

**Eureka Smelter Site
Removal Assessment Report
Eureka, Eureka County, Nevada**

March 2013

Prepared for:

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List of Abbreviations and Acronyms

bgs	below ground surface
BLM	U.S. Bureau of Land Management
CSPs	consolidated slag piles
DQOs	Data Quality Objectives
E & E	Ecology and Environment, Inc.
ERS	Emergency Response Section
ESSL	evaluated site-specific screening level
FOSC	Federal On-Scene Coordinator
FP	Fundamental Parameter
GIS	Geographical Information System
GPS	Global Positioning System
INAA	Instrumental Neutron Activation Analysis
NDEP	Nevada Division of Environmental Protection
NERL	National Exposure Research Laboratory
NIST	National Institute of Standards and Technology
mg/kg	milligrams per kilogram
PST	Pacific Strike Team
QA	Quality Assurance
QC	Quality Control
R ²	Coefficient of Determination
SAP	Sampling and Analysis Plan
SSL	Soil Screening Level
SOP	Standard Operating Procedure
SRM	Standard Reference Material
START	Superfund Technical Assessment and Response Team
TDD	Technical Directive Document
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 Emergency Response Section (ERS) tasked Ecology and Environment, Inc.'s (E & E's) Superfund Technical Assessment and Response Team (START) to support a U.S. EPA-funded removal assessment of potential lead and arsenic contamination in the Town of Eureka located in Eureka County, Nevada. The assessment activities were conducted under E & E's U.S. EPA Region 9 START Contract number EP-S5-08-01, under Technical Direction Document (TDD) number TO2-09-12-04-0002.

The U.S. EPA's concern regarding lead and arsenic contamination on public and private properties within the Town of Eureka, Nevada, stems from the fact that the town was a historical center for lead smelting activities, and several large consolidated slag piles (CSPs) are located within the town limits. According to historical documents, many of the public and private properties within Eureka are located on or in close proximity to former smelter and mill sites.

While there have been no previous formal environmental investigations within the Town of Eureka prior to this U.S. EPA-funded removal assessment, in the spring of 2012, the Nevada Division of Environmental Protection (NDEP) and U.S. EPA personnel conducted an informal screening survey during which 38 shallow surface soil samples were collected from publically accessible locations. Results from this survey provided evidence that arsenic and lead concentrations in surface soils exceeded the U.S. EPA's Region 9 Regional Screening Levels (RSLs) for both the residential and industrial scenarios. In order to identify whether or not potential human health or environmental impacts are present in the Town of Eureka from elevated concentrations of arsenic and lead in soils, the U.S. EPA Region 9 ERS, in coordination with the NDEP, determined that additional environmental data collection was required.

Data collected during this removal assessment will be used by the U.S. EPA Region 9 ERS to determine whether environmental hazards are present in Eureka that may pose an "imminent and substantial endangerment to human health or the environment". As appropriate, the U.S. EPA will use this assessment data to evaluate the potential for a removal action at the site and identify alternatives to mitigate environmental hazards that meet endangerment criteria.

This removal assessment was performed in accordance with the site-specific Sampling and Analysis Plan (SAP) and Data Quality Objectives (DQOs) developed by the U.S. EPA and START as part of the project planning phase. The SAP, titled *Sampling and Analysis Plan, Eureka Smelter Sites Assessment Eureka, Eureka County, Nevada*, E & E, September 2012, is available under a separate cover.

The specific actions performed during this removal assessment included:

- Collection of composite surface and shallow subsurface (2 to 12 inches) soil samples from residential and public properties;
- Collection of discrete point surface soil samples from developed residential and public properties;

- Collection of discrete point surface soil samples from unpaved roadways and undeveloped residential properties;
- Collection of discrete point surface soil samples from locations within a 1-mile radius around the Town of Eureka;
- Collection of discrete point surface sediment samples from Eureka's creek;
- Collection of discrete point surface water samples from Eureka's creek;
- Collection of discrete point surface and shallow subsurface soil samples from background locations;
- Field X-ray fluorescence (XRF) analysis by U.S. EPA Method 6200 of all collected soil samples to determine the arsenic and lead concentrations;
- Identification of soil sample locations where field XRF concentrations exceed the site-specific Soil Screening Levels (SSLs) of 60 milligrams per kilogram (mg/kg) for arsenic, and 400 mg/kg for lead;
- Submittal of 20 percent of all soil samples to the U.S. EPA Region 9 Laboratory for arsenic and lead determinations by U.S. EPA Method 6010B;
- Submittal of 44 soil samples to the U.S. EPA Region 9 Laboratory for determination of antimony, barium, beryllium, cadmium, chromium, cobalt, copper, molybdenum, nickel, selenium, silver, thallium, vanadium and zinc by U.S. EPA Method 6010B;
- Submittal of 40 soil samples to the U.S. EPA Region 9 Laboratory for bio-accessibility extraction procedure U.S. EPA 9200.2-86 and arsenic and lead concentration determination by U.S. EPA Method 6010B;
- Submittal of six surface soil samples to the U.S. EPA National Exposure Research laboratory for bioavailability study and mineralogy studies;
- Linear regression analysis between data sets generated by the field XRF sample analysis (U.S. EPA method 6200), and data produced by U.S. EPA Region 9 Laboratory sample analysis (U.S. EPA Method 6010B) to confirm the accuracy and precision of arsenic and lead soil concentrations detected in the field; and
- Documentation of all sampling locations and their associated arsenic and lead concentrations at limits above and below the site-specific SSLs.

2 Site Background

2.1 Site Location

The Town of Eureka (Eureka) is an unincorporated community located in Eureka County, Nevada. The town occupies approximately 480 acres of land in the southern part of Eureka County, within Diamond Valley, at an elevation of approximately 6,900 feet above sea level. The geographical coordinates for the approximate center of Eureka are 39° 30' 45" Latitude North and 115° 57' 39" Longitude West. A regional site location map is provided as Figure 1.

The major focus of this assessment was soil sampling at commercial, residential and public properties located in Eureka, Nevada. A secondary focus was on areas outside of town, including background soil locations and downwind surface soil locations. Soil and water samples were also collected from an intermittent stream that flows through town.

The locations of the areas investigated as part of this study are shown in Figures 2-A, 2-B and 2-C.

2.2 Site Description

Eureka is situated in a historical mining district with at least seven known former ore milling and smelter operations located throughout the town. Most of the town's residential, commercial and public properties are situated in a valley and low-lying hills on either side of U.S. Highway 50. Eureka is bisected by U.S. Highway 50 and a narrow intermittent creek, which are oriented north-south through the town. The school district properties in Eureka are primarily situated in the hills to the west of U.S. Highway 50. The residential properties in Eureka are situated in the hills west of the highway and along the valley floor east of the highway. The historical wind direction through the town, as documented by the Western Regional Climate Center based on Eureka Airport data, is predominately from the south to the north (Figure 3). The area directly to the north is hilly terrain that opens into a broad alluvial plain. The creek flows from the south through the town and on into the alluvial plain. There is a large open-pit mining operation located approximately 1 mile north-northwest of the town.

There are two significantly sized CSPs located on both the north and south ends of town, and several smaller CSPs have been identified at other locations around Eureka (refer to Figure 2-A and 2-C for locations). 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 Eureka that are either on, adjacent to, or in close proximity to the sites of the former ore smelters and milling operations.

Included among the identified parcels are Eureka School District parcels (refer to Figure 2-B and 2-C for locations), which include the following facilities:

- The Eureka High School is situated on a parcel that encompasses a total of approximately 45 acres, of which approximately 10 acres appear utilized by the high school and are covered with structures or paved surfaces; the remaining 35 acres consist of undeveloped land.

2. Site Background

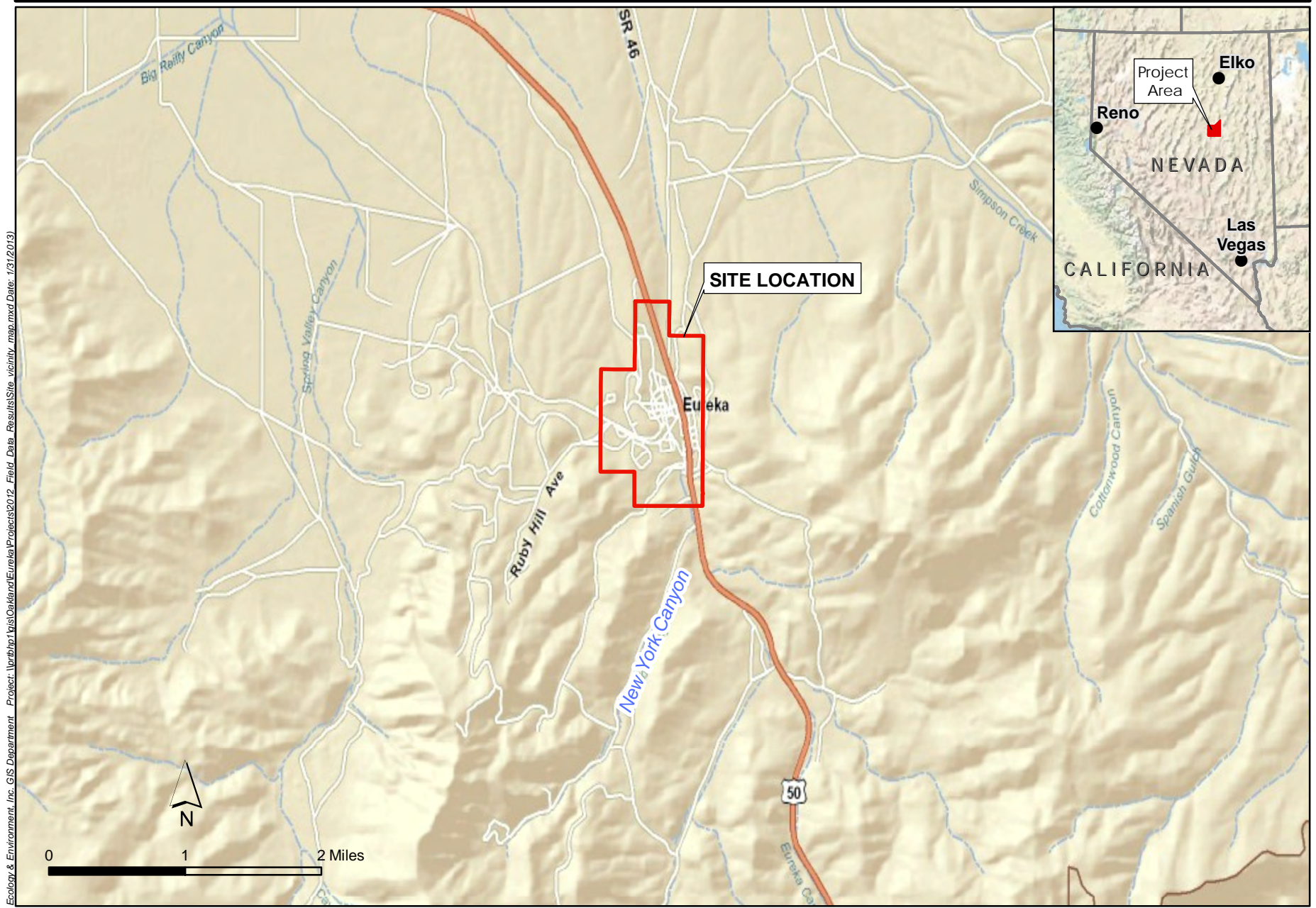
- The Eureka School District Athletic Complex encompasses a total of approximately 12.4 acres, of which approximately 5 acres are covered by structures and recently constructed synthetic surface sports fields. The remaining 7.4 areas consist of unpaved parking areas and undeveloped land.
- The Eureka Elementary School property consists of three parcels that encompass approximately 6.8 acres, of which 3.5 acres are school structures, concrete surfaces, asphalt paving or other landscape areas. The remaining 3.3 acres are a large fenced playground and play fields.
- The Former Eureka School property encompasses a total of 2.9 acres on a parcel located east of the Eureka High School facility, and consists of a vacant school building, gymnasium facility, play field, small playground, and two residential structures.

2.3 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 was 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 milling and smelter operations historically located throughout Eureka. The following historical ore milling and smelter operations were identified in Eureka and are shown on Figures 2-A, 2-B, and 2-C:

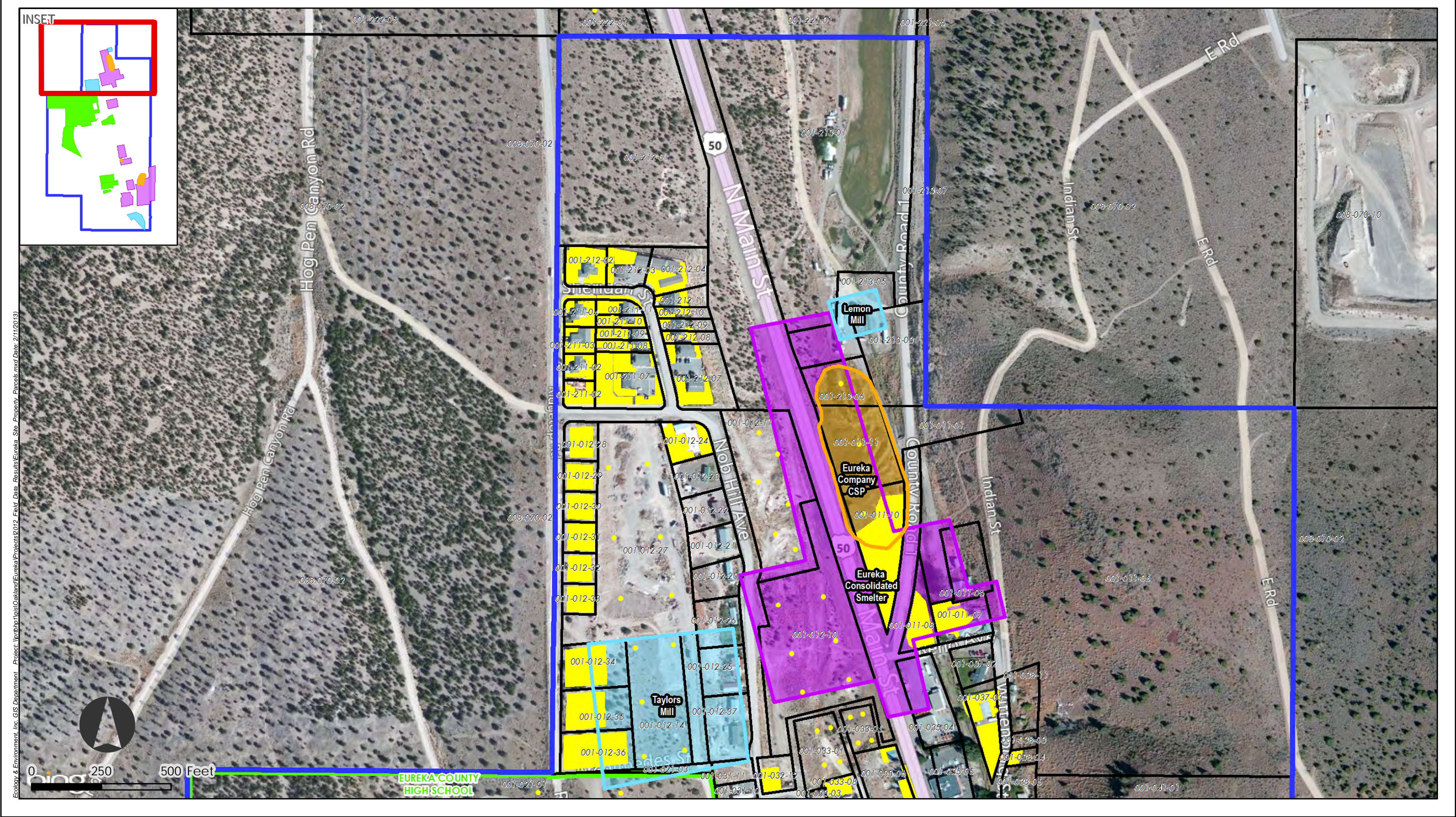
- Lemon Mill
- McCoys Mill
- Eureka Consolidated Smelter
- Matamoras Smelter
- Hoosac Smelter
- Atlas Smelter
- Richmond Company Smelter
- Jackson Smelter
- Silver West Smelter
- Lemon Mill
- McCoys Mill
- Taylor Mill

As a result of ore processing at these former mills and smelter sites, waste product known as slag was produced and consolidated into a number of separate piles located throughout Eureka. The two large CSPs (Eureka Company and Richmond Company) are located along U.S. Highway 50 on the north and south ends of Eureka and several smaller slag piles (Atlas and Matamoras) are shown on Figures 2-A, 2-B, and 2-C.



Ecology & Environment, Inc. GIS Department Project: \p\rbp1\gis\Oakland\Eureka\Projects\2012 Field Data Results\Site vicinity map.mxd Date: 1/31/2013

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



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Figure 2-A
Property Parcels in Eureka, Nevada - North
Eureka Smelters Sites
Eureka, Eureka County, Nevada

- Sampled Area
- Eureka County School District Property
- Parcel Boundary and Assessors Parcel Number

- Project Boundary
- Historical Facilities
- Mill Facility
- Consolidated Slag Pile (CSP)
- Smelter Site

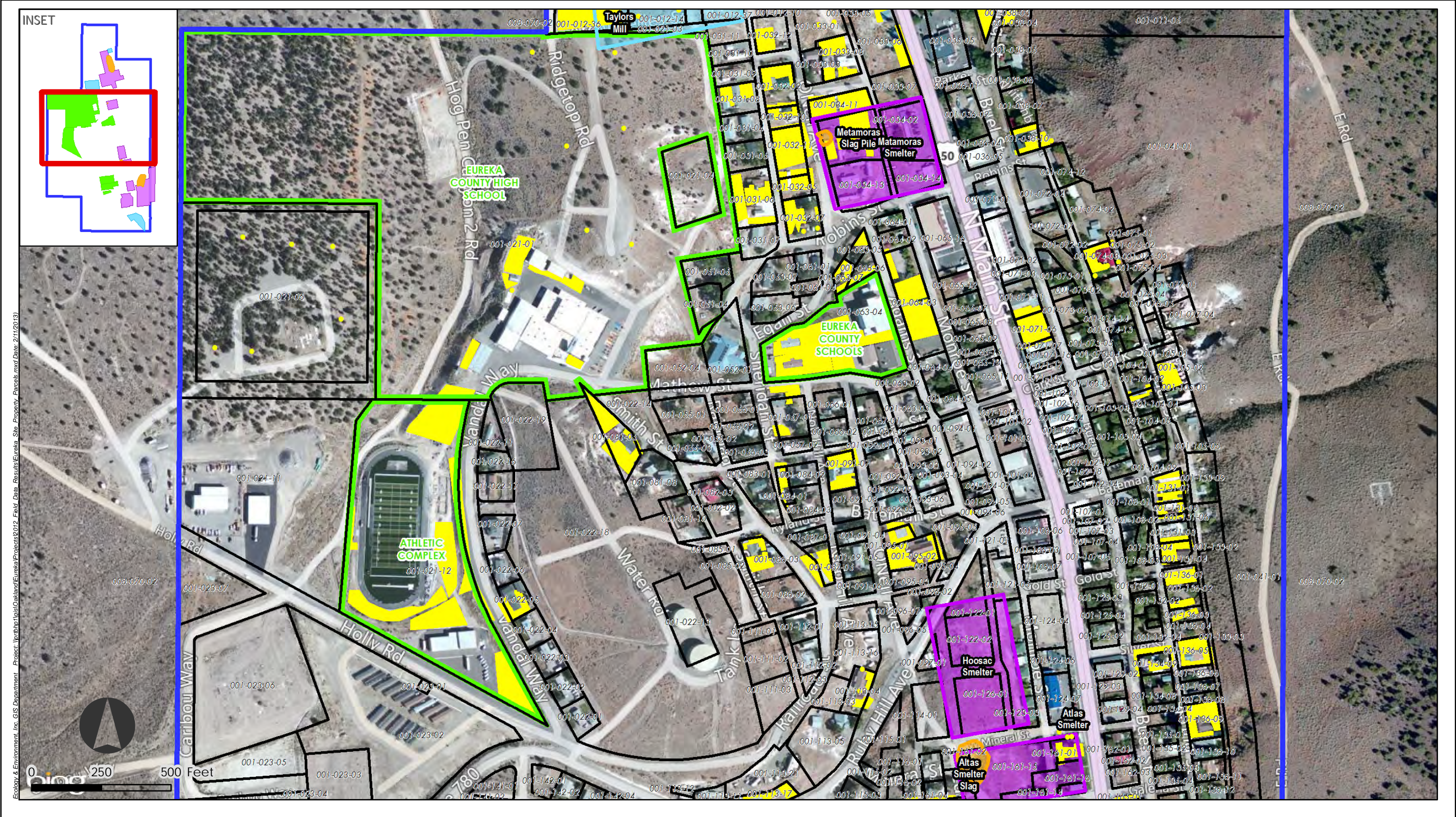


Figure 2-B
Property Parcels in Eureka, Nevada - Central
Eureka Smelters Sites
Eureka, Eureka County, Nevada

- Sampled Area

Eureka County School District Property

Parcel Boundary and Assessors Parcel Number
- Project Boundary

Historical Facilities

Mill Facility

Consolidated Slag Pile (CSP)

Smelter Site

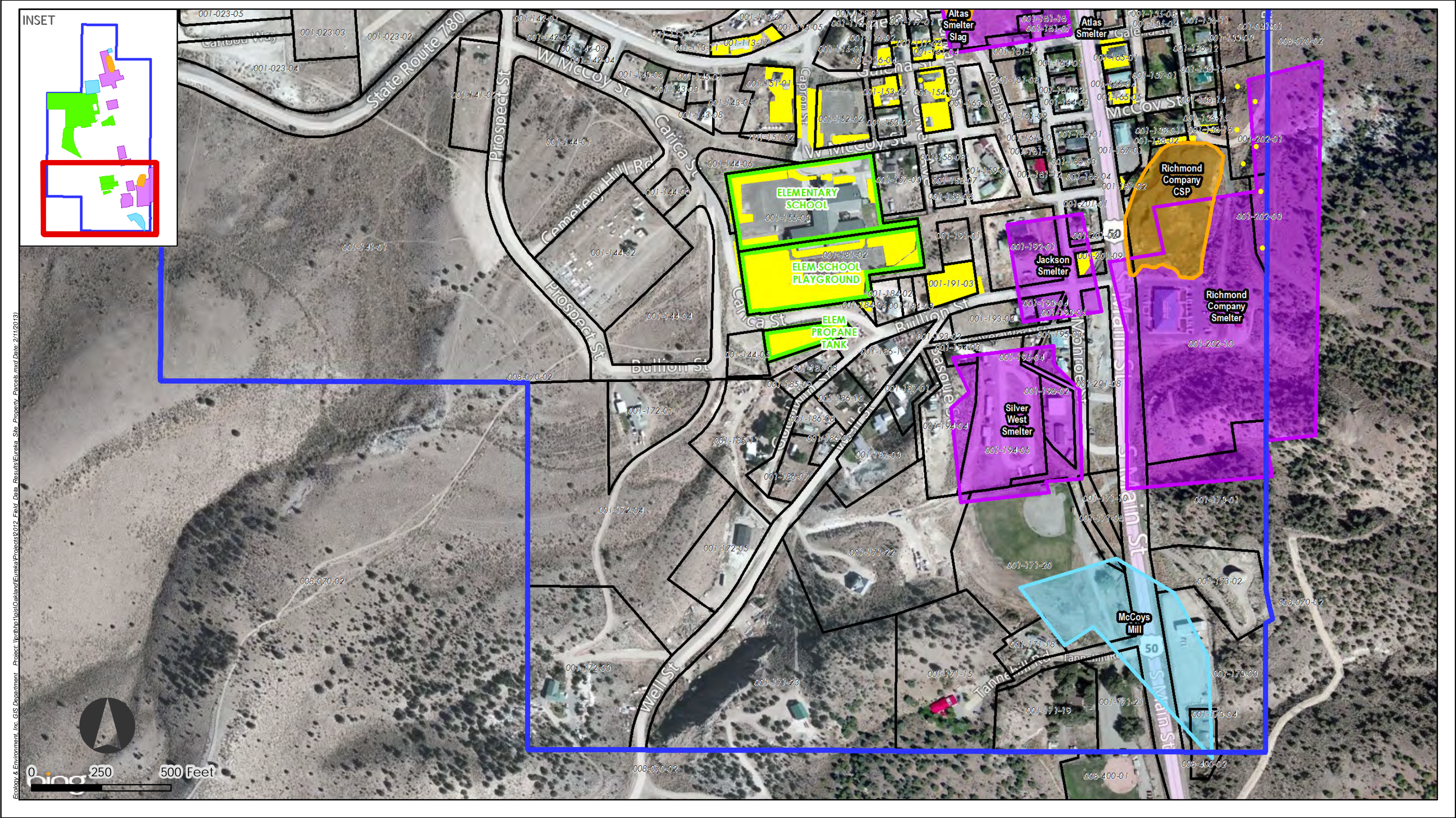
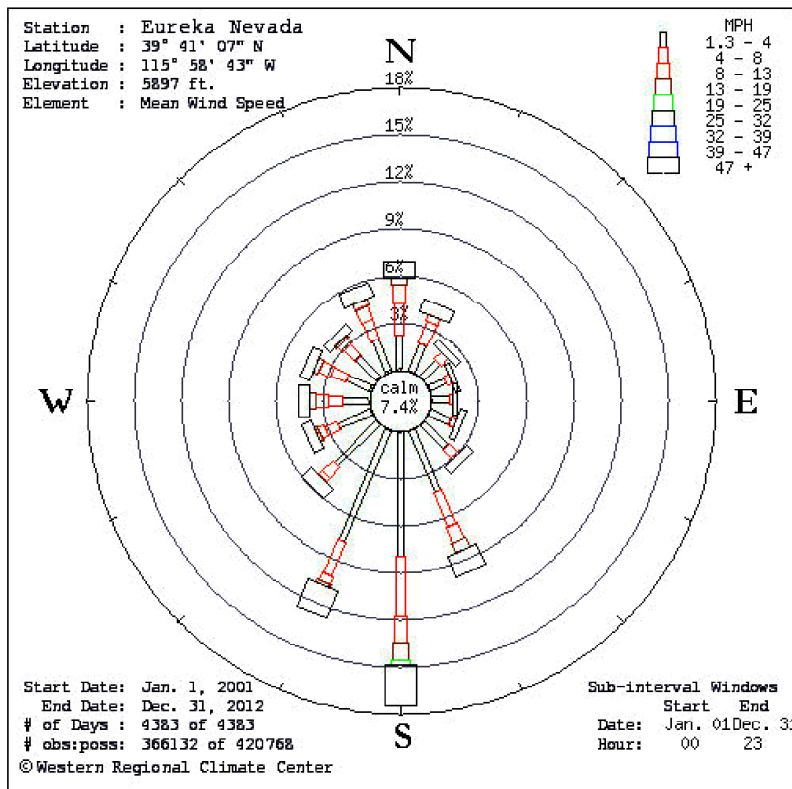


Figure 2-C
Property Parcels in Eureka, Nevada - South
Eureka Smelters Sites
Eureka, Eureka County, Nevada



Eureka Nevada - Wind Frequency Table (percentage)

Latitude : 39° 41' 07" N
Longitude : 115° 58' 43" W
Elevation : 5897 ft.
Element :

Start Date : Jan. 1, 2001
End Date : Dec. 31, 2012
of Days : 4383 of 4383
obs : poss : 366132 of 420768

Sub Interval Windows
Start End
Date Jan. 01 Dec. 31
Hour 00 23

(Greater than or equal to initial interval value and Less than ending interval value.)

Range (mph)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
1.3 - 4	2.2	1.8	1.4	1.1	1.1	1.4	2.1	4.2	7.9	7.7	3.7	2.2	1.6	1.6	1.8	2.1	44.1
4 - 8	1.9	1.5	0.6	0.3	0.2	0.4	0.8	2.4	3.8	2.3	0.9	0.8	1.0	1.0	0.9	1.3	20.2
8 - 13	1.3	0.4	0.1	0.0	0.0	0.0	0.1	1.1	1.7	0.5	0.3	0.4	0.8	0.8	0.4	0.9	9.0
13 - 19	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2	0.2	0.1	0.2	0.4	0.3	0.2	0.4	4.2
19 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.8
25 - 32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
32 - 39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39 - 47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47 -	1.1	0.8	0.4	0.3	0.3	0.4	0.6	1.4	2.6	1.9	0.9	0.7	0.7	0.7	0.6	0.9	14.2
Total(%)	6.9	4.6	2.6	1.8	1.7	2.2	3.7	9.9	17.5	12.7	6.0	4.4	4.6	4.5	3.9	5.7	92.6

Figure 3
Predominant Wind Direction for Eureka, Nevada
Eureka Smelters Sites
Eureka, Eureka County, Nevada

It has been reported in the book *Nevada Ghost Towns and Mining Camps* by Stanley Paher, 1970, Nevada Publications that, due to the extensive amount of historical ore processing operations in Eureka, air pollution led to health problems among residents and former smelter workers during the time frame when the smelters were in operation. Indications that air pollution killed vegetation in and around Eureka is also presented in the book, where on page 181, there is the following statement: "On the outskirts of town, 16 smelters with a daily capacity of 745 tons treated ore from over fifty producing mines. Furnaces poured forth dense clouds of black smoke which constantly rolled over the town and deposited soot, scales and black dust everywhere, giving the town a somewhat somber aspect and killing vegetation. The "Pittsburgh of the West," Eureka was indeed the foremost smelting district in the entire West."

There were also several historical flood events, including a major flood event of the intermittent creek in 1874 that reportedly washed out much of the town and smelter facilities (NSJ 1874). The intermittent creek in Eureka flows from south to north and eventually discharges to the flat, alluvial plain located approximately 5 miles north of Eureka.

2.4 Previous Investigations

In 1978, the United States Department of the Interior Geological Survey collected 593 soil samples that identified a 3-kilometer by 6-kilometer area within the Eureka mining district (Figures 4A-1 through 4A-3 and 4B-1 through 4B-3) had residual lead and arsenic concentrations from historic smelting operations exceeded background levels,. 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* and discussed in a 2004 U.S. Geological Survey publication, *Hydrogeochemical Studies of Historical Mining Areas in the Humboldt River Basin and Adjacent Areas, Northern Nevada*.

In the spring of 2012, U.S. EPA and NDEP personnel collected 38 surface soil samples from publically accessible locations around Eureka for lead and arsenic analysis. The analytical laboratory results from these 38 surface soil samples indicated that 10 samples had lead concentrations below 400 mg/kg, 20 samples had lead concentrations between 400 mg/kg and 5,000 mg/kg, and eight samples had lead concentrations above 5,000 mg/kg. The lead concentrations in samples ranged from 44 mg/kg to 45,000 mg/kg (Figures 5-1 through 5-3). The highest lead soil concentrations were detected in samples from the CSPs located on both the north and south ends of Eureka, and at former smelter site locations. The sample results for arsenic showed a distribution similar to lead. The analytical laboratory results for arsenic indicated that five 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. The arsenic concentrations in samples ranged from 10 mg/kg to 6,700 mg/kg (Figures 5-1 through 5-3).

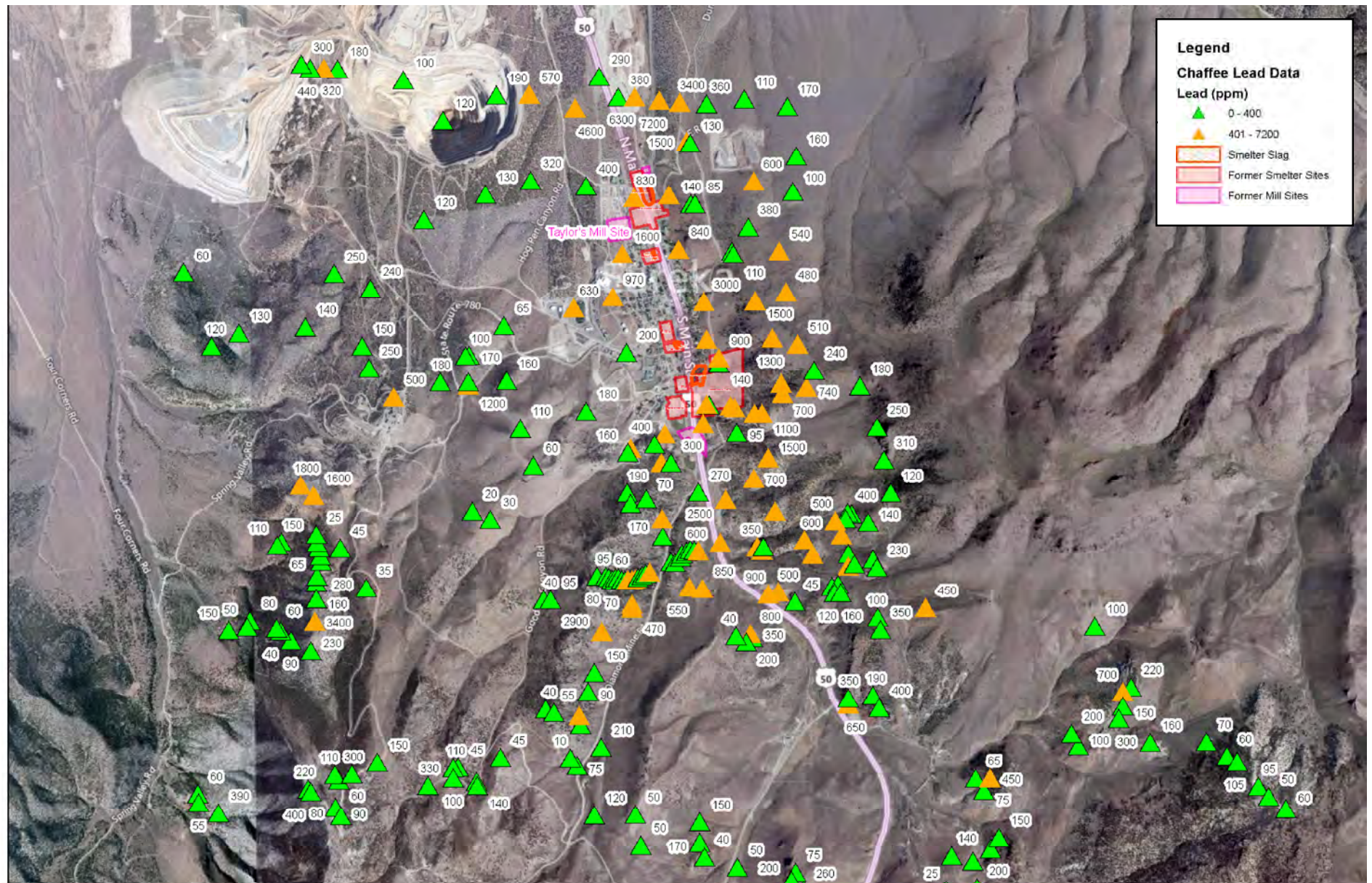


Figure 4A-1
Eureka District with Historic
Sampling Data for Lead-North
Eureka Smelters Sites
Eureka, Eureka County, Nevada

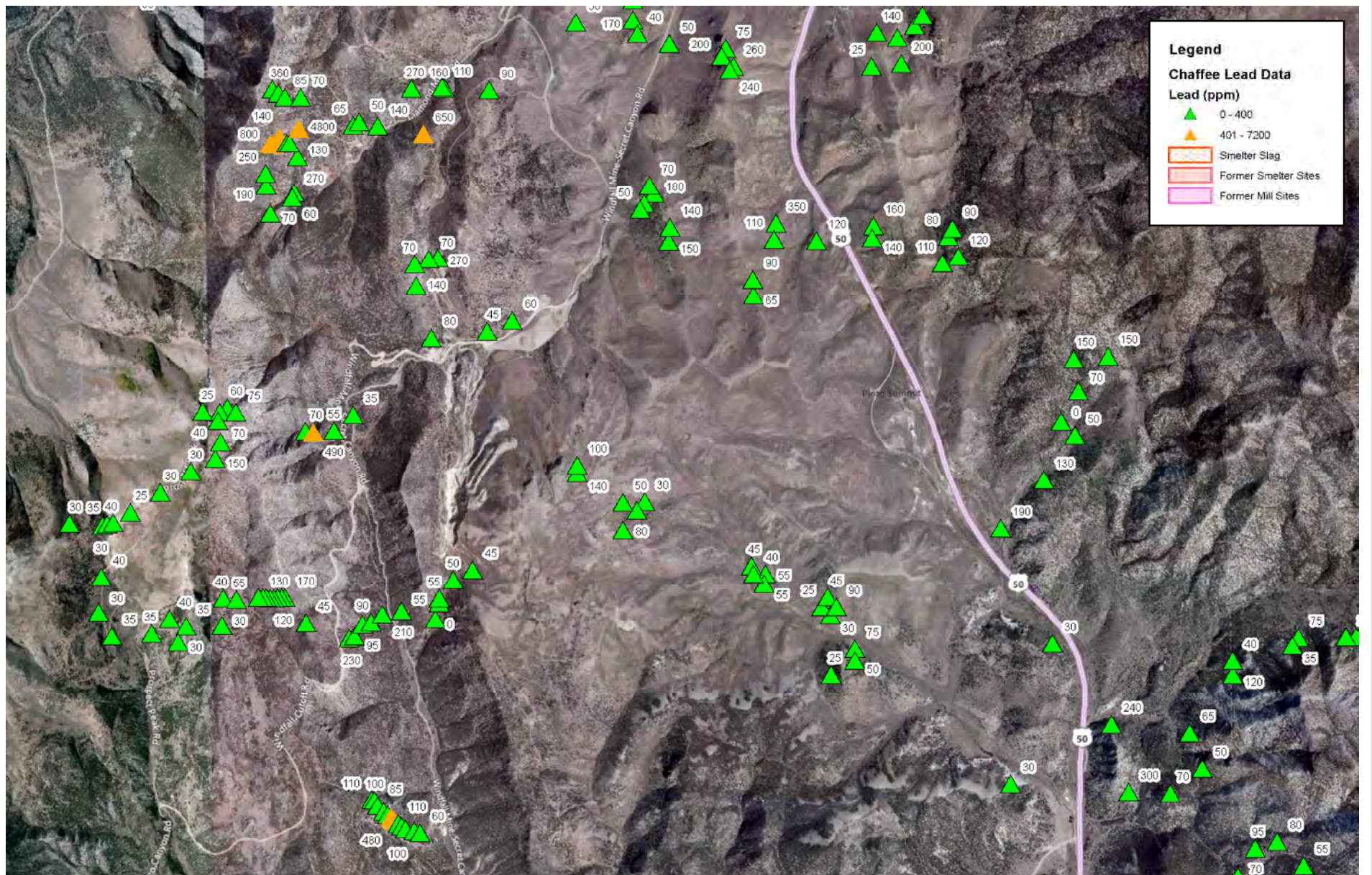


Figure 4A-2
Eureka District with Historic
Sampling Data for Lead-Central
Eureka Smelters Sites
Eureka, Eureka County, Nevada

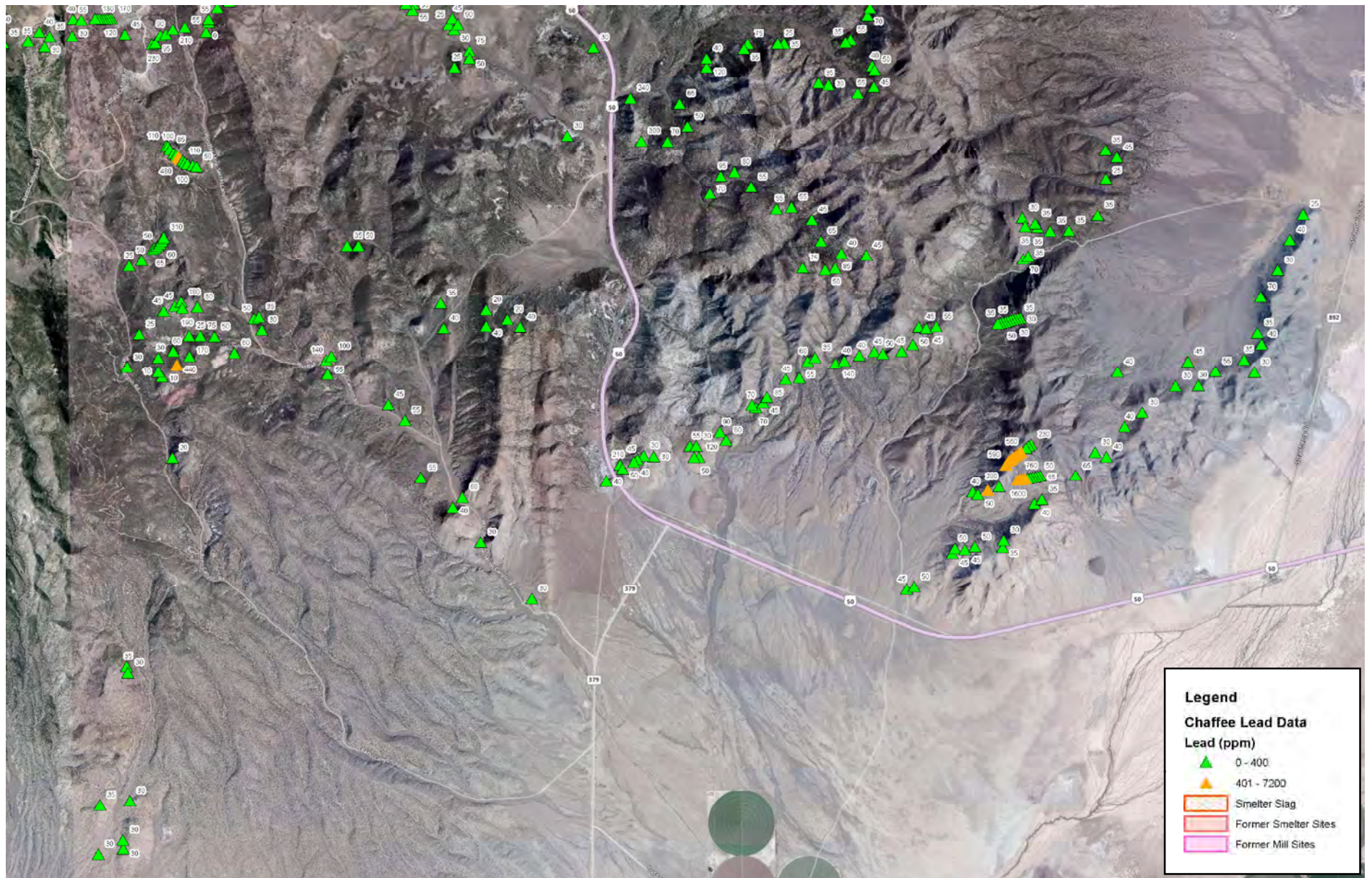


Figure 4A-3
Eureka District with Historic Sampling
Data for Lead-South
Eureka Smelters Sites
Eureka, Eureka County, Nevada

