ID: 1311028-15								soil - Sampled: 11/03/13 12:00
Sample ID: 737008-BG50-0								Metals by EPA 6000/7000 Series Methods
Arsenic		18		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		38		3	"	"	"	6010C/SOP503
Lab ID: 1311028-16								soil - Sampled: 11/03/13 12:00
Sample ID: 119103-P2-0X-PD								Metals by EPA 6000/7000 Series Methods
Arsenic		2,200		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead	REI	9,800		30	"	"	11/23/13	6010C/SOP503
Lab ID: 1311028-17								soil - Sampled: 11/03/13 12:00
Sample ID: 119103-P2-0-PD								Metals by EPA 6000/7000 Series Methods
Arsenic		2,200		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead	REI	9,800		30	"	"	11/23/13	6010C/SOP503
Lab ID: 1311028-18								soil - Sampled: 11/03/13 12:00
Sample ID: 119103-P2-0								Metals by EPA 6000/7000 Series Methods
Arsenic		2,300		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead	REI	10,000		30	"	"	11/23/13	6010C/SOP503
Lab ID: 1311028-19								soil - Sampled: 11/03/13 12:00
Sample ID: 113408-S06-0								Metals by EPA 6000/7000 Series Methods
Arsenic		110		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		580		3	"	"	"	6010C/SOP503
Lab ID: 1311028-20								soil - Sampled: 11/03/13 12:00
Sample ID: 111603-S01-2								Metals by EPA 6000/7000 Series Methods
Arsenic		170		2	mg/kg wet	B13K100	11/18/13 11/20/13	6010C/SOP503
Lead		790		3	"	"	"	6010C/SOP503

7112 12-30-13



# 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: 13312C
Project Number: R14S12	75 Hawthorne Street	Reported: 12/09/13 14:30
Project: Eureka Smelter Sites FY14 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 B13K100 - 3050B Std Acid Dig - Metals by 6010					Prepared: 11/18/13 Analyzed: 11/20/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13K100-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Matrix Spike (B13K100-MS1)		Source: 1311028-10								
Arsenic	859			2 mg/kg wet	396	412	113	75-125		20
Lead	2,480	Q10		3 "	99.0	2,270	215	75-125		20
Matrix Spike Dup (B13K100-MSD1)		Source: 1311028-10								
Arsenic	866			2 mg/kg wet	400	412	113	75-125	0.8	20
Lead	2,510	Q10		3 "	100	2,270	243	75-125	1	20
Reference (B13K100-SRM1)										
Arsenic	302			2 mg/kg wet	254		119	60.9-139		
Lead	61.6			3 "	57.1		108	72.8-127		



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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13312C

Reported: 12/09/13 14:30

**Qualifiers and Comments**

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.

U Not Detected

NR Not Reported

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



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

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

**Date:** 12/9/2013

**Subject:** Analytical Testing Results - Project R14S12  
SDG: 13312D

**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 FY14 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:**

---

Metals by ICP



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13312D  
Reported: 12/09/13 14:36

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
101210-G4-0	1311029-01	soil	11/03/13 12:00	11/08/13 10:30
122108-S04-2	1311029-02	soil	11/03/13 12:00	11/08/13 10:30
112903-S03-6	1311029-03	soil	11/03/13 12:00	11/08/13 10:30
112904-S04-2	1311029-04	soil	11/03/13 12:00	11/08/13 10:30
111702-S04-0	1311029-05	soil	11/03/13 12:00	11/08/13 10:30
112902-S2-0	1311029-06	soil	11/03/13 12:00	11/08/13 10:30
119103-P4-2	1311029-07	soil	11/03/13 12:00	11/08/13 10:30
111702-S01-2	1311029-08	soil	11/03/13 12:00	11/08/13 10:30
113406-S03-0	1311029-09	soil	11/03/13 12:00	11/08/13 10:30
112904-S1-0	1311029-10	soil	11/03/13 12:00	11/08/13 10:30
118904-S06-2	1311029-11	soil	11/03/13 12:00	11/08/13 10:30
114202-S02-2	1311029-12	soil	11/03/13 12:00	11/08/13 10:30
113612-S02-CONF	1311029-13	soil	11/03/13 12:00	11/08/13 10:30
113605-S02-CONF	1311029-14	soil	11/03/13 12:00	11/08/13 10:30
101613-PREP-Bik	1311029-15	soil	11/03/13 12:00	11/08/13 10:30
116203-S4-2	1311029-16	soil	11/03/13 12:00	11/08/13 10:30
113612-S02-0	1311029-17	soil	11/03/13 12:00	11/08/13 10:30
116601-S01-1	1311029-18	soil	11/03/13 12:00	11/08/13 10:30
113610-S01-2	1311029-19	soil	11/03/13 12:00	11/08/13 10:30
113609-S04-CONF	1311029-20	soil	11/03/13 12:00	11/08/13 10:30

**SDG ID 13312D**

**Work Order(s)**

**1311029**



# 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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13312D

Reported: 12/09/13 14:36

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311029-01								soil - Sampled: 11/03/13 12:00
Sample ID: 101210-G4-0								Metals by EPA 6000/7000 Series Methods
Arsenic		4,900		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead	REI	25,000		30	"	"	" 11/23/13	6010C/SOP503
Lab ID: 1311029-02								soil - Sampled: 11/03/13 12:00
Sample ID: 122108-S04-2								Metals by EPA 6000/7000 Series Methods
Arsenic		180		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		880		3	"	"	"	6010C/SOP503
Lab ID: 1311029-03								soil - Sampled: 11/03/13 12:00
Sample ID: 112903-S03-6								Metals by EPA 6000/7000 Series Methods
Arsenic		440		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		2,100		3	"	"	"	6010C/SOP503
Lab ID: 1311029-04								soil - Sampled: 11/03/13 12:00
Sample ID: 112904-S04-2								Metals by EPA 6000/7000 Series Methods
Arsenic		1,100		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		5,300		3	"	"	"	6010C/SOP503
Lab ID: 1311029-05								soil - Sampled: 11/03/13 12:00
Sample ID: 111702-S04-0								Metals by EPA 6000/7000 Series Methods
Arsenic		360		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		2,000		3	"	"	"	6010C/SOP503
Lab ID: 1311029-06								soil - Sampled: 11/03/13 12:00
Sample ID: 112902-S2-0								Metals by EPA 6000/7000 Series Methods
Arsenic		470		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		1,900		3	"	"	"	6010C/SOP503
Lab ID: 1311029-07								soil - Sampled: 11/03/13 12:00
Sample ID: 119103-P4-2								Metals by EPA 6000/7000 Series Methods
Arsenic		390		2	mg/kg wet	B13K101	11/18/13 11/20/13	6010C/SOP503
Lead		1,700		3	"	"	"	6010C/SOP503
Lab ID: 1311029-08								soil - Sampled: 11/03/13 12:00
Sample ID: 111702-S01-2								Metals by EPA 6000/7000 Series Methods
Arsenic		240		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		1,200		3	"	"	"	6010C/SOP503
Lab ID: 1311029-09								soil - Sampled: 11/03/13 12:00
Sample ID: 113406-S03-0								Metals by EPA 6000/7000 Series Methods
Arsenic		300		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		1,500		3	"	"	"	6010C/SOP503
Lab ID: 1311029-10								soil - Sampled: 11/03/13 12:00
Sample ID: 112904-S1-0								Metals by EPA 6000/7000 Series Methods
Arsenic		140		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		550		3	"	"	"	6010C/SOP503
Lab ID: 1311029-11								soil - Sampled: 11/03/13 12:00



# 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: 13312D
Project Number: R14S12	75 Hawthorne Street	Reported: 12/09/13 14:36
Project: Eureka Smelter Sites FY14 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311029-11								soil - Sampled: 11/03/13 12:00
Sample ID: 118904-S06-2								Metals by EPA 6000/7000 Series Methods
Arsenic		39		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		120		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-12								soil - Sampled: 11/03/13 12:00
Sample ID: 114202-S02-2								Metals by EPA 6000/7000 Series Methods
Arsenic		36		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		180		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-13								soil - Sampled: 11/03/13 12:00
Sample ID: 113612-S02-CONF								Metals by EPA 6000/7000 Series Methods
Arsenic		330		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		1,800		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-14								soil - Sampled: 11/03/13 12:00
Sample ID: 113605-S02-CONF								Metals by EPA 6000/7000 Series Methods
Arsenic		140		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		680		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-15								soil - Sampled: 11/03/13 12:00
Sample ID: 101613-PREP-Bik								Metals by EPA 6000/7000 Series Methods
Arsenic		ND U		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		1.5 Cl, J		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-16								soil - Sampled: 11/03/13 12:00
Sample ID: 116203-S4-2								Metals by EPA 6000/7000 Series Methods
Arsenic		410		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		2,100		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-17								soil - Sampled: 11/03/13 12:00
Sample ID: 113612-S02-0								Metals by EPA 6000/7000 Series Methods
Arsenic		590		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		3,300		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-18								soil - Sampled: 11/03/13 12:00
Sample ID: 116601-S01-1								Metals by EPA 6000/7000 Series Methods
Arsenic		460		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		2,500		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-19								soil - Sampled: 11/03/13 12:00
Sample ID: 113610-S01-2								Metals by EPA 6000/7000 Series Methods
Arsenic		520		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		3,200		3	"	"	" "	6010C/SOP503
Lab ID: 1311029-20								soil - Sampled: 11/03/13 12:00
Sample ID: 113609-S04-CONF								Metals by EPA 6000/7000 Series Methods
Arsenic		350		2	mg/kg wet	B13K101	11/18/13 11/21/13	6010C/SOP503
Lead		1,900		3	"	"	" "	6010C/SOP503