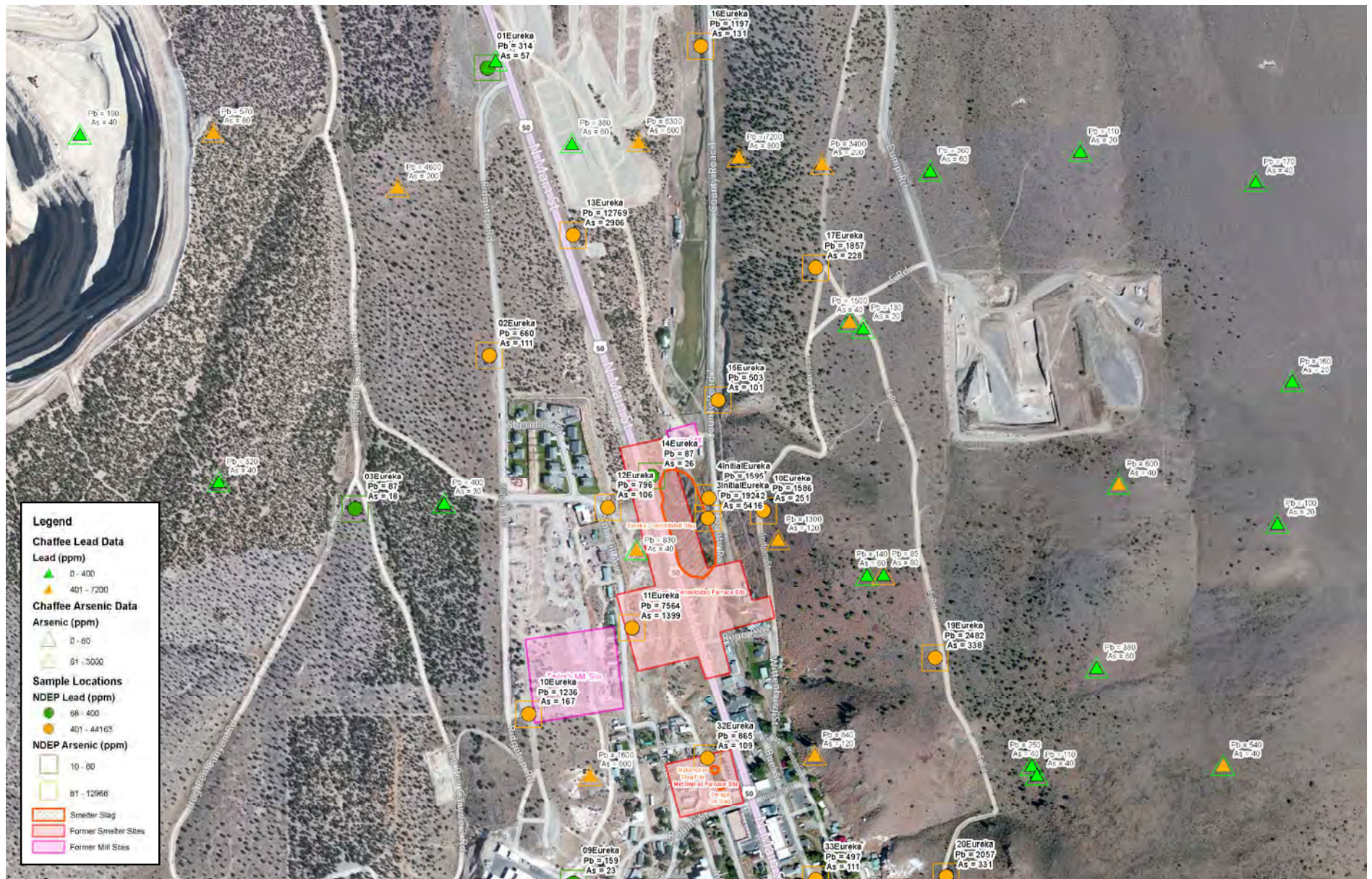


Figure 4B-1
Eureka Area with Historic Sampling
Data For Lead and Arsenic-North
Eureka Smelters Sites
Eureka, Eureka County, Nevada

Ecology & Environment, Inc. GIS Department Project: Northridge/Oakland/Eureka Projects 2012 Field Data Results/Eureka 4B-2 Non-GIS Historic Lead Samples Central.mxd Date: 3/13/2013



Figure 4B-2
Eureka Area with Historic Sampling
Data For Lead and Arsenic-Central
Eureka Smelters Sites
Eureka, Eureka County, Nevada

Ecology & Environment, Inc. GIS Department Project: Northridge/Oakland/Eureka/Projects2012 Field Data Results/Figure 4B-3 Non-GIS HistoricLeadSamples_South.mxd Date: 3/13/2013

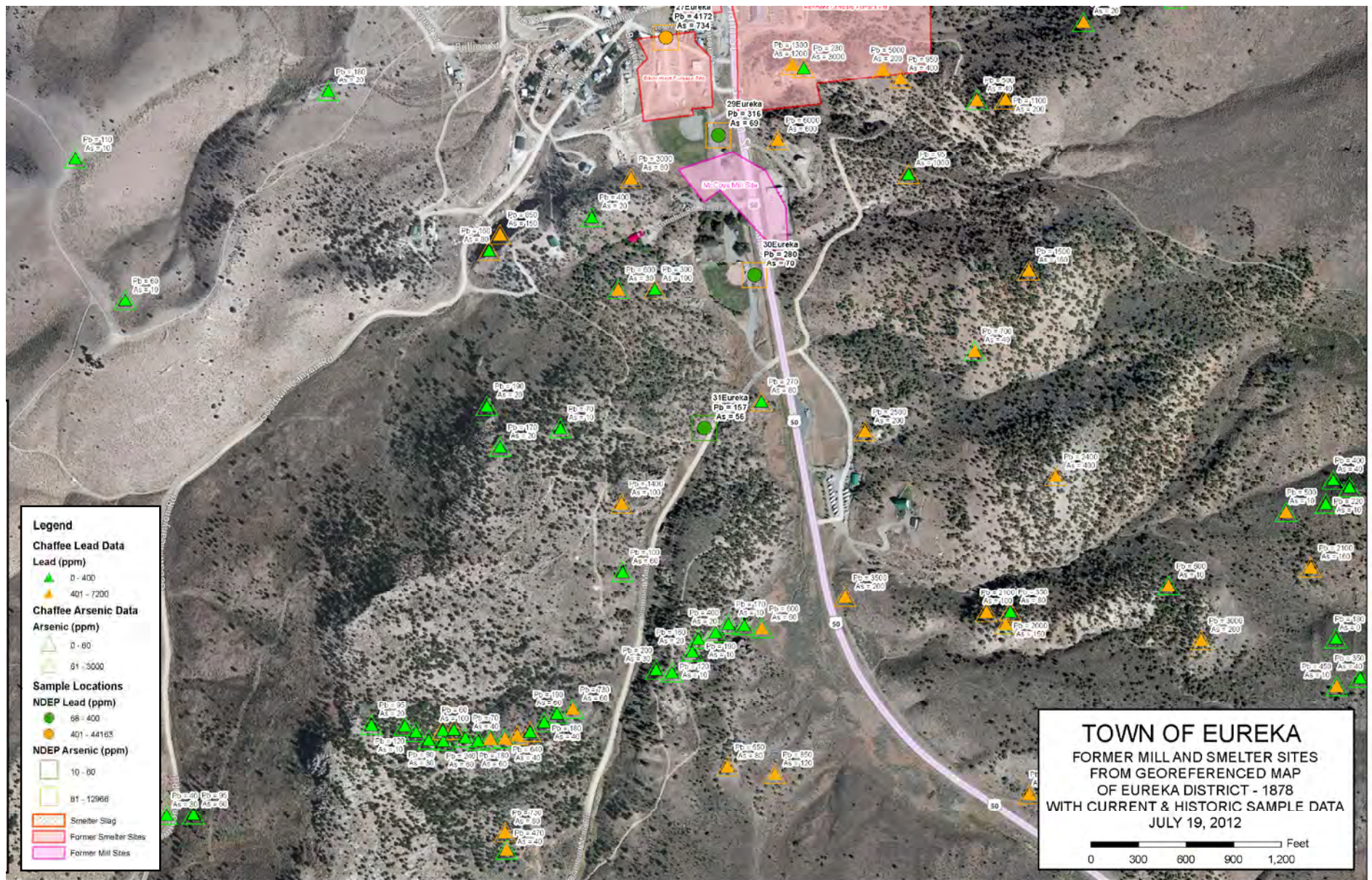


Figure 4B-3

Eureka Area with Historic Sampling
Data For Lead and Arsenic-South
Eureka Smelters Sites
Eureka, Eureka County, Nevada

Ecology & Environment, Inc. GIS Department Project: Northridge/Oakland/Eureka Projects 2012 Field Data Results Figure 5-1 NonGIS Spring Sampling Data North.mxd Date: 3/13/2013

Analysis Results by US EPA Method 6010		
Sample Number	Arsenic mg/kg	Lead mg/kg
Eureka01	64	310
Eureka02	140	610
Eureka03	20	73
Eureka04	120	690
Eureka05	13	44
Eureka06	330	1,900
Eureka07	350	1,900
Eureka08	87	480
Eureka09	26	120
Eureka10	210	1,200
Eureka11	1,800	7,900
Eureka12	170	800
Eureka13	2800	13000
Eureka14	39	98
Eureka15	130	530
Eureka16	200	1,100
Eureka17	300	1,700
Eureka18	370	1,600
Eureka19	450	2,500
Eureka20	430	2,100
Eureka21	1,500	6,600
Eureka22	570	2,200
Eureka23	790	4,300
Eureka24	1,500	8,100
Eureka25	2900	17000
Eureka26	260	1,300
Eureka27	990	4,100
Eureka28	74	340
Eureka29	73	290
Eureka30	89	260
Eureka31	72	170
Eureka32	180	990
Eureka34	47	240
1InitialEureka	12000	45000
2InitialEureka	6700	32000
3InitialEureka	6100	24000
4InitialEureka	500	1900

Legend

- Sample Locations
- Eureka Town or County Property
- Bureau of Land Management
- Smelter Slag
- Former Smelter Sites
- Former Mill Sites

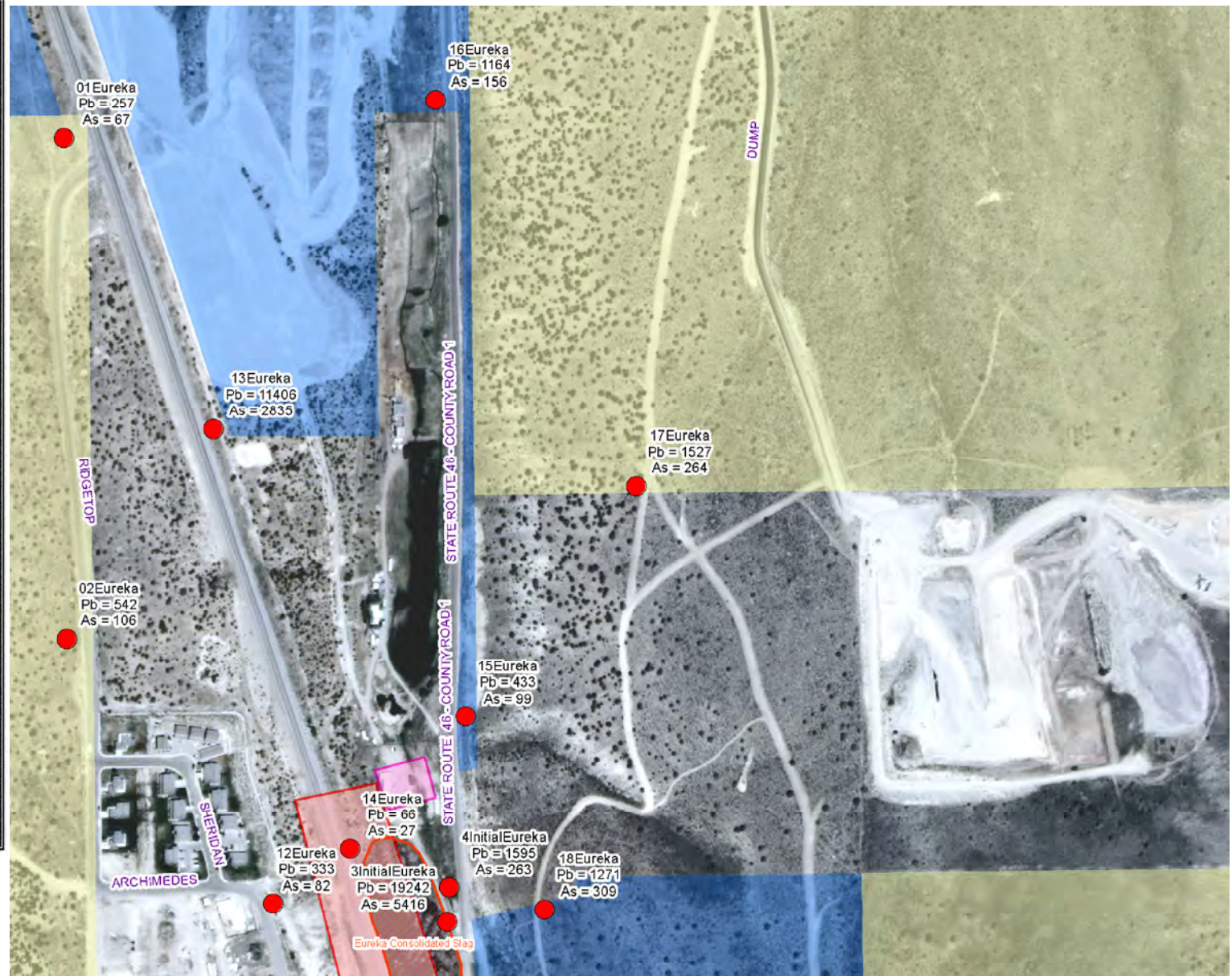


Figure 5-1
Spring 2012 Sampling Data Map-North
Eureka Smelters Sites
Eureka, Eureka County, Nevada

Analysis Results by US EPA Method 6010		
Sample Number	Arsenic mg/kg	Lead mg/kg
Eureka01	64	310
Eureka02	140	610
Eureka03	20	73
Eureka04	120	690
Eureka05	13	44
Eureka06	330	1,900
Eureka07	350	1,900
Eureka08	87	480
Eureka09	26	120
Eureka10	210	1,200
Eureka11	1,800	7,900
Eureka12	170	800
Eureka13	2800	13000
Eureka14	39	98
Eureka15	130	530
Eureka16	200	1,100
Eureka17	300	1,700
Eureka18	370	1,600
Eureka19	450	2,500
Eureka20	430	2,100
Eureka21	1,500	6,600
Eureka22	570	2,200
Eureka23	790	4,300
Eureka24	1,500	8,100
Eureka25	2900	17000
Eureka26	260	1,300
Eureka27	990	4,100
Eureka28	74	340
Eureka29	73	290
Eureka30	89	260
Eureka31	72	170
Eureka32	180	990
Eureka34	47	240
1InitialEureka	12000	45000
2InitialEureka	6700	32000
3InitialEureka	6100	24000
4InitialEureka	500	1900

Legend

- Sample Locations
- Eureka Town or County Property
- Bureau of Land Management
- Smelter Slag
- Former Smelter Sites
- Former Mill Sites

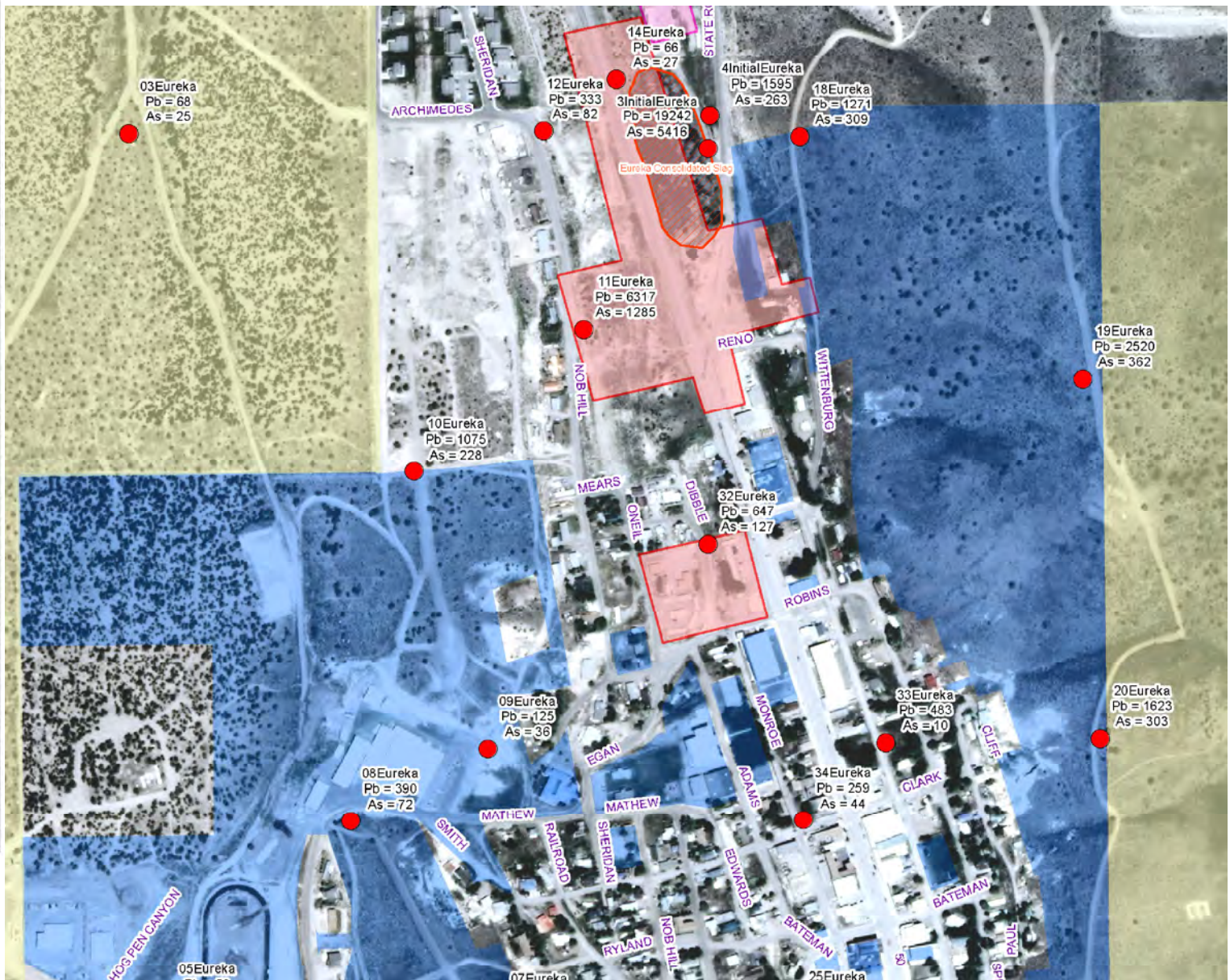


Figure 5-2
Spring 2012 Sampling Data Map-Central
Eureka Smelters Sites
Eureka, Eureka County, Nevada

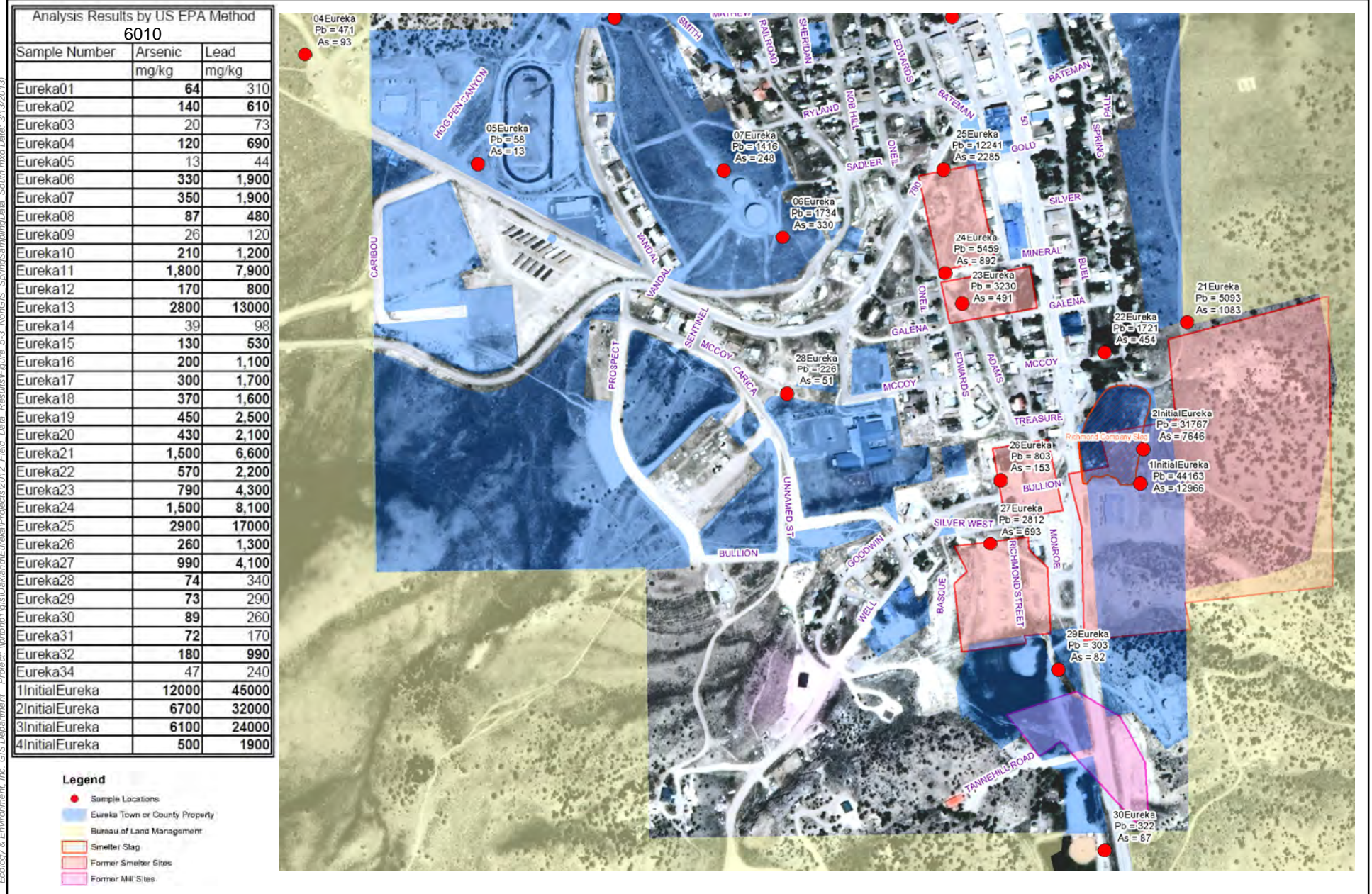


Figure 5-3
Spring 2012 Sampling Data Map-South
Eureka Smelters Sites
Eureka, Eureka County, Nevada

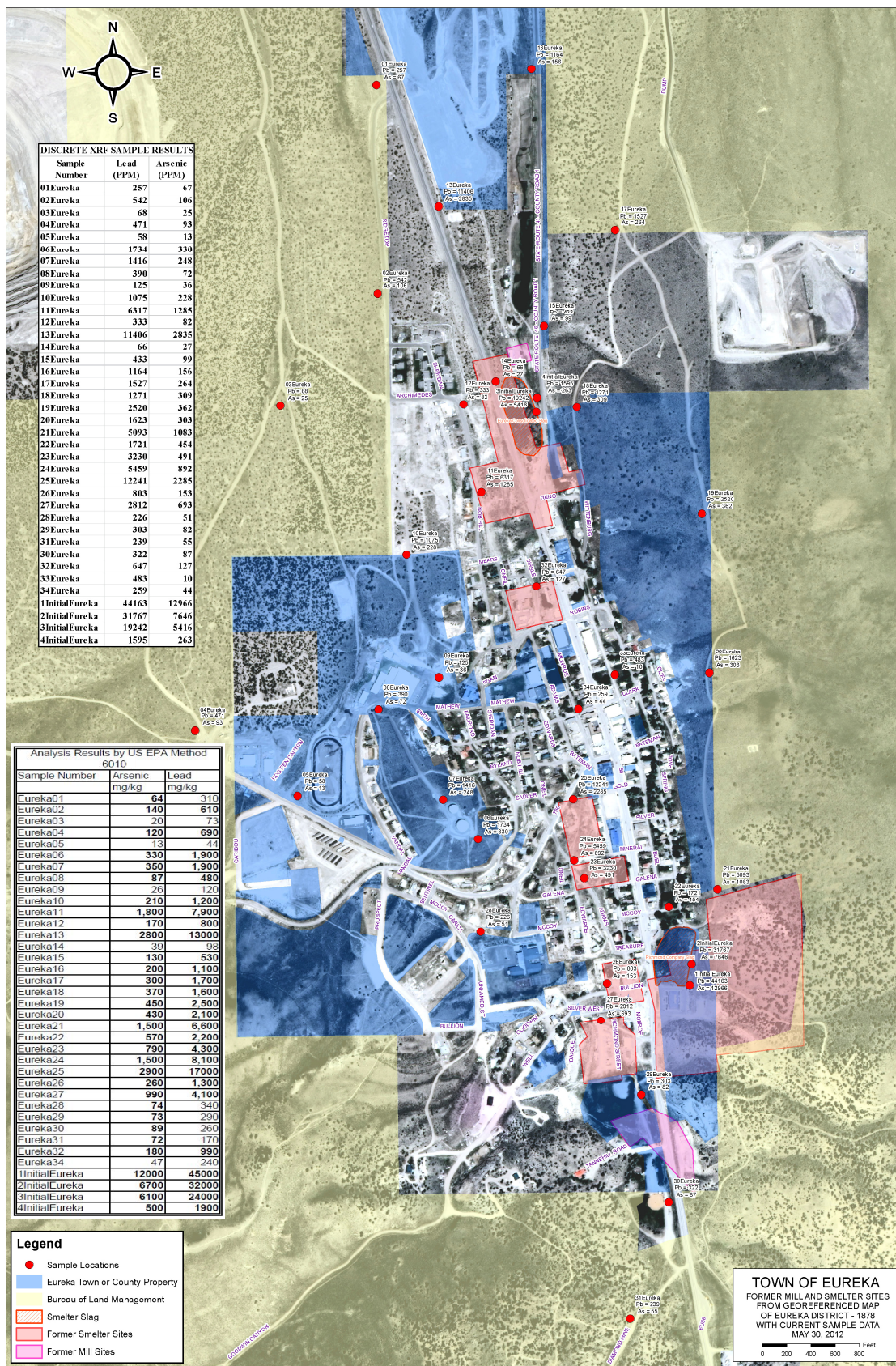


Figure 5
Spring 2012 Sampling Data Map
Eureka Smelters Sites
Eureka, Eureka County, Nevada

3 Field Assessment

The field assessment phase of the project was performed between October 15 and October 26, 2012, under the authority of U.S. EPA Federal On-Scene Coordinator (FOSC) Tom Dunkelman. During the field assessment, on-site personnel included FOSC Tom Dunkelman and Fred Stroud of the U.S. EPA Environmental Response Team, NDEP personnel, three START members, and four United States Coast Guard Pacific Strike Team (PST) members. In general, one START member performed XRF sample analysis in the designated field laboratory, two PST members performed XRF sample preparation, and two START members, two PST members, and the U.S. EPA and NDEP representatives performed sample collection activity. In addition to sample collection and analysis, one START member collected geo-spatial sampling data, relevant parcel information, resident information, and photographic documentation with a field tablet computer, digital camera and Global Positioning System (GPS) unit. All field data were then compiled into the U.S. EPA's SCRIBE database. The specific field assessment tasks are discussed in the following sections. Photographic documentation of the field assessment activity is provided under Appendix A.

3.1 START Field Assessment Activities

The START followed all pre-determined standard operating procedures (SOPs) as outlined in the site-specific SAP (E & E, 2012) for sample collection and documentation procedures during the field assessment phase of this project, unless otherwise specified below. The following deviations from the SAP (E & E 2012) resulted from changes made during the field assessment in response to field observations and conditions:

- At the direction of the FOSC, compositing of samples was performed in the field at the time of collection and not at the designated field laboratory.
- Since the samples were being composited in the field, the XRF analysis of individual aliquots, which was described in Section 4.2 of the SAP, was not done.
- Access to the Eureka County-owned playing fields was not granted; therefore, the playing fields were not sampled.
- Only 36 of the 47 proposed air dispersion sampling locations could be safely accessed and were sampled. The remaining 11 air dispersion sampling locations were located on steep hillsides that had no safe access and were not sampled at the direction of the FOSC.
- At the direction of the FOSC, unpaved roadways were only sampled at the 0 to 2 inch below ground surface (bgs) interval and not also sampled at the 2 to 6 inch bgs interval as indicated in the SAP.
- The SAP indicated that field duplicate samples would be generated by separating the original field sample into two sample containers. Due to time constraints, separation of field duplicate samples was performed during the sample preparation process.
- At the direction of the FOSC, background soil sampling was conducted at five separate locations consisting of 18 discrete sample points and four composite sample areas, as opposed to collecting samples from 20 discrete sample points from one background location as indicated in the SAP.

3.1.1 Property Sampling

Between October 16 and October 26, 2012, surface and shallow subsurface soil samples were collected from residential and public properties located throughout Eureka where access was granted by the owner to the U.S. EPA and NDEP. A total of 268 decision units from 106 individual residential and public properties were sampled during this removal assessment. For the purpose of this removal assessment, residential properties included any property that contains single and/or multi-family dwellings and vacant lots with the potential for residential construction; public properties include any Eureka School District or County-owned property and unpaved access road right-of-ways. Prior to conducting sampling activity at a property, access permission was obtained by the U.S. EPA and NDEP for each property sampled. Once a property was cleared for sampling and analysis, a visual inspection of the property was then performed by the U.S. EPA, NDEP, and START to determine the appropriate sampling decision units.

Residential properties were generally divided into front yard, back yard, side yard, and driveway sampling decision units. Composite samples were then collected from each decision unit identified at the subject property. In general, composite soil samples collected from residential decision units consisted of five homogenized discrete sample aliquots of equal volume (five-point composite soil sample). A five-point composite soil sample was collected from each identified residential sampling decision unit at depths from 0 to 2 inches bgs, 2 to 6 inches bgs, and 6 to 12 inches bgs.

Additionally, for some properties, unique, discrete sampling locations were also identified. Examples of areas that were selected for discrete sampling include play areas, pet areas and garden areas. Those locations were sampled at a single location at each depth interval. Discrete point sampling locations at residential properties were sampled at depths from 0 to 2 inches bgs, 2 to 6 inches bgs, and 6 to 12 inches bgs.

Public properties were generally divided into multiple sampling decision units that largely covered the entire property area. In general, composite soil samples collected from public property decision units consisted of five homogenized discrete sample aliquots of equal volume (five-point composite soil sample). A five-point composite sample was collected from each identified sampling decision unit at depths from 0 to 2 inches bgs and 2 to 6 inches bgs. Additionally, discrete point sampling locations were identified at various large public properties (e.g., large vacant lots) in order to evaluate contaminant distributions throughout the property. Discrete point sampling locations at public properties were sampled at depths from 0 to 2 inches bgs and 2 to 6 inches bgs.

The location and boundary of the each residential and public property composite decision unit was documented directly on field computer tablets by using geographic information systems (GIS) software. The mid-point coordinates for each property decision unit was recorded with a GPS unit. Discrete point sampling locations were also documented on the field computer tablets and recorded with a GPS unit. The properties sampled are shown on Figures 2-A, 2-B and 2-C and in Appendix B, Figures 6 and 7.

3.1.2 Unnamed Creek Sampling

On October 24, 2012, surface and shallow subsurface sediment samples and surface water samples were collected from the unnamed creek that transects Eureka. Sediment samples were collected from locations upstream and downstream from the two large CSPs. A total of three discrete point surface water samples and 45 discrete point surface and shallow subsurface sediment samples were collected from Eureka's creek. Discrete point sediment samples were collected from depths of 0 to 2 inches bgs, 2 to 6 inches bgs, and 6 to 12 inches bgs. Discrete point surface water samples were collected from three downstream locations because surface water was not flowing throughout the entire length of the creek. Each discrete point sediment and surface water sampling location collected from the creek was documented on the field computer tablet and recorded with a GPS unit. The creek sampling locations are shown in Appendix B, Figure 8.

3.1.3 Air Dispersion Sampling

On October 25, 2012, discrete point surface and shallow subsurface soil samples were collected from undeveloped BLM properties located within a 1-mile radius around Eureka to determine the extent of lead and arsenic present in area soil. A total of 72 discrete point samples were collected from 36 locations on BLM properties. Discrete point samples were collected from depths of 0 to 2 inches bgs and 2 to 6 inches bgs. Each discrete point sampling location collected from BLM property was documented on the field computer tablet and recorded with a GPS unit. The air dispersion sampling locations are shown in Appendix B, Figure 9.

3.1.4 Roadway Sampling

On October 26, 2012, five-point composite soil samples were collected from unpaved roadways in Eureka. A total of eight five-point composite samples were collected from unpaved roadways, and one five-point composite sample was collected from a road base material stockpile. Five-point composite samples were only collected at a depth of 0 to 2 inches bgs. Each five-point composite roadway sampling location was documented on the field computer tablet and recorded with a GPS unit. The roadway sampling locations are shown in Appendix B, Figure 10.

3.1.5 Background Sampling

On October 26, 2012, discrete point and five-point composite background soil samples were collected from three undeveloped rural areas located greater than 1 mile from Eureka and at two residential properties located 12 miles north of Eureka. A total of 54 discrete point background samples and 12 five-point composite background samples were collected. Discrete point and five-point composite background soil samples were collected from depths of 0 to 2 inches bgs, 2 to 6 inches bgs, and 6 to 12 inches bgs. Each discrete point and five-point composite background sampling location was documented on the field computer tablet and recorded with a GPS unit. The background sampling locations are shown in Appendix B, Figure 11.

3.1.6 Sample Collection and Preparation

A total of 1,131 unique soil samples were collected in the field and prepared for XRF analysis during this removal assessment. An additional 121 field duplicate samples, and 62 preparation duplicate samples were collected and prepared for analysis as part of the removal assessment quality assurance/quality control (QA/QC) program.

All surface and shallow subsurface soil samples were collected by sample teams wearing clean nitrile gloves using a decontaminated stainless-steel hand auger or trowel. The soil samples were then placed into an individually labeled clean plastic zip-lock bag. Each sample was given a unique sample identifier that was documented in a hand-written field log and within the GIS software file via the field computer tablet. Groups of samples were delivered to the field laboratory several times each day. Samples received at the field laboratory were then immediately recorded in a sample receipt log.

Prior to sample preparation, samples were assigned an analysis identification number that was recorded in the sample preparation log. Soil and sediment samples were homogenized in the zip-lock sample bag by kneading, crushing, and shaking the soil for approximately one minute. After homogenization, the samples were transferred into individually labeled drying pans and then dried free of moisture in an oven. Dried samples were then passed through a 250 micron (#60) mesh sieve to remove large particles. The dried and sieved sample was transferred into a new pre-labeled polyethylene cup and covered with Mylar[®] film. After sample preparation, all samples were then subjected to field XRF analysis (see Section 3.2). All non-dedicated sample handling devices (i.e., trowels, sieves) were decontaminated after each use according to E & E SOP #3.15, as listed in the SAP. Water samples were collected in pre-cleaned and nitric acid pre-preserved 500-milliliter plastic bottles and then stored at 4 degrees Celsius until submitted to the U.S. EPA regional laboratory for metals analysis.

3.2 XRF Analysis Procedures

During the field assessment phase, a total of 1,320 soil samples (including field and preparation duplicate samples) were analyzed using three separate Innov-X field portable XRF units. Including analysis duplicates a total of 1,427 analyses were completed. Sample analysis and QA/QC procedures with the XRF units were performed in accordance with the manufacturer guidance, U.S. EPA SW-846 Method 6200, and the project SAP (E & E 2012).

Before operation of the XRF each day, the utilized XRF units were allowed the manufacturer-recommended warm up time of 25-30 minutes. The XRF units were then subjected to an initial calibration that included energy calibration and resolution check prior to analysis and at least once during sample analysis. A calibration check with a National Institute of Standards and Technology (NIST)-certified standard reference material (SRM) and a site-specific analysis standard was then performed prior to sample analysis. The site-specific analysis standard used as the daily XRF calibration check standard was obtained from soils collected from the site in early 2012.

A blank source control standard was analyzed to determine instrument performance and referenced as BLANK when analyzed. In addition to instrument performance checks, sand blank samples were prepared and analyzed by XRF daily to monitor for cross-contamination. Sand blank samples were ground with a mortar and pestle and then prepared by following the same preparation method and using the same sample preparation equipment as for site soil samples.

One out of every 20 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. One out of every 20 samples was selected and analyzed twice in a row on the same XRF instrument (analysis duplicate). In addition, one out of every 20 samples was analyzed on a second XRF instrument.

The energy calibration and resolution check analysis, SRM sample analysis, blank source control sample analysis, and sand blank sample analysis used for XRF calibration, performance, and quality control are discussed under Section 4.1 (Field XRF Data Quality Control) of this report.

All XRF sample analyses were performed within a designated field laboratory with the XRF in the intrusive mode with a 180-second count time for measurement. Each sample was analyzed one time, and the corresponding arsenic and mercury concentrations were recorded in the site XRF logbook. Following XRF analysis each sample was evaluated based upon the arsenic and lead concentrations versus the site SSL and either prepared for laboratory analysis or archived.

3.3 Bioavailability Sample Preparation

For the supplemental bioavailability study, six samples were prepared from 12 of the composite samples that were collected from six residential properties. The criteria for selection of the samples used for the bioavailability composite samples included the following:

- The composited samples needed to be of a mass of 2 kilograms or more;
- The samples needed to have an arsenic concentration of greater than 300 mg/kg;
- The samples were collected from an occupied residential property; and
- The samples were collected from either the 0 to 2 inch bgs interval or the 2 to 6 inches bgs interval.

Information on the 12 samples selected for compositing is presented in Table 1.

Table 1 Sample Composites for Bioavailability Study Eureka Smelter Sites Removal Assessment				
Project No. EE-002693-2177			TDD No. TO2-09-12-04-0002	
Original Sample ID Number	Bioavailability Composite Sample ID Number	Parcel APN	XRF Lead Concentration (mg/kg)	XRF Arsenic Concentration (mg/kg)
107403-S01-2	107403-C	001-074-03	4,000	680
107403-S02-2				
111703-S01-2	111703-C	001-117-03	3,700	730
111703-S03-2				
113603-S01-2	113603-C	001-136-03	3,400	690
113603-S02-2				
113609-S01-2	113609-C	001-136-09	4,200	750
113609-S03-2				
115401-S01-2	115401-C	001-154-03	3,500	730
115401-S03-2				
116101-S01-2	116101-C	001-161-01	7,800	1700
116101-S02-2				
Notes: APN = Assessors Parcel Number mg/kg = milligrams per kilogram XRF = X-Ray Fluorescence				

4 Analytical Results

During this removal assessment, three surface water samples, 730 composite soil samples, and 432 discrete soil samples were collected from 108 residential and public land parcels, seven unpaved roadways, one road material stockpile, four miles of creek bed and 5,000 acres of BLM land surrounding Eureka, and subjected to field XRF analysis. Since most property parcels were divided into multiple decision units, there were a total of 268 decision units. Sample location maps with results from field XRF analysis are presented in Appendix B. A compact disk with digital versions of contamination and iso-concentration maps that represent the detected arsenic and lead concentrations throughout Eureka are included under Appendix B. The field XRF analytical results are presented under Appendix C. The samples can be further divided as follows:

- A total of 710 composite samples and 229 discrete samples for a total of 939 unique soil samples were collected from property parcel locations in the town of Eureka.
- A total of 45 unique and discrete sediment samples and three unique and discrete surface water samples were collected from Eureka's creek bed.
- A total of 72 unique and discrete soil samples were collected from a 1-mile wide perimeter outside the town of Eureka.
- A total of eight unique composite samples and one stockpile composite sample were collected from unpaved roadways in the town of Eureka.
- A total of 54 unique discrete samples and 12 unique composite samples (from two residential properties in Diamond Valley) were collected from background locations.

Of the 1,131 total soil samples subjected to field XRF analysis, 254 were submitted to the U.S. EPA Region 9 Laboratory in Richmond, California for confirmation analysis of arsenic and lead concentrations by U.S. EPA Method 6010B. Of these, 44 randomly selected soil samples were also analyzed for 14 additional metals by U.S. EPA Region 9 Laboratory. Forty of the 254 soil samples were submitted to the laboratory based upon their elevated arsenic and lead concentrations identified during field XRF analysis for additional extraction using bio-accessibility extraction procedure U.S. EPA 9200.2-86 followed by analyses for total arsenic and lead concentration by U.S. EPA Method 6010B.

Three surface water samples and a duplicate water sample were submitted to U.S. EPA Region 9 Laboratory for analysis of arsenic and lead and 15 additional metals by U.S. EPA Method 6010B. Ten equipment rinsate blank samples, which were collected daily during soil sampling activity, were submitted to U.S. EPA Region 9 Laboratory for analysis of arsenic and lead concentrations by U.S. EPA Method 6010B. In addition, six specially prepared composite soil samples (Table 1) were submitted to the U.S. EPA National Exposure Research Laboratory in Research Triangle Park, North Carolina, for a bioavailability study (i.e., an oral bioavailability of arsenic and lead in mice). The analytical data for this bioavailability study was not completed by the laboratory at the time of this reporting.

A complete summary of the laboratory analytical data is provided under Appendix D. The laboratory data validation reports are provided under Appendix E.

4.1 Analytical Data QA/QC

During this removal assessment, efforts were made to ensure that the quality of all data generated through field XRF and laboratory analyses met the appropriate U.S. EPA-established data criteria. A discussion of the field XRF and laboratory analysis data QA/QC efforts is provided below.

4.1.1 QA/QC of Field XRF Data

To provide QA/QC during the field analytical effort, U.S. EPA SW-846 Method 6200 was adhered to during XRF sample analysis. Each sample was homogenized, dried, sieved and placed into appropriate XRF analysis containers. Two types of duplicates were handled during the preparation: field duplicates and preparation duplicates. Field duplicates were splits of the original sample that were dried and sieved separately. The resultant sample had a unique sample identification number. Preparation duplicates were splits of dried and sieved samples separated into two XRF samples. The preparation duplicate sample pairs shared a single sample identification number. Each generated processed sample was assigned an analysis identification number and was analyzed as an independent sample.

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 in which the instrument detected that the characteristic x-ray lines were shifting. To check the accuracy and document the precision of the each of the XRF instruments used and to assess the stability and consistency of analyses for the analytes of concern (arsenic and lead), a site-specific SRM and a NIST SRM-2702 sample were analyzed at the beginning and end of each work day. The site-specific SRM was additionally analyzed after each set of 10 site samples. Instrument blank samples were also analyzed at the beginning and end of each work day and after every 10th sample.

The average measured concentrations of arsenic and lead for the NIST SRM sample analyzed during this assessment were within 10 percent of the NIST low-level SRM documented concentration and considered acceptable for QA/QC purposes. The average measured concentrations of arsenic and lead for the site-specific SRM sample analyzed during this assessment were within 10 percent for lead and 35 percent for arsenic when compared to laboratory analysis concentrations and considered acceptable for QA/QC purposes.

Two types of blank samples were analyzed to provide QC for XRF analysis: instrument blanks and method blanks:

- An instrument blank sample was used to verify that no contamination existed on the probe window during XRF analysis. The instrument blank sample was analyzed at the beginning of each day, after each set of 10 site samples, and at the end of each work day. No arsenic or lead concentrations above the method detection limits were found during instrument blank sample analyses.
- Method blank samples were used to monitor for sample preparation-induced contaminants or interferences. Method blank samples were obtained from “clean” silica sand. Each method blank sample was prepared by following the same preparation procedure and equipment as the site soil samples. Method blank samples were analyzed

after each set day. No arsenic or lead concentrations above the method detection limits were found during method blank sample analyses.

A detection limit study was conducted using the low concentration site-specific SRM to determine the reliable method detection limits of each utilized XRF instrument. The study was performed by analyzing the site-specific SRM seven separate times with the XRF and calculating the average. The calculated XRF method detection limit for both arsenic and lead was determined to be 10 mg/kg. The precision of the XRF analyses was also documented using duplicate analyses. Acceptable precision with duplicates analyses was documented on all three XRF instruments used. The analysis precision between two instruments was also documented and found acceptable. A summary of the field XRF QA/QC data is presented under Appendix F.

4.1.2 QA/QC of Laboratory Data

A total of 254 soil samples, including field duplicates, and three surface water samples with a surface water duplicate were analyzed by the U.S. EPA Region 9 Laboratory for arsenic and lead by USEPA Method 6010B Inductively Coupled Plasma-Atomic Emission Spectrometry. Additionally 10 daily equipment rinsate blanks were analyzed by the U.S. EPA Region 9 Laboratory for arsenic and lead by USEPA Method 6010B. The data validation and laboratory analysis summary reports are provided under Appendix E. Forty-four of the 253 samples also were analyzed using U.S. EPA Method 6010B to determine the concentration of 14 additional metals. An additional four water samples were also analyzed for arsenic, lead, and 15 additional metals. Forty of the 254 samples were extracted using a bio-accessibility extraction procedure followed by analyses for total arsenic and lead concentration by U.S. EPA Method 6010B.

To provide QA/QC of the laboratory-generated data, 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, October 2004). All data were found to be acceptable for use as definitive data. Arsenic and lead concentrations were not detected above the laboratory reporting limits within any of the daily equipment rinsate blanks and were considered acceptable for QA/QC purposes.

4.2 XRF and Laboratory Data Correlation

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

4.2.1 Arsenic Data Correlation

Linear regression analysis between field XRF and laboratory results for arsenic from 253 of the 254 soil samples submitted to the laboratory generated a final coefficient of determination (R^2) value of 0.9681 and slope value of 1.154. The concentration results from one sample with an

4. Analytical Results

extremely high concentration of arsenic were considered an outlier and were not used in the comparison. Based on the strong positive correlation of 0.9681 between XRF and laboratory results, the XRF data generated for arsenic concentrations during this assessment exceed the U.S. EPA criteria for use as screening level data ($R^2=0.7$). Based upon the calculated slope of 1.154, 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. Linear regression analysis between field XRF and laboratory results for arsenic concentrations around the SSL of 60 mg/kg indicate that the correlation remains acceptable for use as screening level data ($R^2=0.7737$), but the slope increased to 1.2722. Such a slope suggests that to eliminate decision error, an action level of 60 mg/kg would need to be adjusted to 47 mg/kg if XRF arsenic data were used for final decision-making. The field XRF and laboratory analysis data correlation summary is provided under Appendix G.

4.2.2 Lead Data Correlation

Linear regression analysis between field XRF and laboratory results for lead from 254 soil samples submitted to the laboratory generated a final R^2 value of 0.9908 and slope value of 1.0798. Based on the strong positive correlation of 0.9908 between XRF and laboratory results, the XRF data generated for lead concentrations during this assessment exceed the U.S. EPA criteria for use as screening level data ($R^2=0.7$). Based upon the calculated slope of 1.0798, 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. Linear regression analysis between field XRF and laboratory results for lead concentrations around the SSL of 400 mg/kg indicate that the correlation remains acceptable ($R^2=0.9454$) with a slope of 0.9885, which suggest that the SSL value of 400 mg/kg for XRF lead data is appropriate. The field XRF and laboratory analysis data correlation summary is provided under Appendix G.

4.3 Discussion of Results

Data collected during this removal assessment were evaluated to determine if surface and shallow subsurface soils in Eureka contain arsenic and lead at concentrations that exceed the U.S. EPA site-specific SSLs of 60 mg/kg for arsenic and 400 mg/kg for lead (U.S. EPA, 2012a). The collected surface and shallow surface soil concentration data were also compared to values of 10-times the SSL for arsenic (600 mg/kg) and 7.5-times the SSL for lead (3,000 mg/kg). For convenience, the two elevated comparison values will be referred to as the elevated site-specific Soil Screening Level (ESSL). **It should be noted that both the SSLs and ESSLs for arsenic and lead are preliminary goals and do not necessarily constitute levels that would drive cleanup actions.**

Data for surface water samples collected during this removal assessment were compared to the U.S. EPA site-specific SSLs of 10 micrograms per liter (ug/L) for arsenic and 15 ug/L for lead (U.S. EPA, 2012a).

4.3.1 Eureka School District Property Results

A total of 92 composite soil samples and 24 discrete soil samples were collected from nine Eureka School District properties at 55 decision units and subjected to XRF analysis. Eureka School District properties with residential use are discussed in Section 4.3.2. Of the 116

4. Analytical Results

analyzed soil samples, 48 samples exceeded the SSL for either arsenic and/or lead. Only three samples had concentrations that were above the ESSL for either arsenic and/or lead.

From 46 of the 55 decision units, 46 composite surface soil samples were collected at 0 to 2 inches bgs, 46 composite shallow subsurface soil samples were collected at 2 to 6 inches bgs, and no shallow subsurface soil samples were collected at 6 to 12 inches bgs. From 9 of the 55 decision units, nine discrete surface soil samples were collected at 0 to 2 inches bgs, nine discrete shallow subsurface soil samples were collected at 2 to 6 inches bgs, and six discrete subsurface soil samples were collected at 6 to 12 inches bgs.

No contamination exceeding the SSLs was found at the property parcel where the Elementary School building is situated. Only one area at the Eureka School District Athletic Complex was found to exceed the SSLs. However, five areas on the High School facility had contamination that exceeded the SSLs.

Additionally, the SSL was exceeded in 17 of the 18 samples collected from the undeveloped area of School District property north of the High School facility. There were two samples from that undeveloped area that also exceeded the ESSLs. All the samples from the Eureka County School District property where propane storage tanks are situated were above the arsenic SSL. The data for the Eureka County School District properties is presented in Table 2 in Appendix C. The data is graphically presented in Figure 6-1 through 6-8 in Appendix B.

In general, the majority of samples collected at the Elementary School facility and Eureka School District Athletic Complex were below the SSLs. These properties were both developed fairly recently, and it is believed that a significant amount of cut and fill activities were conducted, explaining the fact that most sample results were below the SSLs. On developed portions of the High School property, the majority of the samples were just above the SSL for arsenic, but few samples were above the SSL for lead. At the former school property, sample results for the playground and play fields west of the building were generally below SSLs for the surface area but just above the SSL for soil between 2 and 6 inches bgs in two areas, whereas locations in the areas to the north and south of the building and in the grassy areas to the east of the building significantly exceeded the SSLs.

4.3.2 Town of Eureka Residential and Public Property Results

A total of 609 unique composite soil samples and 205 unique discrete soil samples were collected from private and public properties and subjected to XRF analysis; a total of 96 Eureka parcels and two sub-divided parcels, consisting of 275 decision units, were sampled. Approximately 70 percent of the 814 analyzed unique soil samples exceeded the SSL for either arsenic or lead. Only 14 of the 98 sampled private and public properties from the town of Eureka have areas or samples that did not exceed the SSLs for either arsenic or lead. There were 149 samples on 31 sampled parcel properties that exceeded the ESSL for either arsenic or lead. Eighteen of the 31 parcels that exceeded ESSL were residential properties with some type of residential structure present.

From 205 of the 275 decision units, 205 composite surface soil samples were collected at 0 to 2 inches bgs, 204 composite shallow subsurface soil samples were collected at 2 to 6 inches bgs, and 200 composite shallow subsurface soil samples were collected at 6 to 12 inches bgs. From

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70 of the 275 decision units, 70 discrete surface soil samples were collected at 0 to 2 inches bgs, 63 discrete shallow subsurface soil samples were collected at 2 to 6 inches bgs, and 62 discrete subsurface soil samples were collected at 6 to 12 inches bgs.

The sampled property locations with lead and arsenic concentration data are graphically presented in Appendix H, Figures 12, 13, 14 and 15. The data for each decision area and sample location on each property is presented in figures located in Appendix B, Figure 7. The data for each property parcel is presented in tables in Appendix C. The table data in Appendix C also include the square footage of each decision unit and an estimate of the cubic yards of soil above the SSL for each decision unit.

In general, the majority of residential properties in established town areas had significant concentrations of both arsenic and lead. The median lead concentration was 990 mg/kg, the mean lead concentration was 1,880 mg/kg, and the estimated average lead concentration using a 95 percent Upper Confidence Limit (95%UCL) was calculated to be 2,476 mg/kg. The median arsenic concentration was 150 mg/kg, the mean arsenic concentration was 327 mg/kg, and the estimated average arsenic concentration using 95%UCL was calculated to be 457 mg/kg.

In contrast, lead and arsenic data from the newer Eureka residential developments (properties north of Archimedes along Sheridan Street and Ridgetop Road at the north end of town) were generally below SSLs for most of the samples. The median lead concentration was 69 mg/kg, the mean lead concentration was 86 mg/kg, and the estimated average lead concentration using a 95%UCL was calculated to be 93 mg/kg. The median arsenic concentration was 28 mg/kg, the mean arsenic concentration was 32 mg/kg, and the estimated average arsenic concentration using 95%UCL was calculated to be 34 mg/kg. The significant difference between the established residential areas and the new residential developments is likely indicative of cut and fill activities that occurred during construction of these newer properties.

The sampling data maps and estimated iso-concentration maps of lead and arsenic in Appendix B show actual and estimated areas of lead and arsenic concentrations in soil above background levels. Concentrations of lead and arsenic above the SSL appears throughout the town on undeveloped and established properties, with newly developed properties significantly less contaminated. Areas downwind of and near historical smelter operations and around slag piles appear to have significantly higher lead and arsenic concentrations than other town areas. The sample populations (in percent) based on level of contamination are:

	Lead	Arsenic
Percentage of samples collected from parcels that are more than 10 times the SSL (600 mg/kg for arsenic or 3,000 mg/kg for lead).	10.3 %	7.6 %
Percentage of samples collected from parcels that are between the SSL and 10 times the SSL.	49.3 %	57.1 %
Percentage of samples collected from parcels that are less than SSL.	40.4 %	35.3 %

4.3.3 Unnamed Creek Results

A total of 45 unique discrete location sediment samples were collected from 15 decision units along the unnamed creek that runs south to north through Eureka. Each location was sampled at three depth intervals. A total of 15 discrete surface sediment samples were collected at the 0 to 2 inch bgs interval, 15 discrete shallow subsurface sediment samples were collected from the 2 to 6 inch bgs interval, and 15 discrete subsurface sediment samples were collected at the 6 to 12 inch bgs interval.

Elevated concentrations of both arsenic and lead were found nearby and downgradient of the two CSPs located at each end of the town. The lead concentrations in downgradient sediments ranged from 290 mg/kg to 3,300 mg/kg. The arsenic concentrations in downstream sediment ranged from 44 mg/kg to 540 mg/kg. By contrast, the upgradient sediment ranged from 25 mg/kg to 81 mg/kg for lead and 13 mg/kg to 1,100 mg/kg for arsenic.

In general, arsenic and lead concentrations upgradient of both CSPs were significantly lower than concentrations downgradient. Average downgradient arsenic and lead concentrations were 300 to 400 percent higher than upgradient concentrations.

Three discrete surface water samples were also collected from three decision units along the unnamed creek. The lead concentrations in the surface water samples ranged from 4.6 ug/L to 260 ug/L. The arsenic concentration in surface water samples ranged from 100 ug/L to 210 ug/L. All three surface water samples collected from the creek exceeded the 10 ug/L SSL for arsenic, and one sample collected from the creek also exceeded the 15 ug/L SSL for lead. The analytical data and graphic representation for both water and sediment samples are presented in Appendix C, Table 4 and Appendix B, Figures 8.

4.3.4 Air Dispersion Results

A total of 72 unique soil samples were collected from 36 locations on undeveloped property around the perimeter of the town to evaluate the distribution of lead and arsenic concentrations expected to be a result of air dispersion deposition. Each location was sampled at two depth intervals. The air dispersion sampling area was sampled as a single decision unit with 36 discrete surface soil samples collected at the 0 to 2 inch bgs interval and 36 discrete shallow subsurface soil samples collected from the 2 to 6 inch bgs interval. The analytical data and graphic representation for the analyzed samples are presented in Appendix C, Table 5 and Appendix B, Figure 9.

Elevated concentrations of lead or arsenic above the SSL were found at 25 of the 36 sampled locations. Elevated concentrations of lead or arsenic above ESSL were found at 5 of the 36 sampled locations. The lead concentrations at all sample locations showed significantly greater lead concentrations for the samples collected from the 0 to 2 inch interval compared with samples collected from the 2 to 6 inch interval. The average lead concentration at the 0 to 2 inch interval ranged from two to three times the average lead concentration of the 2 to 6 inch interval.

The arsenic concentrations at sample locations that were also significantly greater than the arsenic SSL showed significantly greater arsenic concentrations for the samples collected from the 0 to 2 inch interval compared with samples collected from the 2 to 6 inch interval. The

4. Analytical Results

average arsenic concentrations at the 0 to 2 inch interval in these locations were two times the average arsenic concentration of the 2 to 6 inch interval.

The lead concentrations in shallow soil ranged from 65 mg/kg to 15,500 mg/kg. The arsenic concentrations in shallow soil ranged from 12 mg/kg to 13,150 mg/kg. By contrast, the underlying soil ranged from 24 mg/kg to 5,500 mg/kg for lead and 13 mg/kg to 1,100 mg/kg for arsenic. The distribution of sampling locations with elevated lead and arsenic concentrations is significantly greater to the north and northeast of historical lead ore processing operations. Likewise, the distribution of elevated lead and arsenic concentrations is significantly greater at sampling locations that are closest to the historical lead ore processing locations.

The distribution of elevated lead and arsenic concentrations, the relatively higher surface contaminant concentrations over sub-surface concentrations, and the predominant wind direction suggests that aerial deposition, likely from historical smelting operations, is the source of the documented contamination for this study area.

4.3.5 Unpaved Roadway Results

A total of nine composite samples of roadway materials were collected from unpaved public roads within the town. One of the samples was from a roadway material stockpile. All samples were from the 0 to 2 inch bgs interval. Two of the nine locations had arsenic or lead concentrations that exceeded the SSL. The lead concentrations ranged from 32 mg/kg to 410 mg/kg and the arsenic concentrations ranged from 17 mg/kg to 80 mg/kg. The analytical data and graphic representation for analyzed samples are presented in Appendix C, Table 6 and Appendix B, Figure 10.

In general, the unpaved roadways were significantly less contaminated with lead and arsenic than the typical soil in the area. Roadbed materials are likely sourced from locations not in the immediate area.

4.3.6 Background Results

A total of 54 unique soil samples were collected from three areas on undeveloped property at locations greater than 3 miles south and north of the perimeter of the town. Each area had six discrete sampling locations that were sampled at three depth intervals. The analytical data and graphic representation is presented in Appendix C, Table 7 and Appendix B, Figure 11. All samples had lead concentrations well below the SSL for lead. One sample location had arsenic concentrations above the SSL for each interval. All other samples had arsenic concentration below the SSL for arsenic.

A total of 12 composite soil samples were collected from two occupied residential properties in Diamond Valley at locations approximately 12 miles north of the perimeter of the town. Two samples at each of three depth intervals were collected at each property. The analytical data and graphic representation are also presented in Appendix C, Table 3 and Appendix B, Figure 6. All samples had lead and arsenic concentrations well below the SSLs.

The background lead concentrations ranged from 20 mg/kg to 246 mg/kg for the 0 to 2 inch bgs interval, 21 mg/kg to 136 mg/kg for the 2 to 6 inch bgs interval, and 12 mg/kg to 61 mg/kg for the 6 to 12 inch bgs interval. The arsenic concentrations ranged from non-detection to 120

mg/kg for the 0 to 2 inch bgs interval, non-detection to 89 mg/kg for the 2 to 6 inch bgs interval, and non-detection to 85 mg/kg for the 6 to 12 inch bgs interval.

From the background data, the average concentration for discrete samples was calculated to be 52 mg/kg for lead and 19 mg/kg for arsenic. The background concentrations based upon composite samples from the Diamond Valley properties was calculated as 27.5 mg/kg for lead and 12 mg/kg for arsenic. The median lead concentration for all background samples was 37 mg/kg, the mean lead concentration was 47 mg/kg, and the estimated average lead concentration using the 95%UCL was calculated to be 52 mg/kg. The median arsenic concentration for all background samples was 14 mg/kg, the mean arsenic concentration was 25 mg/kg, and the estimated average arsenic concentration using 95%UCL was calculated to be 38 mg/kg.

4.3.7 Bio-accessibility Study Results

In order to estimate the bioavailability percentage of lead and arsenic in soil samples collected from Eureka, a cross-section of 43 soil samples were selected and analyzed using bio-accessibility extraction procedure U.S. EPA 9200.2-86. Of the selected 43 soil samples, 65 percent were from residential properties, 26 percent were from vacant or undeveloped properties, seven percent were from commercial properties, and two percent from the northern CSP. These samples had initial arsenic concentrations that ranged from 58 mg/kg to 21,000 mg/kg and initial lead concentrations that ranged from 120 mg/kg to 27,000 mg/kg.

The average bio-accessibility value for lead for all samples was approximately 75 percent, and the average bio-accessibility value for residential properties only was also approximately 75 percent. The average bio-accessibility value for arsenic was approximately 40 percent and the average bio-accessibility value for residential properties only was also approximately 40 percent. The default bioavailability assumption for lead and arsenic in soil used by the U.S. EPA for risk assessment calculations is 60 percent. The analytical data table is presented in Appendix C, Table 8.

4.3.8 Metals Survey

The data for selected samples that were analyzed for antimony, barium, beryllium, cadmium, chromium, cobalt, copper, molybdenum, nickel, selenium, silver, thallium, vanadium and zinc to supplement the lead and arsenic data are presented in Appendix C, Table 9. The lead and arsenic concentration ranges for the selected samples was 43 mg/kg to 12,000 mg/kg for lead and 23 mg/kg to 2,400 mg/kg for arsenic. The concentration range for each determined metal is as follows:

- Antimony concentrations ranged from less than 2 mg/kg to 180 mg/kg; the residential RSL for antimony is 31 mg/kg.
- Barium concentrations ranged from 99 mg/kg to 680 mg/kg; the residential RSL for barium is 1,500 mg/kg.
- Beryllium concentrations ranged from 0.67 mg/kg to 1.4 mg/kg; the residential RSL for beryllium is 160 mg/kg.
- Cadmium concentrations ranged from 0.54 mg/kg to 76 mg/kg; the residential RSL for cadmium is 70 mg/kg.
- Chromium concentrations ranged from 5.9 mg/kg to 17 mg/kg; the residential RSL for chromium is 38 mg/kg.

4. Analytical Results

- Cobalt concentrations ranged from 2.2 mg/kg to 6.7 mg/kg; the residential RSL for cobalt is 23 mg/kg.
- Copper concentrations ranged from 9.8 mg/kg to 190 mg/kg; the residential RSL for copper is 3,100 mg/kg.
- Molybdenum concentrations ranged from less than 2.5 mg/kg to 280 mg/kg; the residential RSL for molybdenum is 390 mg/kg.
- Nickel concentrations ranged from 5.2 mg/kg to 14 mg/kg; the residential RSL for nickel is 1,500 mg/kg.
- Selenium concentrations ranged from less than 2.0 mg/kg to 2.4 mg/kg; the residential RSL for selenium is 390 mg/kg.
- Silver concentrations ranged from less than 0.5 mg/kg to 26 mg/kg; the residential RSL for silver is 390 mg/kg.
- Thallium concentrations ranged from less than 2.5 mg/kg to tentative estimated concentration of 2.9J mg/kg; the residential RSL for thallium is 1.0 mg/kg
- Vanadium concentrations ranged from 19 mg/kg to 87 mg/kg; the residential RSL for vanadium is 390 mg/kg.
- Zinc concentrations ranged from 64 mg/kg to 2,000 mg/kg; the residential RSL for zinc is 23,000 mg/kg.

The following general conclusions can be made from a review of the survey data.

- Antimony was at concentrations above the U.S. EPA residential RSL in 10 of the 44 samples.
- Samples that exceeded the ESSL for either arsenic or lead, also exceeded the U.S. EPA residential RSL for antimony.
- The antimony concentration in background soil samples had a mean concentration of 10 mg/kg.
- Other than thallium and arsenic, metal concentrations in background samples were well below the U.S. EPA residential RSLs.
- Cadmium was at concentrations above the U.S. EPA residential RSL in 1 of the 44 samples.
- No sample was above the U.S. EPA non-residential RSL for antimony or cadmium.
- Thallium in soil typically has a method detection limit that is above the U.S. EPA residential RSL. The method detection limit at U.S. EPA regional laboratory was 2.5 mg/kg with a laboratory quantitation limit of 5.0 mg/kg, both values of which are also above the U.S. EPA residential RSL of 1.0 mg/kg. No sample result were reported that were above the laboratory's quantitation limit.

All other metals, other than arsenic and lead, were at concentrations below the U.S. EPA residential RSLs. All samples with antimony or cadmium concentrations above the U.S. EPA residential RSL also had lead and arsenic at concentrations significantly above the RSLs.

4.3.9 Bioavailability Study

The conclusions from the bioavailability study of six prepared composite soil samples that were submitted to the U.S. EPA National Exposure Research Laboratory (NERL) in Research Triangle Park, North Carolina, for an oral bioavailability study of arsenic and lead in mice will not be available until late March 2013. As part of the bioavailability in mice study, the soil samples will be extracted at NERL by EPA Method 3051A and analyzed by EPA Method 6020 Inductively Coupled Plasma-Mass Spectrometry. Additionally, each soil sample was analyzed by Instrumental Neutron Activation Analysis (INAA) to determine the concentration of total arsenic in the samples. The resultant mouse tissues from each soil feeding assay will also be analyzed by INAA for arsenic and lead.

The soil was also in vitro extracted and analyzed for arsenic by NERL and will additionally undergo speciation analysis at Argonne National Laboratory in Chicago, Illinois.

4.3.10 Data Gaps

As shown in the Town of Eureka sampling data maps presented in Appendix B and Appendix H, only about 20 percent of the properties in the town were sampled. Since one of the principle mechanisms for the deposition of contamination is air dispersion, it is reasonable to assume that similar lead and arsenic concentrations above the SSLs would be found throughout the town. An estimation of the deposition of lead and arsenic based on interpolation of existing data is illustrated in two iso-concentration maps for the Town of Eureka presented in Appendix H (Figures 16 and 17).

Based upon the existing data and data interpolation, additional assessment of remaining properties appears to be the necessary in order to fully document the extent and magnitude of the arsenic and lead contamination.

5 Conclusions

From October 15 through October 26, 2012, the U.S. EPA and START conducted removal assessment sampling throughout Eureka, Nevada. A total of 1,131 unique samples were collected.

During and following the field work, the 1,131 unique field samples, 6 special composite samples, 121 field duplicates and 62 preparation duplicates were analyzed by XRF. A total of 283 soil samples were submitted to the U.S. EPA Region 9 Laboratory in Richmond, California, for confirmation analysis by U.S. EPA Method 6010B. Forty soil samples were additionally extracted using a bio-accessibility extraction procedure followed by analyses using U.S. EPA Method 6010B. Six specially prepared composite soil samples were submitted to the U.S. EPA NERL in Research Triangle Park, North Carolina, for a bioavailability and speciation study. The results of the NERL studies were not available at the time this report was written but will be provided in a future addendum to the report.

The data collected from this removal assessment will be used by the U.S. EPA Region 9 ERS to determine whether environmental hazards are present in Eureka that may pose an “imminent and substantial endangerment to human health or the environment.” As appropriate, the U.S. EPA will use this assessment data to evaluate the potential for a removal action at the site and identify alternatives to mitigate environmental hazards that meet endangerment criteria. Data collected during this removal assessment were evaluated to determine if surface and shallow subsurface soils in Eureka contain arsenic and lead at concentrations that exceed the U.S. EPA site-specific SSLs of 60 mg/kg for arsenic and 400 mg/kg for lead (U.S. EPA, 2012a). The collected surface and shallow surface soil concentration data were also compared to ESSLs, which were values 10 times the SSL for arsenic (600 mg/kg) and 7.5 times the SSL for lead (3,000 mg/kg). **It should be noted that both the SSLs and ESSLs for arsenic and lead are preliminary goals and do not necessarily constitute levels that would drive cleanup actions.**

In summary, a total of 92 of the 106 sampled residential and public properties contained soils with arsenic and/or lead concentrations that exceeded their respective U.S. EPA SSLs. A total of 18 residential occupied properties and portions of two Eureka County School District-owned properties contained soils with arsenic and/or lead concentrations above the ESSLs

The conclusions reached from the results of this removal assessment are provided below.

- The data collected during this removal assessment indicate that arsenic and lead concentrations exceed background and their respective U.S. EPA SSLs protective of human health in surface soils (0 to 6 inches) throughout much of the Town of Eureka.
- In general, the majority of sampled residential properties in established town areas had significant concentrations of both arsenic and lead above background. The mean lead concentration was 1,880 mg/kg, and the mean arsenic concentration was 327 mg/kg. In contrast, the mean lead concentration for all background samples was 47 mg/kg and the mean arsenic concentration for all background samples was 25 mg/kg.

5. Conclusion

- In general, the majority of samples collected at the Elementary School facility and Eureka School District Athletic Complex were below the U.S. EPA SSLs. These properties were both developed fairly recently, and it is believed that a significant amount of cut and fill activities were conducted, explaining the fact that most sample results were below the SSLs. The samples from High School facility generally just exceeded the SSL for arsenic, but few samples exceeded the SSL for lead. The higher concentrations of arsenic and lead that were found throughout much of the Town of Eureka were not present at the High School facility.
- Other Eureka County School District-owned properties had areas where the SSLs for both arsenic and lead were exceeded. Several properties contained soils with arsenic and/or lead concentrations above the ESSLs. These properties had arsenic and lead concentrations similar to sampled residential properties in established town areas.
- Elevated concentrations of both arsenic and lead in creek sediments were found nearby and downgradient of the two CSPs located at each end of the town. Arsenic and lead concentrations upgradient of both CSPs were significantly lower than background and concentrations downgradient. The average downgradient arsenic and lead concentrations were 300 to 400 percent higher than upgradient concentrations, which is likely attributable to the CSPs.
- In the undeveloped area surrounding the Town of Eureka, the lead and arsenic concentrations in shallow soils were significantly greater than the concentrations in the underlying soil. The distribution of elevated lead and arsenic concentrations were significantly greater to the north and northeast of historical lead ore processing operations and at locations closest to the historical lead ore processing locations. The distribution of elevated lead and arsenic concentrations, the relatively higher surface contaminant concentrations compared to subsurface concentrations, and the predominant wind direction suggest that aerial deposition, likely from historical smelting operations, is the source of the documented contamination for this study area.

6 Report References

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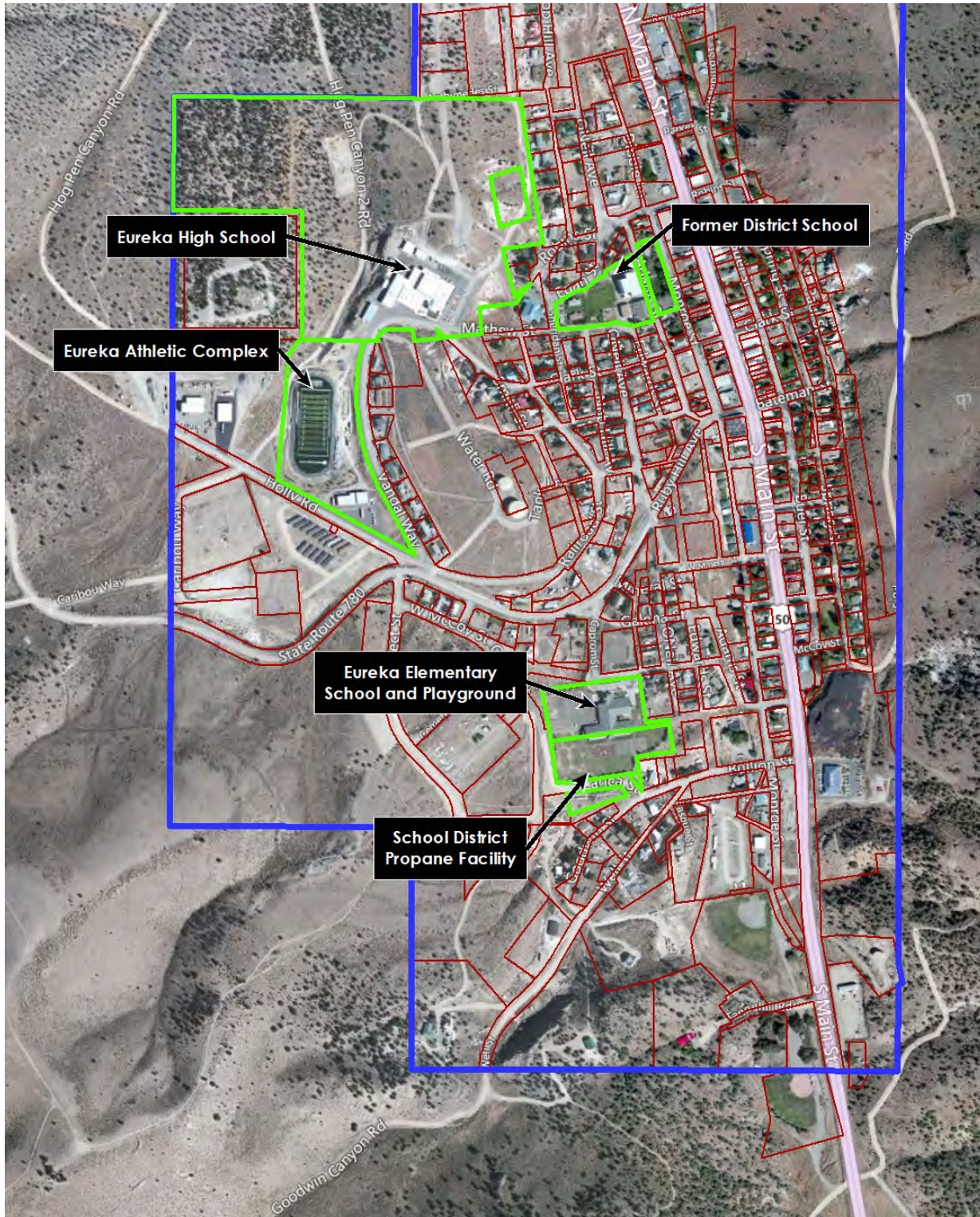
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Appendix A:
Photographic Documentation

Appendix B: **Figures**

Figures 6 (1 through 8)	Eureka School District Maps
Figures 7	Sampled Property Parcels
Figure 8	Creek Sampling Map
Figure 9	Air Dispersion Map
Figure 10	Roadway Sampling Map
Figure 11	Background Sampling Map
Figure 12	Town of Eureka Contamination Location Map (0 to 2 inches)
Figure 13	Town of Eureka Contamination Location Map (2 to 6 inches)
Figure 14	Town of Eureka Contamination Location Map (6 to 12 inches)
Figure 15	Town of Eureka Elevated Contamination Location Map
Figure 16	Town of Eureka Iso-Concentration Map for Arsenic
Figure 17	Town of Eureka Iso-Concentration Map for Lead



Legend

- Project Site
- Parcel Boundary
- Eureka County School District Property

0 500 1,000
Feet



Figure 6-1
Sampled Eureka School District
Property Over view Map
Eureka Smelters Sites
Eureka, Eureka County, Nevada

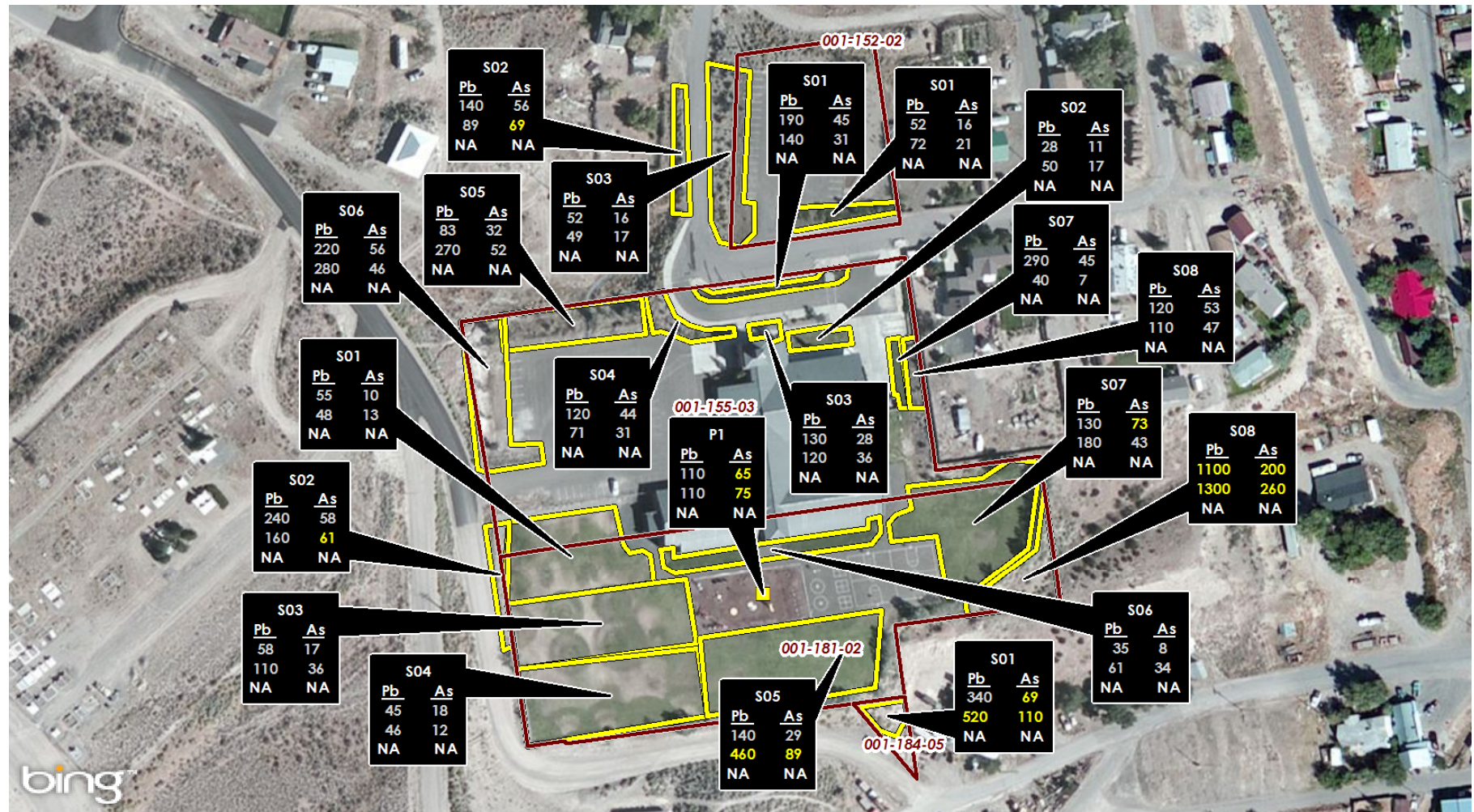
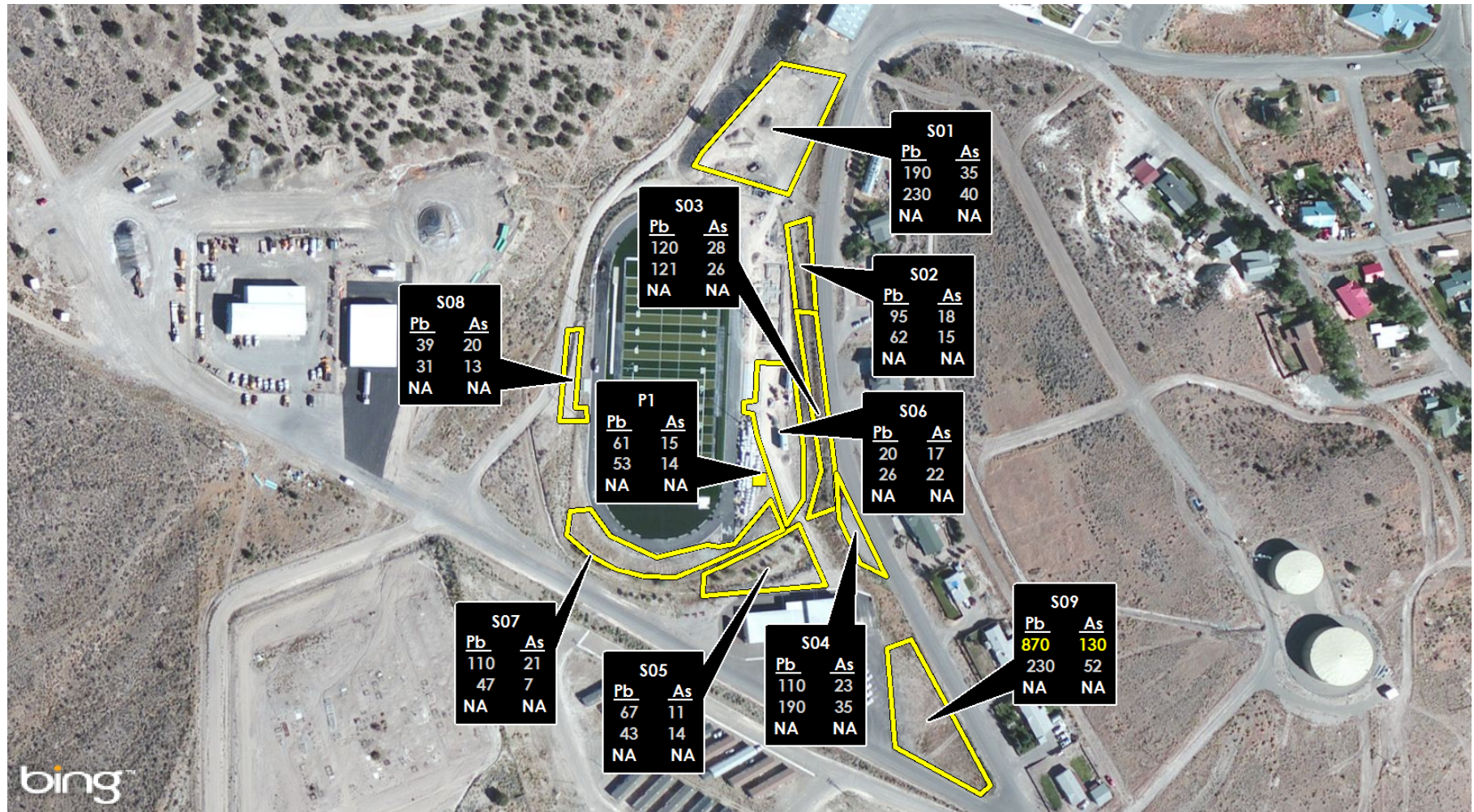


Figure 6-2

Parcel Property Sampling Locations
APN: 001-155-03, 001-181-02, 001-152-02, 001-184-05
431 W MCCOY STREET
Eureka Smelters Sites, Eureka County, Nevada



Legend

- Composite Sampling Area
- Discrete Sampling Location

"P" samples are point samples
 "S" samples are composite samples
 Pb: Lead Concentration
 As: Arsenic Concentration
 NA indicates that a sample was not collected

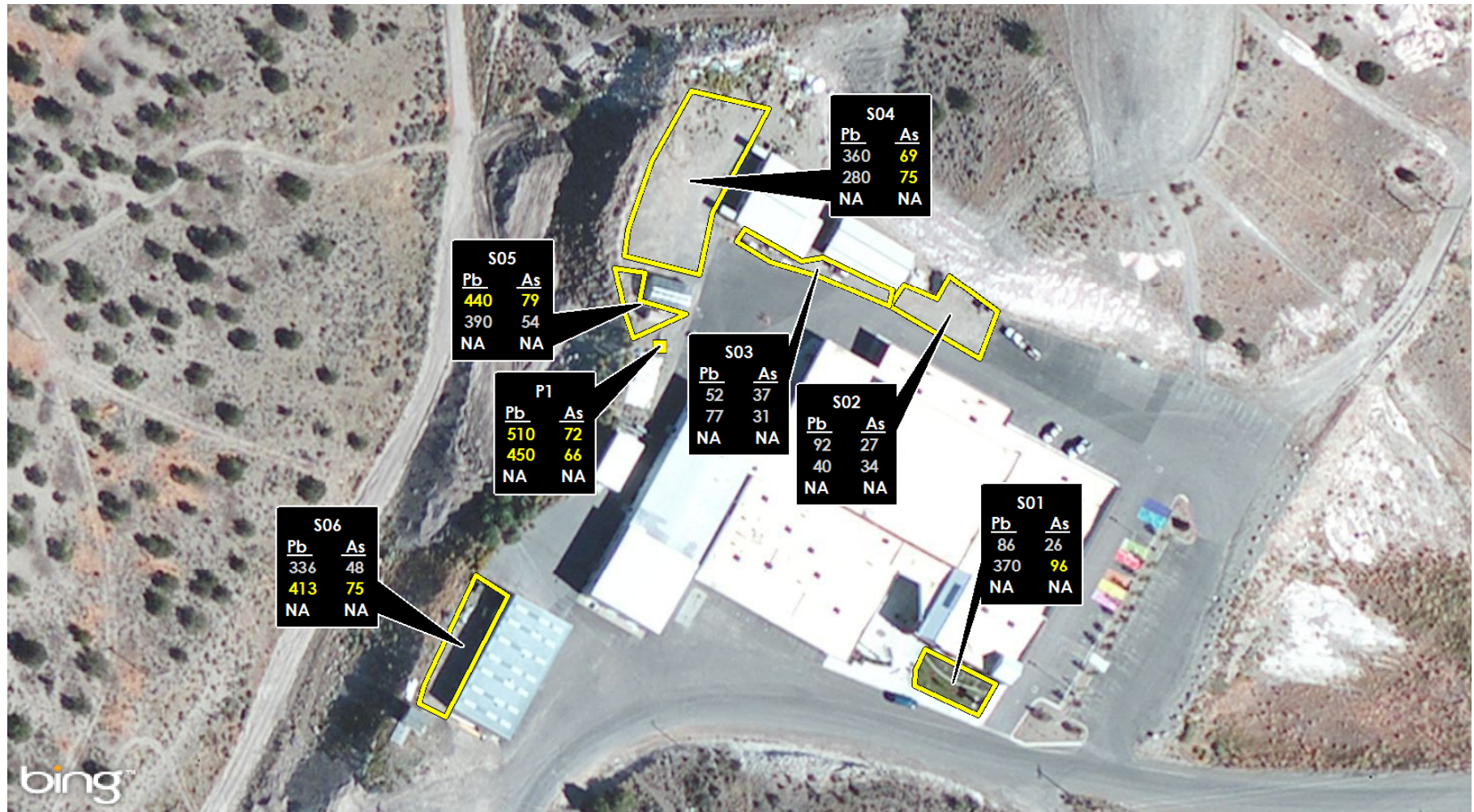
Label Key:

Pb	SAMPLE ID	As
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)



Legend

- Composite Sampling Area
- Discrete Sampling Location

"P" samples are point samples
 "S" samples are composite samples
 Pb: Lead Concentration
 As: Arsenic Concentration
 NA indicates that a sample was not collected

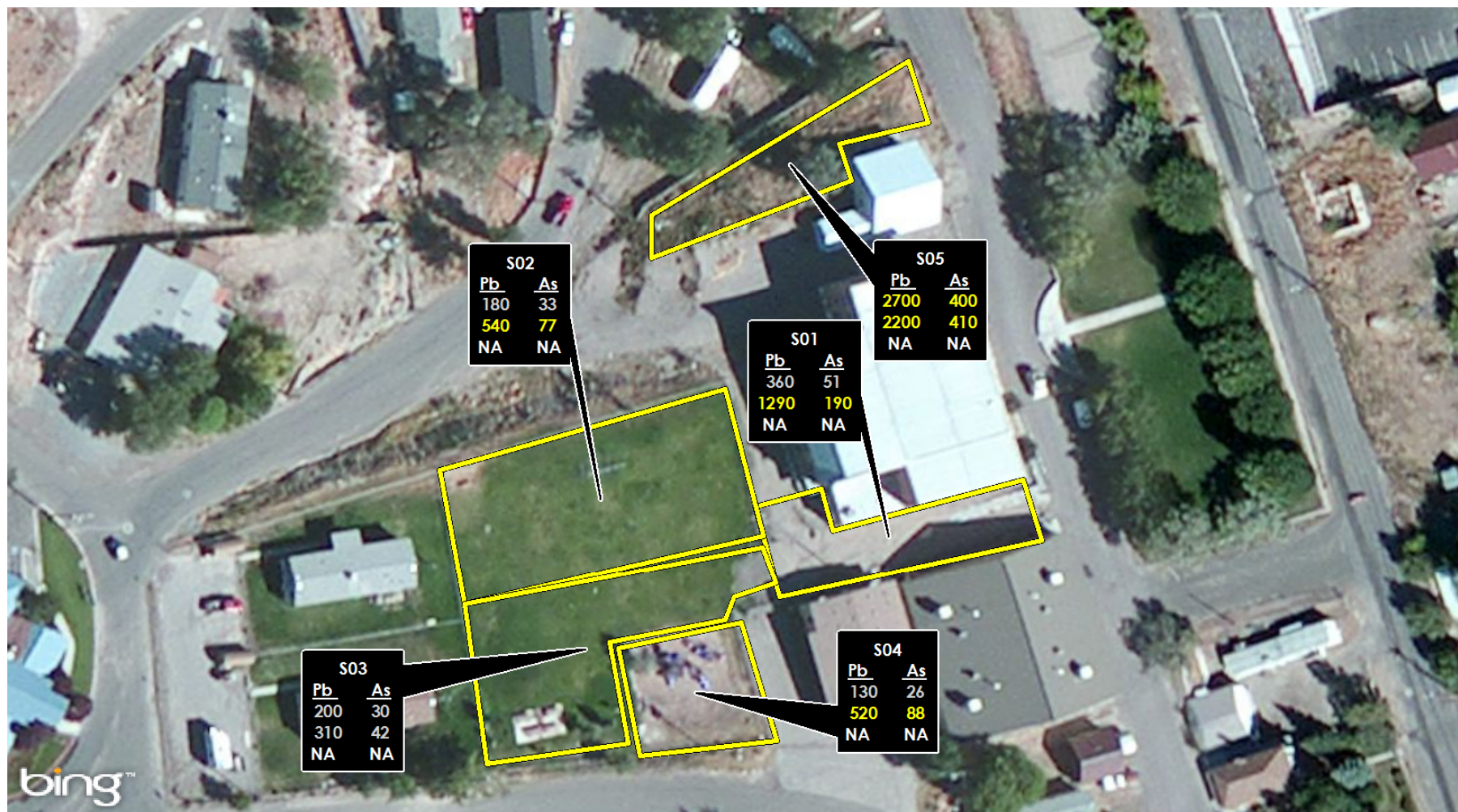
Label Key:

<u>Pb</u>	<u>SAMPLE ID</u>	<u>As</u>
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)



Legend

Composite Sampling Area

"P" samples are point samples
"S" samples are composite samples
Pb: Lead Concentration
As: Arsenic Concentration
NA indicates that a sample was not collected

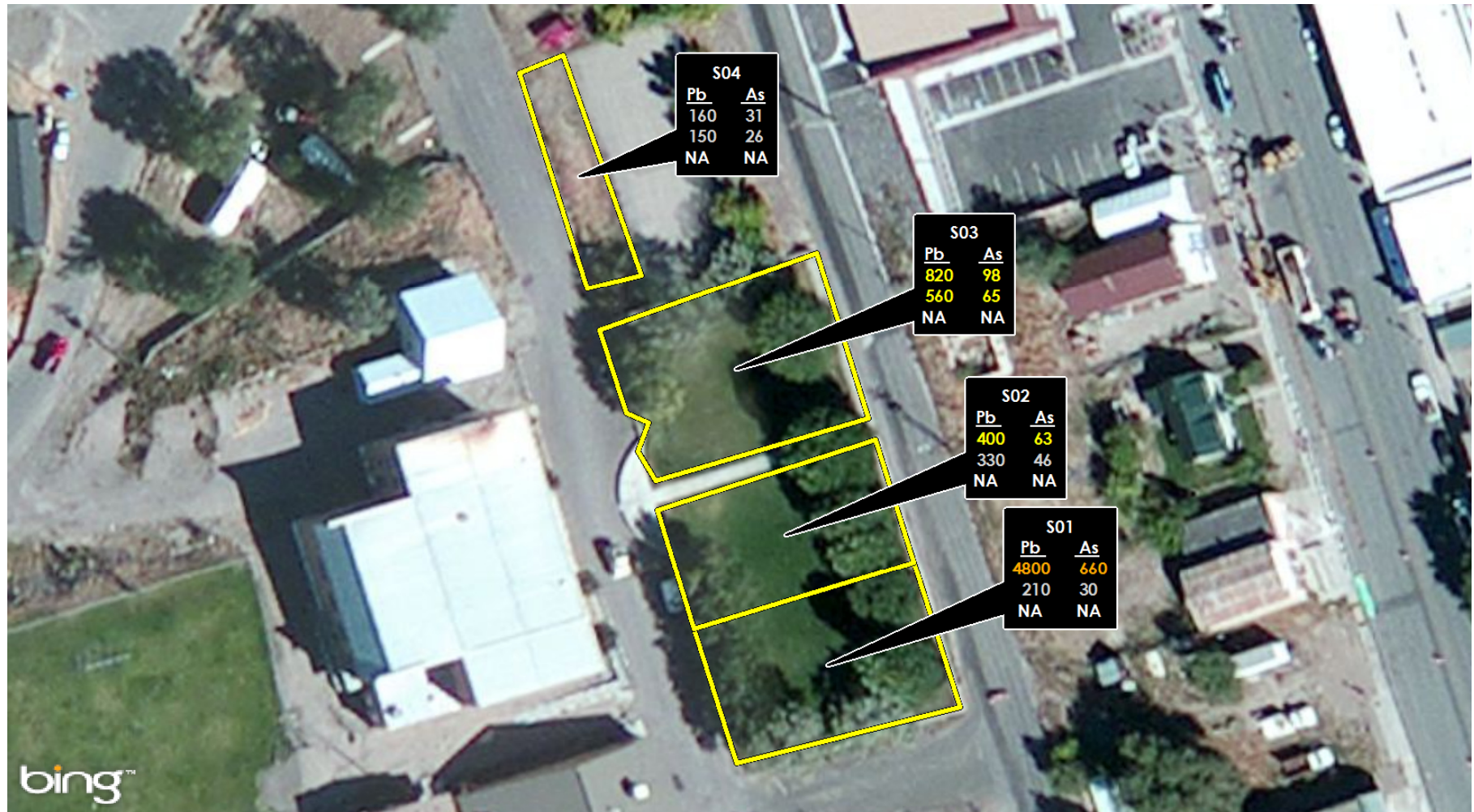
Label Key:

<u>Pb</u>	SAMPLE ID	<u>As</u>
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
>3,000 (mg/kg)	>600 (mg/kg)



Legend

Composite Sampling Area

"P" samples are point samples
"S" samples are composite samples
Pb: Lead Concentration
As: Arsenic Concentration
NA indicates that a sample was not collected

Label Key:

<u>Pb</u>	SAMPLE ID	<u>As</u>
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)



Legend

Composite Sampling Area

"P" samples are point samples
"S" samples are composite samples
Pb: Lead Concentration
As: Arsenic Concentration
NA indicates that a sample was not collected

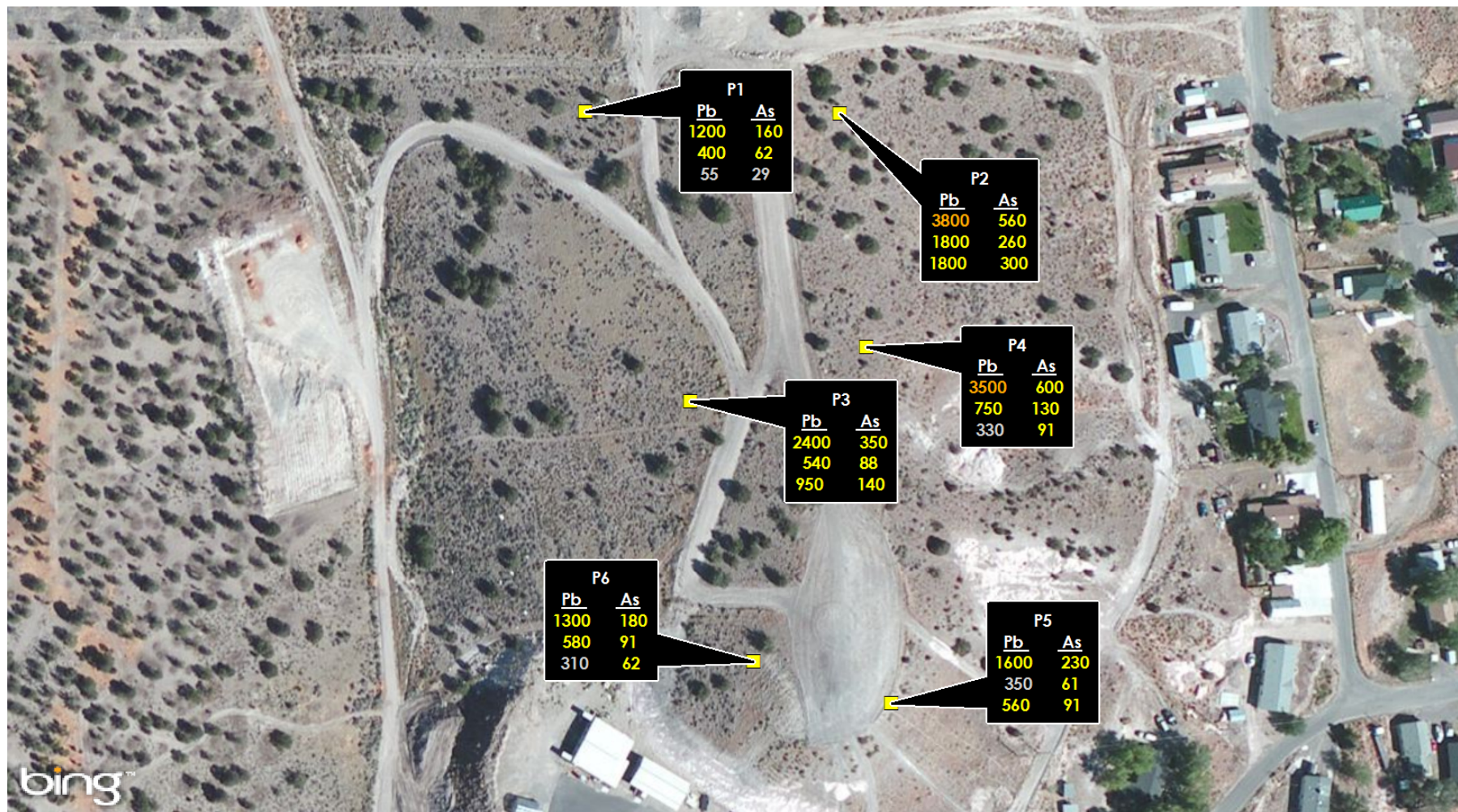
Label Key:

<u>Pb</u>	SAMPLE ID	<u>As</u>
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)



Legend

■ Discrete Sampling Location

"P" samples are point samples
"S" samples are composite samples
Pb: Lead Concentration
As: Arsenic Concentration
NA indicates that a sample was not collected

Label Key:

Pb	SAMPLE ID	As
# mg/kg, Sample taken at a depth of 0 - 2 inches		# mg/kg, Sample taken at a depth of 0 - 2 inches
# mg/kg, Sample taken at a depth of 2 - 6 inches		# mg/kg, Sample taken at a depth of 2 - 6 inches
# mg/kg, Sample taken at a depth of 6 - 12 inches		# mg/kg, Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
>3,000 (mg/kg)	>600 (mg/kg)

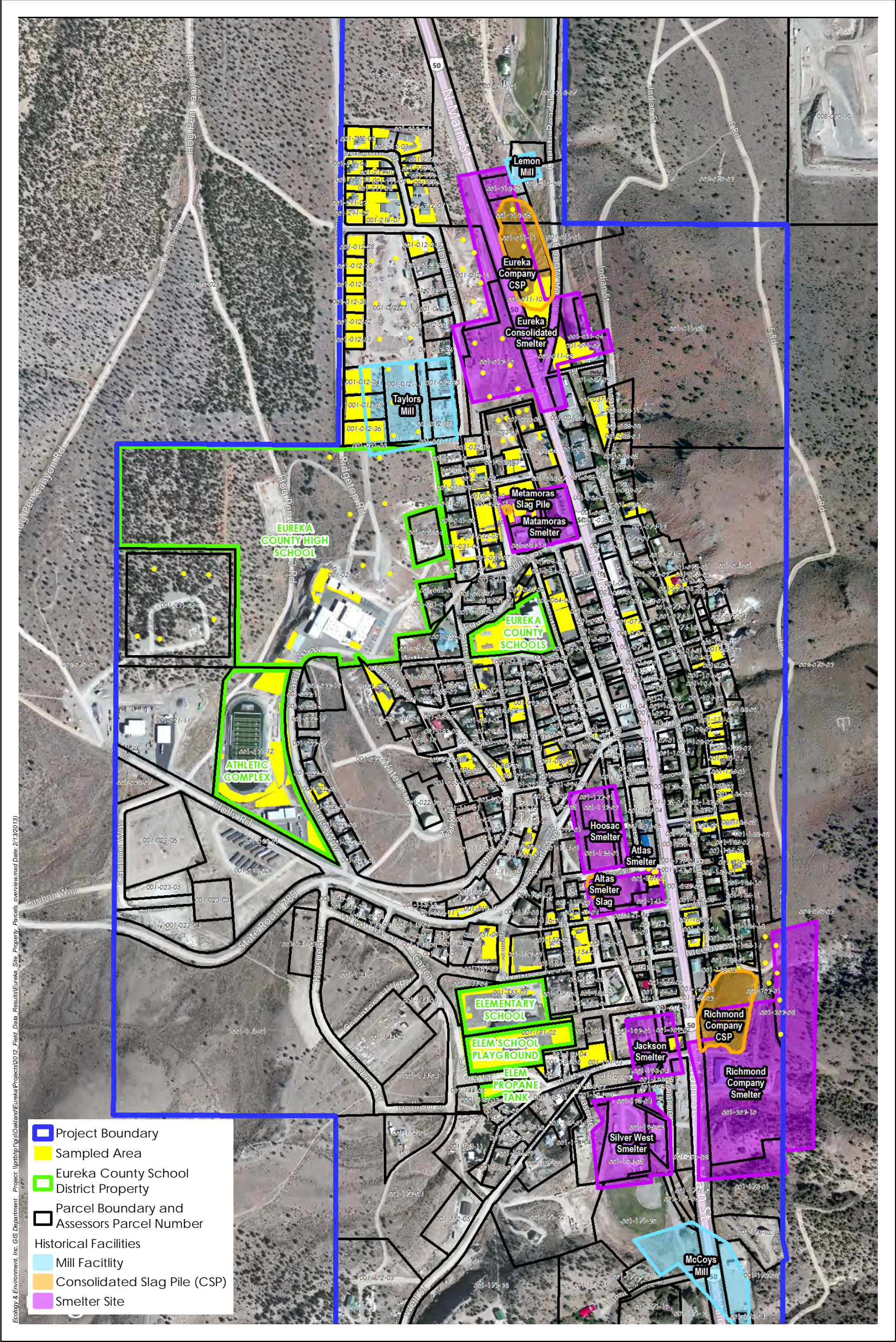
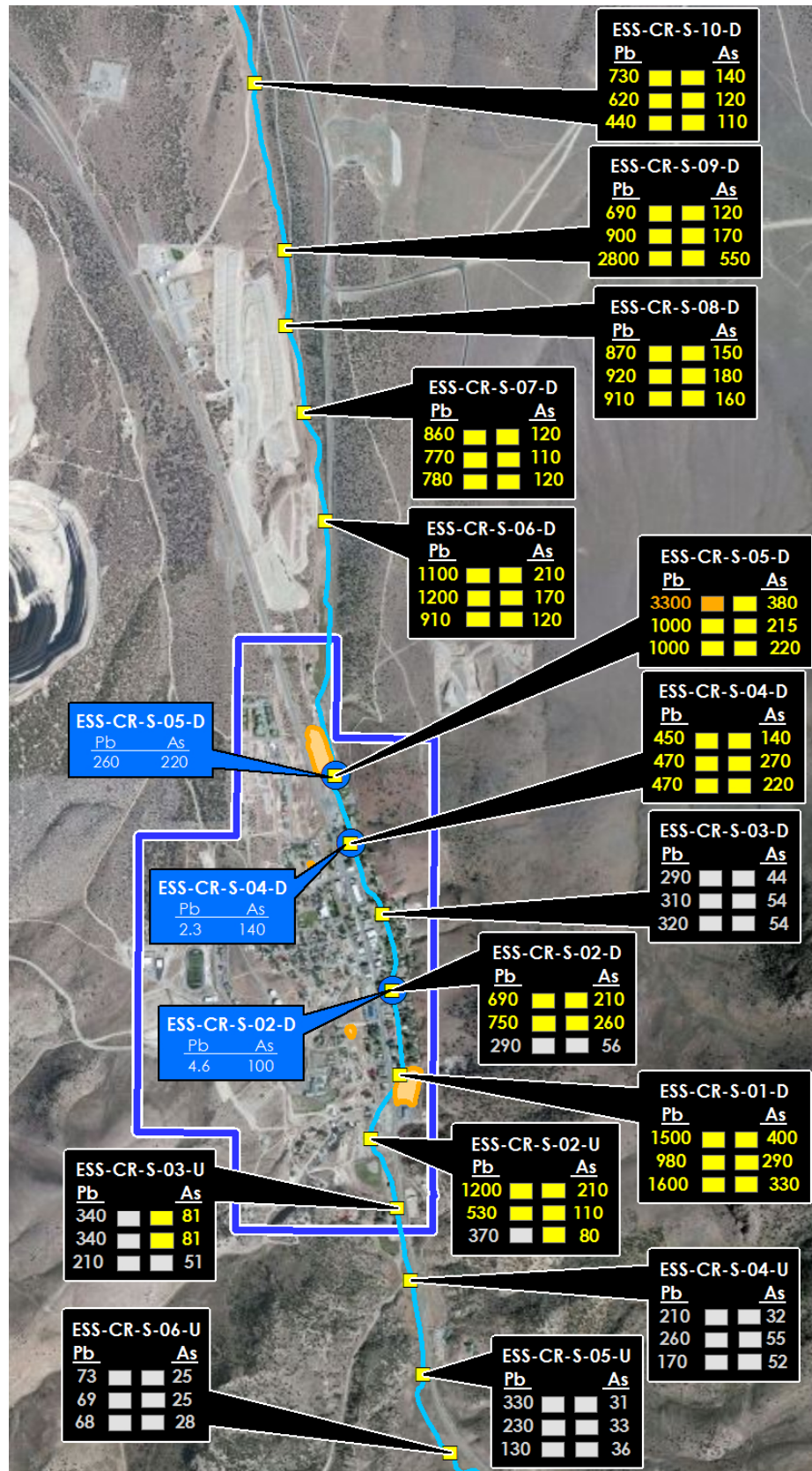


Figure 7
Property Parcels in Eureka, Nevada
Eureka Smelters Sites
Eureka, Eureka County, Nevada



Legend

- Project Site
- Slag Pile
- Creek Bed
- Soil Sample Location
- Water Sample Location

Soil Sample Labeling Key:

SAMPLE ID	
Lead test results	Arsenic test results
ESS-CR-S-XX-X-0 Sample taken at a depth of 0 - 2 inches	ESS-CR-S-XX-X-0 Sample taken at a depth of 0 - 2 inches
ESS-CR-S-XX-X-2 Sample taken at a depth of 2 - 6 inches	ESS-CR-S-XX-X-2 Sample taken at a depth of 2 - 6 inches
ESS-CR-S-XX-X-6 Sample taken at a depth of 6 - 12 inches	ESS-CR-S-XX-X-6 Sample taken at a depth of 6 - 12 inches

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Color Scheme Key:

Lead (Pb) Test Results Concentration

- < 400 (mg/kg)
- 400 - 3,000 (mg/kg)
- >3,000 (mg/kg)

Arsenic (As) Test Results Concentration

- < 60 (mg/kg)
- 60 - 600 (mg/kg)
- >600 (mg/kg)

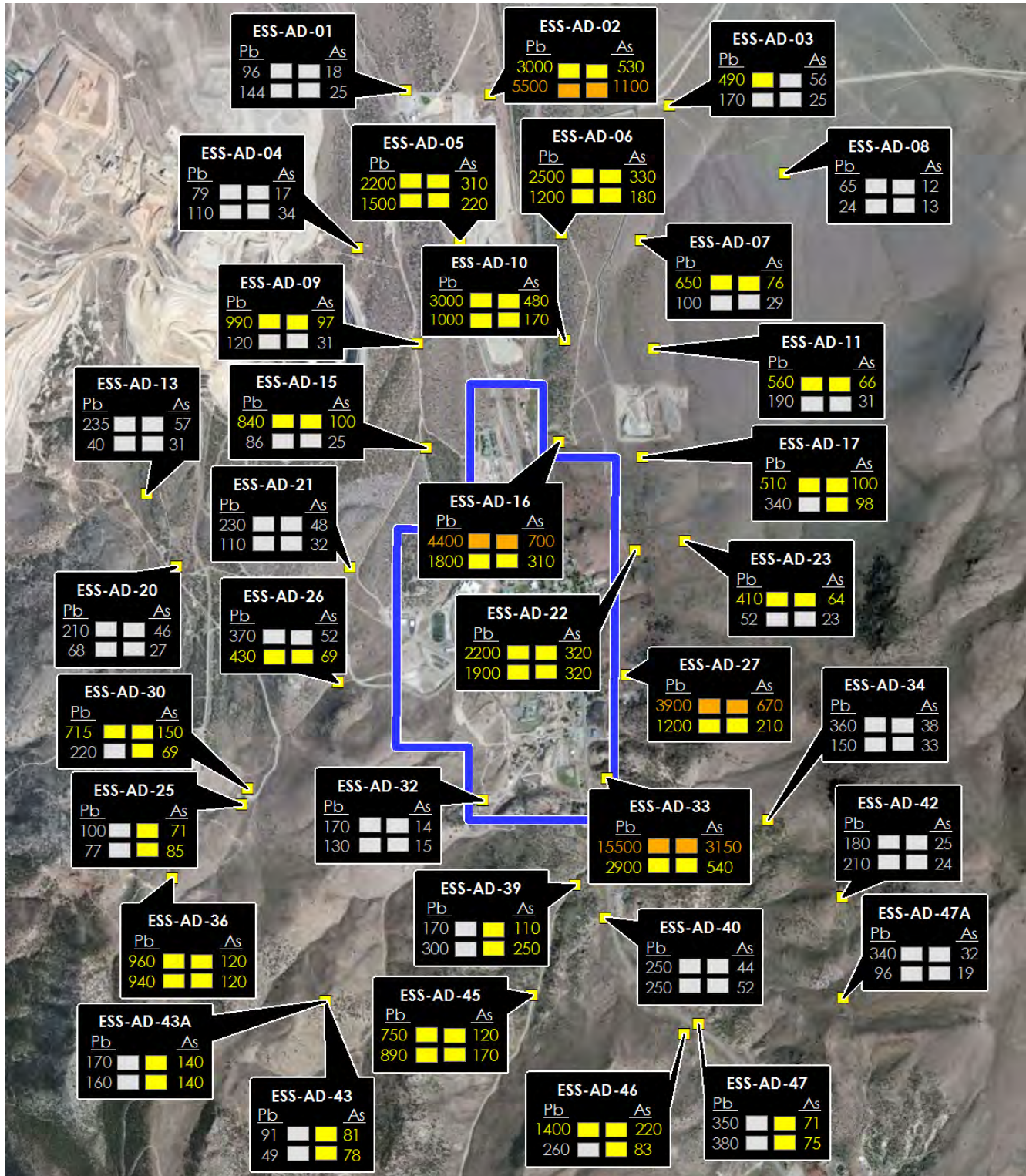
Water Sampling Key:

SAMPLE ID	
Lead test results	Arsenic test results
### ug/L	### ug/L

0 1,000 2,000
Feet



Figure 8
Creek Sampling Locations
Eureka Smelters Sites
Eureka, Eureka County, Nevada



Legend

Project Site

Soil Sample Location

Levels of lead and arsenic in soil are measured in units of milligrams per kilogram (mg/kg)

Soil Sample Labeling Key:

SAMPLE ID	
Lead test results	Arsenic test results
ESS-AD-XX-0	ESS-AD-XX-0
Sample taken at a depth of 0 - 2 inches	Sample taken at a depth of 0 - 2 inches
ESS-AD-XX-2	ESS-AD-XX-2
Sample taken at a depth of 2 - 6 inches	Sample taken at a depth of 2 - 6 inches

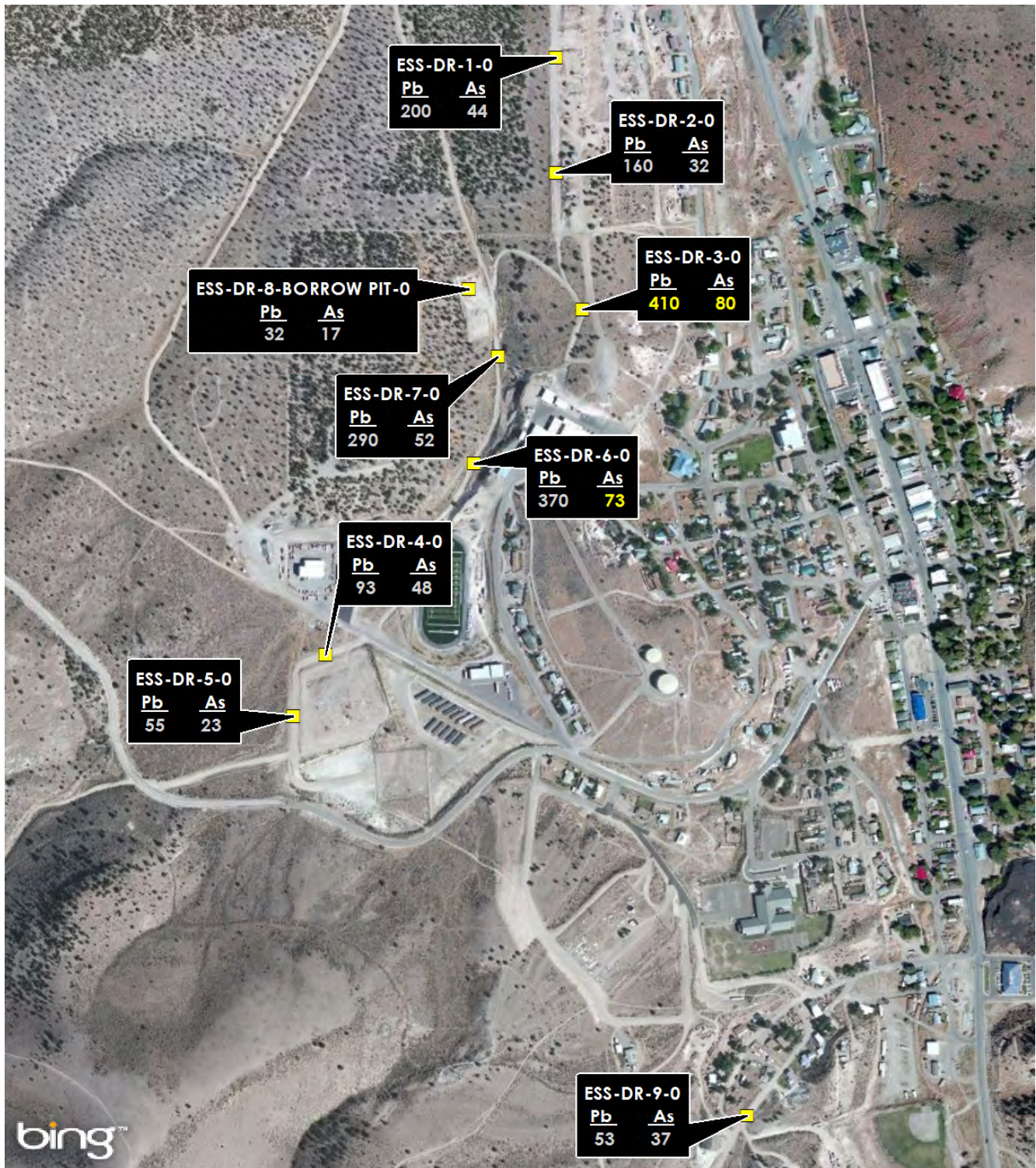
Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)

Figure 9

Air Dispersion Sampling Locations

Eureka Smelters Sites
Eureka, Eureka County, Nevada



Legend



Composite Sampling Area

"P" samples are point samples

"S" samples are composite samples

Pb: Lead Concentration

As: Arsenic Concentration

NA indicates that a sample was not collected
Levels of lead and arsenic in soil are measured
in units of milligrams per kilogram (mg/kg)

Label Key:

SAMPLE ID	
Pb	As
# mg/kg,	# mg/kg,
Sample taken at a	Sample taken at a
depth of 0 - 2 inches	depth of 0 - 2 inches

Font Color Scheme Key:

Lead (Pb) Test Results Concentration	Arsenic (As) Test Results Concentration
< 400 (mg/kg)	< 60 (mg/kg)
400 - 3,000 (mg/kg)	60 - 600 (mg/kg)
> 3,000 (mg/kg)	> 600 (mg/kg)

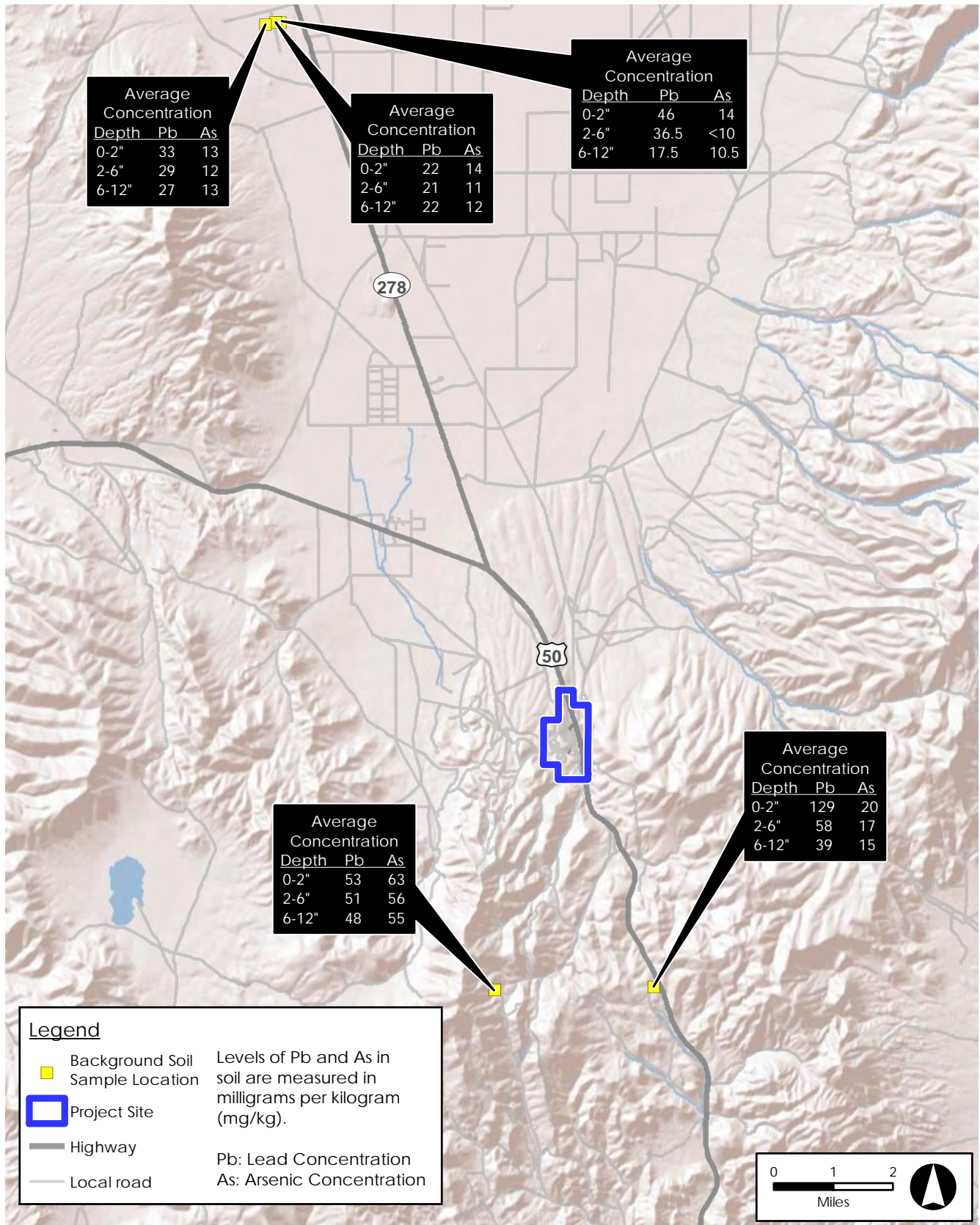
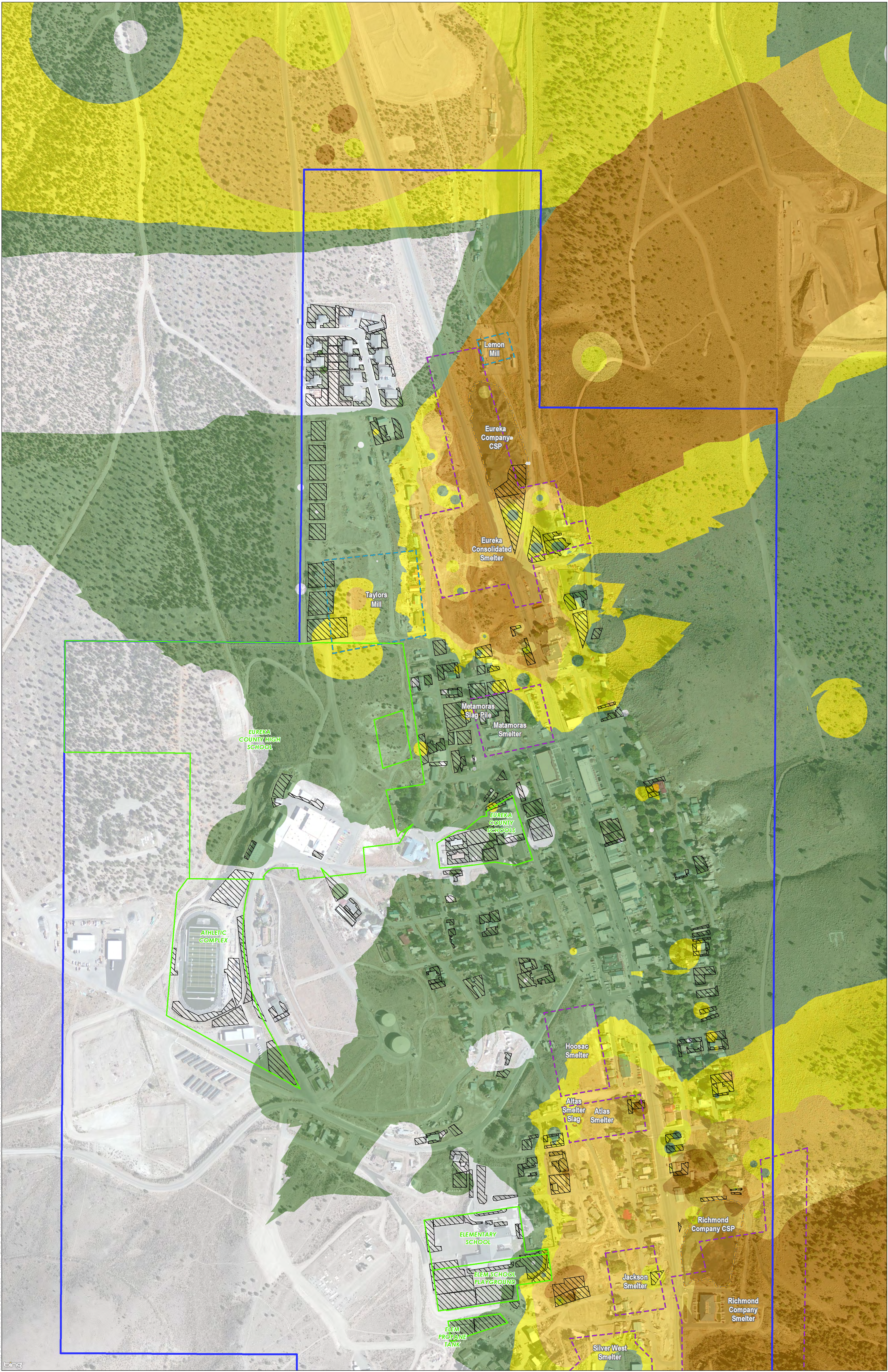


Figure 11
Background Sampling Locations
Eureka Smelters Sites
Eureka, Eureka County, Nevada



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
- 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.