*Handwritten signature* 12/31/13





# 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> 13312D
<b>Project Number:</b> R14S12	<b>75 Hawthorne Street</b>	<b>Reported:</b> 12/09/13 14:36
<b>Project:</b> Eureka Smelter Sites FY14 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
Batch B13K101 - 3050B Std Acid Dig - Metals by 6010					Prepared: 11/18/13 Analyzed: 11/20/13 Metals by EPA 6000/7000 Series Methods - Quality Control					
Blank (B13K101-BLK1)										
Arsenic	ND	U		2 mg/kg wet						
Barium	ND	U		5 "						
Cadmium	ND	U		0.5 "						
Chromium	ND	U		1 "						
Lead	ND	U		3 "						
Selenium	ND	U		2 "						
Silver	ND	U		1 "						
Matrix Spike (B13K101-MS1)		Source: 1311029-16								
Arsenic	850			2 mg/kg wet	396	407	112	75-125		20
Lead	2,260	Q10		3 "	99.0	2,080	187	75-125		20
Matrix Spike Dup (B13K101-MSD1)		Source: 1311029-16								
Arsenic	830			2 mg/kg wet	392	407	108	75-125	2	20
Lead	2,210	Q10		3 "	98.0	2,080	136	75-125	2	20
Reference (B13K101-SRM1)										
Arsenic	297			2 mg/kg wet	254		117	60.9-139		
Lead	59.3			3 "	57.0		104	72.8-127		



**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> 13312D
<b>Project Number:</b> R14S12	<b>75 Hawthorne Street</b>	<b>Reported:</b> 12/09/13 14:36
<b>Project:</b> Eureka Smelter Sites FY14 Sampling	<b>San Francisco CA, 94105</b>	

**Qualifiers and Comments**

- 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.
- CI The reported concentration for this analyte is below the quantitation limit.
- U Not Detected
- NR Not Reported
- RE1, RE2, etc: Result is from a sample re-analysis.



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

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

**Date:** 12/9/2013  
**Subject:** Analytical Testing Results - Project R14S12  
SDG: 13312E  
**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 FY14 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:**

Mercury by EPA method 7473

Metals by ICP



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13312E  
Reported: 12/09/13 14:44

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
112903-S02-2	1311030-01	soil	11/03/13 12:00	11/08/13 10:30
111321-P01-6	1311030-02	soil	11/03/13 12:00	11/08/13 10:30
111321-P01-6-PD	1311030-03	soil	11/03/13 12:00	11/08/13 10:30
106404-S02-2	1311030-04	soil	11/03/13 12:00	11/08/13 10:30
110801-S02-0	1311030-05	soil	11/03/13 12:00	11/08/13 10:30
113501-S02-6d	1311030-06	soil	11/03/13 12:00	11/08/13 10:30
113501-S02-6	1311030-07	soil	11/03/13 12:00	11/08/13 10:30
102211-S02-0	1311030-08	soil	11/03/13 12:00	11/08/13 10:30
113613-S03-2	1311030-09	soil	11/03/13 12:00	11/08/13 10:30
113602-S03-0	1311030-10	soil	11/03/13 12:00	11/08/13 10:30
117203-G1-2	1311030-11	soil	11/03/13 12:00	11/08/13 10:30
110313-PitRun	1311030-12	soil	11/03/13 12:00	11/08/13 10:30
103113-Sand	1311030-13	soil	10/31/13 12:00	11/08/13 10:30
103113-Sand-PD	1311030-14	soil	10/31/13 12:00	11/08/13 10:30
101613-TopSoil	1311030-15	soil	10/16/13 12:00	11/08/13 10:30
102213-Base	1311030-16	soil	10/22/13 12:00	11/08/13 10:30
110313-TopSoil	1311030-17	soil	11/03/13 12:00	11/08/13 10:30
102213-TopSoil	1311030-18	soil	10/22/13 12:00	11/08/13 10:30
110313-Sand	1311030-19	soil	11/03/13 12:00	11/08/13 10:30
101613-Sand	1311030-20	soil	10/16/13 12:00	11/08/13 10:30
100713-Base	1311030-21	soil	10/07/13 12:00	11/08/13 10:30
100713-TopSoil	1311030-22	soil	10/07/13 12:00	11/08/13 10:30
101613-PitRun	1311030-23	soil	10/16/13 12:00	11/08/13 10:30
100713-PitRun	1311030-24	soil	10/07/13 12:00	11/08/13 10:30

**SDG ID 13312E**

**Work Order(s)**

**1311030**

Mercury by 7473: Three samples were received past the 28-day holding time for mercury. Results are flagged as estimated and qualified A3. All samples were received at 21 degrees C which is above the recommended temperature range of >0 to 6 degrees C for mercury preservation. Mercury results are flagged as estimated.



# 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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13312E

Reported: 12/09/13 14:44

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311030-11								soil - Sampled: 11/03/13 12:00
Sample ID: 117203-G1-2								Metals by EPA 6000/7000 Series Methods
Arsenic		23		2	mg/kg wet	B13K102	11/18/13	11/20/13 6010C/SOP503
Lead		59		3	"	"	"	6010C/SOP503
Lab ID: 1311030-12								soil - Sampled: 11/03/13 12:00
Sample ID: 110313-PitRun								Metals by EPA 6000/7000 Series Methods
Mercury		0.031	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		21		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		310		5	"	"	"	6010C/SOP503
Cadmium		0.47	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		17		1	"	"	"	6010C/SOP503
Lead		29		3	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	6010C/SOP503
Lab ID: 1311030-13								soil - Sampled: 10/31/13 12:00
Sample ID: 103113-Sand								Metals by EPA 6000/7000 Series Methods
Mercury		0.027	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		16		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		250		5	"	"	"	6010C/SOP503
Cadmium		0.30	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		15		1	"	"	"	6010C/SOP503
Lead		9.8		3	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	6010C/SOP503
Lab ID: 1311030-14								soil - Sampled: 10/31/13 12:00
Sample ID: 103113-Sand-PD								Metals by EPA 6000/7000 Series Methods
Mercury		ND	A2, J, U	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		19		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		170		5	"	"	"	6010C/SOP503
Cadmium		ND	U	0.50	"	"	"	6010C/SOP503
Chromium		18		1	"	"	"	6010C/SOP503
Lead		7.5		3	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	6010C/SOP503
Lab ID: 1311030-15								soil - Sampled: 10/16/13 12:00
Sample ID: 101613-TopSoil								Metals by EPA 6000/7000 Series Methods
Mercury		0.039	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		14		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		330		5	"	"	"	6010C/SOP503
Cadmium		0.49	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		20		1	"	"	"	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: 13312E
Project Number: R14S12	75 Hawthorne Street	Reported: 12/09/13 14:44
Project: Eureka Smelter Sites FY14 Sampling	San Francisco CA, 94105	

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311030-01								soil - Sampled: 11/03/13 12:00
Sample ID: 112903-S02-2								Metals by EPA 6000/7000 Series Methods
Arsenic		480		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		2,500		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-02								soil - Sampled: 11/03/13 12:00
Sample ID: 111321-P01-6								Metals by EPA 6000/7000 Series Methods
Arsenic		34		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		100		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-03								soil - Sampled: 11/03/13 12:00
Sample ID: 111321-P01-6-PD								Metals by EPA 6000/7000 Series Methods
Arsenic		30		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		90		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-04								soil - Sampled: 11/03/13 12:00
Sample ID: 106404-S02-2								Metals by EPA 6000/7000 Series Methods
Arsenic		630		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		3,400		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-05								soil - Sampled: 11/03/13 12:00
Sample ID: 110801-S02-0								Metals by EPA 6000/7000 Series Methods
Arsenic		180		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		1,100		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-06								soil - Sampled: 11/03/13 12:00
Sample ID: 113501-S02-6d								Metals by EPA 6000/7000 Series Methods
Arsenic		44		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		34		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-07								soil - Sampled: 11/03/13 12:00
Sample ID: 113501-S02-6								Metals by EPA 6000/7000 Series Methods
Arsenic		45		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		36		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-08								soil - Sampled: 11/03/13 12:00
Sample ID: 102211-S02-0								Metals by EPA 6000/7000 Series Methods
Arsenic		97		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		420		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-09								soil - Sampled: 11/03/13 12:00
Sample ID: 113613-S03-2								Metals by EPA 6000/7000 Series Methods
Arsenic		210		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		1,000		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-10								soil - Sampled: 11/03/13 12:00
Sample ID: 113602-S03-0								Metals by EPA 6000/7000 Series Methods
Arsenic		230		2	mg/kg wet	B13K102	11/18/13 11/20/13	6010C/SOP503
Lead		1,100		3	"	"	" "	6010C/SOP503
Lab ID: 1311030-11								soil - Sampled: 11/03/13 12:00

12-31-13



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  
Project Number: R14S12  
Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section  
75 Hawthorne Street  
San Francisco CA, 94105

SDG: 13312E  
Reported: 12/09/13 14:44

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311030-15 soil - Sampled: 10/16/13 12:00								
Sample ID: 101613-TopSoil Metals by EPA 6000/7000 Series Methods								
Lead		14		3	mg/kg wet	B13K102	11/18/13	11/20/13 6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-16 soil - Sampled: 10/22/13 12:00								
Sample ID: 102213-Base Metals by EPA 6000/7000 Series Methods								
Mercury		0.018	A2, Cl, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		17		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		270		5	"	"	"	6010C/SOP503
Cadmium		0.32	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		17		1	"	"	"	6010C/SOP503
Lead		10		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-17 soil - Sampled: 11/03/13 12:00								
Sample ID: 110313-TopSoil Metals by EPA 6000/7000 Series Methods								
Mercury		0.043	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		16		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		330		5	"	"	"	6010C/SOP503
Cadmium		0.58		0.50	"	"	"	6010C/SOP503
Chromium		20		1	"	"	"	6010C/SOP503
Lead		26		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-18 soil - Sampled: 10/22/13 12:00								
Sample ID: 102213-TopSoil Metals by EPA 6000/7000 Series Methods								
Mercury		0.036	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		13		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		320		5	"	"	"	6010C/SOP503
Cadmium		0.52		0.50	"	"	"	6010C/SOP503
Chromium		20		1	"	"	"	6010C/SOP503
Lead		14		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-19 soil - Sampled: 11/03/13 12:00								
Sample ID: 110313-Sand Metals by EPA 6000/7000 Series Methods								
Mercury		0.020	A2, Cl, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		18		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		250		5	"	"	"	6010C/SOP503
Cadmium		0.33	Cl, J	0.50	"	"	"	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