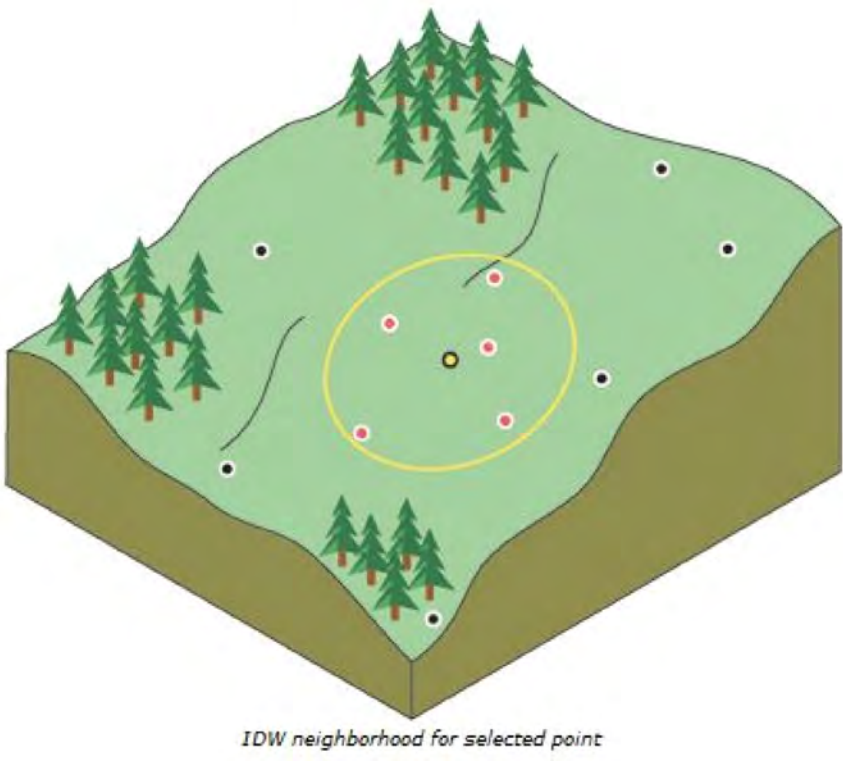
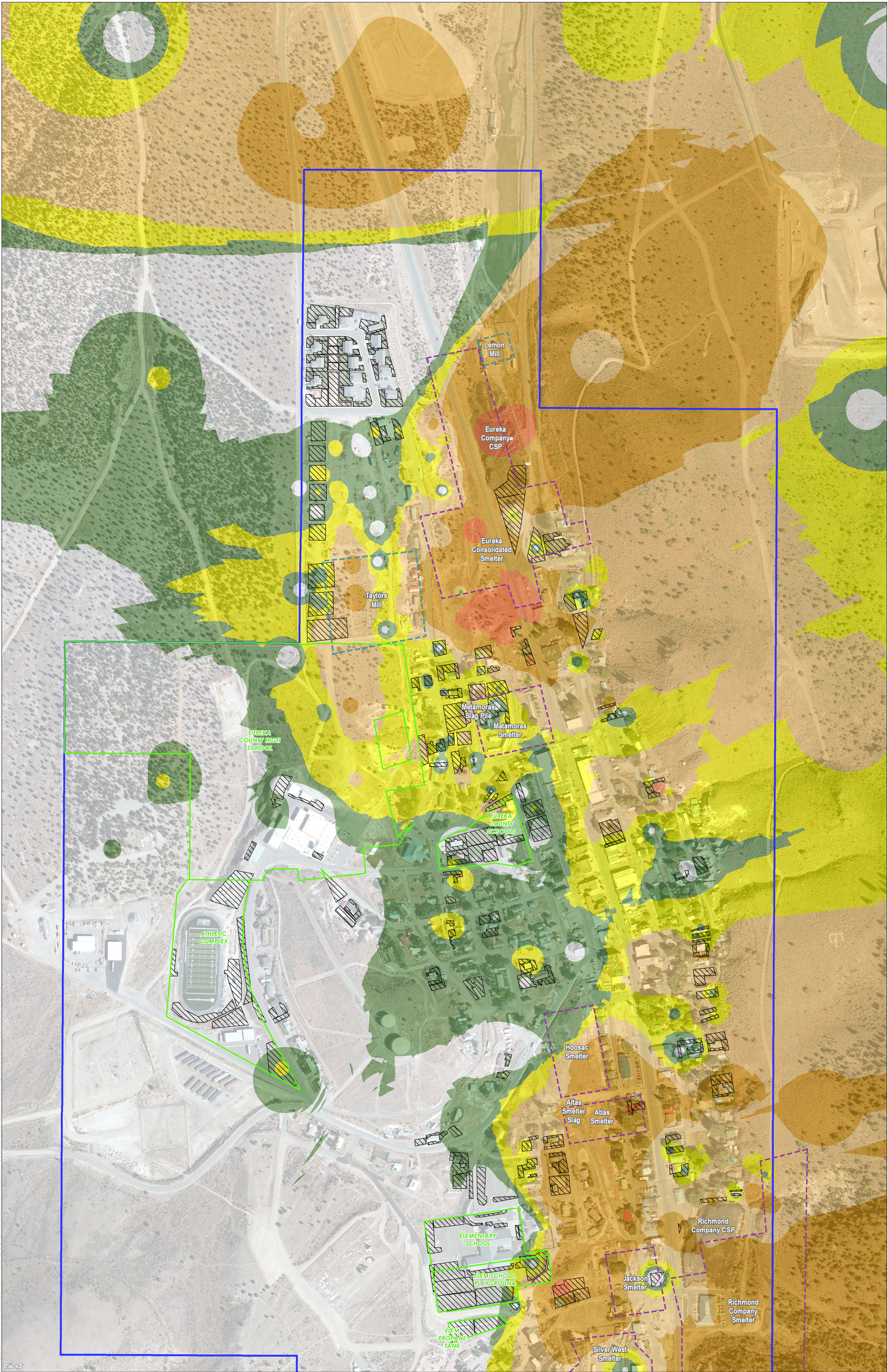


Figure 16-A
Town of Eureka
Iso-Concentration Map
For Arsenic



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
- Levels of lead in soil are measured in units of milligrams per kilogram (mg/kg)

Surface Creation: GIS Analysis

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

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

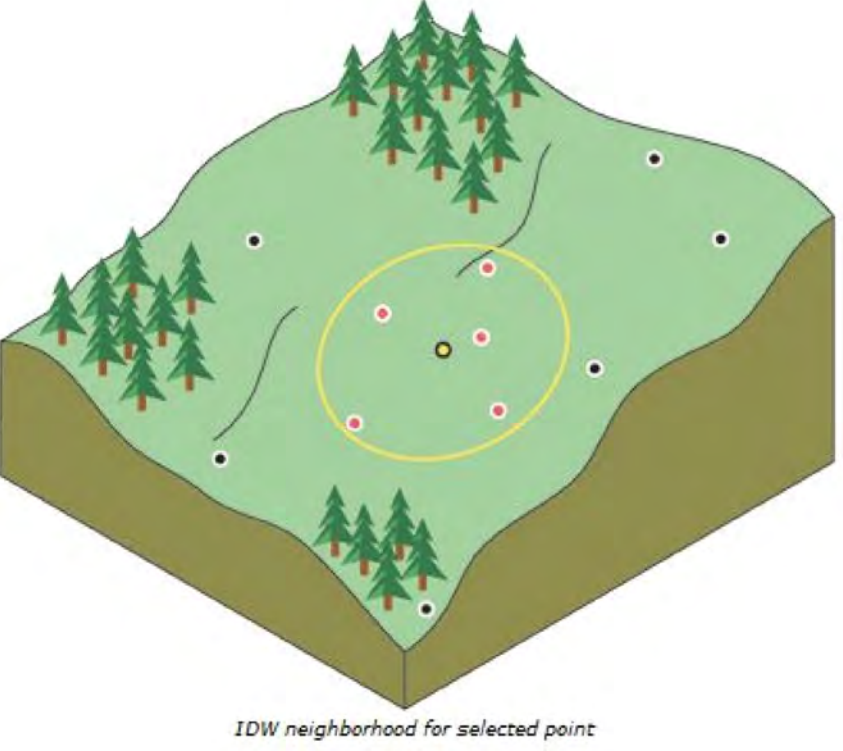


Figure 17-A
Town of Eureka
Iso-Concentration Map
For Lead

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

Table 2 Eureka School District Property Sampling Data

Table 3 (1 through 100) Eureka Residential Property Sampling Data

Table 4 Creek Sampling Data

Table 5 Air Dispersion Sampling Data

Table 6 Unpaved Roadway Sampling Data

Table 7 Background Sampling Data

Table 8 In Vitro Bioaccessibility Assay Calculated Results

Table 9 Metal Survey Data

**Table 2 Eureka School District Property Sampling Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
Eureka High School Facility (APN: 001-021-01)				
ESS-102101-P1-0	P1	0 to 2 inches	510	72
ESS-102101-P1-2	P1	2 to 6 inches	450	66
ESS-102101-S01-0	S01	0 to 2 inches	86	26
ESS-102101-S01-2	S01	2 to 6 inches	370	96
ESS-102101-S02-0	S02	0 to 2 inches	92	27
ESS-102101-S02-2	S02	2 to 6 inches	40	34
ESS-102101-S03-0	S03	0 to 2 inches	52	37
ESS-102101-S03-2	S03	2 to 6 inches	77	31
ESS-102101-S04-0	S04	0 to 2 inches	360	69
ESS-102101-S04-2	S04	2 to 6 inches	280	75
ESS-102101-S05-0	S05	0 to 2 inches	440	79
ESS-102101-S05-2	S05	2 to 6 inches	390	54
ESS-102112-S06-0	S06	0 to 2 inches	336	48
ESS-102101-S06-2	S06	2 to 6 inches	410	75
Undeveloped Area (APN: 001-021-01)				
ESS-NDEP-94-P1-0	P1	0 to 2 inches	1,200	160
ESS-NDEP-94-P1-2	P1	2 to 6 inches	400	62
ESS-NDEP-94-P1-6	P1	6 to 12 inches	55	29
ESS-NDEP-94-P2-0	P2	0 to 2 inches	3,800	560
ESS-NDEP-94-P2-2	P2	2 to 6 inches	1,800	260
ESS-NDEP-94-P2-6	P2	6 to 12 inches	1,800	300
ESS-NDEP-94-P3-0	P3	0 to 2 inches	2,400	350
ESS-NDEP-94-P3-2	P3	2 to 6 inches	540	88
ESS-NDEP-94-P3-6	P3	6 to 12 inches	950	140
ESS-NDEP-94-P4-0	P4	0 to 2 inches	3,500	600
ESS-NDEP-94-P4-2	P4	2 to 6 inches	750	130
ESS-NDEP-94-P4-6	P4	6 to 12 inches	330	91
ESS-NDEP-94-P5-0	P5	0 to 2 inches	1,600	230
ESS-NDEP-94-P5-2	P5	2 to 6 inches	350	61
ESS-NDEP-94-P5-6	P5	6 to 12 inches	560	91
ESS-NDEP-94-P6-0	P6	0 to 2 inches	1,300	180
ESS-NDEP-94-P6-2	P6	2 to 6 inches	580	91
ESS-NDEP-94-P6-6	P6	6 to 12 inches	310	62
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	
S01	1,611	1	60	
S02	2,548	0	0	
S03	1,492	0	0	
S04	8,160	1	302	
S05	1,156	0.5	21	
S06	2,847	1	105	
Undeveloped area	1,700,000	1	62,963	

**Table 2 Eureka School District Property Sampling Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
Eureka School District Athletic Complex (APN: 001-021-12)				
ESS-102112-P1-0	P1	0 to 2 inches	61	15
ESS-102112-P1-2	P1	2 to 6 inches	53	14
ESS-102112-S01-0	S01	0 to 2 inches	190	35
ESS-102112-S01-2	S01	2 to 6 inches	230	40
ESS-102112-S02-0	S02	0 to 2 inches	95	18
ESS-102112-S02-2	S02	2 to 6 inches	62	15
ESS-102112-S03-0	S03	0 to 2 inches	120	28
ESS-102112-S03-2	S03	2 to 6 inches	120	26
ESS-102112-S04-0	S04	0 to 2 inches	110	23
ESS-102112-S04-2	S04	2 to 6 inches	190	35
ESS-102112-S05-0	S05	0 to 2 inches	67	11
ESS-102112-S05-2	S05	2 to 6 inches	43	14
ESS-102112-S06-0	S06	0 to 2 inches	20	17
ESS-102112-S06-2	S06	2 to 6 inches	26	22
ESS-102112-S07-0	S07	0 to 2 inches	110	21
ESS-102112-S07-2	S07	2 to 6 inches	47	7
ESS-102112-S08-0	S08	0 to 2 inches	39	20
ESS-102112-S08-2	S08	2 to 6 inches	31	13
ESS-102112-S09-0	S09	0 to 2 inches	870	130
ESS-102112-S09-2	S09	2 to 6 inches	230	52
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	27,907	0	0	
S02	5,253	0	0	
S03	9,225	0	0	
S04	3,831	0	0	
S05	12,996	0	0	
S06	15,358	0	0	
S07	14,190	0	0	
S08	3,927	0	0	
S09	19,733	0.5	365	

Table 2 Eureka School District Property Sampling Data Eureka Smelter Sites Assessment Eureka, Eureka County, Nevada				
Project No. EE-002693-2177			TDD No. TO2-09-12-04-0002	
Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
Eureka School District Owned Property (APN: 001-152-02)				
Elementary School Parking				
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	69
ESS-115202-S03-0	S03	0 to 2 inches	52	16
ESS-115202-S03-2	S03	2 to 6 inches	49	17
Eureka School District Owned Property (APN: 001-184-05)				
Elementary School Property				
ESS-118405-S01-0	S01	0 to 2 inches	340	69
ESS-118405-S01-2	S01	2 to 6 inches	520	110
Eureka School District Owned Property (APN: 001-155-03)				
Elementary School Facility				
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
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	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 2 Eureka School District Property Sampling Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
Eureka School District Owned Property (APN: 001-181-02) Elementary School Playing Field				
ESS-118102-P1-0	P1	0 to 2 inches	110	65
ESS-118102-P1-2	P1	2 to 6 inches	110	75
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	61
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	460	89
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	73
ESS-118102-S07-2	S07	2 to 6 inches	180	43
ESS-118102-S08-0	S08	0 to 2 inches	1,100	200
ESS-118102-S08-2	S08	2 to 6 inches	1,300	260
Eureka School District Owned Property (APN: 001-183-02) Propane Storage				
ESS-118302-S01-0	S01	0 to 2 inches	230	74
ESS-118302-S01-2	S01	2 to 6 inches	230	73
ESS-118302-S02-0	S02	0 to 2 inches	280	83
ESS-118302-S02-2	S02	2 to 6 inches	150	75
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	
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	
118302-S01	14,331	1	531	
118302-S02	12,129	1	449	

Table 2 Eureka Schoool District Property Sampling Data Eureka Smelter Sites Assessment Eureka, Eureka County, Nevada				
Project No. EE-002693-2177			TDD No. TO2-09-12-04-0002	
Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
Eureka School District Owned Property (APN: 001-063-04) Former School Location				
ESS-106304-S01-0	S01	0 to 2 inches	360	51
ESS-106304-S01-2	S01	2 to 6 inches	1,290	190
ESS-106304-S02-0	S02	0 to 2 inches	180	33
ESS-106304-S02-2	S02	2 to 6 inches	540	77
ESS-106304-S03-0	S03	0 to 2 inches	200	30
ESS-106304-S03-2	S03	2 to 6 inches	310	42
ESS-106304-S04-0	S04	0 to 2 inches	130	26
ESS-106304-S04-2	S04	2 to 6 inches	520	88
ESS-106304-S05-0	S05	0 to 2 inches	2,700	400
ESS-106304-S05-2	S05	2 to 6 inches	2,200	410
Eureka School District Owned Property (APN: 001-064-03) Park Land				
ESS-106403-S01-0	S01	0 to 2 inches	4,800	660
ESS-106403-S01-2	S01	2 to 6 inches	210	30
ESS-106403-S02-0	S02	0 to 2 inches	400	63
ESS-106403-S02-2	S02	2 to 6 inches	330	46
ESS-106403-S03-0	S03	0 to 2 inches	820	98
ESS-106403-S03-2	S03	2 to 6 inches	560	65
ESS-106403-S04-0	S04	0 to 2 inches	160	31
ESS-106403-S04-2	S04	2 to 6 inches	150	26
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	
106304-S01	5,517	1	204	
106304-S02	13,165	1	488	
106304-S03	9,987	0	0	
106304-S04	4,645	1	172	
106304-S05	4,978	1	184	
106403-S01	7,308	0.5	135	
106403-S02	6,299	0.5	117	
106403-S03	8,192	1	303	
106403-S04	2,551	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, 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.				
Ecology and Environment Inc. 2013				

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-154-01				
ESS-115401-P1-0	P1	0 to 2 inches	<u>8,900</u>	<u>1,400</u>
ESS-115401-P1-2	P1	2 to 6 inches	<u>9,700</u>	<u>1,600</u>
ESS-115401-P1-6	P1	6 to 12 inches	<u>14,000</u>	<u>2,500</u>
ESS-115401-P2-0	P2	0 to 2 inches	<u>3,800</u>	<u>530</u>
ESS-115401-P2-2	P2	2 to 6 inches	<u>4,800</u>	<u>740</u>
ESS-115401-P2-2	P2	6 to 12 inches	NA	NA
ESS-115401-S01-0	S01	0 to 2 inches	<u>5,500</u>	<u>800</u>
ESS-115401-S01-2	S01	2 to 6 inches	<u>5,100</u>	<u>750</u>
ESS-115401-S01-6	S01	6 to 12 inches	<u>10,000</u>	<u>1,800</u>
ESS-115401-S02-0	S02	0 to 2 inches	<u>5,200</u>	<u>810</u>
ESS-115401-S02-2	S02	2 to 6 inches	<u>6,000</u>	<u>1,000</u>
ESS-115401-S02-6	S02	6 to 12 inches	<u>6,800</u>	<u>1,300</u>
ESS-115401-S03-0	S03	0 to 2 inches	<u>4,300</u>	<u>710</u>
ESS-115401-S03-2	S03	2 to 6 inches	<u>2,300</u>	<u>410</u>
ESS-115401-S03-6	S03	6 to 12 inches	<u>2,600</u>	<u>410</u>
ESS-115401-S04-0	S04	0 to 2 inches	<u>8,300</u>	<u>1,100</u>
ESS-115401-S04-2	S04	2 to 6 inches	<u>6,600</u>	<u>980</u>
ESS-115401-S04-6	S04	6 to 12 inches	<u>6,100</u>	<u>870</u>

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination 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

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, 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 contamination for a removal estimate assuming 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 contamination. Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-011-07				
ESS-101107-S01-0	S01	0 to 2 inches	1,600	440
ESS-101107-S01-2	S01	2 to 6 inches	1,700	370
ESS-101107-S01-6	S01	6 to 12 inches	<u>7,700</u>	<u>1,600</u>
ESS-101107-S02-0	S02	0 to 2 inches	1,500	270
ESS-101107-S02-2	S02	2 to 6 inches	2,300	400
ESS-101107-S02-6	S02	6 to 12 inches	1,600	310
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	

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, 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 contamination for a removal estimate assuming 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 contamination. Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-011-08				
ESS-101108-S01-0	S01	0 to 2 inches	230	55
ESS-101108-S01-2	S01	2 to 6 inches	1,000	220
ESS-101108-S01-6	S01	6 to 12 inches	640	150

Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	12,400	1	459

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

IAL = Immediate Action Level; the IAL for arsenic by XRF is 600 mg/kg and for lead by XRF is 3,000 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, 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.

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-202-01				
ESS-120201-P1-0	P1	0 to 2 inches	<u>4,300</u>	<u>690</u>
ESS-120201-P1-2	P1	2 to 6 inches	<u>2,500</u>	<u>450</u>
ESS-120201-P1-6	P1	6 to 12 inches	<u>1,900</u>	<u>360</u>
ESS-120201-P2-0	P2	0 to 2 inches	<u>3,400</u>	<u>540</u>
ESS-120201-P2-2	P2	2 to 6 inches	<u>5,500</u>	<u>1,100</u>
ESS-120201-P2-6	P2	6 to 12 inches	<u>5,200</u>	<u>1,000</u>
ESS-120201-P3-0	P3	0 to 2 inches	<u>9,800</u>	<u>2,000</u>
ESS-120201-P3-2	P3	2 to 6 inches	<u>8,900</u>	<u>1,800</u>
ESS-120201-P3-6	P3	6 to 12 inches	<u>6,200</u>	<u>1,100</u>
ESS-120201-P4-0	P4	0 to 2 inches	<u>3,100</u>	<u>490</u>
ESS-120201-P4-2	P4	2 to 6 inches	<u>600</u>	<u>91</u>
ESS-120201-P4-6	P4	6 to 12 inches	<u>1,200</u>	<u>180</u>
ESS-120201-P5-0	P5	0 to 2 inches	<u>1,100</u>	<u>210</u>
ESS-120201-P5-2	P5	2 to 6 inches	<u>1,300</u>	<u>230</u>
ESS-120201-P5-6	P5	6 to 12 inches	<u>1,400</u>	<u>240</u>

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL
P1	9,655	1	358
P2	9,655	1	358
P3	9,655	1	358
P4	9,655	1	358
P5	9,655	1	358

Notes:

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-10				
ESS-101210-P1-0	P1	0 to 2 inches	<u>3,300</u>	530
ESS-101210-P1-2	P1	2 to 6 inches	<u>6,900</u>	<u>1,100</u>
ESS-101210-P1-6	P1	6 to 12 inches	<u>4,900</u>	<u>890</u>
ESS-101210-P2-0	P2	0 to 2 inches	630	110
ESS-101210-P2-2	P2	2 to 6 inches	430	120
ESS-101210-P2-6	P2	6 to 12 inches	280	95
ESS-101210-P3-0	P3	0 to 2 inches	<u>5,200</u>	<u>900</u>
ESS-101210-P3-2	P3	2 to 6 inches	<u>4,300</u>	<u>690</u>
ESS-101210-P3-6	P3	6 to 12 inches	<u>4,400</u>	<u>790</u>
ESS-101210-P4-0	P4	0 to 2 inches	<u>4,100</u>	<u>710</u>
ESS-101210-P4-2	P4	2 to 6 inches	<u>3,600</u>	<u>630</u>
ESS-101210-P4-6	P4	6 to 12 inches	2,100	380
ESS-101210-P5-0	P5	0 to 2 inches	<u>9,100</u>	<u>1,800</u>
ESS-101210-P5-2	P5	2 to 6 inches	<u>12,000</u>	<u>2,700</u>
ESS-101210-P5-6	P5	6 to 12 inches	<u>17,000</u>	3,800
ESS-101210-P6-0	P6	0 to 2 inches	<u>3,000</u>	500
ESS-101210-P6-2	P6	2 to 6 inches	<u>3,900</u>	<u>760</u>
ESS-101210-P6-6	P6	6 to 12 inches	1,600	330

Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
P1	35,138	1	1,301
P2	35,138	1	1,301
P3	35,138	1	1,301
P4	35,138	1	1,301
P5	35,138	1	1,301
P6	35,138	1	1,301

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-11				
ESS-103211-S01-0	S01	0 to 2 inches	1,300	200
ESS-103211-S01-2	S01	2 to 6 inches	<u>3,000</u>	540
ESS-103211-S01-6	S01	6 to 12 inches	<u>3,100</u>	520
ESS-103211-S02-0	S02	0 to 2 inches	2,100	290
ESS-103211-S02-2	S02	2 to 6 inches	1,900	330
ESS-103211-S02-6	S02	6 to 12 inches	850	130
ESS-103211-S03-0	S03	0 to 2 inches	1,100	170
ESS-103211-S03-2	S03	2 to 6 inches	1,200	170
ESS-103211-S03-6	S03	6 to 12 inches	930	130
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	2,480	1	92	
S02	7,635	1	283	
S03	8,018	1	297	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-14				
ESS-101214-P1-0	P1	0 to 2 inches	750	140
ESS-101214-P1-2	P1	2 to 6 inches	290	87
ESS-101214-P1-6	P1	6 to 12 inches	600	120
ESS-101214-P2-0	P2	0 to 2 inches	940	180
ESS-101214-P2-2	P2	2 to 6 inches	2,200	430
ESS-101214-P2-6	P2	6 to 12 inches	550	130
ESS-101214-P3-0	P3	0 to 2 inches	150	46
ESS-101214-P3-2	P3	2 to 6 inches	110	62
ESS-101214-P3-6	P3	6 to 12 inches	55	59
ESS-101214-P4-0	P4	0 to 2 inches	4,000	730
ESS-101214-P4-2	P4	2 to 6 inches	2,500	480
ESS-101214-P4-6	P4	6 to 12 inches	260	87
ESS-101214-P5-0	P5	0 to 2 inches	5,200	970
ESS-101214-P5-2	P5	2 to 6 inches	4,200	770
ESS-101214-P5-6	P5	6 to 12 inches	780	170
ESS-101214-P6-0	P6	0 to 2 inches	4,100	680
ESS-101214-P6-2	P6	2 to 6 inches	650	190
ESS-101214-P6-6	P6	6 to 12 inches	49	85

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL
P1	14,284	1	529
P2	14,284	1	529
P3	14,284	1	529
P4	14,284	1	529
P5	14,284	1	529
P6	14,284	1	529

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-24				
ESS-101224-S01-0	S01	0 to 2 inches	820	170
ESS-101224-S01-2	S01	2 to 6 inches	410	80
ESS-101224-S01-6	S01	6 to 12 inches	890	180
ESS-101224-S02-0	S02	0 to 2 inches	300	78
ESS-101224-S02-2	S02	2 to 6 inches	340	76
ESS-101224-S02-6	S02	6 to 12 inches	540	150
ESS-101224-S03-0	S03	0 to 2 inches	1,600	410
ESS-101224-S03-2	S03	2 to 6 inches	1,900	440
ESS-101224-S03-6	S03	6 to 12 inches	1,100	350

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL
S01	4,234	1	157
S02	2,911	1	108
S03	5,869	1	217

Notes:

mg/kg = milligrams per kilogram

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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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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-031-06				
ESS-103106-S01-0	S01	0 to 2 inches	300	73
ESS-103106-S01-2	S01	2 to 6 inches	220	37
ESS-103106-S01-6	S01	6 to 12 inches	370	61
ESS-103106-S02-0	S02	0 to 2 inches	930	140
ESS-103106-S02-2	S02	2 to 6 inches	1,600	250
ESS-103106-S02-6	S02	6 to 12 inches	1,700	280
ESS-103106-S03-0	S03	0 to 2 inches	2,500	390
ESS-103106-S03-2	S03	2 to 6 inches	2,100	390
ESS-103106-S03-6	S03	6 to 12 inches	1,500	270
ESS-103106-S04-0	S04	0 to 2 inches	710	130
ESS-103106-S04-2	S04	2 to 6 inches	270	64
ESS-103106-S04-6	S04	6 to 12 inches	65	28
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	2,486	1	92	
S02	2,626	1	97	
S03	6,670	1	247	
S04	2,050	1	76	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-07				
ESS-103207-P1-0	P1	0 to 2 inches	<u>3,400</u>	470
ESS-103207-P1-2	P1	2 to 6 inches	1,800	250
ESS-103207-P1-6	P1	6 to 12 inches	1,300	210
ESS-103207-P2-0	P2	0 to 2 inches	200	47
ESS-103207-P2-2	P2	2 to 6 inches	270	43
ESS-103207-P2-6	P2	6 to 12 inches	250	50
ESS-103207-S01-0	S01	0 to 2 inches	1,400	130
ESS-103207-S01-2	S01	2 to 6 inches	660	91
ESS-103207-S01-6	S01	6 to 12 inches	650	94
ESS-103207-S02-0	S02	0 to 2 inches	240	44
ESS-103207-S02-2	S02	2 to 6 inches	170	48
ESS-103207-S02-6	S02	6 to 12 inches	120	110
ESS-103207-S03-0	S03	0 to 2 inches	1,700	280
ESS-103207-S03-2	S03	2 to 6 inches	1,100	220
ESS-103207-S03-6	S03	6 to 12 inches	1,300	270
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	
P2	NA	1	NA	
S01	1,620	1	60	
S02	388	1	14	
S03	4,544	1	168	

Notes:

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-033-08				
ESS-103308-P01-1	P1	0 to 2 inches	1,200	210
ESS-103308-P01-2	P1	2 to 6 inches	1,600	250
ESS-103308-P01-6	P1	6 to 12 inches	1,500	230
ESS-103308-S01-0	S01	0 to 2 inches	980	160
ESS-103308-S01-2	S01	2 to 6 inches	1,300	220
ESS-103308-S01-6	S01	6 to 12 inches	3,400	530
ESS-103308-S02-0	S02	0 to 2 inches	2,500	390
ESS-103308-S02-2	S02	2 to 6 inches	2,500	380
ESS-103308-S02-6	S02	6 to 12 inches	5,200	780
ESS-103308-S03-0	S03	0 to 2 inches	400	70
ESS-103308-S03-2	S03	2 to 6 inches	500	90
ESS-103308-S03-6	S03	6 to 12 inches	870	170
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	
S01	5,480	1	203	
S02	1,685	1	62	
S03	1,998	1	74	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-011-10				
ESS-101110-P1-0	P1	0 to 2 inches	<i>7,700</i>	<i>1,300</i>
ESS-101110-S01-0	S01	0 to 2 inches	<i>1,800</i>	<i>350</i>
ESS-101110-S01-2	S01	2 to 6 inches	<i>720</i>	<i>180</i>
ESS-101110-S01-6	S01	6 to 12 inches	<i>710</i>	<i>180</i>
ESS-101110-S02-0	S02	0 to 2 inches	<i>7,000</i>	<i>1,500</i>
ESS-101110-S02-2	S02	2 to 6 inches	<i>24,000</i>	<i>6,900</i>
ESS-101110-S02-6	S02	6 to 12 inches	<i>25,000</i>	<i>7,500</i>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	0.5	NA	
S01	27,220	1	1,008	
S02	20,519	1	760	

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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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

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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 contamination for a removal estimate assuming 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 contamination. Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-213-06				
ESS-121306-P1-0	P1	0 to 2 inches	<u>3,600</u>	<u>690</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-153-02				
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	2 to 6 inches	690	110
ESS-115302-S02-2	S02	6 to 12 inches	1,200	110
ESS-115302-S02-6	S02	0 to 2 inches	930	140
ESS-115302-S03-0	S03	2 to 6 inches	700	100
ESS-115302-S03-2	S03	6 to 12 inches	2,300	370
ESS-115302-S03-6	S03	0 to 2 inches	<u>4,400</u>	<u>800</u>
ESS-115302-S04-0	S04	2 to 6 inches	980	100
ESS-115302-S04-2	S04	6 to 12 inches	1,900	170
ESS-115302-S04-6	S04	0 to 2 inches	560	78
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
Grab	NA	0	0	
S01	646	1	24	
S02	758	1	28	
S03	2,909	1	108	
S04	1,824	1	68	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-222-01				
ESS-122201-P1-0	P1	0 to 2 inches	<i>13,000</i>	<i>2,700</i>
ESS-122201-P1-2	P1	2 to 6 inches	<i>8,500</i>	<i>1,900</i>
ESS-122201-P1-6	P1	6 to 12 inches	<i>6,500</i>	<i>1,400</i>
ESS-122201-P2-0	P2	0 to 2 inches	<i>4,700</i>	<i>860</i>
ESS-122201-P2-2	P2	2 to 6 inches	<i>2,000</i>	<i>370</i>
ESS-122201-P2-6	P2	6 to 12 inches	<i>1,600</i>	<i>290</i>
ESS-122201-P3-0	P3	0 to 2 inches	<i>3,200</i>	<i>540</i>
ESS-122201-P3-2	P3	2 to 6 inches	<i>1,700</i>	<i>330</i>
ESS-122201-P3-6	P3	6 to 12 inches	<i>960</i>	<i>220</i>
ESS-122201-P4-0	P4	0 to 2 inches	<i>8,800</i>	<i>1,800</i>
ESS-122201-P4-2	P4	2 to 6 inches	<i>6,100</i>	<i>1,400</i>
ESS-122201-P4-6	P4	6 to 12 inches	<i>5,200</i>	<i>1,100</i>
ESS-122201-P5-0	P5	0 to 2 inches	<i>4,600</i>	<i>870</i>
ESS-122201-P5-2	P5	2 to 6 inches	<i>2,800</i>	<i>500</i>
ESS-122201-P5-6	P5	6 to 12 inches	<i>2,700</i>	<i>530</i>
ESS-122201-P6-0	P6	0 to 2 inches	<i>6,700</i>	<i>1,400</i>
ESS-122201-P6-2	P6	2 to 6 inches	<i>1,500</i>	<i>310</i>
ESS-122201-P6-6	P6	6 to 12 inches	<i>2,500</i>	<i>470</i>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	29,500	1	1,093	
P2	29,500	1	1,093	
P3	29,500	1	1,093	
P4	29,500	1	1,093	
P5	29,500	1	1,093	
P6	29,500	1	1,093	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-074-03				
ESS-107403-P1-0	P1	0 to 2 inches	730	110
ESS-107403-P1-2	P1	2 to 6 inches	1,100	150
ESS-107403-P1-6	P1	6 to 12 inches	1,400	190
ESS-107403-P2-0	P2	0 to 2 inches	1,500	200
ESS-107403-P2-2	P2	2 to 6 inches	1,300	170
ESS-107403-P2-6	P2	6 to 12 inches	1,800	250
ESS-107403-P3-0	P3	0 to 2 inches	1,300	190
ESS-107403-P3-2	P3	2 to 6 inches	1,900	240
ESS-107403-P3-6	P3	6 to 12 inches	1,300	180
ESS-107403-S01-0	S01	0 to 2 inches	1,200	160
ESS-107403-S01-2	S01	2 to 6 inches	2,700	330
ESS-107403-S01-6	S01	6 to 12 inches	2,700	430
ESS-107403-S02-0	S02	0 to 2 inches	2,600	330
ESS-107403-S02-2	S02	2 to 6 inches	3,900	590
ESS-107403-S02-6	S02	6 to 12 inches	12,000	1,900
ESS-107403-S03-0	S03	0 to 2 inches	1,400	170
ESS-107403-S03-2	S03	2 to 6 inches	910	150
ESS-107403-S03-6	S03	6 to 12 inches	1,100	170
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination 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	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-031-08				
ESS-103108-S01-0	S01	0 to 2 inches	470	75
ESS-103108-S01-2	S01	2 to 6 inches	560	100
ESS-103108-S01-6	S01	6 to 12 inches	530	90
ESS-103108-S02-0	S02	0 to 2 inches	1,000	150
ESS-103108-S02-2	S02	2 to 6 inches	1,200	200
ESS-103108-S02-6	S02	6 to 12 inches	240	44
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	2,222	1	82	
S02	2,358	1	87	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-28				
ESS-101228-S01-0	S01	0 to 2 inches	800	180
ESS-101228-S01-2	S01	2 to 6 inches	1,100	290
ESS-101228-S01-6	S01	6 to 12 inches	720	160
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (Feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	8,615	1	319	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-07				
ESS-121107-S01-0	S01	0 to 2 inches	110	44
ESS-121107-S01-2	S01	2 to 6 inches	145	36
ESS-121107-S01-6	S01	6 to 12 inches	140	36
ESS-121107-S02-0	S02	0 to 2 inches	90	35
ESS-121107-S02-2	S02	2 to 6 inches	59	26
ESS-121107-S02-6	S02	6 to 12 inches	100	36
ESS-121107-S03-0	S03	0 to 2 inches	69	21
ESS-121107-S03-2	S03	2 to 6 inches	93	23
ESS-121107-S03-6	S03	6 to 12 inches	68	28
ESS-121107-S04-0	S04	0 to 2 inches	53	20
ESS-121107-S04-2	S04	2 to 6 inches	130	26
ESS-121107-S04-6	S04	6 to 12 inches	42	22
ESS-121107-S05-0	S05	0 to 2 inches	62	26
ESS-121107-S05-2	S05	2 to 6 inches	44	16
Not Sampled	S05	6 to 12 inches	-	-
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	4,076	0	0	
S02	850	0	0	
S03	4,924	0	0	
S04	2,833	0	0	
S05	12,208	0	0	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-11				
ESS-101211-P1-0	P1	0 to 2 inches	2,400	520
ESS-101211-P1-2	P1	2 to 6 inches	600	140
ESS-101211-P1-6	P1	6 to 12 inches	2,000	430
ESS-101211-P2-0	P2	0 to 2 inches	120	71
ESS-101211-P2-2	P2	2 to 6 inches	145	78
ESS-101211-P2-6	P2	6 to 12 inches	79	79
ESS-101211-P3-0	P3	0 to 2 inches	1,900	680
ESS-101211-P3-2	P3	2 to 6 inches	8,400	3,300
ESS-101211-P3-6	P3	6 to 12 inches	7,400	3,000
ESS-101211-P4-0	P4	0 to 2 inches	950	190
ESS-101211-P4-2	P4	2 to 6 inches	610	130
ESS-101211-P4-6	P4	6 to 12 inches	640	120
ESS-101211-P5-0	P5	0 to 2 inches	7,800	1,600
ESS-101211-P5-2	P5	2 to 6 inches	3,900	800
ESS-101211-P5-6	P5	6 to 12 inches	3,300	640
ESS-101211-P6-0	P6	0 to 2 inches	1,100	200
ESS-101211-P6-2	P6	2 to 6 inches	1,500	320
ESS-101211-P6-6	P6	6 to 12 inches	2,600	510
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	27,385	1	1,014	
P2	27,385	1	1,014	
P3	27,385	1	1,014	
P4	27,385	1	1,014	
P5	27,385	1	1,014	
P6	27,385	1	1,014	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-033-06				
ESS-103306-S01-0	S01	0 to 2 inches	980	170
ESS-103306-S01-2	S01	2 to 6 inches	910	140
ESS-103306-S01-6	S01	6 to 12 inches	2,300	360
ESS-103306-S02-0	S02	0 to 2 inches	1,600	220
ESS-103306-S02-2	S02	2 to 6 inches	1,700	230
ESS-103306-S02-6	S02	6 to 12 inches	1,900	280
ESS-103306-S03-0	S03	0 to 2 inches	<i>9,100</i>	<i>1,250</i>
ESS-103306-S03-2	S03	2 to 6 inches	<i>11,000</i>	<i>1,600</i>
ESS-103306-S03-6	S03	6 to 12 inches	<i>16,000</i>	<i>2,400</i>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	1,557	1	58	
S02	2,159	1	80	
S03	2,812	1	104	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-27				
ESS-101227-P1-0	P1	0 to 2 inches	150	47
ESS-101227-P1-2	P1	2 to 6 inches	120	53
ESS-101227-P1-6	P1	6 to 12 inches	110	71
ESS-101227-P2-0	P2	0 to 2 inches	740	130
ESS-101227-P2-2	P2	2 to 6 inches	460	90
ESS-101227-P2-6	P2	6 to 12 inches	330	82
ESS-101227-P3-0	P3	0 to 2 inches	230	49
ESS-101227-P3-2	P3	2 to 6 inches	84	25
ESS-101227-P3-6	P3	6 to 12 inches	45	20
ESS-101227-P4-0	P4	0 to 2 inches	1,800	320
ESS-101227-P4-2	P4	2 to 6 inches	1,600	280
ESS-101227-P4-6	P4	6 to 12 inches	910	200
ESS-101227-P5-0	P5	0 to 2 inches	1,200	210
ESS-101227-P5-2	P5	2 to 6 inches	1,100	200
ESS-101227-P5-6	P5	6 to 12 inches	940	140
ESS-101227-P6-0	P6	0 to 2 inches	960	160
ESS-101227-P6-2	P6	2 to 6 inches	970	190
ESS-101227-P6-6	P6	6 to 12 inches	1,100	200
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	41,121	1	1,523	
P2	41,121	1	1,523	
P3	41,121	0	0	
P4	41,121	1	1,523	
P5	41,121	1	1,523	
P6	41,121	1	1,523	

Notes:

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-022-05				
ESS-102205-S01-0	S01	0 to 2 inches	57	12
ESS-102205-S01-2	S01	2 to 6 inches	50	23
ESS-102205-S01-6	S01	6 to 12 inches	80	16
ESS-102205-S02-0	S02	0 to 2 inches	440	21
ESS-102205-S02-2	S02	2 to 6 inches	230	38
ESS-102205-S02-6	S02	6 to 12 inches	110	24
ESS-102205-S03-0	S03	0 to 2 inches	220	34
ESS-102205-S03-2	S03	2 to 6 inches	74	16
ESS-102205-S03-6	S03	6 to 12 inches	97	15
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,904	0	0	
S02	1,197	0.5	22	
S03	2,136	0	0	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-033-01				
ESS-103301-P1-0	P1	0 to 2 inches	<i>8,300</i>	<i>1,500</i>
ESS-103301-P1-2	P1	2 to 6 inches	<i>5,100</i>	<i>960</i>
ESS-103301-P1-6	P1	6 to 12 inches	<i>8,700</i>	<i>1,700</i>
ESS-103301-P2-0	P2	0 to 2 inches	<i>9,800</i>	<i>1,900</i>
ESS-103301-P2-2	P2	2 to 6 inches	<i>7,400</i>	<i>1,400</i>
ESS-103301-P2-6	P2	6 to 12 inches	<i>6,800</i>	<i>1,300</i>
ESS-103301-P3-0	P3	0 to 2 inches	<i>3,100</i>	<i>480</i>
ESS-103301-P3-2	P3	2 to 6 inches	<i>1,600</i>	<i>250</i>
ESS-103301-P3-6	P3	6 to 12 inches	<i>600</i>	<i>100</i>
ESS-103301-P4-0	P4	0 to 2 inches	<i>43,000</i>	<i>10,000</i>
ESS-103301-P4-2	P4	2 to 6 inches	<i>12,000</i>	<i>2,400</i>
ESS-103301-P4-6	P4	6 to 12 inches	<i>9,000</i>	<i>1,700</i>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	9,757	1	361	
P2	9,757	1	361	
P3	9,757	1	361	
P4	9,757	1	361	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-10				
ESS-103210-P1-0	P1	0 to 2 inches	1,300	210
ESS-103210-P1-2	P1	2 to 6 inches	1,500	250
ESS-103210-P1-6	P1	6 to 12 inches	1,100	160
ESS-103210-S01-0	S01	0 to 2 inches	1,000	160
ESS-103210-S01-2	S01	2 to 6 inches	780	110
ESS-103210-S01-6	S01	6 to 12 inches	1,600	260
ESS-103210-S02-0	S02	0 to 2 inches	470	210
ESS-103210-S02-2	S02	2 to 6 inches	460	68
ESS-103210-S02-6	S02	6 to 12 inches	36	18
ESS-103210-S03-0	S03	0 to 2 inches	1,200	190
ESS-103210-S03-2	S03	2 to 6 inches	710	160
ESS-103210-S03-6	S03	6 to 12 inches	1,200	200
ESS-103210-S04-0	S04	0 to 2 inches	720	97
ESS-103210-S04-2	S04	2 to 6 inches	970	160
ESS-103210-S04-6	S04	6 to 12 inches	1,300	200
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	
S01	1,164	1	43	
S02	1,526	1	57	
S03	644	1	24	
S04	401	1	15	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-037-03				
ESS-103703-P1-0	P1	0 to 2 inches	1,800	270
ESS-103703-P1-2	P1	2 to 6 inches	1,100	170
ESS-103703-P1-6	P1	6 to 12 inches	370	58
ESS-103703-S01-0	S01	0 to 2 inches	1,850	300
ESS-103703-S01-2	S01	2 to 6 inches	<u>3,300</u>	540
ESS-103703-S01-6	S01	6 to 12 inches	1,600	270
ESS-103703-S02-0	S02	0 to 2 inches	1,300	210
ESS-103703-S02-2	S02	2 to 6 inches	910	150
ESS-103703-S02-6	S02	6 to 12 inches	260	67
ESS-103703-S03-0	S03	0 to 2 inches	2,500	410
ESS-103703-S03-2	S03	2 to 6 inches	<u>4,300</u>	<u>710</u>
ESS-103703-S03-6	S03	6 to 12 inches	<u>7,700</u>	<u>1,400</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	
S01	4,634	1	172	
S02	3,361	1	124	
S03	10,109	1	374	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-011-11				
ESS-101111-P1-0	P1	0 to 2 inches	<u>27,000</u>	<u>25,000</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-134-09				
ESS-113409-P1-0	P1	0 to 2 inches	21	20
ESS-113409-S01-0	S01	0 to 2 inches	150	57
ESS-113409-S01-2	S01	2 to 6 inches	150	42
ESS-113409-S01-6	S01	6 to 12 inches	81	32
ESS-113409-S02-0	S02	0 to 2 inches	160	43
ESS-113409-S02-2	S02	2 to 6 inches	470	97
ESS-113409-S02-6	S02	6 to 12 inches	370	84
ESS-113409-S03-0	S03	0 to 2 inches	210	60
ESS-113409-S03-2	S03	2 to 6 inches	380	100
ESS-113409-S03-6	S03	6 to 12 inches	890	130
ESS-113409-S04-0	S04	0 to 2 inches	250	57
ESS-113409-S04-2	S04	2 to 6 inches	440	90
ESS-113409-S04-6	S04	6 to 12 inches	360	73
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	0	0	
S01	2,937	0	0	
S02	1,503	1	56	
S03	966	1	36	
S04	651	1	24	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-033-11				
ESS-103311-S01-0	S01	0 to 2 inches	760	110
ESS-103311-S01-2	S01	2 to 6 inches	680	130
ESS-103311-S01-6	S01	6 to 12 inches	2,000	370
ESS-103311-S02-0	S02	0 to 2 inches	900	130
ESS-103311-S02-2	S02	2 to 6 inches	1,200	190
ESS-103311-S02-6	S02	6 to 12 inches	2,300	390
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	8,355	1	309	
S02	7,558	1	280	

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-29				
ESS-101229-S01-0	S01	0 to 2 inches	890	160
ESS-101229-S01-2	S01	2 to 6 inches	1,000	200
ESS-101229-S01-6	S01	6 to 12 inches	510	110
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	7,847	1	291	

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-034-12				
ESS-103412-S01-0	S01	0 to 2 inches	310	97
ESS-103412-S01-2	S01	2 to 6 inches	770	110
ESS-103412-S01-6	S01	6 to 12 inches	840	150
ESS-103412-S02-0	S02	0 to 2 inches	310	35
ESS-103412-S02-2	S02	2 to 6 inches	82	15
ESS-103412-S02-6	S02	6 to 12 inches	78	31
ESS-103412-S03-0	S03	0 to 2 inches	190	60
ESS-103412-S03-2	S03	2 to 6 inches	160	34
ESS-103412-S03-6	S03	6 to 12 inches	490	65

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	1,449	1	54
S02	1,900	0	0
S03	12,063	1	447

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-161-01				
ESS-116101-P1-0	P1	0 to 2 inches	1,700	250
ESS-116101-P1-2	P1	2 to 6 inches	<u>4,100</u>	<u>600</u>
ESS-116101-P1-6	P1	6 to 12 inches	<u>4,700</u>	<u>700</u>
ESS-116101-P2-0	P2	0 to 2 inches	1,000	160
ESS-116101-P2-2	P2	2 to 6 inches	900	150
ESS-116101-P2-6	P2	6 to 12 inches	2,700	400
ESS-116101-P3-0	P3	0 to 2 inches	2,200	340
ESS-116101-P3-2	P3	2 to 6 inches	<u>4,600</u>	<u>640</u>
ESS-116101-P3-6	P3	6 to 12 inches	<u>5,100</u>	<u>730</u>
ESS-116101-S01-0	S01	0 to 2 inches	<u>5,200</u>	<u>720</u>
ESS-116101-S01-2	S01	2 to 6 inches	<u>10,500</u>	<u>1,700</u>
ESS-116101-S01-6	S01	6 to 12 inches	<u>11,500</u>	<u>2,100</u>
ESS-116101-S02-0	S02	0 to 2 inches	2,000	300
ESS-116101-S02-2	S02	2 to 6 inches	<u>5,400</u>	<u>930</u>
ESS-116101-S02-6	S02	6 to 12 inches	<u>12,500</u>	<u>2,200</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination 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:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-02				
ESS-103202-S01-0	S01	0 to 2 inches	1,400	230
ESS-103202-S01-2	S01	2 to 6 inches	1,900	360
ESS-103202-S01-6	S01	6 to 12 inches	2,400	380
ESS-103202-S02-0	S02	0 to 2 inches	1,200	180
ESS-103202-S02-2	S02	2 to 6 inches	2,000	350
ESS-103202-S02-6	S02	6 to 12 inches	1,600	260
ESS-103202-S03-0	S03	0 to 2 inches	1,100	160
ESS-103202-S03-2	S03	2 to 6 inches	1,100	160
ESS-103202-S03-6	S03	6 to 12 inches	1,100	160
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet)**	Estimated Cubic Yards of Contamination Over SSL	
S01	1,448	1	54	
S02	2,765	1	102	
S03	2,921	1	108	

Notes:

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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 contamination for a removal estimate assuming 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 contamination. Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-033-05				
ESS-103305-P1-0	P1	0 to 2 inches	<u>11,000</u>	<u>1,900</u>
ESS-103305-P1-2	P1	2 to 6 inches	<u>39,000</u>	<u>8,900</u>
ESS-103305-P1-6	P1	6 to 12 inches	<u>52,000</u>	<u>13,000</u>
ESS-103305-P2-0	P2	0 to 2 inches	<u>15,000</u>	<u>2,800</u>
ESS-103305-P2-2	P2	2 to 6 inches	<u>1,400</u>	<u>230</u>
ESS-103305-P2-6	P2	6 to 12 inches	<u>260</u>	<u>47</u>
ESS-103305-P3-0	P3	0 to 2 inches	<u>40,000</u>	<u>9,000</u>
ESS-103305-P3-2	P3	2 to 6 inches	<u>20,000</u>	<u>4,300</u>
ESS-103305-P3-6	P3	6 to 12 inches	<u>16,000</u>	<u>3,200</u>
ESS-103305-P4-0	P4	0 to 2 inches	<u>40,000</u>	<u>9,200</u>
ESS-103305-P4-2	P4	2 to 6 inches	<u>29,000</u>	<u>6,500</u>
ESS-103305-P4-6	P4	6 to 12 inches	<u>18,000</u>	<u>3,900</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	3,952	1	146	
P2	3,952	1	146	
P3	3,952	1	146	
P4	3,952	1	146	

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-038-10				
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	480	77
ESS-103810-S01-2	S01	2 to 6 inches	450	69
ESS-103810-S01-6	S01	6 to 12 inches	270	48
ESS-103810-S02-0	S02	0 to 2 inches	730	130
ESS-103810-S02-2	S02	2 to 6 inches	4,500	720
ESS-103810-S02-6	S02	6 to 12 inches	3,300	490
ESS-103810-S03-0	S03	0 to 2 inches	380	64
ESS-103810-S03-2	S03	2 to 6 inches	1,400	260
ESS-103810-S03-6	S03	6 to 12 inches	1,900	330
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	0	0	
S01	1,839	1	68	
S02	1,365	1	51	
S03	1,688	1	63	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-30				
ESS-101230-S01-0	S01	0 to 2 inches	1,300	430
ESS-101230-S01-2	S01	2 to 6 inches	990	360
ESS-101230-S01-6	S01	6 to 12 inches	610	220

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	7,835	1	290

Notes:

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Bold = Above the SSL

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-33				
ESS-101233-S01-0	S01	0 to 2 inches	1,500	260
ESS-101233-S01-2	S01	2 to 6 inches	870	140
ESS-101233-S01-6	S01	6 to 12 inches	270	81
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	8,120	1	301	

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IAL = Immediate Action Level; the IAL for arsenic by XRF is 600 mg/kg and for lead by XRF is 3,000 mg/kg

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-36				
ESS-101236-S01-0	S01	0 to 2 inches	660	150
ESS-101236-S01-2	S01	2 to 6 inches	1,700	330
ESS-101236-S01-6	S01	6 to 12 inches	<u>3,000</u>	570
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	25,677	1	951	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-05				
ESS-103205-S01-0	S01	0 to 2 inches	1,200	180
ESS-103205-S01-2	S01	2 to 6 inches	1,300	240
ESS-103205-S01-6	S01	6 to 12 inches	2,000	400
ESS-103205-S02-0	S02	0 to 2 inches	620	100
ESS-103205-S02-2	S02	2 to 6 inches	540	89
ESS-103205-S02-6	S02	6 to 12 inches	630	110
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	5,652	1	209	
S02	2,178	1	81	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-057-01				
ESS-105701-S01-0	S01	0 to 2 inches	650	70
ESS-105701-S01-2	S01	2 to 6 inches	450	54
ESS-105701-S01-6	S01	6 to 12 inches	710	97
ESS-105701-S02-0	S02	0 to 2 inches	170	19
ESS-105701-S02-2	S02	2 to 6 inches	610	84
ESS-105701-S02-6	S02	6 to 12 inches	1,800	280
ESS-105701-S03-0	S03	0 to 2 inches	230	43
ESS-105701-S03-2	S03	2 to 6 inches	380	59
ESS-105701-S03-6	S03	6 to 12 inches	560	94
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,815	1	67	
S02	1,171	1	43	
S03	2,061	1	76	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-063-05				
ESS-106305-S01-0	S01	0 to 2 inches	1,300	180
ESS-106305-S01-2	S01	2 to 6 inches	1,100	160
ESS-106305-S01-6	S01	6 to 12 inches	960	140
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,735	1	64	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-063-07				
ESS-106307-S01-0	S01	0 to 2 inches	280	54
ESS-106307-S01-2	S01	2 to 6 inches	590	88
ESS-106307-S01-6	S01	6 to 12 inches	355	57
ESS-106307-S02-0	S02	0 to 2 inches	890	110
ESS-106307-S02-2	S02	2 to 6 inches	1500	220
ESS-106307-S02-6	S02	6 to 12 inches	1400	150
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,327	1	49	
S02	1,116	1	41	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-084-01				
ESS-108401-S01-0	S01	0 to 2 inches	1,000	100
ESS-108401-S01-2	S01	2 to 6 inches	1,400	160
ESS-108401-S01-6	S01	6 to 12 inches	1,400	170
ESS-108401-S02-0	S02	0 to 2 inches	810	110
ESS-108401-S02-2	S02	2 to 6 inches	1,000	145
ESS-108401-S02-6	S02	6 to 12 inches	1,200	170
ESS-108401-S03-0	S03	0 to 2 inches	530	73
ESS-108401-S03-2	S03	2 to 6 inches	500	76
ESS-108401-S03-6	S03	6 to 12 inches	570	100
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	922	1	34	
S02	1,368	1	51	
S03	483	1	18	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-095-01				
ESS-109501-S01-0	S01	0 to 2 inches	1,100	150
ESS-109501-S01-2	S01	2 to 6 inches	1,300	170
ESS-109501-S01-6	S01	6 to 12 inches	1,400	200
ESS-109501-S02-0	S02	0 to 2 inches	820	110
ESS-109501-S02-2	S02	2 to 6 inches	1,300	200
ESS-109501-S02-6	S02	6 to 12 inches	960	180
ESS-109501-S03-0	S03	0 to 2 inches	960	140
ESS-109501-S03-2	S03	2 to 6 inches	1,300	140
ESS-109501-S03-6	S03	6 to 12 inches	1,400	200
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,341	1	50	
S02	1,444	1	53	
S03	1,906	1	71	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-105-02				
ESS-110502-S01-0	S01	0 to 2 inches	470	65
ESS-110502-S01-2	S01	2 to 6 inches	1,500	190
ESS-110502-S01-6	S01	6 to 12 inches	850	110
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	5,624	1	208	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-113-04				
ESS-111304-P1-0	P1	0 to 2 inches	150	36
ESS-111304-P1-2	P1	2 to 6 inches	130	34
ESS-111304-P1-6	P1	6 to 12 inches	130	29
ESS-111304-P2-0	P2	0 to 2 inches	110	21
ESS-111304-S01-0	S01	0 to 2 inches	72	20
ESS-111304-S01-2	S01	2 to 6 inches	50	20
ESS-111304-S01-6	S01	6 to 12 inches	47	18
ESS-111304-S02-0	S02	0 to 2 inches	210	30
ESS-111304-S02-2	S02	2 to 6 inches	430	59
ESS-111304-S02-6	S02	6 to 12 inches	820	120
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	0	0	
P2	NA	0	0	
S01	1,685	0	0	
S02	2,104	1	78	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-113-17				
ESS-111317-S01-0	S01	0 to 2 inches	60	17
ESS-111317-S01-2	S01	2 to 6 inches	45	24
ESS-111317-S01-6	S01	6 to 12 inches	220	45
ESS-111317-S02-0	S02	0 to 2 inches	450	58
ESS-111317-S02-2	S02	2 to 6 inches	500	55
ESS-111317-S02-6	S02	6 to 12 inches	290	53
ESS-111317-S03-0	S03	0 to 2 inches	210	41
ESS-111317-S03-2	S03	2 to 6 inches	560	93
No Sample	S03	6 to 12 inches	-	-
ESS-111317-S04-0	S04	0 to 2 inches	700	110
ESS-111317-S04-2	S04	2 to 6 inches	1,000	130
ESS-111317-S04-6	S04	6 to 12 inches	<u>3,100</u>	550

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	2,080	0	0
S02	2,122	1	79
S03	817	1	30
S04	2,555	1	95

Notes:

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START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-131-05				
ESS-113105-S01-0	S01	0 to 2 inches	1,150	150
ESS-113105-S01-2	S01	2 to 6 inches	1,200	180
ESS-113105-S01-6	S01	6 to 12 inches	<i>4,100</i>	<i>610</i>
ESS-113105-S02-0	S02	0 to 2 inches	1,500	220
ESS-113105-S02-2	S02	2 to 6 inches	360	55
ESS-113105-S02-6	S02	6 to 12 inches	570	83
ESS-113105-S03-0	S03	0 to 2 inches	1,900	250
ESS-113105-S03-2	S03	2 to 6 inches	2,600	330
ESS-113105-S03-6	S03	6 to 12 inches	2,200	350
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	814	1	30	
S02	800	1	30	
S03	717	1	27	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-136-16				
ESS-113616-S01-0	S01	0 to 2 inches	1,200	160
ESS-113616-S01-2	S01	2 to 6 inches	500	82
ESS-113616-S01-6	S01	6 to 12 inches	1,500	240
ESS-113616-S02-0	S02	0 to 2 inches	<u>16,000</u>	<u>3,400</u>
ESS-113616-S02-2	S02	2 to 6 inches	160	29
ESS-113616-S02-6	S02	6 to 12 inches	420	100
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	468	1	17	
S02	530	1	20	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-202-03				
ESS-120203-P1-0	P1	0 to 2 inches	<u>5,500</u>	<u>840</u>
ESS-120203-P1-2	P1	2 to 6 inches	<u>2,200</u>	<u>290</u>
ESS-120203-P1-6	P1	6 to 12 inches	<u>3,500</u>	<u>560</u>
ESS-120203-P2-0	P2	0 to 2 inches	<u>9,300</u>	<u>1,700</u>
ESS-120203-P2-2	P2	2 to 6 inches	<u>8,500</u>	<u>1,600</u>
ESS-120203-P2-6	P2	6 to 12 inches	<u>3,700</u>	<u>680</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P01	NA	1	NA	
P02	NA	1	NA	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-02				
ESS-121102-S01-0	S01	0 to 2 inches	34	21
ESS-121102-S01-2	S01	2 to 6 inches	39	21
ESS-121102-S01-6	S01	6 to 12 inches	103	28
ESS-121102-S02-0	S02	0 to 2 inches	34	16
ESS-121102-S02-2	S02	2 to 6 inches	36	18
ESS-121102-S02-6	S02	6 to 12 inches	32	19
ESS-121102-S03-0	S03	0 to 2 inches	52	17
ESS-121102-S03-2	S03	2 to 6 inches	43	21
ESS-121102-S03-6	S03	6 to 12 inches	100	37
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,930	0	0	
S02	325	0	0	
S03	4,955	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-04				
ESS-121104-S01-0	S01	0 to 2 inches	42	24
ESS-121104-S01-2	S01	2 to 6 inches	53	27
ESS-121104-S01-6	S01	6 to 12 inches	46	31
ESS-121104-S02-0	S02	0 to 2 inches	270	68
ESS-121104-S02-2	S02	2 to 6 inches	240	69
ESS-121104-S02-6	S02	6 to 12 inches	360	120
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	3,413	0	0	
S02	2,993	1	111	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-09				
ESS-121109-S01-0	S01	0 to 2 inches	89	26
ESS-121109-S01-2	S01	2 to 6 inches	96	29
ESS-121109-S01-6	S01	6 to 12 inches	140	36
ESS-121109-S02-0	S02	0 to 2 inches	60	24
ESS-121109-S02-2	S02	2 to 6 inches	64	30
ESS-121109-S02-6	S02	6 to 12 inches	73	22
ESS-121109-S03-0	S03	0 to 2 inches	55	28
ESS-121109-S03-2	S03	2 to 6 inches	75	29
ESS-121109-S03-6	S03	6 to 12 inches	53	43
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	545	0	0	
S02	1,964	0	0	
S03	2,347	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-31				
ESS-101231-S01-0	S01	0 to 2 inches	410	91
ESS-101231-S01-2	S01	2 to 6 inches	820	280
ESS-101231-S01-6	S01	6 to 12 inches	750	180
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	8,555	1	317	

Notes:

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-34				
ESS-101234-S01-0	S01	0 to 2 inches	530	93
ESS-101234-S01-2	S01	2 to 6 inches	420	84
ESS-101234-S01-6	S01	6 to 12 inches	96	74

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	19,463	1	721

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-032-12				
ESS-103212-S01-0	S01	0 to 2 inches	520	100
ESS-103212-S01-2	S01	2 to 6 inches	370	80
ESS-103212-S01-6	S01	6 to 12 inches	230	78

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	5,464	1	202

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-063-04				
ESS-106304-S06-0	S06	0 to 2 inches	330	56
ESS-106304-S06-2	S06	2 to 6 inches	240	38
ESS-106304-S07-0	S07	0 to 2 inches	120	29
ESS-106304-S07-2	S07	2 to 6 inches	88	23
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S06	3,127	0.5	58	
S07	3,498	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-071-06				
ESS-107106-S01-0	S01	0 to 2 inches	180	50
ESS-107106-S01-2	S01	2 to 6 inches	970	120
ESS-107106-S01-6	S01	6 to 12 inches	2,200	340
ESS-107106-S02-0	S02	0 to 2 inches	1,200	150
ESS-107106-S02-2	S02	2 to 6 inches	1,700	200
ESS-107106-S02-6	S02	6 to 12 inches	1,000	120
ESS-107106-S03-0	S03	0 to 2 inches	670	84
ESS-107106-S03-2	S03	2 to 6 inches	3,100	350
ESS-107106-S03-6	S03	6 to 12 inches	2,400	260
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,973	1	73	
S02	5,098	1	189	
S03	7,652	1	283	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-087-05				
ESS-108705-S01-0	S01	0 to 2 inches	430	55
ESS-108705-S01-2	S01	2 to 6 inches	440	78
ESS-108705-S01-6	S01	6 to 12 inches	310	41
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	7,749	1	287	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-116-04				
ESS-111604-S01-0	S01	0 to 2 inches	320	77
ESS-111604-S01-2	S01	2 to 6 inches	1,600	220
ESS-111604-S01-6	S01	6 to 12 inches	990	190
ESS-111604-S02-0	S02	0 to 2 inches	580	85
ESS-111604-S02-2	S02	2 to 6 inches	960	140
ESS-111604-S02-6	S02	6 to 12 inches	1,700	250
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	872	1	32	
S02	2,875	1	106	

Notes:

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-086-03				
ESS-108603-S01-0	S01	0 to 2 inches	670	69
ESS-108603-S01-2	S01	2 to 6 inches	800	85
ESS-108603-S01-6	S01	6 to 12 inches	570	80
ESS-108603-S02-0	S02	0 to 2 inches	900	75
ESS-108603-S02-2	S02	2 to 6 inches	610	83
ESS-108603-S02-6	S02	6 to 12 inches	850	130
ESS-108603-S03-0	S03	0 to 2 inches	470	55
ESS-108603-S03-2	S03	2 to 6 inches	380	50
ESS-108603-S03-6	S03	6 to 12 inches	540	120
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,925	1	71	
S02	1,506	1	56	
S03	2,426	1	90	

Notes:

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-095-02				
ESS-109502-S01-0	S01	0 to 2 inches	660	120
ESS-109502-S01-2	S01	2 to 6 inches	300	70
ESS-109502-S01-6	S01	6 to 12 inches	2,200	370
ESS-109502-S02-0	S02	0 to 2 inches	550	74
ESS-109502-S02-2	S02	2 to 6 inches	410	47
ESS-109502-S02-6	S02	6 to 12 inches	710	83
ESS-109502-S03-0	S03	0 to 2 inches	190	50
ESS-109502-S03-2	S03	2 to 6 inches	110	48
ESS-109502-S03-6	S03	6 to 12 inches	120	51
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,500	1	56	
S02	2,745	1	102	
S03	6,267	1	232	

Notes:

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-136-01				
ESS-113601-S01-0	S01	0 to 2 inches	220	64
ESS-113601-S01-2	S01	2 to 6 inches	620	96
ESS-113601-S01-6	S01	6 to 12 inches	790	110
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	5,179	1	192	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-117-03				
ESS-111703-S01-0	S01	0 to 2 inches	1,600	200
ESS-111703-S01-2	S01	2 to 6 inches	<i>4,800</i>	<i>760</i>
ESS-111703-S01-6	S01	6 to 12 inches	2,900	430
ESS-111703-S02-0	S02	0 to 2 inches	2,800	390
ESS-111703-S02-2	S02	2 to 6 inches	800	130
ESS-111703-S02-6	S02	6 to 12 inches	520	100
ESS-111703-S03-0	S03	0 to 2 inches	2,200	350
ESS-111703-S03-2	S03	2 to 6 inches	<i>4,800</i>	<i>710</i>
ESS-111703-S03-6	S03	6 to 12 inches	2,600	360
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,278	1	84	
S02	1,482	1	55	
S03	1,329	1	49	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-136-05				
ESS-113605-S01-0	S01	0 to 2 inches	1,300	140
ESS-113605-S01-2	S01	2 to 6 inches	2,000	240
ESS-113605-S01-6	S01	6 to 12 inches	2,100	280
ESS-113605-S02-0	S02	0 to 2 inches	920	140
ESS-113605-S02-2	S02	2 to 6 inches	1,800	250
ESS-113605-S02-6	S02	6 to 12 inches	2,400	260
ESS-113605-S03-0	S03	0 to 2 inches	1,600	210
ESS-113605-S03-2	S03	2 to 6 inches	2,200	300
ESS-113605-S03-6	S03	6 to 12 inches	2,500	430
ESS-113605-S04-0	S04	0 to 2 inches	2,300	320
ESS-113605-S04-2	S04	2 to 6 inches	2,900	450
ESS-113605-S04-6	S04	6 to 12 inches	2,100	400
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	429	1	16	
S02	1,896	1	70	
S03	4,969	1	184	
S04	796	1	29	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-151-01				
ESS-115101-S01-0	S01	0 to 2 inches	350	52
ESS-115101-S01-2	S01	2 to 6 inches	400	45
ESS-115101-S01-6	S01	6 to 12 inches	910	100
ESS-115101-S02-0	S02	0 to 2 inches	780	90
ESS-115101-S02-2	S02	2 to 6 inches	660	73
ESS-115101-S02-6	S02	6 to 12 inches	530	48
ESS-115101-S03-0	S03	0 to 2 inches	1,100	110
ESS-115101-S03-2	S03	2 to 6 inches	740	98
ESS-115101-S03-6	S03	6 to 12 inches	490	89
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	4,114	1	152	
S02	4,056	1	150	
S03	5,921	1	219	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-165-05				
ESS-116505-S01-0	S01	0 to 2 inches	340	63
ESS-116505-S01-2	S01	2 to 6 inches	1,700	280
ESS-116505-S01-6	S01	6 to 12 inches	<u>3,000</u>	520
ESS-116505-S02-0	S02	0 to 2 inches	580	110
ESS-116505-S02-2	S02	2 to 6 inches	870	140
ESS-116505-S02-6	S02	6 to 12 inches	<u>20,500</u>	<u>3,900</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	703	1	26	
S02	3,301	1	122	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-01				
ESS-121101-S01-0	S01	0 to 2 inches	114	38
ESS-121101-S01-2	S01	2 to 6 inches	95	47
ESS-121101-S01-6	S01	6 to 12 inches	51	31
ESS-121101-S02-0	S02	0 to 2 inches	63	28
ESS-121101-S02-2	S02	2 to 6 inches	61	24
ESS-121101-S02-6	S02	6 to 12 inches	24	20
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	3,228	1	120	
S02	4,943	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-03				
ESS-121103-S01-0	S01	0 to 2 inches	110	31
ESS-121103-S01-2	S01	2 to 6 inches	190	39
ESS-121103-S01-6	S01	6 to 12 inches	220	54
ESS-121103-S02-0	S02	0 to 2 inches	38	17
ESS-121103-S02-2	S01	2 to 6 inches	41	23
ESS-121103-S02-6	S02	6 to 12 inches	105	39
ESS-121103-S03-0	S03	0 to 2 inches	66	20
ESS-121103-S03-2	S03	2 to 6 inches	76	37
ESS-121103-S03-6	S03	6 to 12 inches	260	82
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,023	1	75	
S02	867	0	0	
S03	3,295	1	122	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-10				
ESS-121210-S01-0	S01	0 to 2 inches	56	25
ESS-121210-S01-2	S01	2 to 6 inches	83	26
ESS-121210-S01-6	S01	6 to 12 inches	120	33
ESS-121210-S02-0	S02	0 to 2 inches	30	25
ESS-121210-S02-2	S02	2 to 6 inches	31	22
ESS-121210-S02-6	S02	6 to 12 inches	56	28
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	729	0	0	
S02	1,461	0	0	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-08				
ESS-121208-P1-0	P1	0 to 2 inches	33	22
ESS-121208-P1-2	P1	2 to 6 inches	42	17
ESS-121208-P1-6	P1	6 to 12 inches	410	145
ESS-121208-S01-0	S01	0 to 2 inches	73	23
ESS-121208-S01-2	S01	2 to 6 inches	84	30
ESS-121208-S01-6	S01	6 to 12 inches	180	49
ESS-121208-S02-0	S02	0 to 2 inches	45	18
ESS-121208-S02-2	S02	2 to 6 inches	56	25
ESS-121208-S02-6	S02	6 to 12 inches	30	21
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	
S01	743	1	28	
S02	1,271	0	0	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-32				
ESS-101232-S01-0	S01	0 to 2 inches	360	98
ESS-101232-S01-2	S01	2 to 6 inches	250	99
ESS-101232-S01-6	S01	6 to 12 inches	180	55

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	7,277	1	270

Notes:

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-012-35				
ESS-101235-S01-0	S01	0 to 2 inches	700	130
ESS-101235-S01-2	S01	2 to 6 inches	620	150
ESS-101235-S01-6	S01	6 to 12 inches	520	110
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	17,280	1	640	

Notes:

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START = Superfund Technical Assessment and Response Team

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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 contamination for a removal estimate assuming 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 contamination.

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-038-04				
ESS-103804-S01-0	S01	0 to 2 inches	1,000	170
ESS-103804-S01-2	S01	2 to 6 inches	800	32
ESS-103804-S01-6	S01	6 to 12 inches	680	120
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,481	1	92	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-063-04				
ESS-106304-S08-0	S08	0 to 2 inches	230	37
ESS-106304-S08-2	S08	2 to 6 inches	92	17
ESS-106304-S08-6	S08	6 to 12 inches	120	33
ESS-106304-S09-0	S09	0 to 2 inches	250	71
ESS-106304-S09-2	S09	2 to 6 inches	210	40
ESS-106304-S09-6	S09	6 to 12 inches	1,000	190
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S08	2,819	0	0	
S09	3,937	1	146	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-081-05				
ESS-108105-S01-0	S01	0 to 2 inches	590	67
ESS-108105-S01-2	S01	2 to 6 inches	350	62
ESS-108105-S01-6	S01	6 to 12 inches	180	33
ESS-108105-S02-0	S02	0 to 2 inches	94	21
ESS-108105-S02-2	S02	2 to 6 inches	86	18
ESS-108105-S02-6	S02	6 to 12 inches	120	30
ESS-108105-S03-0	S03	0 to 2 inches	260	38
ESS-108105-S03-2	S03	2 to 6 inches	240	31
ESS-108105-S03-6	S03	6 to 12 inches	220	32
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	7,614	1	282	
S02	3,228	0	0	
S03	5,117	0	0	

Notes:

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-094-05				
ESS-109405-P1-0	P1	0 to 2 inches	280	44
ESS-109405-P1-2	P1	2 to 6 inches	1,200	83
ESS-109405-P1-6	P1	6 to 12 inches	2,400	310
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
P1	NA	1	NA	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-131-04				
ESS-113104-S01-0	S01	0 to 2 inches	1,900	300
ESS-113104-S01-2	S01	2 to 6 inches	1,700	250
ESS-113104-S01-6	S01	6 to 12 inches	2,500	390
ESS-113104-S02-0	S02	0 to 2 inches	2,100	300
ESS-113104-S02-2	S02	2 to 6 inches	730	140
ESS-113104-S02-6	S02	6 to 12 inches	1,200	210
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,920	1	108	
S02	4,783	1	177	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-091-07				
ESS-109107-S01-0	S01	0 to 2 inches	370	36
ESS-109107-S01-2	S01	2 to 6 inches	1,700	300
ESS-109107-S01-6	S01	6 to 12 inches	1,000	150
ESS-109107-S02-0	S02	0 to 2 inches	630	75
ESS-109107-S02-2	S02	2 to 6 inches	1,100	170
ESS-109107-S02-6	S02	6 to 12 inches	610	82
ESS-109107-S03-0	S03	0 to 2 inches	640	89
ESS-109107-S03-2	S03	2 to 6 inches	210	35
ESS-109107-S03-6	S03	6 to 12 inches	1,600	230
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	3,101	1	115	
S02	3,252	1	120	
S03	2,691	1	100	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-104-03				
ESS-110403-S01-0	S01	0 to 2 inches	510	62
ESS-110403-S01-2	S01	2 to 6 inches	540	69
ESS-110403-S01-6	S01	6 to 12 inches	1,800	170
ESS-110403-S02-0	S02	0 to 2 inches	1,000	120
ESS-110403-S02-2	S02	2 to 6 inches	1,000	86
ESS-110403-S02-6	S02	6 to 12 inches	57	9
ESS-110403-S03-0	S03	0 to 2 inches	550	79
ESS-110403-S03-2	S03	2 to 6 inches	220	31
ESS-110403-S03-6	S03	6 to 12 inches	340	45
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	169	1	6	
S02	446	1	17	
S03	633	0.5	12	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-167-02				
ESS-116702-S01-0	S01	0 to 2 inches	1,000	170
ESS-116702-S01-2	S01	2 to 6 inches	<u>6,200</u>	<u>790</u>
ESS-116702-S01-6	S01	6 to 12 inches	<u>5,100</u>	<u>620</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	445	1	16	

Notes:

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-131-01				
ESS-113101-S01-0	S01	0 to 2 inches	910	120
ESS-113101-S01-2	S01	2 to 6 inches	550	77
ESS-113101-S01-6	S01	6 to 12 inches	820	100
ESS-113101-S02-0	S02	0 to 2 inches	510	79
ESS-113101-S02-2	S02	2 to 6 inches	1,200	180
ESS-113101-S02-6	S02	6 to 12 inches	1,300	210
ESS-113101-S03-0	S03	0 to 2 inches	1,300	200
ESS-113101-S03-2	S03	2 to 6 inches	1,250	255
ESS-113101-S03-6	S03	6 to 12 inches	1,900	320
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,165	1	43	
S02	2,172	1	80	
S03	931	1	34	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-136-09				
ESS-113609-S01-0	S01	0 to 2 inches	<u>4,000</u>	<u>600</u>
ESS-113609-S01-2	S01	2 to 6 inches	<u>5,500</u>	<u>800</u>
ESS-113609-S01-6	S01	6 to 12 inches	<u>5,300</u>	<u>700</u>
ESS-113609-S02-0	S02	0 to 2 inches	<u>1,900</u>	<u>310</u>
ESS-113609-S02-2	S02	2 to 6 inches	<u>3,000</u>	<u>370</u>
ESS-113609-S02-6	S02	6 to 12 inches	<u>3,500</u>	<u>600</u>
ESS-113609-S03-0	S03	0 to 2 inches	<u>4,800</u>	<u>850</u>
ESS-113609-S03-2	S03	2 to 6 inches	<u>5,400</u>	<u>890</u>
ESS-113609-S03-6	S03	6 to 12 inches	<u>6,300</u>	<u>1,100</u>
ESS-113609-S04-0	S04	0 to 2 inches	<u>1,800</u>	<u>250</u>
ESS-113609-S04-2	S04	2 to 6 inches	<u>1,600</u>	<u>250</u>
ESS-113609-S04-6	S04	6 to 12 inches	<u>2,400</u>	<u>410</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,630	1	60	
S02	2,435	1	90	
S03	5,710	1	211	
S04	942	1	35	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-191-03				
ESS-119103-S01-0	S01	0 to 2 inches	<u>8,900</u>	<u>1,800</u>
ESS-119103-S01-2	S01	2 to 6 inches	<u>4,900</u>	<u>990</u>
ESS-119103-S01-6	S01	6 to 12 inches	<u>3,900</u>	<u>780</u>
ESS-119103-S02-0	S02	0 to 2 inches	<u>950</u>	<u>200</u>
ESS-119103-S02-2	S02	2 to 6 inches	<u>1,400</u>	<u>250</u>
ESS-119103-S02-6	S02	6 to 12 inches	<u>1,050</u>	<u>220</u>
ESS-119103-S03-0	S03	0 to 2 inches	<u>20,000</u>	<u>3,800</u>
ESS-119103-S03-2	S03	2 to 6 inches	<u>20,000</u>	<u>4,100</u>
ESS-119103-S03-6	S03	6 to 12 inches	<u>5,600</u>	<u>1,100</u>
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	5,281	1	196	
S02	6,615	1	245	
S03	11,289	1	418	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-165-01				
ESS-116501-S01-0	S01	0 to 2 inches	1,600	230
ESS-116501-S01-2	S01	2 to 6 inches	2,400	310
ESS-116501-S01-6	S01	6 to 12 inches	800	150
ESS-116501-S02-0	S02	0 to 2 inches	600	91
ESS-116501-S02-2	S02	2 to 6 inches	3,600	580
ESS-116501-S02-6	S02	6 to 12 inches	3,300	520
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,665	1	99	
S02	3,090	1	114	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-03				
ESS-121203-S01-0	S01	0 to 2 inches	130	44
ESS-121203-S01-2	S01	2 to 6 inches	89	32
ESS-121203-S01-6	S01	6 to 12 inches	110	56
ESS-121203-S02-0	S02	0 to 2 inches	86	39
ESS-121203-S02-2	S02	2 to 6 inches	140	43
ESS-121203-S02-6	S02	6 to 12 inches	120	43
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,263	1	84	
S02	3,399	0	0	

Notes:

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START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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Ecology and Environment Inc. 2013

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-11				
ESS-121111-S01-0	S01	0 to 2 inches	46	23
ESS-121111-S01-2	S01	2 to 6 inches	54	23
ESS-121111-S01-6	S01	6 to 12 inches	80	27
ESS-121111-S02-0	S02	0 to 2 inches	93	41
ESS-121111-S02-2	S02	2 to 6 inches	100	30
ESS-121111-S02-6	S02	6 to 12 inches	100	30
ESS-121111-S03-0	S03	0 to 2 inches	82	20
ESS-121111-S03-2	S03	2 to 6 inches	110	40
ESS-121111-S03-6	S03	6 to 12 inches	200	54
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,034	0	0	
S02	1,305	0	0	
S03	3,184	1	118	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-11				
ESS-121211-S01-0	S01	0 to 2 inches	70	31
ESS-121211-S01-2	S01	2 to 6 inches	49	18
ESS-121211-S01-6	S01	6 to 12 inches	45	19
ESS-121211-S02-0	S02	0 to 2 inches	62	25
ESS-121211-S02-2	S02	2 to 6 inches	88	34
ESS-121211-S02-6	S02	6 to 12 inches	100	36
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	911	0	0	
S02	2,013	0	0	

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-131-06				
ESS-113106-S01-0	S01	0 to 2 inches	2,500	410
ESS-113106-S01-2	S01	2 to 6 inches	2,700	390
ESS-113106-S01-6	S01	6 to 12 inches	<u>3,500</u>	<u>620</u>
ESS-113106-S02-0	S02	0 to 2 inches	<u>4,000</u>	<u>690</u>
ESS-113106-S02-2	S02	2 to 6 inches	<u>3,300</u>	<u>620</u>
ESS-113106-S02-6	S02	6 to 12 inches	1,000	170
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	704	1	26	
S02	580	1	21	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-09				
ESS-121209-S01-0	S01	0 to 2 inches	53	32
ESS-121209-S01-2	S01	2 to 6 inches	53	29
ESS-121209-S01-6	S01	6 to 12 inches	210	54

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	1,277	0	0

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Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-136-03				
ESS-113603-S01-0	S01	0 to 2 inches	970	150
ESS-113603-S01-2	S01	2 to 6 inches	<u>5,800</u>	<u>950</u>
ESS-113603-S01-6	S01	6 to 12 inches	<u>10,000</u>	<u>2,100</u>
ESS-113603-S02-0	S02	0 to 2 inches	<u>3,700</u>	590
ESS-113603-S02-2	S02	2 to 6 inches	2,900	440
ESS-113603-S02-6	S02	6 to 12 inches	<u>3,000</u>	490
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,672	1	62	
S02	2,101	1	78	

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-181-05				
ESS-118405-S01-0	S01	0 to 2 inches	340	69
ESS-118405-S01-2	S01	2 to 6 inches	520	110
Not Sampled	S01	6 to 12 inches	-	-

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
S01	1,465	1	54

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**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-10				
ESS-121110-P1-0	P1	0 to 2 inches	44	11
ESS-121110-S01-0	S01	0 to 2 inches	69	28
ESS-121110-S01-2	S01	2 to 6 inches	69	26
ESS-121110-S01-6	S01	6 to 12 inches	46	26
ESS-121110-S02-0	S02	0 to 2 inches	67	22
ESS-121110-S02-2	S02	2 to 6 inches	140	30
ESS-121110-S02-6	S02	6 to 12 inches	52	22
ESS-121110-S03-0	S03	0 to 2 inches	56	22
ESS-121110-S03-2	S03	2 to 6 inches	34	33
ESS-121110-S03-6	S03	6 to 12 inches	59	33

Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL
P1	NA	0	0
S01	964	0	0
S02	1,113	0	0
S03	2,207	0	0

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-07				
ESS-121207-S01-0	S01	0 to 2 inches	73	24
ESS-121207-S01-2	S01	2 to 6 inches	90	27
ESS-121207-S01-6	S01	6 to 12 inches	110	28
ESS-121207-S02-0	S02	0 to 2 inches	79	33
Not Sampled	S02	2 to 6 inches	-	-
ESS-121207-S02-6	S02	6 to 12 inches	55	26
ESS-121207-S03-0	S03	0 to 2 inches	68	25
ESS-121207-S03-2	S03	2 to 6 inches	90	39
ESS-121207-S03-6	S03	6 to 12 inches	58	30
ESS-121207-S04-0	S04	0 to 2 inches	78	31
ESS-121207-S04-2	S04	2 to 6 inches	81	29
ESS-121207-S04-6	S04	6 to 12 inches	77	27
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,650	0	0	
S02	4,702	0	0	
S03	1,879	0	0	
S04	975	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-211-08				
ESS-121108-S01-0	S01	0 to 2 inches	69	17
ESS-121108-S01-2	S01	2 to 6 inches	74	24
ESS-121108-S01-6	S01	6 to 12 inches	100	30
ESS-121108-S02-0	S02	0 to 2 inches	45	24
ESS-121108-S02-2	S02	2 to 6 inches	66	23
ESS-121108-S02-6	S02	6 to 12 inches	120	29
ESS-121108-S03-0	S03	0 to 2 inches	63	19
ESS-121108-S03-2	S03	2 to 6 inches	38	24
ESS-121108-S03-6	S03	6 to 12 inches	47	26
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	896	0	0	
S02	2,337	0	0	
S03	2,397	0	0	

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Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-201-09				
ESS-120109-Grab-0	Grab	0 to 2 inches	210	44
ESS-120109-Grab-2	Grab	2 to 6 inches	18	16
ESS-120109-S01-0	S01	0 to 2 inches	350	74
ESS-120109-S01-2	S01	2 to 6 inches	2,000	360
ESS-120109-S01-6	S01	6 to 12 inches	2,400	460
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
Grab	NA	0	0	
S01	3,257	1	121	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-04				
ESS-121204-S01-0	S01	0 to 2 inches	80	30
ESS-121204-S01-2	S01	2 to 6 inches	150	40
ESS-121204-S01-6	S01	6 to 12 inches	120	53
ESS-121204-S03-0	S03	0 to 2 inches	27	26
ESS-121204-S03-2	S03	2 to 6 inches	41	31
ESS-121204-S03-6	S03	6 to 12 inches	41	32
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	2,212	0	0	
S03	3,712	0	0	

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Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 001-212-02				
ESS-121202-S01-0	S01	0 to 2 inches	29	19
ESS-121202-S01-2	S01	2 to 6 inches	29	17
ESS-121202-S01-6	S01	6 to 12 inches	30	16
ESS-121202-S02-0	S02	0 to 2 inches	43	22
ESS-121202-S02-2	S02	2 to 6 inches	110	36
ESS-121202-S02-6	S02	6 to 12 inches	98	32
ESS-121202-S03-0	S03	0 to 2 inches	93	49
ESS-121202-S03-2	S03	2 to 6 inches	130	51
ESS-121202-S03-6	S03	6 to 12 inches	200	56
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	1,491	0	0	
S02	2,491	0	0	
S03	10,888	0	0	

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Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

Ecology and Environment Inc. 2013

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 007-400-21				
ESS-740021-S01-0	S01	0 to 2 inches	69	18
ESS-740021-S01-2	S01	2 to 6 inches	45	0
ESS-740021-S01-6	S01	6 to 12 inches	12	10
ESS-740021-S02-0	S02	0 to 2 inches	23	10
ESS-740021-S02-2	S02	2 to 6 inches	28	14
ESS-740021-S02-6	S02	6 to 12 inches	23	11
Decision Unit or Sample Location	Square Feet of Contamination Over SSL*	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	7,850	0	0	
S02	5,217	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, 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 contamination for a removal estimate assuming 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 contamination.

Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

**Table 3 Eureka Residential Property
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Identification Number	Decision Unit or Sample Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
APN: 007-400-22				
ESS-740022-S01-0	S01	0 to 2 inches	20	13
ESS-740022-S01-2	S01	2 to 6 inches	21	11
ESS-740022-S01-6	S01	6 to 12 inches	22	12
ESS-740022-S02-0	S02	0 to 2 inches	24	15
ESS-740022-S02-2	S02	2 to 6 inches	22	12
ESS-740022-S02-6	S02	6 to 12 inches	21	11
Decision Unit or Sample Location	Square Feet of Contamination Over SSL *	Estimated Depth of Contamination (feet) **	Estimated Cubic Yards of Contamination Over SSL	
S01	8,520	0	0	
S02	3,138	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, 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 contamination for a removal estimate assuming 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 contamination.

Contamination at 0 to 2 inches is considered contaminated to 0.5 feet. Contamination at 2 inches or more is considered contaminated to 1 foot.

Ecology and Environment Inc. 2013

**Table 4 Eureka Creek Sampling Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sediment Sample Number	Location	Depth Interval	START XRF Lead Results (mg/kg) dry weight	START XRF Arsenic Results (mg/kg) dry weight
ESS-CR-S-10-D-0	5,000 feet downstream of north CSP	0 to 2 inches	730	140
ESS-CR-S-10-D-2	5,000 feet downstream of north CSP	2 to 6 inches	620	120
ESS-CR-S-10-D-6	5,000 feet downstream of north CSP	6 to 12 inches	440	110
ESS-CR-S-09-D-0	4,000 feet downstream of north CSP	0 to 2 inches	690	120
ESS-CR-S-09-D-2	4,000 feet downstream of north CSP	2 to 6 inches	900	170
ESS-CR-S-09-D-6	4,000 feet downstream of north CSP	6 to 12 inches	2,800	550
ESS-CR-S-08-D-0	3,000 feet downstream of north CSP	0 to 2 inches	870	150
ESS-CR-S-08-D-2	3,000 feet downstream of north CSP	2 to 6 inches	920	180
ESS-CR-S-08-D-6	3,000 feet downstream of north CSP	6 to 12 inches	910	160
ESS-CR-S-07-D-0	2,000 feet downstream of north CSP	0 to 2 inches	860	120
ESS-CR-S-07-D-2	2,000 feet downstream of north CSP	2 to 6 inches	770	110
ESS-CR-S-07-D-6	2,000 feet downstream of north CSP	6 to 12 inches	780	120
ESS-CR-S-06-D-0	1,000 feet downstream of north CSP	0 to 2 inches	1,100	210
ESS-CR-S-06-D-2	1,000 feet downstream of north CSP	2 to 6 inches	1,200	170
ESS-CR-S-06-D-6	1,000 feet downstream of north CSP	6 to 12 inches	910	120
ESS-CR-S-05-D-0	At north CSP	0 to 2 inches	3,300	380
ESS-CR-S-05-D-2	At north CSP	2 to 6 inches	1,000	215
ESS-CR-S-05-D-6	At north CSP	6 to 12 inches	1,000	220
ESS-CR-S-04-D-0	1,000 feet upstream of north CSP	0 to 2 inches	450	140
ESS-CR-S-04-D-2	1,000 feet upstream of north CSP	2 to 6 inches	470	270
ESS-CR-S-04-D-6	1,000 feet upstream of north CSP	6 to 12 inches	470	220
ESS-CR-S-03-D-0	2,000 feet downstream of south CSP	0 to 2 inches	290	44
ESS-CR-S-03-D-2	2,000 feet downstream of south CSP	2 to 6 inches	310	54
ESS-CR-S-03-D-6	2,000 feet downstream of south CSP	6 to 12 inches	320	54
ESS-CR-S-02-D-0	1,000 feet downstream of south CSP	0 to 2 inches	690	210
ESS-CR-S-02-D-2	1,000 feet downstream of south CSP	2 to 6 inches	750	260
ESS-CR-S-02-D-6	1,000 feet downstream of south CSP	6 to 12 inches	290	56
ESS-CR-S-01-D-0	At the south CSP	0 to 2 inches	1,500	400
ESS-CR-S-01-D-2	At the south CSP	2 to 6 inches	980	290
ESS-CR-S-01-D-6	At the south CSP	6 to 12 inches	1,600	330
ESS-CR-S-02-U-0	400 feet southwest of CSP*	0 to 2 inches	1,200	210
ESS-CR-S-02-U-2	400 feet southwest of CSP*	2 to 6 inches	530	110
ESS-CR-S-02-U-6	400 feet southwest of CSP*	6 to 12 inches	370	110
Average downstream concentrations			910	186
Average concentrations within a 1,000 feet of the CSPs			1,429	328
ESS-CR-S-03-U-0	2,000 feet upstream of south CSP	0 to 2 inches	340	81
ESS-CR-S-03-U-2	2,000 feet upstream of south CSP	2 to 6 inches	340	81
ESS-CR-S-03-U-6	2,000 feet upstream of south CSP	6 to 12 inches	210	51
ESS-CR-S-04-U-0	3,000 feet upstream of south CSP	0 to 2 inches	210	32
ESS-CR-S-04-U-2	3,000 feet upstream of south CSP	2 to 6 inches	260	55
ESS-CR-S-04-U-6	3,000 feet upstream of south CSP	6 to 12 inches	170	52
ESS-CR-S-05-U-0	4,000 feet upstream of south CSP	0 to 2 inches	330	31
ESS-CR-S-05-U-2	4,000 feet upstream of south CSP	2 to 6 inches	230	33
ESS-CR-S-05-U-6	4,000 feet upstream of south CSP	6 to 12 inches	130	36
ESS-CR-S-06-U-0	5,000 feet upstream of south CSP	0 to 2 inches	69	25
ESS-CR-S-06-U-2	5,000 feet upstream of south CSP	2 to 6 inches	68	28
ESS-CR-S-06-U-6	5,000 feet upstream of south CSP	6 to 12 inches	73	25
Average upstream concentrations			203	44
Surface Water Sample Number	Location	Matrix	Lead Results (ug/L)	Arsenic Results (ug/L)
ESS-CR-W-05-D	At north CSP	Water	260J	220J
ESS-CR-W-04-D	1,000 feet upstream of north CSP	Water	2.3J	140J
ESS-CR-W-02-D	1,000 feet downstream of south CSP	Water	4.6J	100J

Notes:

mg/kg = milligrams per kilogram

ug/L = micrograms per liter

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level - Water: 15 ug/L for lead and 10 ug/L for Arsenic, Soil: 400 mg/kg for lead by XRF and 60 mg/kg for arsenic by XRF

Bold = Above the SSL

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

CSP = Consolidated Slag Piles

* = Location appears to down slope of south CSP.