Project Number: R14S12

Project: Eureka Smelter Sites FY14 Sampling

Emergency Response Section

75 Hawthorne Street

San Francisco CA, 94105

SDG: 13312E

Reported: 12/09/13 14:44

## Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311030-19								soil - Sampled: 11/03/13 12:00
Sample ID: 110313-Sand								Metals by EPA 6000/7000 Series Methods
Chromium		16		1	mg/kg wet	B13K102	11/18/13	11/20/13 6010C/SOP503
Lead		13		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-20								soil - Sampled: 10/16/13 12:00
Sample ID: 101613-Sand								Metals by EPA 6000/7000 Series Methods
Mercury		0.017	A2, C1, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		18		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		250		5	"	"	"	6010C/SOP503
Cadmium		0.30	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		16		1	"	"	"	6010C/SOP503
Lead		17		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-21								soil - Sampled: 10/07/13 12:00
Sample ID: 100713-Base								Metals by EPA 6000/7000 Series Methods
Mercury		0.020	A2, A3, Cl, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		16		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		270		5	"	"	"	6010C/SOP503
Cadmium		0.31	Cl, J	0.50	"	"	"	6010C/SOP503
Chromium		17		1	"	"	"	6010C/SOP503
Lead		11		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-22								soil - Sampled: 10/07/13 12:00
Sample ID: 100713-TopSoil								Metals by EPA 6000/7000 Series Methods
Mercury		0.021	A2, A3, Cl, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		16		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		330		5	"	"	"	6010C/SOP503
Cadmium		0.58		0.50	"	"	"	6010C/SOP503
Chromium		22		1	"	"	"	6010C/SOP503
Lead		30		3	"	"	"	6010C/SOP503
Selenium		ND U		2	"	"	"	6010C/SOP503
Silver		ND U		1	"	"	"	6010C/SOP503
Lab ID: 1311030-23								soil - Sampled: 10/16/13 12:00
Sample ID: 101613-PitRun								Metals by EPA 6000/7000 Series Methods
Mercury		0.028	A2, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		17		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		310		5	"	"	"	6010C/SOP503

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12-13-31





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: 13312B
Project Number: R14S12	75 Hawthorne Street	Reported: 12/09/13 14:44
Project: Eureka Smelter Sites FY14 Sampling	San Francisco CA, 94105	

**Sample Results**

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed Method
Lab ID: 1311030-23								soil - Sampled: 10/16/13 12:00
Sample ID: 101613-PitRun								Metals by EPA 6000/7000 Series Methods
Cadmium		0.34	C1, J	0.50	mg/kg wet	B13K102	11/18/13	11/20/13 6010C/SOP503
Chromium		16		1	"	"	"	6010C/SOP503
Lead		10		3	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	6010C/SOP503
Lab ID: 1311030-24								soil - Sampled: 10/07/13 12:00
Sample ID: 100713-PitRun								Metals by EPA 6000/7000 Series Methods
Mercury	RE2	0.021	A2, A3, C1, J	0.025	mg/kg wet	B13K074	11/12/13	11/12/13 7473/SOP535
Arsenic		19		2	"	B13K102	11/18/13	11/20/13 6010C/SOP503
Barium		280		5	"	"	"	6010C/SOP503
Cadmium		0.36	C1, J	0.50	"	"	"	6010C/SOP503
Chromium		16		1	"	"	"	6010C/SOP503
Lead		24		3	"	"	"	6010C/SOP503
Selenium		ND	U	2	"	"	"	6010C/SOP503
Silver		ND	U	1	"	"	"	6010C/SOP503

714

12-31-13



# 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: 13312E
Project Number: RI4S12	75 Hawthorne Street	Reported: 12/09/13 14:44
Project: Eureka Smelter Sites FY14 Sampling	San Francisco CA, 94105	

## Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch B13K074 - 7473 Hg Prep - Mercury by 7473

Prepared & Analyzed: 11/12/13

Metals by EPA 6000/7000 Series Methods - Quality Control

Blank (B13K074-BLK1)

Mercury	ND	U	0.025	mg/kg wet						
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Matrix Spike (B13K074-MS1) Source: 1311030-14

Mercury	0.531		0.025	mg/kg wet	0.487	ND	109	80-120		20
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Matrix Spike Dup (B13K074-MSD1) Source: 1311030-14

Mercury	0.538		0.025	mg/kg wet	0.489	ND	110	80-120	0.9	20
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Reference (B13K074-SRM1)

Mercury	1.18		0.025	mg/kg wet	1.10		107	80-120		
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Batch B13K102 - 3050B Std Acid Dig - Metals by 6010

Prepared: 11/18/13 Analyzed: 11/20/13

Metals by EPA 6000/7000 Series Methods - Quality Control

Blank (B13K102-BLK1)

Arsenic	ND	U	2	mg/kg wet						
Barium	ND	U	5	"						
Cadmium	ND	U	0.5	"						
Chromium	ND	U	1	"						
Lead	ND	U	3	"						
Selenium	ND	U	2	"						
Silver	ND	U	1	"						

Blank (B13K102-BLK2)

Arsenic	ND	U	2	mg/kg wet						
Barium	ND	U	5	"						
Cadmium	ND	U	0.5	"						
Chromium	ND	U	1	"						
Lead	ND	U	3	"						
Selenium	ND	U	2	"						
Silver	ND	U	1	"						

Matrix Spike (B13K102-MS1) Source: 1311030-11

Arsenic	433		2	mg/kg wet	400	22.6	103	75-125		20
Lead	151		3	"	100	58.6	93	75-125		20

Matrix Spike (B13K102-MS2) Source: 1311030-20

Arsenic	421		2	mg/kg wet	385	18.2	105	75-125		20
Barium	615		5	"	385	252	94	75-125		20
Cadmium	9.11		0.5	"	9.62	0.299	92	75-125		20
Chromium	53.6		1	"	38.5	16	98	75-125		20
Lead	107		3	"	96.2	16.6	94	75-125		20
Selenium	370		2	"	385	ND	96	75-125		20
Silver	9.89		1	"	9.62	ND	103	75-125		20



# 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: 13312E
Project Number: R14S12	75 Hawthorne Street	Reported: 12/09/13 14:44
Project: Eureka Smelter Sites FY14 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 B13K102 - 3050B Std Acid Dig - Metals by 6010					Prepared: 11/18/13 Analyzed: 11/20/13					
Matrix Spike Dup (B13K102-MSD1)					Metals by EPA 6000/7000 Series Methods - Quality Control					
Source: 1311030-11										
Arsenic	434			2 mg/kg wet	396	22.6	104	75-125	0.2	20
Lead	153			3 "	99.0	58.6	95	75-125	1	20
Matrix Spike Dup (B13K102-MSD2)					Source: 1311030-20					
Arsenic	448			2 mg/kg wet	400	18.2	107	75-125	6	20
Barium	647			5 "	400	252	99	75-125	5	20
Cadmium	9.73			0.5 "	10.0	0.299	94	75-125	7	20
Chromium	56.6			1 "	40.0	16	101	75-125	5	20
Lead	113			3 "	100	16.6	97	75-125	6	20
Selenium	396			2 "	400	ND	99	75-125	7	20
Silver	10.4			1 "	10.0	ND	104	75-125	5	20
Reference (B13K102-SRM1)										
Arsenic	304			2 mg/kg wet	248		123	60.9-139		
Barium	ND	U		5 "	1.57			62.5-138		
Cadmium	11.3			0.5 "	10.7		106	70.6-128		
Chromium	30.1			1 "	26.6		113	68.3-132		
Lead	61.3			3 "	55.8		110	72.8-127		
Selenium	6.56			2 "	9.80		67	41-159		
Silver	9.62			1 "	5.78		166	45.8-154		
Reference (B13K102-SRM2)										
Arsenic	291			2 mg/kg wet	248		117	60.9-139		
Barium	ND	U		5 "	1.57			62.5-138		
Cadmium	10.9			0.5 "	10.7		102	70.6-128		
Chromium	29.2			1 "	26.6		110	68.3-132		
Lead	58.3			3 "	55.8		105	72.8-127		
Selenium	6.59			2 "	9.80		67	41-159		
Silver	6.7			1 "	5.78		116	45.8-154		



# 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:** 13312E

**Project Number:** R14S12

**75 Hawthorne Street**

**Reported:** 12/09/13 14:44

**Project:** Eureka Smelter Sites FY14 Sampling

**San Francisco CA, 94105**

## Qualifiers and Comments

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.

A3 The sample was prepped/analyzed past the recommended holding time.

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.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Laboratory: Test America	Lab Project No: 320-395-1
Sampling Dates: 9/04/12	Sample Matrix: Soil
Analytical Method: RCRA Metals EPA 6010CB	Data Reviewer: H. Edwards

### REVIEW AND APPROVAL:

Data Reviewer: Howard Edwards

Date: 12/31/2013

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	Borrow Source #1	320-3935-1
2	Borrow Source #2	320-3935-2
3	Humus	320-3935-4
4	Mushroom	320-3935-5

### DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X   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:

- X   Case Narrative present

Quality Control Summary Package:

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

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

☒ 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

### 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	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	YES
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 Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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. Soils were delivered at room temperature and had been dried prior to delivery and thus mercury data was qualified as biased low.

### 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 Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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: Recoveries of Matrix Spike was within the control limits.



## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

### 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:** Cadmium was found in method blank at a concentration below the quantitation limit, but above the method detection limit. No other contamination was found in the method blank at method blank reporting limit level. Instruments blanks had no detection. Cadmium in sample ID "Mushroom" with Lab ID "320-3935-5" was U qualified since the detected concentration was less than 5 times the method blank concentration. All other cadmium data was J qualified.

### 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.

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

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka County, Nevada
TDD Number: 09-13-08-0001	Project Number: EE-002693-2230

Analyte	Borrow Source 1A (mg/kg)	Borrow Source 1B (mg/kg)	RPD (%)
Arsenic	16	16	0
Lead	8.8	8.9	1.1
Chromium	13	14	7.4
Selenium	ND	ND	0
Silver	ND	ND	0
Cadmium	0.37	0.36	2.7
Barium	300	300	0
Mercury	0.019	0.021	10

**Comments:** 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 and Serial Dilution Analysis: recoveries were within the control limit.

## 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: Post digestion spikes ranged between 90% and 97% recoveries.

### 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.

### 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.

## 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

X 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.

### 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 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.



## QC Association Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

### Metals (Continued)

#### Analysis Batch: 24610 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-24507/1-A	Method Blank	Total/NA	Solid	6010B	24507

# QC Association Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

## Metals

### Prep Batch: 24507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-3935-1	BORROW SOURCE 2	Total/NA	Solid	3050B	
320-3935-1 MS	BORROW SOURCE 2	Total/NA	Solid	3050B	
320-3935-1 MSD	BORROW SOURCE 2	Total/NA	Solid	3050B	
320-3935-1 PDS	BORROW SOURCE 2	Total/NA	Solid	3050B	
320-3935-1 SD	BORROW SOURCE 2	Total/NA	Solid	3050B	
320-3935-2	BORROW SOURCE 1A	Total/NA	Solid	3050B	
320-3935-3	BORROW SOURCE 1B	Total/NA	Solid	3050B	
320-3935-4	HUMUS 01 BCM	Total/NA	Solid	3050B	
320-3935-5	MUSHROOM 01 BCM	Total/NA	Solid	3050B	
LCS 320-24507/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 320-24507/1-A	Method Blank	Total/NA	Solid	3050B	

### Prep Batch: 24523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-3935-1	BORROW SOURCE 2	Total/NA	Solid	7471A	
320-3935-1 MS	BORROW SOURCE 2	Total/NA	Solid	7471A	
320-3935-1 MSD	BORROW SOURCE 2	Total/NA	Solid	7471A	
320-3935-2	BORROW SOURCE 1A	Total/NA	Solid	7471A	
320-3935-3	BORROW SOURCE 1B	Total/NA	Solid	7471A	
320-3935-4	HUMUS 01 BCM	Total/NA	Solid	7471A	
320-3935-5	MUSHROOM 01 BCM	Total/NA	Solid	7471A	
LCS 320-24523/12-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 320-24523/11-A	Method Blank	Total/NA	Solid	7471A	

### Analysis Batch: 24536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-3935-1	BORROW SOURCE 2	Total/NA	Solid	7471A	24523
320-3935-1 MS	BORROW SOURCE 2	Total/NA	Solid	7471A	24523
320-3935-1 MSD	BORROW SOURCE 2	Total/NA	Solid	7471A	24523
320-3935-2	BORROW SOURCE 1A	Total/NA	Solid	7471A	24523
320-3935-3	BORROW SOURCE 1B	Total/NA	Solid	7471A	24523
320-3935-4	HUMUS 01 BCM	Total/NA	Solid	7471A	24523
320-3935-5	MUSHROOM 01 BCM	Total/NA	Solid	7471A	24523
LCS 320-24523/12-A	Lab Control Sample	Total/NA	Solid	7471A	24523
MB 320-24523/11-A	Method Blank	Total/NA	Solid	7471A	24523

### Analysis Batch: 24610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-3935-1	BORROW SOURCE 2	Total/NA	Solid	6010B	24507
320-3935-1 MS	BORROW SOURCE 2	Total/NA	Solid	6010B	24507
320-3935-1 MSD	BORROW SOURCE 2	Total/NA	Solid	6010B	24507
320-3935-1 PDS	BORROW SOURCE 2	Total/NA	Solid	6010B	24507
320-3935-1 SD	BORROW SOURCE 2	Total/NA	Solid	6010B	24507
320-3935-2	BORROW SOURCE 1A	Total/NA	Solid	6010B	24507
320-3935-3	BORROW SOURCE 1B	Total/NA	Solid	6010B	24507
320-3935-4	HUMUS 01 BCM	Total/NA	Solid	6010B	24507
320-3935-5	MUSHROOM 01 BCM	Total/NA	Solid	6010B	24507
CRI 320-24610/13 CRI	DL		Solid	6010B	
ICSA 320-24610/14	ICS		Solid	6010B	
ICSAB 320-24610/15	ICS		Solid	6010B	
LCS 320-24507/2-A	Lab Control Sample	Total/NA	Solid	6010B	24507

TestAmerica Sacramento

# QC Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

## Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 320-24523/11-A

Matrix: Solid

Analysis Batch: 24536

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24523

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.039	0.0085	mg/Kg		09/05/13 12:37	09/05/13 13:30	1

Lab Sample ID: LCS 320-24523/12-A

Matrix: Solid

Analysis Batch: 24536

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 24523

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0833	0.0842		mg/Kg		101	86 - 114

Lab Sample ID: 320-3935-1 MS

Matrix: Solid

Analysis Batch: 24536

Client Sample ID: BORROW SOURCE 2

Prep Type: Total/NA

Prep Batch: 24523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.028	J	0.250	0.289		mg/Kg		104	86 - 114

Lab Sample ID: 320-3935-1 MSD

Matrix: Solid

Analysis Batch: 24536

Client Sample ID: BORROW SOURCE 2

Prep Type: Total/NA

Prep Batch: 24523

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.028	J	0.250	0.277		mg/Kg		99	86 - 114	4	17



## Detection Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

Client Sample ID: BORROW SOURCE 2

Lab Sample ID: 320-3935-1

Analyte	Result	Qualifier	RL	MDL	Unit	DII Fac	D	Method	Prep Type
Arsenic	13		1.9	1.3	mg/Kg	1		6010B	Total/NA
Barium	350		0.97	0.12	mg/Kg	1		6010B	Total/NA
Cadmium	0.49		0.19	0.029	mg/Kg	1		6010B	Total/NA
Chromium	16		0.49	0.14	mg/Kg	1		6010B	Total/NA
Lead	12		0.97	0.25	mg/Kg	1		6010B	Total/NA
Mercury	0.028	J	0.039	0.0085	mg/Kg	1		7471A	Total/NA

Client Sample ID: BORROW SOURCE 1A

Lab Sample ID: 320-3935-2

Analyte	Result	Qualifier	RL	MDL	Unit	DII Fac	D	Method	Prep Type
Arsenic	16		2.0	1.3	mg/Kg	1		6010B	Total/NA
Barium	300		1.0	0.12	mg/Kg	1		6010B	Total/NA
Cadmium	0.37	J	0.20	0.030	mg/Kg	1		6010B	Total/NA
Chromium	13		0.51	0.14	mg/Kg	1		6010B	Total/NA
Lead	8.8		1.0	0.26	mg/Kg	1		6010B	Total/NA
Mercury	0.019	J	0.040	0.0086	mg/Kg	1		7471A	Total/NA

Client Sample ID: BORROW SOURCE 1B

Lab Sample ID: 320-3935-3

Analyte	Result	Qualifier	RL	MDL	Unit	DII Fac	D	Method	Prep Type
Arsenic	16		1.9	1.3	mg/Kg	1		6010B	Total/NA
Barium	300		0.97	0.12	mg/Kg	1		6010B	Total/NA
Cadmium	0.36	J	0.19	0.029	mg/Kg	1		6010B	Total/NA
Chromium	14		0.49	0.14	mg/Kg	1		6010B	Total/NA
Lead	8.9		0.97	0.25	mg/Kg	1		6010B	Total/NA
Mercury	0.021	J	0.038	0.0082	mg/Kg	1		7471A	Total/NA

Client Sample ID: HUMUS 01 BCM

Lab Sample ID: 320-3935-4

Analyte	Result	Qualifier	RL	MDL	Unit	DII Fac	D	Method	Prep Type
Arsenic	4.7		2.1	1.3	mg/Kg	1		6010B	Total/NA
Barium	200		1.0	0.12	mg/Kg	1		6010B	Total/NA
Cadmium	0.37	J	0.21	0.031	mg/Kg	1		6010B	Total/NA
Chromium	22		0.52	0.14	mg/Kg	1		6010B	Total/NA
Lead	22		1.0	0.27	mg/Kg	1		6010B	Total/NA
Mercury	0.047		0.041	0.0089	mg/Kg	1		7471A	Total/NA

Client Sample ID: MUSHROOM 01 BCM

Lab Sample ID: 320-3935-5

Analyte	Result	Qualifier	RL	MDL	Unit	DII Fac	D	Method	Prep Type
Arsenic	1.4	J	2.0	1.3	mg/Kg	1		6010B	Total/NA
Barium	94		1.0	0.12	mg/Kg	1		6010B	Total/NA
Cadmium	0.18	U	0.20	0.030	mg/Kg	1		6010B	Total/NA
Chromium	18		0.50	0.14	mg/Kg	1		6010B	Total/NA
Lead	2.4		1.0	0.26	mg/Kg	1		6010B	Total/NA
Mercury	0.015	J	0.041	0.0089	mg/Kg	1		7471A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

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12/31/13

**Job Narrative**  
**320-3935-1**

**Receipt**

The samples were received on 9/5/2013 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

**Metals**

No analytical or quality issues were noted.

# Client Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

Client Sample ID: HUMUS 01 BCM

Lab Sample ID: 320-3935-4

Date Collected: 09/04/13 16:30

Matrix: Solid

Date Received: 09/05/13 09:20

## Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.7		2.1	1.3	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Barium	200		1.0	0.12	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Cadmium	0.37	J	0.21	0.031	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Chromium	22		0.52	0.14	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Lead	22		1.0	0.27	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Selenium	ND		2.1	1.4	mg/Kg		09/05/13 10:00	09/05/13 18:02	1
Silver	ND		0.52	0.093	mg/Kg		09/05/13 10:00	09/05/13 18:02	1

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.047	J	0.041	0.0089	mg/Kg		09/05/13 12:37	09/05/13 13:43	1

Client Sample ID: MUSHROOM 01 BCM

Lab Sample ID: 320-3935-5

Date Collected: 09/04/13 16:40

Matrix: Solid

Date Received: 09/05/13 09:20

## Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	2.0	1.3	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Barium	94		1.0	0.12	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Cadmium	0.18	J	0.20	0.030	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Chromium	18		0.50	0.14	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Lead	2.4		1.0	0.26	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Selenium	ND		2.0	1.4	mg/Kg		09/05/13 10:00	09/05/13 18:10	1
Silver	ND		0.50	0.090	mg/Kg		09/05/13 10:00	09/05/13 18:10	1

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.015	J	0.041	0.0089	mg/Kg		09/05/13 12:37	09/05/13 13:44	1

*Handwritten signature* 12/31/13

# Client Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

Client Sample ID: BORROW SOURCE 2

Lab Sample ID: 320-3935-1

Date Collected: 09/04/13 16:00

Matrix: Solid

Date Received: 09/05/13 09:20

## Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13		1.9	1.3	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Barium	350		0.97	0.12	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Cadmium	0.49		0.19	0.029	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Chromium	16		0.49	0.14	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Lead	12		0.97	0.25	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Selenium	ND		1.9	1.4	mg/Kg		09/05/13 10:00	09/05/13 17:43	1
Silver	ND		0.49	0.087	mg/Kg		09/05/13 10:00	09/05/13 17:43	1

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.028	J	0.039	0.0085	mg/Kg		09/05/13 12:37	09/05/13 13:33	1

Client Sample ID: BORROW SOURCE 1A

Lab Sample ID: 320-3935-2

Date Collected: 09/04/13 16:10

Matrix: Solid

Date Received: 09/05/13 09:20

## Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	16		2.0	1.3	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Barium	300		1.0	0.12	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Cadmium	0.37	J	0.20	0.030	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Chromium	13		0.51	0.14	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Lead	8.8		1.0	0.26	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Selenium	ND		2.0	1.4	mg/Kg		09/05/13 10:00	09/05/13 17:56	1
Silver	ND		0.51	0.091	mg/Kg		09/05/13 10:00	09/05/13 17:56	1

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.019	J	0.040	0.0086	mg/Kg		09/05/13 12:37	09/05/13 13:39	1

Client Sample ID: BORROW SOURCE 1B

Lab Sample ID: 320-3935-3

Date Collected: 09/04/13 16:20

Matrix: Solid

Date Received: 09/05/13 09:20

## Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	16		1.9	1.3	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Barium	300		0.97	0.12	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Cadmium	0.36	J	0.19	0.029	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Chromium	14		0.49	0.14	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Lead	8.9		0.97	0.25	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Selenium	ND		1.9	1.4	mg/Kg		09/05/13 10:00	09/05/13 17:59	1
Silver	ND		0.49	0.087	mg/Kg		09/05/13 10:00	09/05/13 17:59	1

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.021	J	0.038	0.0082	mg/Kg		09/05/13 12:37	09/05/13 13:41	1

*Handwritten signature*  
12/31/13

TestAmerica Sacramento

# QC Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 320-24507/1-A  
Matrix: Solid  
Analysis Batch: 24610

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 24507

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.0	1.3	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Barium	ND		1.0	0.12	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Cadmium	0.0440	J	0.20	0.030	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Chromium	ND		0.50	0.14	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Lead	ND		1.0	0.26	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Selenium	ND		2.0	1.4	mg/Kg		09/05/13 10:00	09/05/13 17:37	1
Silver	ND		0.50	0.090	mg/Kg		09/05/13 10:00	09/05/13 17:37	1

Lab Sample ID: LCS 320-24507/2-A  
Matrix: Solid  
Analysis Batch: 24610

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 24507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	191		mg/Kg		96	81 - 110
Barium	200	203		mg/Kg		101	88 - 110
Cadmium	5.00	4.92		mg/Kg		98	86 - 110
Chromium	20.0	20.0		mg/Kg		100	88 - 110
Lead	50.0	50.2		mg/Kg		100	85 - 110
Selenium	200	193		mg/Kg		96	80 - 110
Silver	5.00	4.84		mg/Kg		97	85 - 110

Lab Sample ID: 320-3935-1 MS  
Matrix: Solid  
Analysis Batch: 24610

Client Sample ID: BORROW SOURCE 2  
Prep Type: Total/NA  
Prep Batch: 24507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	13		198	188		mg/Kg		89	81 - 110
Barium	350		198	524		mg/Kg		88	88 - 110
Cadmium	0.49		4.95	4.89		mg/Kg		89	86 - 110
Chromium	16		19.8	33.9		mg/Kg		89	88 - 110
Lead	12		49.5	55.5		mg/Kg		88	85 - 110
Selenium	ND		198	174		mg/Kg		88	80 - 110
Silver	ND		4.95	4.61		mg/Kg		93	85 - 110

Lab Sample ID: 320-3935-1 MSD  
Matrix: Solid  
Analysis Batch: 24610

Client Sample ID: BORROW SOURCE 2  
Prep Type: Total/NA  
Prep Batch: 24507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	13		202	193		mg/Kg		89	81 - 110	3	35
Barium	350		202	537		mg/Kg		92	88 - 110	2	35
Cadmium	0.49		5.05	5.04		mg/Kg		90	86 - 110	3	35
Chromium	16		20.2	35.2		mg/Kg		94	88 - 110	4	35
Lead	12		50.5	57.3		mg/Kg		90	85 - 110	3	35
Selenium	ND		202	179		mg/Kg		88	80 - 110	3	35
Silver	ND		5.05	4.66		mg/Kg		92	85 - 110	1	35

TestAmerica Sacramento

## Default Detection Limits

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 320-3935-1

### Method: 6010B - Metals (ICP)

Analyte	RL	MDL	Units	Method
Arsenic	2.0	1.3	mg/Kg	6010B
Barium	1.0	0.12	mg/Kg	6010B
Cadmium	0.20	0.030	mg/Kg	6010B
Chromium	0.50	0.14	mg/Kg	6010B
Lead	1.0	0.26	mg/Kg	6010B
Selenium	2.0	1.4	mg/Kg	6010B
Silver	0.50	0.090	mg/Kg	6010B

### Method: 7471A - Mercury (CVAA)

Analyte	RL	MDL	Units	Method
Mercury	0.040	0.0086	mg/Kg	7471A

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

Laboratory: Testamerica, Inc.	Lab Project Number: 550-12843
Sampling Dates: 9/10/2013-9/26/2013	Sample Matrix: Air Filters
Analytical Method: Metals by U.S. EPA 6010C	Data Reviewer: H. Edwards

## REVIEW AND APPROVAL

Technical QA Reviewer: Howard Edwards 

Date: 12/30/2013

## SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	103703-091013-NE	550-12843-1
2	103703-091013-SW	550-12843-2
3	103703-091013-NW	550-12843-3
4	103703-091013-SW dup	550-12843-4
5	REP-092413-S	550-12843-5
6	REP-092413-E	550-12843-6
7	REP-092413-W	550-12843-7
8	REP-092413-NW	550-12843-8
9	REP-092413-N	550-12843-9
10	115401-092813-N	550-12843-10
11	115401-092813-E	550-12843-11
12	115401-092813-SW	550-12843-12
13	115401-092813-SE	550-12843-13
14	11540-093013-SW	550-12843-14
15	11540-093013-W	550-12843-15
16	11540-093013-WD	550-12843-16
17	11540-093013-NE	550-12843-17
18	11540-093013-SE	550-12843-18
19	103703-091013-NE	550-12843-19
20	100 Reno 092613-N	550-12843-20
21	100 Reno 092613-ND	550-12843-21
22	100 Reno 092613-NE	550-12843-22
23	100 Reno 092613-S	550-12843-23
24	100 Reno 092613-SW	550-12843-24
25	Lot Blank	550-12843-25

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

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

#### Case Narrative:

<u>  X  </u>	Case Narrative present
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#### Quality Control Summary Package:

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

#### Raw QC Data Package Section

<u>  X  </u>	Chain-of-Custody Records
<u>  X  </u>	Instrument Printouts
<u>  X  </u>	Sample Preparation Notebook Pages
<u>  X  </u>	Logbook and Worksheet Pages
<u> NR </u>	Percent Solids Determination

### DATA VALIDATION SUMMARY



## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

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.

### 1. HOLDING TIMES

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

☒ 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: Samples were analyzed within the holding time.

## 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 lead in initial and continuing calibration verifications were within the control limits.

## 3. LABORATORY CONTROL SAMPLE

☒ Acceptable  
☐ Acceptable with qualification  
☐ Unacceptable  
☐ No Laboratory Control Samples Analyzed

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

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:

#### 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

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

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:** Trace amount (0.00535 mg/L in TCLP MB and 0.00965 mg/L in SPLP MB) of silver was found in the method blanks. SPLP silver results in EES-SLAG and EES-50/50 were qualified as non-detect (U) since the sample concentration was less than 5x the blank concentration.

### 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 TCLP and SPLP MS/MSD <20%

### 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.

# ANALYTICAL DATA REVIEW SUMMARY

## Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

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

## 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 is acceptable.

## 10. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

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.