Ecology and Environment Inc. 2013

**Table 5 Air Dispersion Sampling Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	START XRF Lead Results (mg/kg, dry weight) from 0 to 2 inches bgs	START XRF Arsenic Results (mg/kg, dry weight) from 0 to 2 inches bgs	General Direction	Sample Number	START XRF Lead Results (mg/kg, dry weight) from 2 to 6 inches bgs	START XRF Arsenic Results (mg/kg, dry weight) from 2 to 6 inches bgs	% Difference Lead	% Difference Arsenic
ESS-AD-33-0	<u>15,500</u>	<u>3,150</u>	South East	ESS-AD-33-2	2,900	540	534%	583%
ESS-AD-2-0	<u>5,100</u>	<u>1,000</u>	North	ESS-AD-2-2	<u>5,500</u>	<u>1,100</u>	93%	91%
ESS-AD-16-0	<u>4,400</u>	<u>700</u>	North	ESS-AD-16-2	1,800	310	244%	226%
ESS-AD-27-0	<u>3,900</u>	<u>670</u>	North	ESS-AD-27-2	1,200	210	325%	319%
ESS-AD-10-0	<u>3,000</u>	<u>480</u>	North	ESS-AD-10-2	1,000	170	300%	282%
ESS-AD-6-0	2,500	330	North	ESS-AD-6-2	1,200	180	208%	183%
ESS-AD-22-0	2,200	320	East	ESS-AD-22-2	1,900	320	116%	100%
ESS-AD-5-0	2,200	310	North	ESS-AD-5-2	1,500	220	147%	141%
ESS-AD-46-0	1,400	220	South	ESS-AD-46-2	260	83	538%	265%
ESS-AD-9-0	990	97	North	ESS-AD-9-2	120	31	825%	313%
ESS-AD-36-0	960	120	South West	ESS-AD-36-2	940	120	102%	100%
ESS-AD-15-0	840	100	North West	ESS-AD-15-2	86	25	977%	400%
ESS-AD-45-0	750	120	South	ESS-AD-45-2	890	170	84%	71%
ESS-AD-30-0	715	150	South West	ESS-AD-30-2	220	69	325%	217%
ESS-AD-7-0	650	76	North	ESS-AD-7-2	100	29	650%	262%
ESS-AD-11-0	560	66	North East	ESS-AD-11-2	190	31	295%	213%
ESS-AD-17-0	510	100	North East	ESS-AD-17-2	340	98	150%	102%
ESS-AD-3-0	490	56	North	ESS-AD-3-2	170	25	288%	224%
ESS-AD-23-0	410	64	East	ESS-AD-23-2	52	23	788%	278%
ESS-AD-26-0	370	52	West	ESS-AD-26-2	430	69	86%	75%
ESS-AD-47-0	350	71	South	ESS-AD-47-2	380	75	92%	95%
ESS-AD-39-0	170	110	South	ESS-AD-39-2	300	250	57%	44%
ESS-AD-43A-0	170	140	South West	ESS-AD-43A-2	160	140	106%	100%
ESS-AD-25-0	100	71	South West	ESS-AD-25-2	77	85	130%	84%
ESS-AD-43-0	91	81	South	ESS-AD-43-2	49	78	186%	104%
Mean Values Above SSL	821	133		Mean Values Above SSL	468	106	175%	125%
ESS-AD-34-0	360	38	South East	ESS-AD-34-2	150	33	240%	115%
ESS-AD-47A-0	340	32	South	ESS-AD-47A-2	96	19	354%	168%
ESS-AD-40-0	250	44	South	ESS-AD-40-2	250	52	100%	85%
ESS-AD-13-0	235	57	West	ESS-AD-13-2	40	31	588%	184%
ESS-AD-21-0	230	48	West	ESS-AD-21-2	110	32	209%	150%
ESS-AD-20-0	210	46	West	ESS-AD-20-2	68	27	309%	170%
ESS-AD-42-0	180	25	South East	ESS-AD-42-2	210	24	86%	104%
ESS-AD-32-0	170	14	South	ESS-AD-32-2	130	15	131%	93%
ESS-AD-1-0	96	18	North	ESS-AD-1-2	144	25	67%	72%
ESS-AD-4-0	79	17	North West	ESS-AD-4-2	110	34	72%	50%
ESS-AD-8-0	65	12	North East	ESS-AD-8-2	24	13	271%	92%
Mean Values Below SSL	201	32		Mean Values Below SSL	121	28	166%	115%
Mean For All Samples	1,404	250		Mean For All Samples	642	132	280%	171%

Notes:
mg/kg = milligrams per kilogram
bgs = below ground surface
START = Superfund Technical Assessment and Response Team
XRF = X-Ray Fluorescence
SSL = Site Screening Level; the SSL for arsenic by XRF is 60 mg/kg and for lead by XRF is 400 mg/kg
Bold = Above the SSL
Bold, underlined and italics = Above 600 mg/kg for arsenic by XRF and 3,000 mg/kg for lead

**Table 6 Unpaved Roadway Sampling
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	Depth Interval	XRF Lead Results (mg/kg) dry weight	XRF Arsenic Results (mg/kg) dry weight
ESS-DR-1-0	0 to 2 inches	200	44
ESS-DR-2-0	0 to 2 inches	160	32
ESS-DR-3-0	0 to 2 inches	410	80
ESS-DR-4-0	0 to 2 inches	93	48
ESS-DR-5-0	0 to 2 inches	55	23
ESS-DR-6-0	0 to 2 inches	370	73
ESS-DR-7-0	0 to 2 inches	290	52
ESS-DR-8-BORROW PIT-0	0 to 2 inches	32	17
ESS-DR-9-0	0 to 2 inches	53	37
Average		185	45

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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

Bold = Above the SSL

Ecology and Environment Inc. 2013

**Table 7 Background Sampling Locations
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	Depth Interval	XRF Lead Results (mg/kg) dry weight	XRF Arsenic Results (mg/kg) dry weight	Sample Number	Depth Interval	XRF Lead Results (mg/kg) dry weight	XRF Arsenic Results (mg/kg) dry weight	Sample Number	Depth Interval	XRF Lead Results (mg/kg) dry weight	XRF Arsenic Results (mg/kg) dry weight
ESS-BKG-B1-0	0 to 2 inches	42	< 10	ESS-BKG-B1-2	2 to 6 inches	35	< 10	ESS-BKG-B1-6	6 to 12 inches	37	< 10
ESS-BKG-B2-0	0 to 2 inches	246	28	ESS-BKG-B2-2	2 to 6 inches	136	22	ESS-BKG-B2-6	6 to 12 inches	52	15
ESS-BKG-B3-0	0 to 2 inches	210	30	ESS-BKG-B3-2	2 to 6 inches	53	20	ESS-BKG-B3-6	6 to 12 inches	43	19
ESS-BKG-B4-0	0 to 2 inches	47	12	ESS-BKG-B4-2	2 to 6 inches	37	14	ESS-BKG-B4-6	6 to 12 inches	34	18
ESS-BKG-B5-0	0 to 2 inches	120	11	ESS-BKG-B5-2	2 to 6 inches	36	14	ESS-BKG-B5-6	6 to 12 inches	41	15
ESS-BKG-B6-0	0 to 2 inches	110	20	ESS-BKG-B6-2	2 to 6 inches	49	15	ESS-BKG-B6-6	6 to 12 inches	28	10
Average	0 to 2 inches	129	20	Average	2 to 6 inches	58	17	Average	6 to 12 inches	39	15
ESS-BG-7-0	0 to 2 inches	30	55	ESS-BG-7-2	2 to 6 inches	30	55	ESS-BG-7-6	6 to 12 inches	30	55
ESS-BG-8-0	0 to 2 inches	42	46	ESS-BG-8-2	2 to 6 inches	52	58	ESS-BG-8-6	6 to 12 inches	50	59
ESS-BG-9-0	0 to 2 inches	57	56	ESS-BG-9-2	2 to 6 inches	59	53	ESS-BG-9-6	6 to 12 inches	44	55
ESS-BG-10-0	0 to 2 inches	38	47	ESS-BG-10-2	2 to 6 inches	30	40	ESS-BG-10-6	6 to 12 inches	47	39
ESS-BG-11-0	0 to 2 inches	67	53	ESS-BG-11-2	2 to 6 inches	67	40	ESS-BG-11-6	6 to 12 inches	61	36
ESS-BG-12-0	0 to 2 inches	84	120	ESS-BG-12-2	2 to 6 inches	69	89	ESS-BG-12-6	6 to 12 inches	55	85
Average	0 to 2 inches	53	63	Average	2 to 6 inches	51	56	Average	6 to 12 inches	48	55
ESS-BKG-01-0	0 to 2 inches	37	14	ESS-BKG-01-2	2 to 6 inches	30	12	ESS-BKG-01-6	6 to 12 inches	20	13
ESS-BKG-02-0	0 to 2 inches	30	14	ESS-BKG-02-2	2 to 6 inches	30	12	ESS-BKG-02-6	6 to 12 inches	24	13
ESS-BKG-03-0	0 to 2 inches	28	15	ESS-BKG-03-2	2 to 6 inches	28	14	ESS-BKG-03-6	6 to 12 inches	37	14
ESS-BKG-04-0	0 to 2 inches	37	11	ESS-BKG-04-2	2 to 6 inches	31	9	ESS-BKG-04-6	6 to 12 inches	35	12
ESS-BKG -5-0	0 to 2 inches	39	8	ESS-BKG -5-2	2 to 6 inches	30	12	ESS-BKG -5-6	6 to 12 inches	24	< 10
ESS-BKG -6-0	0 to 2 inches	28	14	ESS-BKG -6-2	2 to 6 inches	24	11	ESS-BKG -6-6	6 to 12 inches	19	14
Average	0 to 2 inches	33	13	Average	2 to 6 inches	29	12	Average	6 to 12 inches	27	13
ESS-740021-S01-0	0 to 2 inches	69	18	ESS-740021-S01-2	2 to 6 inches	45	0	ESS-740021-S01-6	6 to 12 inches	12	10
ESS-740021-S02-0	0 to 2 inches	23	10	ESS-740021-S02-2	2 to 6 inches	28	14	ESS-740021-S02-6	6 to 12 inches	23	11
Average	0 to 2 inches	46	14	Average	2 to 6 inches	36.5	<10	Average	6 to 12 inches	17.5	10.5
ESS-740022-S01-0	0 to 2 inches	20	13	ESS-740022-S01-2	2 to 6 inches	21	11	ESS-740022-S01-6	6 to 12 inches	22	12
ESS-740022-S02-0	0 to 2 inches	24	15	ESS-740022-S02-2	2 to 6 inches	21	11	ESS-740022-S02-6	6 to 12 inches	22	12
Average	0 to 2 inches	22	14	Average	2 to 6 inches	21	11	Average	6 to 12 inches	22	12

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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

Bold = Above the SSL

Table 8
In Vitro Bio-Accessibility Assay Calculated Results
By U.S. EPA Region 9 Laboratory
Eureka Smelter Sites Assessment
Eureka, Eureka County, Nevada

Project No. EE-002693-2177

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

APN	Property Type	Percent Bio-Accessible for Arsenic	Percent Bio-Accessible for Lead
001-012-30	vacant lot	62	88
001-012-30	vacant lot	59	83
001-136-09	vacant lot	55	94
001-012-11	vacant lot	48	84
001-012-36	vacant lot	39	78
001-012-29	vacant lot	38	78
001-138-02	undeveloped near CSP	40	83
001-202-01	undeveloped	49	70
001-136-09	undeveloped	47	86
Air Dispersion Location	undeveloped	45	75
001-012-10	undeveloped	43	68
001-032-12	undeveloped	34	71
001-033-01	undeveloped	33	62
001-074-03	residence	52	87
001-136-05	residence	51	88
001-136-09	residence	46	88
001-117-03	residence	46	72
001-136-03	residence	45	88
001-086-03	residence	45	85
001-032-07	residence	44	71
001-117-03	residence	43	81
001-031-06	residence	41	81
001-154-01	residence/ Bed and Breakfast	41	78
001-136-05	residence	41	86
001-161-01	residence	40	77
001-136-16	residence	39	72
001-074-03	residence	36	75
001-191-03	residence	36	65
001-161-01	residence	36	71
001-191-03	residence	35	63
001-191-03	residence	32	55
001-165-05	residence	32	76
001-136-03	residence	32	86
001-136-04	residence	31	78
001-136-16	residence	31	65
001-136-16	residence	30	57
001-095-02	residence	26	71
001-011-11	CSP	32	66
001-202-04	commercial	43	70
001-033-06	commercial	39	72
001-202-03	commercial	37	72
001-154-01	residence/ Bed and Breakfast	36	62
001-154-01	residence/ Bed and Breakfast	55 *	173 *
Average		41	76

Notes:

USEPA = United State Environmental Protection Agency

XRF = X-Ray Fluorescence

APN = Assessor's Parcel Number

SSL = Site Screening Level - Water: 15 ug/L for lead and 10 ug/L for Arsenic, Soil: 400 mg/kg for lead by XRF and 60 mg/kg for arsenic by XRF

Bold = Above the SSL

CSP = Consolidated Slag Piles

* = Data was excluded from the evaluation since the lead value was an unrealistic outlier.

Ecology and Environment Inc. 2013

**Table 9 Metals Survey Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada
(mg/kg)**

Project No. EE-002693-2177

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

Sample	APN	Type of Property	Arsenic	Lead	Antimony	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Benchmark* Residential			60	400	31	1,500	160	70	38	23	3,100	390	1,500	390	390	1	390	23,000
Benchmark* Non-Residential			60	800	410	19,000	2,000	800	38	300	41,000	5,100	20,000	5,100	5,100	10	5,200	31,000
Quantitation Limit			2	3	2	5	0.1	0.5	1	2	4	2.5	5	2	0.5	5	2	8
ESS-120201-P3-0	001-202-01	Undeveloped	2,400	12,000	140J	300	0.87	76	13	6.7	140	39	6.8	< 2	26	< 5	87	1,600
ESS-115401-P1-2	001-154-01	Residence/ Bed and Breakfast	1,900	10,000	110J	530	0.74	45	17	2.2	190J	280	10	2.4	23	< 5	31	2,000
ESS-R-14 (116101-C)	001-161-01	Residence	1,700	7,800	180J	410	0.73	32	13	4.4	140	61	9.7	< 2	24	< 5	31	1,700
ESS-94-P2-0	001-021-01	Undeveloped	750	3,900	50J	340	1.1	25	14	5.8	61	24	10	< 2	10	< 5	44	780
ESS-R-12 (113609-C)	001-136-09	Residence	750	4,200	51J	340	0.88	27	11	4.1	76	36	7.3	< 2	11	< 5	31	880
ESS-R-10 (111703-C)	001-117-03	Residence	730	3,700	53J	430	0.86	21	13	4.8	80	94	10	< 2	9.4	< 5	31	920
ESS-R-13 (115401-C)	001-154-01	Residence/ Bed and Breakfast	730	3,500	48J	340	0.82	18	13	5	80	100	11	< 2	8.7	< 5	33	870
ESS-R-11 (113603-C)	001-136-03	Residence	690	3,400	45J	420	0.88	25	15	5.5	68	12	13	< 2	9.5	< 5	44	750
ESS-R-09 (107403-C)	001-074-03	Residence	680	4,000	47J	230	0.67	20	12	4.5	61	9.3	6.2	< 2	12	< 5	36	690
ESS-101211-P1-0	001-012-11	Undeveloped	640	2,400	55J	220	1.3	16	6.9	3.2	69	10	6.3	< 2	7.4	< 5	25	820
ESS-103106-S03-2	001-031-06	Residence	500	2,300	20J	270	0.96	11	26	3	42	14	8.3	< 2	6.4	< 5	23	450
ESS-111703-S02-6	001-117-03	Residence	470	2,000	21J	330	0.71	11	12	3	46	28	11	< 2	6.7	< 5	25	490
ESS-113104-S02-2	001-131-04	Residence	180	810	8.1J	390	0.85	5.1	13	3.5	27	6.7	13	< 2	2.8	< 5	30	240
ESS-102101-P1-2	001-021-01	High School	180	840	7.3J	570	1.8	4	14	4.8	36	4.7J	14	< 2	3	2.9J**	37	330
ESS-113101-S01-6	001-113-01	Residence	160	840	8.9J	260	0.71	4.9	13	3	32	9.3	9.4	< 2	2.5	< 5	26	270
ESS-101224-S02-2	001-012-24	Residence	110	320	4.8J	450	0.71	3.3	11	3.4	17	2.6J	12	< 2	1.2	< 5	36	160
ESS-118102-S02-0	001-181-02	Elementary School	100	270	7J	250	0.93	1.4	6.4	2.4	15	3.8J	6.9	< 2	1.3	< 5	21	160
ESS-111317-S02-2	001-113-17	Residence	94	500	6.2J	280	1.2	2.2	9.7	2.5	21	5.5	8.2	< 2	1.8	< 5	21	250
ESS-105701-S03-2	001-057-01	Residence	88	380	5.9J	400	0.91	2.5	10	3.4	23	3.5	11	< 2	1.7	< 5	27	170
ESS-115101S02-6	001-151-01	Residence	87	520	5.2J	190	2.1	2.8	5.9	1.4J	28	9.6	5.2	< 2	1.8	< 5	12	230
ESS-108705-S01-0	001-087-05	Residence	85	440	6.1J	300	1.4	2.2	7.6	2	18	5.6	7.4	< 2	1.5	< 5	22	140
ESS-108603-S03-2	001-086-03	Residence	82	390	5.8J	170	1.5	2.3	9.3	2.5	14	3.8J	7.8	< 2	1.4	< 5	19	120
ESS-CR-S-05-U-5002	Creek	Upstream Creek bed	76	220	14J	300	0.67	2.2	12	4.3	22	< 2.5	12	2	1.4	2.6J**	32	250
ESS-118102-S07-2	001-181-02	Elementary School	69	200	5.4J	210	0.75	1.5	10	2.8	19	8.4	11	< 2	1	< 5	28	120

**Table 9 Metals Survey Data
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada
(mg/kg)**

Project No. EE-002693-2177

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

Sample	APN	Type of Property	Arsenic	Lead	Antimony	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
ESS-111317-S01-6	001-113-17	Residence	67	230	4J	680	0.79	1.2	17	2.5	15	4.3J	14	< 2	1.1	< 5	28	110
ESS-109502-S03-0	001-095-02	Residence	66	190	4.5J	710	0.81	1.5	11	3.3	19	2.7J	12	< 2	1.1	< 5	32	130
ESS-CR-S-03-D-2	Creek	Upstream Creek bed	66	290	6.5J	400	0.6	1.7	8.3	2.9	18	3.5J	8	< 2	1.1	< 5	24	190
ESS-DR-01	Road	Dirt Road	63	210	6.1J	620	0.83	1.7	10	4.4	15	2.8J	9.7	< 3	0.82J	< 5	34	120
ESS-101227-P3-0	001-012-27	Undeveloped	60	210	2.5J	280	0.82	2.5	11	3.7	16	< 2.5	12	< 2	0.96J	< 5	33	100
ESS-101214-P5-2	001-012-14	Undeveloped	59	49	ND	99	0.81	0.54	7.2	3.4	9.8	< 2.5	7.4	< 2	0.71J	< 5	23	64
ESS-121202-S03-2	001-212-02	Residence	58	120	1.6J	490	0.81	1.5	11	3.4	16	< 2.5	11	< 2	0.77J	< 5	31	110
ESS-102112-S01-2	001-021-12	Athletic Facility	58	210	3.2J	430	1	1	10	3.4	18	< 2.5	12	< 2	1.1	< 5	30	100
ESS-111703-S03-0	001-117-03	Residence	57	120	2.3J	450	0.82	1.5	11	3.8	16	< 2.5	12	< 2	0.78J	2.6J**	31	100
ESS-113409-S01-0	001-134-09	Residence	55	130	2.1J	260	0.8	1.3	8.8	3.4	15	< 2.5	10	< 2	0.83J	< 5	31	100
ESS-121109-S03-6	001-211-09	Residence	54	45	1.8J	510	0.77	0.7	10	3.3	13	< 2.5	11	< 2	0.63J	2.9J**	30	79
ESS-BG-9-2	Background	Undeveloped	54	43	10J	250	1.4	0.77	17	9.3	28	6.6	22	< 2	< 0.5	< 5	47	110
ESS-121203-S01-0	001-212-03	Residence	51	110	1.9J	450	0.82	1.4	9.6	3.5	17	< 2.5	11	< 2	0.71J	< 5	28	89
ESS-106307-S01-0	001-063-07	Residence	49	240	5.5J	310	0.56	1.8	9.4	3.1	20	< 2.5	8.4	< 2	0.88J	< 5	26	170
ESS-103207-S02-0	001-032-07	Residence	48	190	4.1J	360	0.92	1.7	15	6	20	< 2.5	13	< 2	0.84J	< 5	32	140
ESS-115503-S04-0	001-155-03	Elementary School	40	110	3.3J	210	0.51	1.2	8.3	2.2	16	4.6J	8.7	< 2	0.7J	< 5	19	110
ESS-102205-S02-0	001-022-05	Residence	36	480	2.8J	540	0.76	1.6	10	3.3	31	2.9J	11	< 2	1.4	< 5	31	340
ESS-121109-S02-2	001-211-09	Residence	30	60	2.2J	600	0.8	0.88	14	4.6	16	< 2.5	12	< 2	< 0.5	< 5	35	90
ESS-103-P5-5002	001-021-06	Undeveloped	28	92	3.4J	200	0.97	1	14	5.4	17	< 2.5	9.8	< 2	0.66J	< 5	39	110
ESS-103412-S02-2	001-034-12	Residence	23	63	ND	210	1.2	0.63	7.3	2.8	12	< 2.5	8.4	< 2	0.65J	< 5	20	80

Notes:

mg/kg = milligrams per kilogram

START = Superfund Technical Assessment and Response Team

* Benchmarks are U.S. EPA Regional Screening Level for soil except for arsenic. The benchmark for arsenic is the SSL.

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 benchmark.

J = Value is estimated.

J** = The estimated value is below the quantitation/ reporting limit. By definition the reported values indicates the sample concentration of this analyte to be greater than zero but less than the quantitation/ reporting limit.

Appendix D:
Confirmatory Laboratory Data
Summary Tables

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-101111-P1-0	<u>27,000</u>	<u>27,000</u>	ESS-101111-P1-0	<u>21,000</u>	<u>25,000</u>
ESS-113616-S02-5000	<u>24,000</u>	<u>23,000</u>	ESS-113616-S02-5000	<u>5,300</u>	<u>5,700</u>
ESS-119103-S03-0	<u>23,000</u>	<u>20,000</u>	ESS-119103-S03-0	<u>4,800</u>	<u>3,800</u>
ESS-113616-S02-0	<u>18,000</u>	<u>16,000</u>	ESS-113616-S02-0	<u>4,100</u>	<u>3,400</u>
ESS-103306-S03-2	<u>13,000</u>	<u>11,000</u>	ESS-103306-S03-2	<u>2,200</u>	<u>1,600</u>
ESS-119103-S01-0	<u>12,000</u>	<u>8,900</u>	ESS-119103-S01-0	<u>2,800</u>	<u>1,800</u>
ESS-120201-P3-0	<u>12,000</u>	<u>9,800</u>	ESS-120201-P3-0	<u>2,400</u>	<u>2,000</u>
ESS-116101-S01-5006	<u>10,000</u>	<u>9,000</u>	ESS-116101-S01-5006	<u>2,300</u>	<u>1,700</u>
ESS-115401-P1-2	<u>10,000</u>	<u>9,700</u>	ESS-115401-P1-2	<u>1,900</u>	<u>1,600</u>
ESS-1011210-P1-2	<u>9,900</u>	<u>6,900</u>	ESS-1011210-P1-2	<u>1,900</u>	<u>1,100</u>
ESS-116101-C	<u>7,800</u>	<u>7600</u>	ESS-116101-C	<u>1,700</u>	<u>1,300</u>
ESS-113609-S03-6	<u>6,000</u>	<u>6,300</u>	ESS-113609-S03-6	<u>1,200</u>	<u>1,100</u>
ESS-119103-S01-2	<u>5,900</u>	<u>4,900</u>	ESS-119103-S01-2	<u>1,400</u>	<u>990</u>
ESS-103301-P1-2	<u>5,900</u>	<u>5,100</u>	ESS-103301-P1-2	<u>1,200</u>	<u>960</u>
ESS-120203-P1-0	<u>5,900</u>	<u>5,500</u>	ESS-120203-P1-0	<u>1,100</u>	<u>840</u>
ESS-113609-S01-6	<u>5,100</u>	<u>5,300</u>	ESS-113609-S01-6	<u>830</u>	<u>700</u>
ESS-111703-S01-2	<u>4,600</u>	<u>4,800</u>	ESS-111703-S01-2	<u>970</u>	<u>760</u>
ESS-113609-C	<u>4,200</u>	<u>4300</u>	ESS-113609-C	<u>750</u>	<u>610</u>
ESS-113802-S01-2	<u>4,000</u>	<u>3,600</u>	ESS-113802-S01-2	<u>890</u>	<u>650</u>
ESS-107403-C	<u>4,000</u>	<u>3900</u>	ESS-107403-C	<u>680</u>	<u>560</u>
ESS-115401-S03-0	<u>3,900</u>	<u>4,300</u>	ESS-115401-S03-0	<u>910</u>	<u>710</u>
ESS-113106-S01-6	<u>3,700</u>	<u>3,500</u>	ESS-113106-S01-6	<u>830</u>	<u>620</u>
ESS-111703-C	<u>3,700</u>	<u>3700</u>	ESS-111703-C	<u>730</u>	<u>590</u>
ESS-113603-S02-0	<u>3,500</u>	<u>3,700</u>	ESS-113603-S02-0	<u>740</u>	<u>590</u>
ESS-115401-C	<u>3,500</u>	<u>3400</u>	ESS-115401-C	<u>730</u>	<u>500</u>
ESS-113603-C	<u>3,400</u>	<u>3300</u>	ESS-113603-C	<u>690</u>	<u>500</u>
ESS-103211-S01-6	<u>3,300</u>	<u>3,100</u>	ESS-103211-S01-6	<u>790</u>	<u>520</u>
ESS-AD-2-0	<u>3,300</u>	<u>3,000</u>	ESS-AD-2-0	<u>640</u>	<u>530</u>
ESS-110403-S02-0	<u>2,900</u>	<u>2,600</u>	ESS-110403-S02-0	<u>520</u>	<u>330</u>
ESS-103207-S03-2	<u>2,500</u>	<u>2,400</u>	ESS-103207-S03-2	<u>560</u>	<u>460</u>
ESS-1011210-P1-2	<u>2,400</u>	<u>2,400</u>	ESS-101210-S01-6	<u>77</u>	<u>81</u>
ESS-103106-S03-2	<u>2,300</u>	<u>2,100</u>	ESS-103106-S03-2	<u>500</u>	<u>390</u>
ESS-113609-S04-6	<u>2,300</u>	<u>2,400</u>	ESS-113609-S04-6	<u>460</u>	<u>410</u>
ESS-113605-S03-2	<u>2,300</u>	<u>2,200</u>	ESS-113605-S03-2	<u>440</u>	<u>300</u>
ESS-113604-S03-2	<u>2,000</u>	<u>1,900</u>	ESS-113604-S03-2	<u>470</u>	<u>320</u>
ESS-103207-S03-0	<u>2,000</u>	<u>1,700</u>	ESS-103207-S03-0	<u>430</u>	<u>280</u>
ESS-103236-S01-2	<u>1,900</u>	<u>1,700</u>	ESS-103236-S01-2	<u>510</u>	<u>330</u>
ESS-107403-P3-2	<u>1,900</u>	<u>1,900</u>	ESS-107403-P3-2	<u>350</u>	<u>240</u>
ESS-103202-S02-6	<u>1,600</u>	<u>1,600</u>	ESS-103202-S02-6	<u>350</u>	<u>260</u>
ESS-111703-S01-0	<u>1,600</u>	<u>1,600</u>	ESS-111703-S01-0	<u>290</u>	<u>200</u>
ESS-101227-P4-2	<u>1,500</u>	<u>1,600</u>	ESS-101227-P4-2	<u>340</u>	<u>280</u>
ESS-103308-S01-2	<u>1,300</u>	<u>1,300</u>	ESS-103308-S01-2	<u>290</u>	<u>220</u>
ESS-107403-S01-0	<u>1,300</u>	<u>1,200</u>	ESS-107403-S01-0	<u>220</u>	<u>160</u>
ESS-103230-S01-0	<u>1,200</u>	<u>1,300</u>	ESS-103230-S01-0	<u>490</u>	<u>430</u>
ESS-116702-S01-6	<u>1,200</u>	<u>1,000</u>	ESS-116702-S01-6	<u>300</u>	<u>170</u>
ESS-109501-S01-0	<u>1,200</u>	<u>1,100</u>	ESS-109501-S01-0	<u>230</u>	<u>150</u>

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-NDEP-94-P6-0	1,200	1,300	ESS-NDEP-94-P6-0	210	180
ESS-103108-S02-2	1,100	1,200	ESS-103108-S02-2	250	200
ESS-113101-S02-5002	1,100	1,100	ESS-113101-S02-5002	250	180
ESS-103311-S01-5002	1,000	1,000	ESS-103311-S01-5002	200	160
ESS-103308-S01-0	950	980	ESS-103308-S01-0	220	160
ESS-103230-S01-2	920	990	ESS-103230-S01-2	420	360
ESS-103229-S01-2	910	1,000	ESS-103229-S01-2	220	200
ESS-103804-S01-2	860	800	ESS-103804-S01-2	180	110
ESS-103233-S01-2	850	870	ESS-103233-S01-2	180	140
ESS-113101-S01-0	850	910	ESS-113101-S01-0	140	120
ESS-102101-P1-2	840	450	ESS-102101-P1-2	180	75
ESS-113101-S01-6	840	820	ESS-113101-S01-6	160	100
ESS-103703-S02-5006	800	640	ESS-103703-S02-5006	160	110
ESS-113104-S02-5002	770	740	ESS-113104-S02-5002	170	140
ESS-103810-S02-0	760	730	ESS-103810-S02-0	170	130
ESS-107106-S03-0	740	670	ESS-107106-S03-0	120	84
ESS-103228-S01-0	730	800	ESS-103228-S01-0	190	180
ESS-108603-S01-0	690	670	ESS-108603-S01-0	72	69
ESS-103235-S01-2	640	620	ESS-103235-S01-2	170	150
ESS-115302-S03-0	630	700	ESS-115302-S03-0	140	100
ESS-109107-S02-6	630	610	ESS-109107-S02-6	130	82
ESS-108603-S01-5002	620	630	ESS-108603-S01-5002	87	73
ESS-103205-S02-0	600	620	ESS-103205-S02-0	140	100
ESS-102101-P1-5000	570	500	ESS-102101-P1-5000	110	60
ESS-110403-S01-2	560	540	ESS-110403-S01-2	99	69
ESS-108401-S03-6	530	570	ESS-108401-S03-6	100	100
ESS-106304-S04-2	530	520	ESS-106304-S04-2	95	88
ESS-106403-S03-2	530	560	ESS-106403-S03-2	79	65
ESS-115101-S02-6	520	530	ESS-115101-S02-6	87	48
ESS-108603-S03-0	510	470	ESS-108603-S03-0	91	55
ESS-111317-S02-2	500	500	ESS-111317-S02-2	94	55
ESS-110403-S01-0	500	510	ESS-110403-S01-0	89	62
ESS-111317-S02-0	490	450	ESS-111317-S02-0	95	58
ESS-102205-S02-0	480	440	ESS-102205-S02-0	36	21
ESS-103412-S03-6	470	490	ESS-103412-S03-6	110	65
ESS-NDEP103-P4-0	470	530	ESS-NDEP103-P4-0	81	56
ESS-AD-3-0	460	490	ESS-AD-3-0	57	56
ESS-103810-S01-2	450	450	ESS-103810-S01-2	98	69
ESS-103210-S02-2	440	460	ESS-103210-S02-2	87	68
ESS-108705-S01-0	440	430	ESS-108705-S01-0	85	55
ESS-103703-P1-6	430	370	ESS-103703-P1-6	100	58
ESS-103231-S01-0	420	410	ESS-103231-S01-0	110	91
ESS-111304-S02-2	420	430	ESS-111304-S02-2	85	59
ESS-105701-S01-2	420	450	ESS-105701-S01-2	74	54
ESS-109502-S02-2	420	410	ESS-109502-S02-2	62	47

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-116505-S01-0	400	340	ESS-116505-S01-0	110	63
ESS-102101-S04-0	400	360	ESS-102101-S04-0	99	69
ESS-103810-S03-0	400	380	ESS-103810-S03-0	88	64
ESS-103207-S01-0	400	450	ESS-103207-S01-0	73	59
ESS-108603-S03-2	390	380	ESS-108603-S03-2	82	50
ESS-103234-S01-2	380	420	ESS-103234-S01-2	89	84
ESS-105701-S03-2	380	380	ESS-105701-S03-2	88	59
ESS-NDEP103-P5-0	380	370	ESS-NDEP103-P5-0	76	58
ESS-106403-S02-0	380	400	ESS-106403-S02-0	73	63
ESS-116505-S02-5002	380	400	ESS-116505-S02-5002	65	60
ESS-NDEP103-P1-0	380	460	ESS-NDEP103-P1-0	63	62
ESS-115101-S01-2	380	400	ESS-115101-S01-2	57	45
ESS-103224-S01-2	370	410	ESS-103224-S01-2	99	80
ESS-106304-S01-0	370	360	ESS-106304-S01-0	64	51
ESS-AD-26-0	360	370	ESS-AD-26-0	70	52
ESS-108705-S01-6	360	310	ESS-108705-S01-6	61	41
ESS-118405-S01-0	350	340	ESS-118405-S01-0	110	69
ESS-113105-S02-2	340	360	ESS-113105-S02-2	66	55
ESS-115101-S01-0	340	350	ESS-115101-S01-0	56	52
ESS-106307-S01-6	330	355	ESS-106307-S01-6	70	57
ESS-106304-S06-0	330	330	ESS-106304-S06-0	65	56
ESS-110403-S03-6	330	340	ESS-110403-S03-6	64	45
ESS-103224-S02-2	320	340	ESS-103224-S02-2	110	76
ESS-DR-7-0	320	290	ESS-DR-7-0	80	52
ESS-103810-P1-2	320	310	ESS-103810-P1-2	79	50
ESS-109405-P1-0	320	280	ESS-109405-P1-0	73	44
ESS-CR-S-02-U-6	310	370	ESS-CR-S-02-U-6	81	80
ESS-103810-P1-6	310	290	ESS-103810-P1-6	75	55
ESS-106304-S03-2	300	310	ESS-106304-S03-2	49	42
ESS-111604-S01-6	290	320	ESS-111604-S01-6	84	77
ESS-CR-S-03-D-2	290	310	ESS-CR-S-03-D-2	66	54
ESS-106403-S02-2	290	330	ESS-106403-S02-2	60	46
ESS-103305-P2-6	280	260	ESS-103305-P2-6	79	47
ESS-102112-S06-0	280	336	ESS-102112-S06-0	78	48
ESS-111317-S02-6	280	290	ESS-111317-S02-6	66	53
ESS-115503-S07-0	280	290	ESS-115503-S07-0	66	45
ESS-115503-S05-2	280	270	ESS-115503-S05-2	64	52
ESS-CR-S-03-D-5002	280	310	ESS-CR-S-03-D-5002	62	47
ESS-118102-S02-0	270	240	ESS-118102-S02-0	100	58
ESS-106304-S06-5002	270	280	ESS-106304-S06-5002	56	46
ESS-103106-S04-2	260	270	ESS-103106-S04-2	87	64
ESS-113409-S04-0	260	250	ESS-113409-S04-0	78	57
ESS-CR-S-03-D-0	260	290	ESS-CR-S-03-D-0	62	44
ESS-CR-S-03-D-6	250	320	ESS-CR-S-03-D-6	65	54
ESS-103810-S01-6	250	270	ESS-103810-S01-6	62	48

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-103207-P2-2	250	270	ESS-103207-P2-2	54	43
ESS-103703-S02-6	240	260	ESS-103703-S02-6	90	67
ESS-106307-S01-0	240	280	ESS-106307-S01-0	49	54
ESS-111317-S01-6	230	220	ESS-111317-S01-6	67	45
ESS-102112-S01-5000	230	240	ESS-102112-S01-5000	58	48
ESS-103207-P2-6	230	250	ESS-103207-P2-6	52	50
ESS-101210-S01-6	220	270	ESS-101211-P1-0	640	520
ESS-113601-S01-0	220	220	ESS-113601-S01-0	79	64
ESS-CR-S-03-U-5002	220	240	ESS-CR-S-03-U-5002	76	57
ESS-121104-S02-0	220	270	ESS-121104-S02-0	74	68
ESS-CR-S-02-D-6	220	290	ESS-CR-S-02-D-6	58	56
ESS-111317-S03-0	220	210	ESS-111317-S03-0	53	41
ESS-121104-S02-2	210	240	ESS-121104-S02-2	79	69
ESS-DR-1-0	210	200	ESS-DR-1-0	63	44
ESS-101227-P3-0	210	230	ESS-101227-P3-0	60	49
ESS-102112-S09-2	210	230	ESS-102112-S09-2	59	52
ESS-102112-S01-2	210	230	ESS-102112-S01-2	58	40
ESS-115503-S06-0	210	220	ESS-115503-S06-0	55	56
ESS-105701-S03-0	210	230	ESS-105701-S03-0	54	43
ESS-AD-40-2	210	250	ESS-AD-40-2	49	52
ESS-113409-S03-0	200	210	ESS-113409-S03-0	71	60
ESS-118102-S07-2	200	180	ESS-118102-S07-2	69	43
ESS-AD-13-0	200	235	ESS-AD-13-0	65	57
ESS-103108-S02-6	200	240	ESS-103108-S02-6	54	44
ESS-120109-Grab-1	200	210	ESS-120109-Grab-1	53	44
ESS-109502-S03-0	190	190	ESS-109502-S03-0	66	50
ESS-121103-S01-6	190	220	ESS-121103-S01-6	61	54
ESS-106304-S09-2	190	210	ESS-106304-S09-2	57	40
ESS-103207-S02-0	190	240	ESS-103207-S02-0	48	44
ESS-103207-P2-0	190	200	ESS-103207-P2-0	39	47
ESS-103212-S01-6	180	230	ESS-103212-S01-6	76	78
ESS-118102-S02-2	180	160	ESS-118102-S02-2	71	61
ESS-CR-S-04-U-2	180	260	ESS-CR-S-04-U-2	56	55
ESS-CR-S-03-U-6	180	210	ESS-CR-S-03-U-6	55	51
ESS-115503-S01-0	180	190	ESS-115503-S01-0	52	45
ESS-121107-S01-2	180	230	ESS-121107-S01-2	47	46
ESS-AD-21-0	180	230	ESS-AD-21-0	44	48
ESS-121202-S03-6	170	200	ESS-121202-S03-6	77	56
ESS-121111-S03-6	170	200	ESS-121111-S03-6	70	54
ESS-107106-S01-0	170	180	ESS-107106-S01-0	66	50
ESS-121209-S01-6	170	210	ESS-121209-S01-6	56	54
ESS-103412-S03-0	170	190	ESS-103412-S03-0	55	60
ESS-AD-20-0	170	210	ESS-AD-20-0	53	46
ESS-CR-S-04-U-6	150	170	ESS-CR-S-04-U-6	55	52
ESS-103207-S02-2	150	170	ESS-103207-S02-2	53	48
ESS-121208-S01-6	150	180	ESS-121208-S01-6	52	49