### 11. USABILITY OF DATA

**A. These data are considered usable for the data use objectives stated in the SAMPLING AND ANALYSIS PLAN SOIL REMOVAL ACTION AT RESIDENTIAL PROPERTIES, EUREKA, EUREKA COUNTY, NEVADA, AUGUST 2013 (SAP).**

The following data use objective was indicated in the SAP:

*TO DETERMINE LEAD AND ARSENIC CONCENTRATIONS IN SOIL AND IN AIRBORNE PARTICULATES TO ASSIST THE USEPA IN COMPLETING REMOVAL EXCAVATION AND IN-PLACE CAPPING OF CONTAMINATED SOILS AT RESIDENTIAL PROPERTIES IN EUREKA.*

*THE DATA ARE USABLE FOR THE ABOVE OBJECTIVES.*

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

*AS INDICATED IN SECTION 3.0 OF THE SAP, THE INVESTIGATION WILL GENERATE BOTH DEFINITIVE AND NON-DEFINITIVE DATA AND TABLE 3-1 AND TABLE 3-2 OF THE SAP OUTLINES THE DATA QUALITY INDICATOR GOALS APPLICABLE TO THE DEFINITIVE DATA QUALITY LEVEL. THE DATA IN THIS PACKAGE MEET THESE REQUIREMENTS.*

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Eureka Nevada Removal	Location: Eureka, Nevada
Project Number: 002693.2230	TDD No: TO2-09-13-08-0001

#### 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.

## ANALYTICAL REPORT

Job Number: 550-12843-1

SDG Number: EE-002693-2230

Job Description: Eureka Removal

For:

Ecology and Environment, Inc.

3700 Industry Avenue #102

Lakewood, CA 90712

Attention: Mindy Song



Approved for release.  
Carlene McCutcheon  
Customer Service Manager  
10/30/2013 5:07 PM

---

Carlene McCutcheon, Customer Service Manager

4625 East Cotton Ctr Blvd, Phoenix, AZ, 85040

(602)659-7612

[carlene.mccutcheon@testamericainc.com](mailto:carlene.mccutcheon@testamericainc.com)

10/30/2013

Revision: 1



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**Job Narrative**  
**550-12843-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 10/18/2013 10:30 AM; the samples arrived in good condition. The temperature of the cooler at receipt was 20.0° C.

**Metals**

No analytical or quality issues were noted.

**Industrial Hygiene**

No analytical or quality issues were noted.

## Detection Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: 115401-092813-SE

Lab Sample ID: 550-12843-14

☐ No Detections.

Client Sample ID: 115401-093013-SW

Lab Sample ID: 550-12843-15

☐ No Detections.

Client Sample ID: 115401-093013-W

Lab Sample ID: 550-12843-16

☐ No Detections.

Client Sample ID: 115401-093013-WD

Lab Sample ID: 550-12843-17

☐ No Detections.

Client Sample ID: 115401-093013-NE

Lab Sample ID: 550-12843-18

☐ No Detections.

Client Sample ID: 115401-093013-SE

Lab Sample ID: 550-12843-19

☐ No Detections.

Client Sample ID: 100 Reno 092613-N

Lab Sample ID: 550-12843-20

☐ No Detections.

Client Sample ID: 100 Reno 092613-ND

Lab Sample ID: 550-12843-21

☐ No Detections.

Client Sample ID: 100 Reno 092613-NE

Lab Sample ID: 550-12843-22

☐ No Detections.

Client Sample ID: 100 Reno 092613-S

Lab Sample ID: 550-12843-23

☐ No Detections.

Client Sample ID: 100 Reno 092613-SW

Lab Sample ID: 550-12843-24

☐ No Detections.

Client Sample ID: Lot Blank

Lab Sample ID: 550-12843-25

☐ No Detections.

# Client Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: Rep 092413-S

Lab Sample ID: 550-12843-5

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 581 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 17:39	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 17:39	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<0.00430		0.00430	mg/m3		10/21/13 13:31	10/21/13 17:39	1
Lead	<0.000534		0.000534	mg/m3		10/21/13 13:31	10/21/13 17:39	1

Client Sample ID: Rep 092413-E

Lab Sample ID: 550-12843-6

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 591 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 17:42	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 17:42	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<0.00423		0.00423	mg/m3		10/21/13 13:31	10/21/13 17:42	1
Lead	<0.000525		0.000525	mg/m3		10/21/13 13:31	10/21/13 17:42	1

Client Sample ID: Rep 092413-W

Lab Sample ID: 550-12843-7

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 614 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 17:45	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 17:45	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<0.00407		0.00407	mg/m3		10/21/13 13:31	10/21/13 17:45	1
Lead	<0.000505		0.000505	mg/m3		10/21/13 13:31	10/21/13 17:45	1

Client Sample ID: Rep 092413-NW

Lab Sample ID: 550-12843-8

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 649 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 17:49	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 17:49	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	DII Fac
Arsenic	<0.00385		0.00385	mg/m3		10/21/13 13:31	10/21/13 17:49	1
Lead	<0.000478		0.000478	mg/m3		10/21/13 13:31	10/21/13 17:49	1

# Client Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: 115401-092813-SW

Lab Sample ID: 550-12843-13

Date Collected: 09/25/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1071 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 18:13	1
Lead	0.317		0.310	ug/Sample		10/21/13 13:31	10/21/13 18:13	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00233		0.00233	mg/m3		10/21/13 13:31	10/21/13 18:13	1
Lead	0.000296		0.000289	mg/m3		10/21/13 13:31	10/21/13 18:13	1

Client Sample ID: 115401-092813-SE

Lab Sample ID: 550-12843-14

Date Collected: 09/25/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1067 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 18:16	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 18:16	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00234		0.00234	mg/m3		10/21/13 13:31	10/21/13 18:16	1
Lead	<0.000291		0.000291	mg/m3		10/21/13 13:31	10/21/13 18:16	1

Client Sample ID: 115401-093013-SW

Lab Sample ID: 550-12843-15

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1198 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 18:20	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 18:20	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00209		0.00209	mg/m3		10/21/13 13:31	10/21/13 18:20	1
Lead	<0.000259		0.000259	mg/m3		10/21/13 13:31	10/21/13 18:20	1

Client Sample ID: 115401-093013-W

Lab Sample ID: 550-12843-16

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1185 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:31	10/21/13 18:23	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:31	10/21/13 18:23	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00211		0.00211	mg/m3		10/21/13 13:31	10/21/13 18:23	1
Lead	<0.000262		0.000262	mg/m3		10/21/13 13:31	10/21/13 18:23	1

# Client Sample Results

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: 100 Reno 092613-ND

Lab Sample ID: 550-12843-21

Date Collected: 09/26/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1150 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:37	10/21/13 19:02	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:37	10/21/13 19:02	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00217		0.00217	mg/m3		10/21/13 13:37	10/21/13 19:02	1
Lead	<0.000270		0.000270	mg/m3		10/21/13 13:37	10/21/13 19:02	1

Client Sample ID: 100 Reno 092613-NE

Lab Sample ID: 550-12843-22

Date Collected: 09/26/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1074 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:37	10/21/13 19:05	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:37	10/21/13 19:05	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00233		0.00233	mg/m3		10/21/13 13:37	10/21/13 19:05	1
Lead	<0.000289		0.000289	mg/m3		10/21/13 13:37	10/21/13 19:05	1

Client Sample ID: 100 Reno 092613-S

Lab Sample ID: 550-12843-23

Date Collected: 09/26/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 1003 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:37	10/21/13 19:08	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:37	10/21/13 19:08	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00249		0.00249	mg/m3		10/21/13 13:37	10/21/13 19:08	1
Lead	<0.000309		0.000309	mg/m3		10/21/13 13:37	10/21/13 19:08	1

Client Sample ID: 100 Reno 092613-SW

Lab Sample ID: 550-12843-24

Date Collected: 09/26/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Sample Air Volume: 947 L

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

## Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.50		2.50	ug/Sample		10/21/13 13:37	10/21/13 19:11	1
Lead	<0.310		0.310	ug/Sample		10/21/13 13:37	10/21/13 19:11	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00264		0.00264	mg/m3		10/21/13 13:37	10/21/13 19:11	1
Lead	<0.000327		0.000327	mg/m3		10/21/13 13:37	10/21/13 19:11	1

## Default Detection Limits

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

### Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	RL	Units	Method
Arsenic	2.50	ug/Sample	7300
Arsenic	0.00226	mg/m3	7300
Arsenic	0.00223	mg/m3	7300
Arsenic	0.00222	mg/m3	7300
Arsenic	0.00239	mg/m3	7300
Arsenic	0.00233	mg/m3	7300
Arsenic	0.00234	mg/m3	7300
Arsenic	0.00209	mg/m3	7300
Arsenic	0.00211	mg/m3	7300
Arsenic	0.00212	mg/m3	7300
Arsenic	0.00204	mg/m3	7300
Arsenic	0.00217	mg/m3	7300
Arsenic	0.00249	mg/m3	7300
Arsenic	0.00264	mg/m3	7300
Arsenic	0.00228	mg/m3	7300
Arsenic	0.00430	mg/m3	7300
Arsenic	0.00423	mg/m3	7300
Arsenic	0.00407	mg/m3	7300
Arsenic	0.00385	mg/m3	7300
Arsenic	0.00400	mg/m3	7300
Lead	0.310	ug/Sample	7300
Lead	0.000280	mg/m3	7300
Lead	0.000277	mg/m3	7300
Lead	0.000276	mg/m3	7300
Lead	0.000297	mg/m3	7300
Lead	0.000289	mg/m3	7300
Lead	0.000291	mg/m3	7300
Lead	0.000259	mg/m3	7300
Lead	0.000262	mg/m3	7300
Lead	0.000253	mg/m3	7300
Lead	0.000281	mg/m3	7300
Lead	0.000263	mg/m3	7300
Lead	0.000270	mg/m3	7300
Lead	0.000309	mg/m3	7300
Lead	0.000327	mg/m3	7300
Lead	0.000283	mg/m3	7300
Lead	0.000534	mg/m3	7300
Lead	0.000525	mg/m3	7300
Lead	0.000505	mg/m3	7300
Lead	0.000478	mg/m3	7300
Lead	0.000496	mg/m3	7300

# QC Association Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

## IH - Metals

### Prep Batch: 18271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-12843-1	103703-091013-NE	Total/NA	Air	Filter Prep	
550-12843-2	103703-091013-SW	Total/NA	Air	Filter Prep	
550-12843-3	103703-091013-NW	Total/NA	Air	Filter Prep	
550-12843-4	103703-091013-SW	Total/NA	Air	Filter Prep	
550-12843-5	Rep 092413-S	Total/NA	Air	Filter Prep	
550-12843-6	Rep 092413-E	Total/NA	Air	Filter Prep	
550-12843-7	Rep 092413-W	Total/NA	Air	Filter Prep	
550-12843-8	Rep 092413-NW	Total/NA	Air	Filter Prep	
550-12843-9	Rep 092413-N	Total/NA	Air	Filter Prep	
550-12843-10	115401-092813-N	Total/NA	Air	Filter Prep	
550-12843-11	115401-092813-W	Total/NA	Air	Filter Prep	
550-12843-12	115401-092813-E	Total/NA	Air	Filter Prep	
550-12843-13	115401-092813-SW	Total/NA	Air	Filter Prep	
550-12843-14	115401-092813-SE	Total/NA	Air	Filter Prep	
550-12843-15	115401-093013-SW	Total/NA	Air	Filter Prep	
550-12843-16	115401-093013-W	Total/NA	Air	Filter Prep	
550-12843-17	115401-093013-WD	Total/NA	Air	Filter Prep	
550-12843-18	115401-093013-NE	Total/NA	Air	Filter Prep	
550-12843-19	115401-093013-SE	Total/NA	Air	Filter Prep	
LCS 550-18271/2-A	Lab Control Sample	Total/NA	Air	Filter Prep	
LCSD 550-18271/3-A	Lab Control Sample Dup	Total/NA	Air	Filter Prep	
MB 550-18271/1-A	Method Blank	Total/NA	Air	Filter Prep	

### Prep Batch: 18272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-12843-20	100 Reno 092613-N	Total/NA	Air	Filter Prep	
550-12843-21	100 Reno 092613-ND	Total/NA	Air	Filter Prep	
550-12843-22	100 Reno 092613-NE	Total/NA	Air	Filter Prep	
550-12843-23	100 Reno 092613-S	Total/NA	Air	Filter Prep	
550-12843-24	100 Reno 092613-SW	Total/NA	Air	Filter Prep	
550-12843-25	Lot Blank	Total/NA	Air	Filter Prep	
LCS 550-18272/2-A	Lab Control Sample	Total/NA	Air	Filter Prep	
LCSD 550-18272/3-A	Lab Control Sample Dup	Total/NA	Air	Filter Prep	
MB 550-18272/1-A	Method Blank	Total/NA	Air	Filter Prep	

### Analysis Batch: 18359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-12843-1	103703-091013-NE	Total/NA	Air	7300	18271
550-12843-2	103703-091013-SW	Total/NA	Air	7300	18271
550-12843-3	103703-091013-NW	Total/NA	Air	7300	18271
550-12843-4	103703-091013-SW	Total/NA	Air	7300	18271
550-12843-5	Rep 092413-S	Total/NA	Air	7300	18271
550-12843-6	Rep 092413-E	Total/NA	Air	7300	18271
550-12843-7	Rep 092413-W	Total/NA	Air	7300	18271
550-12843-8	Rep 092413-NW	Total/NA	Air	7300	18271
550-12843-9	Rep 092413-N	Total/NA	Air	7300	18271
550-12843-10	115401-092813-N	Total/NA	Air	7300	18271
550-12843-11	115401-092813-W	Total/NA	Air	7300	18271
550-12843-12	115401-092813-E	Total/NA	Air	7300	18271
550-12843-13	115401-092813-SW	Total/NA	Air	7300	18271
550-12843-14	115401-092813-SE	Total/NA	Air	7300	18271



# Lab Chronicle

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: 103703-091013-NE

Lab Sample ID: 550-12843-1

Date Collected: 09/10/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 17:26	CCT	TAL PHX

Client Sample ID: 103703-091013-SW

Lab Sample ID: 550-12843-2

Date Collected: 09/10/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 17:30	CCT	TAL PHX

Client Sample ID: 103703-091013-NW

Lab Sample ID: 550-12843-3

Date Collected: 09/10/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 17:33	CCT	TAL PHX

Client Sample ID: 103703-091013-SW

Lab Sample ID: 550-12843-4

Date Collected: 09/10/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7300		1	18359	10/21/13 17:36	CCT	TAL PHX

Client Sample ID: Rep 092413-S

Lab Sample ID: 550-12843-5

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 17:39	CCT	TAL PHX

Client Sample ID: Rep 092413-E

Lab Sample ID: 550-12843-6

Date Collected: 09/24/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 17:42	CCT	TAL PHX

# Lab Chronicle

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: 115401-092813-SW

Lab Sample ID: 550-12843-13

Date Collected: 09/25/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:13	CCT	TAL PHX

Client Sample ID: 115401-092813-SE

Lab Sample ID: 550-12843-14

Date Collected: 09/25/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:16	CCT	TAL PHX

Client Sample ID: 115401-093013-SW

Lab Sample ID: 550-12843-15

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:20	CCT	TAL PHX

Client Sample ID: 115401-093013-W

Lab Sample ID: 550-12843-16

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:23	CCT	TAL PHX

Client Sample ID: 115401-093013-WD

Lab Sample ID: 550-12843-17

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:26	CCT	TAL PHX

Client Sample ID: 115401-093013-NE

Lab Sample ID: 550-12843-18

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18271	10/21/13 13:31	SGO	TAL PHX
Total/NA	Analysis	7300		1	18359	10/21/13 18:29	CCT	TAL PHX

## Lab Chronicle

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Client Sample ID: Lot Blank

Lab Sample ID: 550-12843-25

Date Collected: 09/30/13 00:00

Matrix: Air

Date Received: 10/18/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Filter Prep			18272	10/21/13 13:37	SGO	TAL PHX
Total/NA	Analysis	7300		1	18360	10/21/13 19:15	CCT	TAL PHX

**Laboratory References:**

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

## Method Summary

Client: Ecology and Environment, Inc.  
Project/Site: Eureka Removal

TestAmerica Job ID: 550-12843-1  
SDG: EE-002693-2230

Method	Method Description	Protocol	Laboratory
7300	NIOSH Method 7300 (Modified)	NIOSH	TAL PHX

**Protocol References:**

NIOSH = NIOSH Manual Of Analytical Methods, National Institute For Occupational Safety And Health, 4th Edition, August 1994.

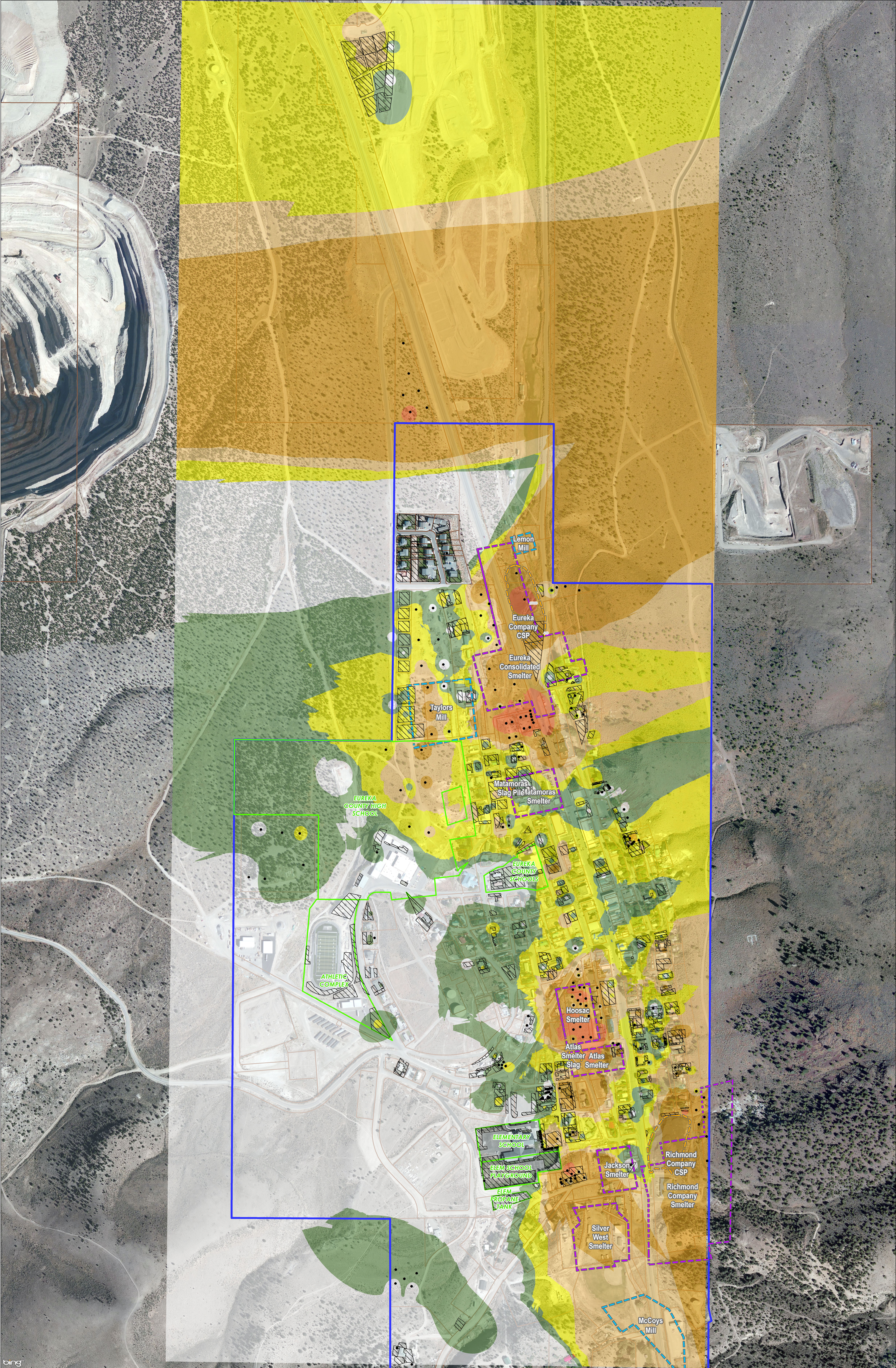
**Laboratory References:**

TAL PHX = TestAmerica Phoenix, 4625 East Colton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

***Appendix E:***  
**Maps and GIS Data**

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Legend

- Lead Concentration (mg/kg)

  - Non detect to 400
  - 400 to 800
  - 800 to 1,500
  - 1,500 to 3,000
  - 3,000 to 10,000
  - greater than 10,000
- Historical Facilities

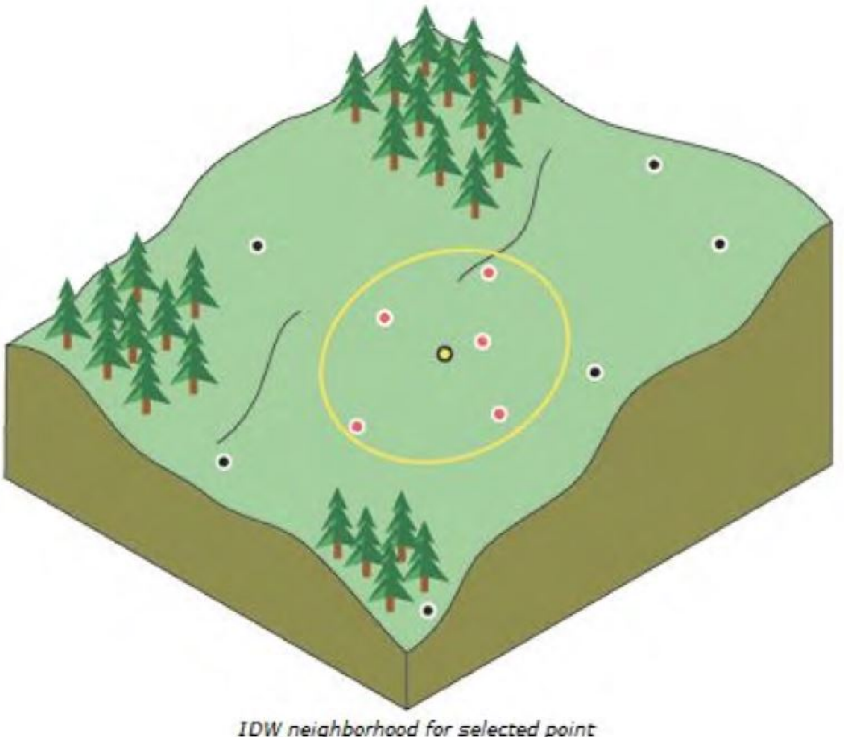
  - Historic Mill Facility
  - Historic Smelter Site
  - Consolidated Slag Pile (CSP)
- Project Site

  - Eureka County School
  - District Property
  - Sampled Areas (2012-2013)
- Levels of lead in soil are measured in units of milligrams per kilogram (mg/kg)

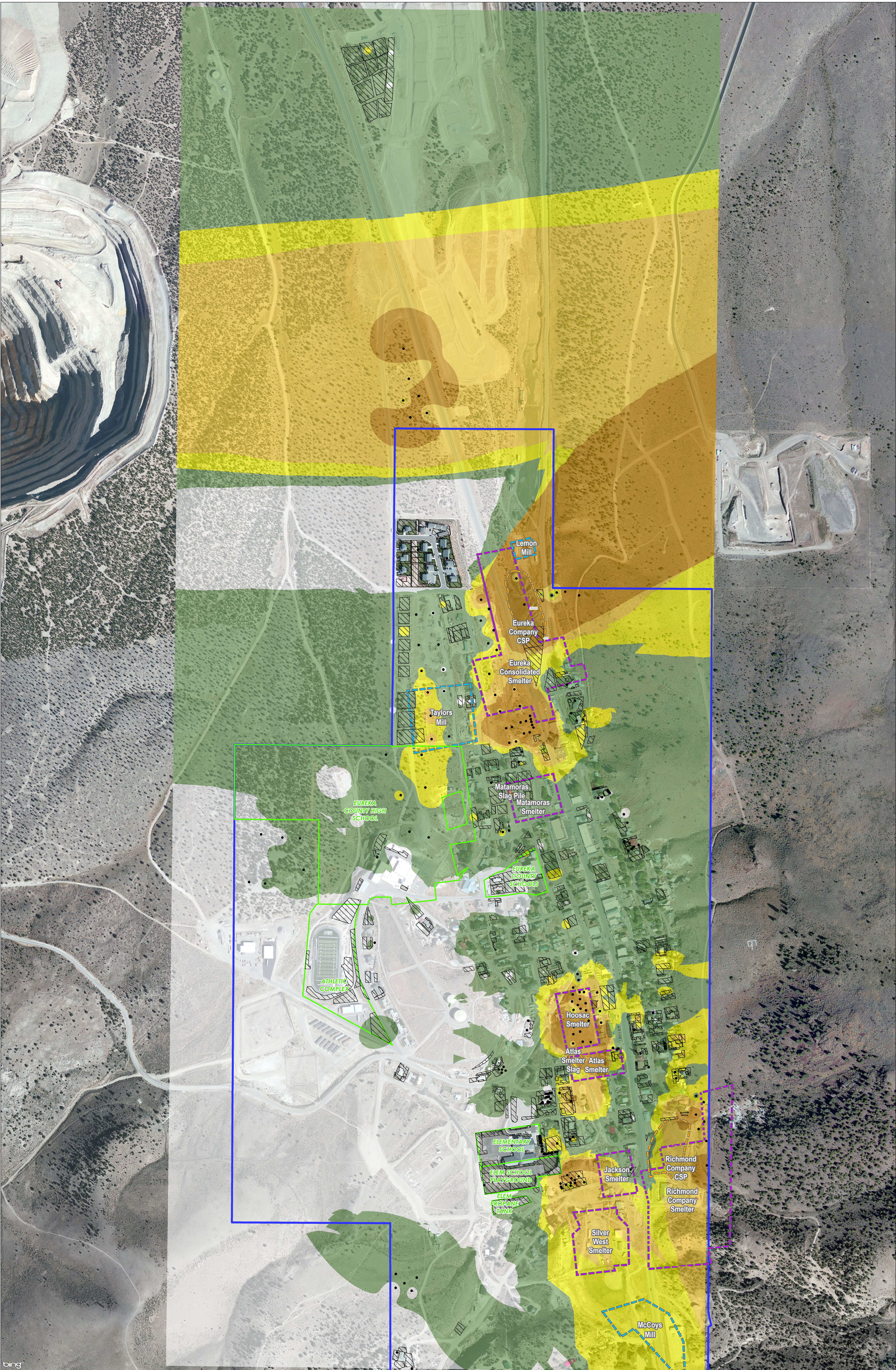
Surface Creation: GIS Analysis

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.







Legend

- Arsenic Concentration (mg/kg)

  - Non detect to 60
  - 60 to 300
  - 300 to 600
  - 600 to 1,200
  - greater than 1,200
- Historical Facilities

  - Historic Mill Facility
  - Historic Smelter Site
  - Consolidated Slag Pile (CSP)
- Project Site

  - Eureka County School
  - District Property
  - Sampled Areas (2012-2013)
- Levels of arsenic 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.

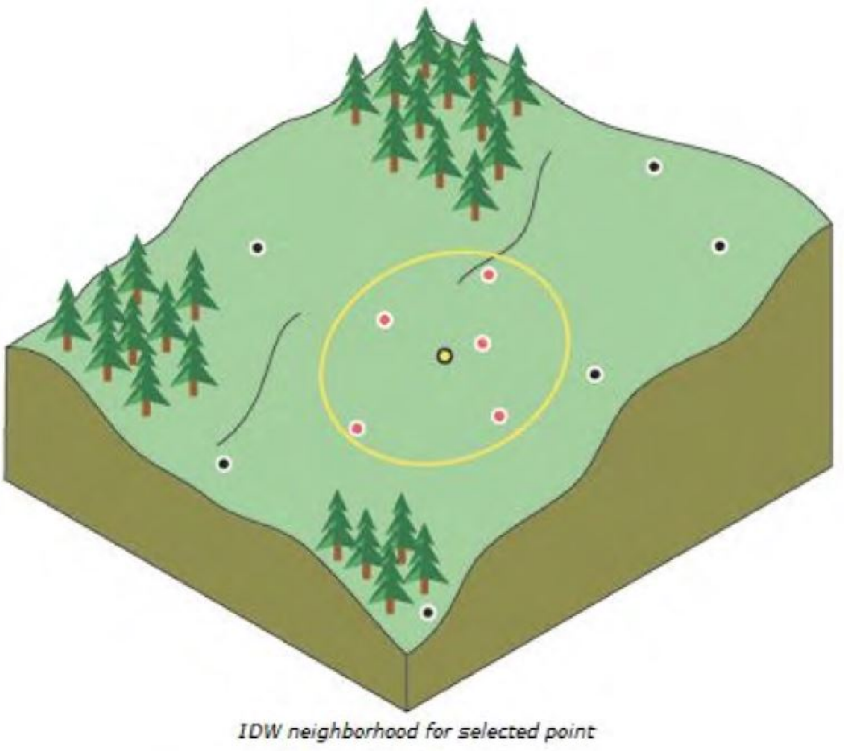


Figure E-2  
Town of Eureka  
Iso-Concentration Map For Arsenic With Data Points  
Eureka Smelter Sites  
Eureka, Eureka County, Nevada