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-113409-S02-0	150	160	ESS-113409-S02-0	51	43
ESS-106403-S04-0	150	160	ESS-106403-S04-0	43	31
ESS-115503-S03-0	130	140	ESS-115503-S03-0	82	56
ESS-101214-P3-0	130	150	ESS-101214-P3-0	60	46
ESS-113409-S01-2	130	150	ESS-113409-S01-2	58	42
ESS-113409-S01-5006	130	160	ESS-113409-S01-5006	57	45
ESS-113409-S01-0	130	150	ESS-113409-S01-0	55	57
ESS-101227-P1-0	130	150	ESS-101227-P1-0	54	47
ESS-118302-S02-5002	120	120	ESS-118302-S02-5002	98	68
ESS-121202-S03-2	120	130	ESS-121202-S03-2	58	51
ESS-121204-S01-2	120	150	ESS-121204-S01-2	58	40
ESS-121203-S02-2	120	140	ESS-121203-S02-2	57	43
ESS-118102-P1-0	110	110	ESS-118102-P1-0	86	65
ESS-115503-S08-0	110	120	ESS-115503-S08-0	71	53
ESS-109502-S03-6	110	120	ESS-109502-S03-6	58	51
ESS-121203-S01-0	110	130	ESS-121203-S01-0	51	44
ESS-115202-S04-0	110	120	ESS-115202-S04-0	40	44
ESS-111304-P1-6	110	130	ESS-111304-P1-6	31	29
ESS-115503-S08-2	100	110	ESS-115503-S08-2	66	47
ESS-101227-P1-2	100	120	ESS-101227-P1-2	61	53
ESS-109502-S03-2	100	110	ESS-109502-S03-2	56	48
ESS-121203-S02-6	100	120	ESS-121203-S02-6	52	43
ESS-121107-S01-0	99	110	ESS-121107-S01-0	48	44
ESS-121111-S03-2	99	110	ESS-121111-S03-2	48	40
ESS-121204-S01-6	96	120	ESS-121204-S01-6	54	53
ESS-121203-S01-6	96	110	ESS-121203-S01-6	50	56
ESS-NDEP103-P5-5002	92	100	ESS-NDEP103-P5-5002	28	23
ESS-101214-P3-2	91	110	ESS-101214-P3-2	59	62
ESS-121210-S01-6	89	120	ESS-121210-S01-6	45	33
ESS-NDEP103-P2-2	88	120	ESS-NDEP103-P2-2	43	41
ESS-115202-S03-2	84	89	ESS-115202-S03-2	91	69
ESS-121211-S02-6	84	100	ESS-121211-S02-6	40	36
ESS-121107-S02-5000	82	100	ESS-121107-S02-5000	32	34
ESS-121111-S02-0	81	93	ESS-121111-S02-0	48	41
ESS-AD-9-2	81	120	ESS-AD-9-2	23	31
ESS-121202-S03-0	77	93	ESS-121202-S03-0	48	49
ESS-108105-S02-0	69	94	ESS-108105-S02-0	20	21
ESS-121109-S03-5002	66	74	ESS-121109-S03-5002	63	52
ESS-121207-S02-0	65	79	ESS-121207-S02-0	36	33
ESS-121204-S01-0	64	80	ESS-121204-S01-0	38	30
ESS-103412-S02-2	63	82	ESS-103412-S02-2	23	15
ESS-BG-11-0	62	61	ESS-BG-11-0	48	36
ESS-111304-S01-0	62	72	ESS-111304-S01-0	18	20
ESS-121101-S01-2	60	95	ESS-121101-S01-2	44	47
ESS-121109-S02-2	60	120	ESS-121109-S02-2	30	26
ESS-103232-S01-6	59	180	ESS-103232-S01-6	80	55
ESS-BG-11-6	55	30	ESS-BG-11-6	44	55

**Table D-1 Laboratory Data Summary
With XRF Result
Eureka Smelter Sites
Assessment
Eureka, Eureka County, Nevada**

Project No. EE-002693-2177

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

Sample Number	U.S. EPA Richmond Laboratory Lead Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Lead Results (mg/kg) sieved/cup	Sample Number	U.S. EPA Richmond Laboratory Arsenic Results by EPA Method 6010C (mg/kg) sieved/cup	START XRF Arsenic Results (mg/kg) sieved/cup
ESS-121110-S01-2	55	69	ESS-121110-S01-2	27	26
ESS-101214-P3-6	49	55	ESS-101214-P3-6	59	59
ESS-121207-S03-6	48	58	ESS-121207-S03-6	30	30
ESS-121109-S03-6	45	53	ESS-121109-S03-6	54	43
ESS-BG-9-0	44	59	ESS-BG-9-0	55	53
ESS-121111-S01-2	44	54	ESS-121111-S01-2	25	23
ESS-DR-4-0	42	93	ESS-DR-4-0	31	48
ESS-121108-S03-0	39	63	ESS-121108-S03-0	29	19
ESS-121108-S02-0	38	45	ESS-121108-S02-0	25	24
ESS-121102-S03-0	38	52	ESS-121102-S03-0	13	17
ESS-BG-10-0	33	38	ESS-BG-10-0	59	47
ESS-NDEP103-P2-6	32	36	ESS-NDEP103-P2-6	42	41
ESS-740021-S01-2	31	45	ESS-740021-S01-2	13	0
ESS-121103-S01-2	28	41	ESS-121103-S01-2	24	23
ESS-B-7-6	25	57	ESS-B-7-6	65	56
ESS-121208-P1-2	25	42	ESS-121208-P1-2	14	17
ESS-115503-S07-2	24	40	ESS-115503-S07-2	11	7
ESS-BG-8-0	23	67	ESS-BG-8-0	45	53
ESS-101233-S01-7	20	30	ESS-101233-S01-7	23	25
ESS-103210-S02-6	19	36	ESS-103210-S02-6	17	18
ESS-BKG-B5-2	15	36	ESS-BKG-B5-2	12	14
ESS-740022-S01-2	14	21	ESS-740022-S01-2	8	11
ESS-BKG -3-2	14	28	ESS-BKG -3-2	8	14
ESS-BKG-BKG-02-6	11	24	ESS-BKG-BKG-02-6	9	13
ESS-BKG-B1-0	7	42	ESS-BKG-B1-0	2	0

Notes:

mg/kg = milligrams per kilogram

U.S. EPA = United States Environmental Protection Agency

START = Superfund Technical Assessment and Response Team

XRF = X-Ray Fluorescence

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

Bold = Above the SSL

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

Ecology and Environment Inc. 2013

Appendix E:
Laboratory Analysis
and Data Validation
Reports

Appendix F:
XRF Analysis
QA/QC Summary

Field Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
ESS-119103-S03-0	20000	3800	92%	92%	13,700	2,600
ESS-119103-S03-5000	7400	1400	92%	92%		
ESS-116105-S02-2	870	140	74%	80%	635	100
ESS-116105-S02-5002	400	60	74%	80%		
ESS-120203-P2-2	8500	1600	72%	77%	6,250	1,155
ESS-120203-P2-5002	4000	710	72%	77%		
ESS-NDEP-94-P6-5006	860	130	94%	71%	585	96
ESS-NDEP-94-P6-6	310	62	94%	71%		
ESS-AD-2-5000	5100	1000	52%	61%	4,050	765
ESS-AD-2-0	3000	530	52%	61%		
ESS-121209-S01-6	210	54	98%	57%	141	42
ESS-121101-S01-5006	72	30	98%	57%		
ESS-113616-S02-5000	23000	5900	36%	54%	19,500	4,650
ESS-113616-S02-0	16000	3400	36%	54%		
ESS-102112-S07-2	47	7	35%	53%	40	10
ESS-102112-S07-5002	33	12	35%	53%		
ESS-121202-S02-2	110	36	63%	53%	84	29
ESS-121202-S02-5002	57	21	63%	53%		
ESS-103306-S02-5000	2800	370	55%	51%	2,200	295
ESS-103306-S02-0	1600	220	55%	51%		
ESS-103703-S02-5006	640	110	84%	49%	450	89
ESS-103703-S02-6	260	67	84%	49%		
ESS-110502-S01-5006	1200	180	34%	48%	1,025	145
ESS-110502-S01-6	850	110	34%	48%		
ESS-115401-S01-6	10000	1800	38%	48%	8,400	1,450
ESS-115401-S01-5006	6800	1100	38%	48%		
ESS-121102-S02-5002	83	28	79%	43%	60	23
ESS-121102-S02-2	36	18	79%	43%		
ESS-105701-S02-5002	880	130	36%	43%	745	107
ESS-105701-S02-2	610	84	36%	43%		
ESS-101224-S01-5002	550	120	29%	40%	480	100
ESS-101224-S01-2	410	80	29%	40%		
ESS-120201-P5-6	1400	240	43%	40%	1,150	200
ESS-120201-P5-5006	900	160	43%	40%		
ESS-107403-P3-5006	1800	260	32%	36%	1,550	220
ESS-107403-P3-6	1300	180	32%	36%		
ESS-103305-P3-5006	22000	4600	32%	36%	19,000	3,900
ESS-103305-P3-6	16000	3200	32%	36%		
ESS-NDEP103-P5-2	120	33	18%	36%	110	28
ESS-NDEP103-P5-5002	100	23	18%	36%		
ESS-740021-S02-5000	29	7	23%	35%	26	9
ESS-740021-S02-0	23	10	23%	35%		
ESS-CR-S-03-U-2	340	81	34%	35%	290	69
ESS-CR-S-03-U-5002	240	57	34%	35%		
ESS-113409-S01-5006	160	45	66%	34%	121	39
ESS-113409-S01-6	81	32	66%	34%		
ESS-115401-S02-5002	8000	1400	29%	33%	7,000	1,200
ESS-115401-S02-2	6000	1000	29%	33%		
ESS-110403-S02-5002	1100	120	10%	33%	1,050	103
ESS-110403-S02-2	1000	86	10%	33%		
ESS-109502-S03-0	190	50	30%	33%	165	43
ESS-109502-S03-5000	140	36	30%	33%		
ESS-102112-S01-5000	240	48	23%	31%	215	42
ESS-102112-S01-0	190	35	23%	31%		
ESS-107106-S02-0	1200	150	9%	31%	1,150	130
ESS-107106-S02-5000	1100	110	9%	31%		
ESS-BKG-B6-2	49	15	11%	31%	47	13
ESS-BKG-B6-5002	44	11	11%	31%		
ESS-103205-S02-5002	600	120	11%	30%	570	105
ESS-103205-S02-2	540	89	11%	30%		

Field Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
ESS-115401-S04-0	<u>8300</u>	<u>1100</u>	14%	29%	<u>7,750</u>	<u>961</u>
ESS-115401-S04-5000	<u>7200</u>	<u>822</u>	14%	29%		
ESS-121107-S03-6	65	21	18%	29%	60	25
ESS-121107-S03-5006	54	28	18%	29%		
ESS-113106-S02-5000	<u>5100</u>	<u>920</u>	24%	29%	<u>4,550</u>	<u>805</u>
ESS-113106-S02-0	<u>4000</u>	<u>690</u>	24%	29%		
ESS-BKG-BKG-02-2	30	12	26%	29%	27	14
ESS-BKG-BKG-02-5002	23	16	26%	29%		
ESS-NDEP103-P3-0	<u>900</u>	<u>84</u>	12%	27%	<u>850</u>	97
ESS-NDEP103-P3-5000	<u>800</u>	<u>110</u>	12%	27%		
ESS-106304-S04-0	130	26	30%	26%	113	23
ESS-106304-S04-5000	96	20	30%	26%		
ESS-120201-P1-5000	<u>5100</u>	<u>890</u>	17%	25%	<u>4,700</u>	<u>790</u>
ESS-120201-P1-0	<u>4300</u>	<u>690</u>	17%	25%		
ESS-107403-S02-0	<u>2600</u>	<u>330</u>	17%	24%	<u>2,400</u>	<u>295</u>
ESS-107403-S02-5000	<u>2200</u>	<u>260</u>	17%	24%		
ESS-121107-S05-2	44	16	10%	22%	42	18
ESS-121107-S05-5002	40	20	10%	22%		
ESS-106307-S01-2	<u>590</u>	<u>88</u>	9%	21%	<u>565</u>	<u>80</u>
ESS-106307-S01-5002	<u>540</u>	<u>71</u>	9%	21%		
ESS-103212-S01-5006	240	<u>63</u>	4%	21%	235	<u>71</u>
ESS-103212-S01-6	230	<u>78</u>	4%	21%		
ESS-107403-S03-5006	<u>1250</u>	<u>210</u>	13%	21%	<u>1,175</u>	<u>190</u>
ESS-107403-S03-6	<u>1100</u>	<u>170</u>	13%	21%		
ESS-109501-S01-5002	<u>1500</u>	<u>210</u>	14%	21%	<u>1,400</u>	<u>190</u>
ESS-109501-S01-2	<u>1300</u>	<u>170</u>	14%	21%		
ESS-121208-S02-5006	36	17	18%	21%	33	19
ESS-121208-S02-6	30	21	18%	21%		
ESS-116101-S01-6	<u>11500</u>	<u>2100</u>	24%	21%	<u>10,250</u>	<u>1,900</u>
ESS-116101-S01-5006	<u>9000</u>	<u>1700</u>	24%	21%		
ESS-122201-P2-2	<u>2000</u>	<u>370</u>	11%	21%	<u>1,900</u>	<u>335</u>
ESS-122201-P2-5002	<u>1800</u>	<u>300</u>	11%	21%		
ESS-103311-S01-5002	<u>1000</u>	<u>160</u>	38%	21%	<u>840</u>	<u>145</u>
ESS-103311-S01-2	<u>680</u>	<u>130</u>	38%	21%		
ESS-AD-25-5000	220	<u>87</u>	75%	20%	160	<u>79</u>
ESS-AD-25-0	100	<u>71</u>	75%	20%		
ESS-113616-S01-5002	<u>580</u>	<u>100</u>	15%	20%	<u>540</u>	<u>91</u>
ESS-113616-S01-2	<u>500</u>	<u>82</u>	15%	20%		
ESS-106304-S06-5002	280	46	15%	19%	260	42
ESS-106304-S06-2	240	38	15%	19%		
ESS-106304-S05-2	<u>2200</u>	<u>410</u>	10%	19%	<u>2,100</u>	<u>375</u>
ESS-106304-S05-5002	<u>2000</u>	<u>340</u>	10%	19%		
ESS-103106-S03-5002	<u>3000</u>	<u>470</u>	35%	19%	<u>2,550</u>	<u>430</u>
ESS-103106-S03-2	<u>2100</u>	<u>390</u>	35%	19%		
ESS-AD-15-5000	<u>850</u>	<u>120</u>	1%	18%	<u>845</u>	<u>110</u>
ESS-AD-15-0	<u>840</u>	<u>100</u>	1%	18%		
ESS-102101-P1-0	<u>510</u>	<u>72</u>	2%	18%	<u>505</u>	<u>66</u>
ESS-102101-P1-5000	<u>500</u>	<u>60</u>	2%	18%		
ESS-106305-S01-0	<u>1300</u>	<u>180</u>	17%	18%	<u>1,200</u>	<u>165</u>
ESS-106305-S01-5000	<u>1100</u>	<u>150</u>	17%	18%		
ESS-AD-9-2	120	31	20%	18%	109	29
ESS-AD-9-5002	98	26	20%	18%		
ESS-121110-S03-0	56	22	0%	17%	56	24
ESS-121110-S03-5000	56	26	0%	17%		
ESS-109107-S03-5000	300	41	35%	16%	255	38
ESS-109107-S03-2	210	35	35%	16%		
ESS-BKG-B4-0	47	12	4%	15%	46	13
ESS-BKG-B4-5000	45	14	4%	15%		
ESS-121211-S01-5002	60	21	20%	15%	55	20
ESS-121211-S01-2	49	18	20%	15%		
ESS-CR-S-09-D-5000	<u>870</u>	<u>140</u>	23%	15%	<u>780</u>	<u>130</u>
ESS-CR-S-09-D-0	<u>690</u>	<u>120</u>	23%	15%		
ESS-108603-S01-2	<u>800</u>	<u>85</u>	24%	15%	<u>715</u>	<u>79</u>
ESS-108603-S01-5002	<u>630</u>	<u>73</u>	24%	15%		
ESS-102101-S03-5002	78	36	1%	15%	78	34

Field Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
ESS-102101-S03-2	77	31	1%	15%		
ESS-113105-S01-0	1150	150	17%	14%	1,060	140
ESS-113105-S01-5000	970	130	17%	14%		
ESS-CR-S-03-D-2	310	54	0%	14%	310	51
ESS-CR-S-03-D-5002	310	47	0%	14%		
ESS-101232-S01-5000	380	86	5%	13%	370	92
ESS-101232-S01-0	360	98	5%	13%		
ESS-118102-S05-5000	190	33	30%	13%	165	31
ESS-118102-S05-0	140	29	30%	13%		
ESS-101228-S01-5006	740	180	3%	12%	730	170
ESS-101228-S01-6	720	160	3%	12%		
ESS-AD-20-5002	71	24	4%	12%	70	26
ESS-AD-20-2	68	27	4%	12%		
ESS-NDEP-94-P1-5000	1400	180	15%	12%	1,300	170
ESS-NDEP-94-P1-0	1200	160	15%	12%		
ESS-AD-47A-5002	110	17	14%	11%	103	18
ESS-AD-47A-2	96	19	14%	11%		
ESS-111304-S02-5000	250	32	17%	10%	230	31
ESS-111304-S02-0	210	29	17%	10%		
ESS-118302-S02-2	150	75	22%	10%	135	72
ESS-118302-S02-5002	120	68	22%	10%		
ESS-113616-S02-5006	510	110	19%	10%	465	105
ESS-113616-S02-6	420	100	19%	10%		
ESS-103412-S01-2	770	110	8%	9%	740	115
ESS-103412-S01-5002	710	120	8%	9%		
ESS-BKG -6-5002	27	12	12%	9%	26	12
ESS-BKG -6-2	24	11	12%	9%		
ESS-115101-S03-5006	540	97	10%	9%	515	93
ESS-115101-S03-6	490	89	10%	9%		
ESS-115202-S03-2	89	69	13%	8%	84	72
ESS-115202-S03-5002	78	75	13%	8%		
ESS-103810-S03-0	380	64	11%	8%	360	62
ESS-103810-S03-5000	340	59	11%	8%		
ESS-121107-S04-2	130	26	31%	8%	113	25
ESS-121107-S04-5002	95	24	31%	8%		
ESS-115503-S03-5000	140	30	7%	7%	135	29
ESS-115503-S03-0	130	28	7%	7%		
ESS-BKG-B5-5006	47	14	14%	7%	44	15
ESS-BKG-B5-6	41	15	14%	7%		
ESS-101210-P6-2	3900	760	3%	7%	3,850	735
ESS-101210-P6-5002	3800	710	3%	7%		
ESS-113601-S01-2	620	96	21%	6%	560	93
ESS-113601-S01-5002	500	90	21%	6%		
ESS-AD-45-5002	900	160	1%	6%	895	165
ESS-AD-45-2	890	170	1%	6%		
ESS-DR-5002-0	170	34	6%	6%	165	33
ESS-DR-2-0	160	32	6%	6%		
ESS-121109-S03-2	75	49	1%	6%	75	51
ESS-121109-S03-5002	74	52	1%	6%		
ESS-101110-S01-0	1800	350	12%	6%	1,700	340
ESS-101110-S01-5000	1600	330	12%	6%		
ESS-1011210-P5-0	9100	1800	8%	6%	8,750	1,750
ESS-1011210-P5-5000	8400	1700	8%	6%		
ESS-106304-S09-6	1000	190	11%	5%	950	185
ESS-106304-S09-5006	900	180	11%	5%		
ESS-115302-S03-5006	4600	760	4%	5%	4,500	780
ESS-115302-S03-6	4400	800	4%	5%		
ESS-111604-S01-2	1600	220	6%	4%	1,550	225
ESS-111604-S01-5002	1500	230	6%	4%		
ESS-102205-S01-2	50	23	22%	4%	45	23
ESS-102205-S01-5002	40	22	22%	4%		
ESS-108401-S03-2	500	76	11%	4%	475	75
ESS-108401-S03-5002	450	73	11%	4%		
ESS-101227-P3-5002	84	26	0%	4%	84	26
ESS-101227-P3-2	84	25	0%	4%		

Field Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
ESS-103202-S02-5006	<u>1700</u>	<u>250</u>	6%	4%	<u>1,650</u>	<u>255</u>
ESS-103202-S02-6	<u>1600</u>	<u>260</u>	6%	4%		
ESS-B-7-5006	33	<u>57</u>	10%	4%	32	<u>56</u>
ESS-B-7-6	30	<u>55</u>	10%	4%		
ESS-108105-S03-6	220	32	0%	3%	220	32
ESS-108105-S03-5006	220	31	0%	3%		
ESS-121107-S02-5000	100	34	11%	3%	95	35
ESS-121107-S02-0	90	35	11%	3%		
ESS-102205-S03-5000	335	35	41%	3%	278	35
ESS-102205-S03-0	220	34	41%	3%		
ESS-109502-S01-5002	400	<u>72</u>	29%	3%	350	<u>71</u>
ESS-109502-S01-2	300	<u>70</u>	29%	3%		
ESS-1011210-P1-6	<u>4900</u>	<u>890</u>	2%	2%	<u>4,850</u>	<u>880</u>
ESS-1011210-P1-5006	<u>4800</u>	<u>870</u>	2%	2%		
ESS-AD-40-5000	260	45	4%	2%	255	45
ESS-AD-40-0	250	44	4%	2%		
ESS-115503-S08-0	120	<u>53</u>	23%	2%	108	<u>54</u>
ESS-115503-S08-5000	95	<u>54</u>	23%	2%		
ESS-101211-P2-6	79	<u>79</u>	3%	1%	78	<u>79</u>
ESS-101211-P2-5006	77	<u>78</u>	3%	1%		
ESS-111703-S01-0	<u>1600</u>	<u>200</u>	0%	0%	<u>1,600</u>	<u>200</u>
ESS-111703-S01-5000	<u>1600</u>	<u>200</u>	0%	0%		
ESS-AD-30-2	220	<u>69</u>	0%	0%	220	<u>69</u>
ESS-AD-30-5002	220	<u>69</u>	0%	0%		
ESS-BKG -5-6	24	<10	0%	0%	24	<10
ESS-BKG -5-5006	24	9	0%	0%		
ESS-113104-S02-5002	<u>740</u>	<u>140</u>	1%	0%	<u>735</u>	<u>140</u>
ESS-113104-S02-2	<u>730</u>	<u>140</u>	1%	0%		
ESS-121110-S01-5000	70	28	1%	0%	70	28
ESS-121110-S01-0	69	28	1%	0%		
ESS-121207-S02-0	79	33	3%	0%	78	33
ESS-121207-S02-5000	77	33	3%	0%		
ESS-101211-P5-0	<u>7800</u>	<u>1600</u>	3%	0%	<u>7,700</u>	<u>1,600</u>
ESS-101211-P5-5000	<u>7600</u>	<u>1600</u>	3%	0%		
ESS-103207-P1-5000	<u>3500</u>	<u>470</u>	3%	0%	<u>3,450</u>	<u>470</u>
ESS-103207-P1-0	<u>3400</u>	<u>470</u>	3%	0%		
ESS-740022-S02-6	26	13	4%	0%	26	13
ESS-740022-S02-5006	25	13	4%	0%		
ESS-103211-S03-6	<u>930</u>	<u>130</u>	4%	0%	<u>910</u>	<u>130</u>
ESS-103211-S03-5006	<u>890</u>	<u>130</u>	4%	0%		
ESS-AD-5-0	<u>2200</u>	<u>310</u>	5%	0%	<u>2,150</u>	<u>310</u>
ESS-AD-5-5000	<u>2100</u>	<u>310</u>	5%	0%		
ESS-121203-S01-0	130	44	8%	0%	125	44
ESS-121203-S01-5000	120	44	8%	0%		
ESS-113101-S02-2	<u>1200</u>	<u>180</u>	9%	0%	<u>1,150</u>	<u>180</u>
ESS-113101-S02-5002	<u>1100</u>	<u>180</u>	9%	0%		
ESS-CR-S-06-D-5006	<u>1000</u>	<u>120</u>	9%	0%	<u>955</u>	<u>120</u>
ESS-CR-S-06-D-6	<u>910</u>	<u>120</u>	9%	0%		
ESS-113605-S03-2	<u>2200</u>	<u>300</u>	10%	0%	<u>2,100</u>	<u>300</u>
ESS-113605-S03-5002	<u>2000</u>	<u>300</u>	10%	0%		
ESS-121207-S03-5006	64	30	10%	0%	61	30
ESS-121207-S03-6	58	30	10%	0%		
		Average	21%	20%		

Prep Duplicate

Lab Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
202-S02-6	1623	264	4.7%	3.7%	<u>1.662</u>	<u>269</u>
	1701	274	4.7%	3.7%		
202-S02-5006	1696	288	4.6%	14.2%	<u>1.736</u>	<u>310</u>
	1775	332	4.6%	14.2%		
106-S03-6	1480	268	4.9%	7.4%	<u>1.518</u>	<u>259</u>
	1555	249	4.9%	7.4%		
233-S01-0	1506	256	2.5%	6.9%	<u>1.525</u>	<u>248</u>
233-S01-0-PD	1544	239	2.5%	6.9%		
232-S01-0	185	80	1.1%	17.7%	<u>186</u>	<u>74</u>
232-S01-0-PD	187	67	1.1%	17.7%		
234-S01-2	416	77	0.7%	8.7%	<u>418</u>	<u>81</u>
234-S01-2-PD	419	84	0.7%	8.7%		
C-5	628	106	0.8%	13.1%	<u>626</u>	<u>100</u>
C-5-PD	623	93	0.8%	13.1%		
C-25	2317	391	2.3%	1.3%	<u>2.344</u>	<u>394</u>
C-25-PD	2371	396	2.3%	1.3%		
D-63	1202	209	2.5%	3.4%	<u>1.187</u>	<u>206</u>
D-63-PD	1172	202	2.5%	3.4%		
D-86	215	64	3.7%	6.5%	<u>219</u>	<u>62</u>
D-86-PD	223	60	3.7%	6.5%		
E-63	984	175	4.5%	8.3%	<u>963</u>	<u>168</u>
E-63-PD	941	161	4.5%	8.3%		
D-101	58	9	9.0%	28.6%	<u>56</u>	<u>11</u>
D-101-PD	53	12	9.0%	28.6%		
D-96	726	128	6.3%	11.8%	<u>750</u>	<u>136</u>
D-96-PD	773	144	6.3%	11.8%		
E-37	20543	3852	5.0%	9.1%	<u>21.069</u>	<u>4.036</u>
E-37-PD	21595	4220	5.0%	9.1%		
F-53	7210	822	0.1%	2.4%	<u>7.215</u>	<u>832</u>
F-53-PD	7219	842	0.1%	2.4%		
F-35	1799	270	1.2%	0.4%	<u>1.788</u>	<u>270</u>
F-35-PD	1777	269	1.2%	0.4%		
F-28	2230	262	2.2%	15.5%	<u>2.206</u>	<u>284</u>
F-28-PD	2182	306	2.2%	15.5%		
F-03	1805	253	9.2%	20.0%	<u>1.726</u>	<u>230</u>
F-03-PD	1646	207	9.2%	20.0%		
G-17	644	106	2.6%	9.9%	<u>653</u>	<u>101</u>
G-17-PD	661	96	2.6%	9.9%		
G-10	206	30	4.5%	23.5%	<u>202</u>	<u>34</u>
G-10-PD	197	38	4.5%	23.5%		
G-37	241	59	0.8%	3.4%	<u>240</u>	<u>58</u>
G-37-PD	239	57	0.8%	3.4%		
G-27	195	48	21.6%	23.3%	<u>176</u>	<u>43</u>
G-27-PD	157	38	21.6%	23.3%		
H-10	1916	338	0.4%	9.0%	<u>1.920</u>	<u>324</u>
H-10-PD	1923	309	0.4%	9.0%		
G-75	777	90	0.1%	14.3%	<u>778</u>	<u>84</u>
G-75-PD	778	78	0.1%	14.3%		
H-40	205	29	6.1%	3.4%	<u>212</u>	<u>30</u>
H-40-PD	218	30	6.1%	3.4%		
H-19	1197	250	7.8%	3.5%	<u>1.246</u>	<u>255</u>
H-19-PD	1294	259	7.8%	3.5%		
I-49	56	21	0.0%	4.7%	<u>56</u>	<u>22</u>
I-49-PD	56	22	0.0%	4.7%		
I-02	42	19	13.3%	11.1%	<u>45</u>	<u>18</u>
I-02-PD	48	17	13.3%	11.1%		
I-57	50	29	13.1%	10.9%	<u>54</u>	<u>28</u>
I-57-PD	57	26	13.1%	10.9%		
I-18	52	38	1.9%	23.3%	<u>53</u>	<u>43</u>
I-18-PD	53	48	1.9%	23.3%		

Prep Duplicate

Lab Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
J-44	118	28	6.1%	15.4%	<u>115</u>	<u>26</u>
J-44-PD	111	24	6.1%	15.4%		
J-27	485	75	16.8%	27.3%	<u>448</u>	<u>66</u>
J-27-PD	410	57	16.8%	27.3%		
J-10	29	15	15.9%	6.9%	<u>32</u>	<u>15</u>
J-10-PD	34	14	15.9%	6.9%		
J-49	237	52	5.3%	16.7%	<u>244</u>	<u>48</u>
J-49-PD	250	44	5.3%	16.7%		
K-45	63	31	1.6%	6.7%	<u>64</u>	<u>30</u>
K-45-PD	64	29	1.6%	6.7%		
K-20	54	31	23.0%	38.5%	<u>61</u>	<u>26</u>
K-25-PD	68	21	23.0%	38.5%		
L-110	10682	1913	1.3%	1.1%	<u>10,755</u>	<u>1,903</u>
L-110-PD	10827	1892	1.3%	1.1%		
L-90	1739	226	1.4%	3.1%	<u>1,727</u>	<u>230</u>
L-90-PD	1715	233	1.4%	3.1%		
L-53	915	217	9.2%	5.8%	<u>959</u>	<u>224</u>
L-53-PD	1003	230	9.2%	5.8%		
L-46	261	34	0.4%	18.7%	<u>261</u>	<u>38</u>
L-46-PD	260	41	0.4%	18.7%		
L-01	8948	1244	2.9%	3.6%	<u>9,079</u>	<u>1,267</u>
L-01-PD	9209	1289	2.9%	3.6%		
L-28	922	116	7.5%	10.9%	<u>889</u>	<u>110</u>
L-28-PD	855	104	7.5%	10.9%		
M-22	65	29	8.8%	7.1%	<u>68</u>	<u>28</u>
M-22-PD	71	27	8.8%	7.1%		
M-48	1017	214	1.4%	1.4%	<u>1,010</u>	<u>216</u>
M-48-PD	1003	217	1.4%	1.4%		
M-93	39	10	10.8%	51.9%	<u>37</u>	<u>14</u>
M-93-PD	35	17	10.8%	51.9%		
M-07	1650	308	28.3%	27.2%	<u>1,922</u>	<u>357</u>
M-07-PD	2193	405	28.3%	27.2%		
M-40	718	148	2.7%	9.9%	<u>728</u>	<u>141</u>
M-40-PD	738	134	2.7%	9.9%		
M-82	28	19	35.3%	17.1%	<u>34</u>	<u>18</u>
M-82-PD	40	16	35.3%	17.1%		
M-117	949	141	0.0%	3.5%	<u>949</u>	<u>144</u>
M-117-PD	949	146	0.0%	3.5%		
N-56	59	53	0.0%	1.9%	<u>59</u>	<u>53</u>
N-56-PD	59	52	0.0%	1.9%		
N-77	40	47	10.5%	2.2%	<u>38</u>	<u>47</u>
N-77-PD	36	46	10.5%	2.2%		
N-28	31	15	3.2%	18.2%	<u>32</u>	<u>17</u>
N-28-PD	32	18	3.2%	18.2%		
N-08	281	35	0.4%	2.8%	<u>281</u>	<u>36</u>
N-08-PD	280	36	0.4%	2.8%		
N-78	28	39	10.2%	2.5%	<u>30</u>	<u>40</u>
N-78-PD	31	40	10.2%	2.5%		
Q-50	728	161	3.9%	9.1%	<u>714</u>	<u>154</u>
Q-50-PD	700	147	3.9%	9.1%		
Q-13	2693	527	0.9%	0.8%	<u>2,682</u>	<u>529</u>
Q-13-PD	2670	531	0.9%	0.8%		
P-52	3974	699	6.0%	3.1%	<u>4,098</u>	<u>710</u>
P-52-PD	4221	721	6.0%	3.1%		
Q-70	893	164	2.0%	3.7%	<u>902</u>	<u>161</u>
Q-70-PD	911	158	2.0%	3.7%		
Q-32	240	56	5.1%	3.5%	<u>234</u>	<u>57</u>
Q-32-PD	228	58	5.1%	3.5%		
P-8	1675	334	0.2%	19.9%	<u>1,674</u>	<u>371</u>
P-8-PD	1672	408	0.2%	19.9%		
P-39	2327	491	6.4%	11.7%	<u>2,404</u>	<u>522</u>
P-39-PD	2481	552	6.4%	11.7%		
P-18	5202	893	0.4%	2.7%	<u>5,214</u>	<u>905</u>
P-18-PD	5225	917	0.4%	2.7%		
		Average	6%	11%		

Instrument Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
108-S01-0	465	75	2.0%	8.3%	<u>461</u>	<u>72</u>
	456	69	2.0%	8.3%		
224-S01-6	885	184	2.3%	9.7%	<u>875</u>	<u>176</u>
	865	167	2.3%	9.7%		
106-S01-5006	373	61	3.7%	5.0%	<u>380</u>	<u>60</u>
	387	58	3.7%	5.0%		
412-S01-2	765	105	1.2%	7.3%	<u>761</u>	<u>109</u>
	756	113	1.2%	7.3%		
235-S01-2	621	154	3.8%	8.1%	<u>633</u>	<u>148</u>
	645	142	3.8%	8.1%		
412-S02-2	79	27	5.2%	23.0%	<u>77</u>	<u>31</u>
	75	34	5.2%	23.0%		
C-64	327	82	0.6%	2.5%	<u>326</u>	<u>81</u>
	325	80	0.6%	2.5%		
C-31	55	59	5.6%	1.7%	<u>54</u>	<u>60</u>
	52	60	5.6%	1.7%		
C-53	1471	247	0.3%	8.2%	<u>1,469</u>	<u>258</u>
	1466	268	0.3%	8.2%		
D-1	4053	685	25.9%	11.1%	<u>3,588</u>	<u>649</u>
	3123	613	25.9%	11.1%		
D-20	377	109	2.9%	8.6%	<u>383</u>	<u>105</u>
	388	100	2.9%	8.6%		
C-43	780	166	4.4%	12.1%	<u>798</u>	<u>157</u>
	815	147	4.4%	12.1%		
D-16	145	41	1.4%	2.4%	<u>146</u>	<u>42</u>
	147	42	1.4%	2.4%		
D-48	445	17	0.2%	38.1%	<u>445</u>	<u>21</u>
	444	25	0.2%	38.1%		
D-62	1514	211	0.7%	8.2%	<u>1,519</u>	<u>220</u>
	1524	229	0.7%	8.2%		
D-45	337	35	1.2%	0.0%	<u>335</u>	<u>35</u>
	333	35	1.2%	0.0%		
E-07	2687	405	2.2%	9.3%	<u>2,718</u>	<u>387</u>
	2748	369	2.2%	9.3%		
E-10	5220	720	0.4%	3.5%	<u>5,231</u>	<u>708</u>
	5241	695	0.4%	3.5%		
E-42	612	96	1.5%	31.3%	<u>608</u>	<u>83</u>
	603	70	1.5%	31.3%		
E-12	11568	2146	0.6%	0.0%	<u>11,534</u>	<u>2,147</u>
	11499	2147	0.6%	0.0%		
E-61	832	112	1.7%	2.6%	<u>825</u>	<u>114</u>
	818	115	1.7%	2.6%		
E-81	134	25	6.5%	4.1%	<u>139</u>	<u>25</u>
	143	24	6.5%	4.1%		
F-72	2707	401	3.7%	5.6%	<u>2,658</u>	<u>413</u>
	2608	424	3.7%	5.6%		
F-70	7990	1397	2.3%	2.6%	<u>7,901</u>	<u>1,379</u>
	7811	1361	2.3%	2.6%		
F-09	1291	183	0.5%	1.7%	<u>1,294</u>	<u>182</u>
	1297	180	0.5%	1.7%		
F-29	3959	600	5.0%	13.5%	<u>3,863</u>	<u>562</u>
	3766	524	5.0%	13.5%		
G-71	97	55	4.2%	5.6%	<u>95</u>	<u>54</u>
	93	52	4.2%	5.6%		
G-43	71	23	2.8%	24.4%	<u>72</u>	<u>21</u>
	73	18	2.8%	24.4%		
G-36	108	67	4.5%	7.8%	<u>111</u>	<u>65</u>
	113	62	4.5%	7.8%		
G-68	27	12	3.6%	28.6%	<u>28</u>	<u>11</u>
	28	9	3.6%	28.6%		

Instrument Duplicates

Sample Number	START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
H-25	1157	106	0.9%	7.3%	<u>1,162</u>	<u>110</u>
	1167	114	0.9%	7.3%		
H-63	80	26	0.0%	3.8%	<u>80</u>	<u>27</u>
	80	27	0.0%	3.8%		
I-39	115	46	7.5%	14.0%	<u>120</u>	<u>43</u>
	124	40	7.5%	14.0%		
I-80	374	61	1.1%	6.8%	<u>376</u>	<u>59</u>
	378	57	1.1%	6.8%		
I-42	44	22	4.7%	4.7%	<u>43</u>	<u>22</u>
	42	21	4.7%	4.7%		
J-21	67	11	7.8%	16.7%	<u>65</u>	<u>12</u>
	62	13	7.8%	16.7%		
J-34	40	36	0.0%	11.8%	<u>40</u>	<u>34</u>
	40	32	0.0%	11.8%		
K-15	207	53	2.4%	3.7%	<u>210</u>	<u>54</u>
	212	55	2.4%	3.7%		
K-51	57	20	0.0%	4.9%	<u>57</u>	<u>21</u>
	57	21	0.0%	4.9%		
K-56	55	26	5.6%	3.8%	<u>54</u>	<u>27</u>
	52	27	5.6%	3.8%		
K-39	91	33	4.5%	12.9%	<u>89</u>	<u>31</u>
	87	29	4.5%	12.9%		
L-100	1066	213	3.3%	7.7%	<u>1,049</u>	<u>222</u>
	1031	230	3.3%	7.7%		
L-104	2256	289	4.2%	1.4%	<u>2,210</u>	<u>291</u>
	2163	293	4.2%	1.4%		
L-80	1015	142	0.9%	4.8%	<u>1,011</u>	<u>146</u>
	1006	149	0.9%	4.8%		
L-81	1189	167	1.6%	0.0%	<u>1,180</u>	<u>167</u>
	1170	167	1.6%	0.0%		
L-27	360	56	2.8%	3.5%	<u>355</u>	<u>57</u>
	350	58	2.8%	3.5%		
L-41	7627	1492	5.2%	11.6%	<u>7,436</u>	<u>1,410</u>
	7244	1328	5.2%	11.6%		
M-39	212	49	0.5%	5.9%	<u>213</u>	<u>51</u>
	213	52	0.5%	5.9%		
M-77	49	20	13.3%	5.1%	<u>53</u>	<u>20</u>
	56	19	13.3%	5.1%		
M-81	37	14	14.5%	15.4%	<u>35</u>	<u>13</u>
	32	12	14.5%	15.4%		
M-32	175	51	4.7%	3.8%	<u>171</u>	<u>52</u>
	167	53	4.7%	3.8%		
N-11	646	89	0.2%	2.2%	<u>647</u>	<u>90</u>
	647	91	0.2%	2.2%		
N-64	29	11	41.7%	0.0%	<u>24</u>	<u>11</u>
	19	11	41.7%	0.0%		
N-98	165	25	4.3%	4.1%	<u>162</u>	<u>25</u>
	158	24	4.3%	4.1%		
N-64	20	14	0.0%	24.0%	<u>20</u>	<u>13</u>
	20	11	0.0%	24.0%		
M-104	3880	547	2.5%	6.4%	<u>3,832</u>	<u>565</u>
	3784	583	2.5%	6.4%		
N-80	69	18	11.0%	11.8%	<u>73</u>	<u>17</u>
	77	16	11.0%	11.8%		
N-69	26	8	16.7%	22.2%	<u>24</u>	<u>9</u>
	22	10	16.7%	22.2%		
Q-19	2450	330	0.4%	5.3%	<u>2,455</u>	<u>322</u>
	2460	313	0.4%	5.3%		
P-30	8660	3410	5.3%	4.6%	<u>8,435</u>	<u>3,334</u>
	8210	3257	5.3%	4.6%		
Q-54	129	14	4.8%	6.9%	<u>126</u>	<u>15</u>
	123	15	4.8%	6.9%		
P-21	152	80	8.9%	6.5%	<u>146</u>	<u>78</u>
	139	75	8.9%	6.5%		
		Average	5%	9%		

Cross Instrument Duplicates

START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
879	183	3.6%	21.8%	<u>864</u>	<u>165</u>
848	147	3.6%	21.8%		
374	101	0.0%	23.2%	<u>374</u>	<u>91</u>
374	80	0.0%	23.2%		
5288	896	2.1%	14.1%	<u>5,232</u>	<u>837</u>
5176	778	2.1%	14.1%		
289	62	3.1%	3.3%	<u>294</u>	<u>61</u>
298	60	3.1%	3.3%		
76	67	84.4%	0.0%	<u>132</u>	<u>67</u>
187	67	84.4%	0.0%		
355	54	16.1%	29.9%	<u>329</u>	<u>64</u>
302	73	16.1%	29.9%		
222	37	4.8%	29.9%	<u>228</u>	<u>44</u>
233	50	4.8%	29.9%		
3105	523	1.4%	10.3%	<u>3,127</u>	<u>552</u>
3149	580	1.4%	10.3%		
2317	391	3.8%	2.9%	<u>2,362</u>	<u>386</u>
2406	380	3.8%	2.9%		
4077	679	2.4%	9.8%	<u>4,127</u>	<u>714</u>
4176	749	2.4%	9.8%		
110	62	0.0%	13.8%	<u>110</u>	<u>58</u>
110	54	0.0%	13.8%		
595	116	2.3%	25.2%	<u>602</u>	<u>103</u>
609	90	2.3%	25.2%		
6239	1049	2.7%	7.5%	<u>6,324</u>	<u>1,090</u>
6408	1131	2.7%	7.5%		
317	64	1.6%	17.1%	<u>320</u>	<u>70</u>
322	76	1.6%	17.1%		
21	20	28.6%	50.0%	<u>25</u>	<u>16</u>
28	12	28.6%	50.0%		
4053	685	4.7%	5.2%	<u>3,961</u>	<u>668</u>
3868	650	4.7%	5.2%		
40	22	18.2%	58.8%	<u>44</u>	<u>17</u>
48	12	18.2%	58.8%		
58	9	5.3%	11.8%	<u>57</u>	<u>9</u>
55	8	5.3%	11.8%		
475	54	2.6%	3.6%	<u>469</u>	<u>55</u>
463	56	2.6%	3.6%		
209	35	1.0%	2.9%	<u>208</u>	<u>35</u>
207	34	1.0%	2.9%		
3333	487	0.3%	0.8%	<u>3,339</u>	<u>489</u>
3344	491	0.3%	0.8%		
120	36	31.6%	0.0%	<u>143</u>	<u>36</u>
165	36	31.6%	0.0%		
1308	174	4.2%	0.0%	<u>1,336</u>	<u>174</u>
1364	174	4.2%	0.0%		
3959	600	1.8%	2.9%	<u>3,925</u>	<u>592</u>
3890	583	1.8%	2.9%		
507	62	0.4%	10.7%	<u>508</u>	<u>66</u>
509	69	0.4%	10.7%		
556	65	2.0%	9.7%	<u>551</u>	<u>62</u>
545	59	2.0%	9.7%		
262	52	11.5%	36.4%	<u>278</u>	<u>44</u>
294	36	11.5%	36.4%		
1910	338	2.9%	18.4%	<u>1,939</u>	<u>310</u>
1967	281	2.9%	18.4%		
263	82	5.5%	0.0%	<u>256</u>	<u>82</u>
249	82	5.5%	0.0%		
409	145	6.8%	7.9%	<u>424</u>	<u>140</u>
438	134	6.8%	7.9%		

Cross Instrument Duplicates

START XRF Lead Results (mg/kg) dry wt.	START XRF Arsenic Results (mg/kg) dry wt.	Lead RPD	Arsenic RPD	Average Lead	average Arsenic
39455	9190	2.8%	3.1%	<u>38,906</u>	<u>9,049</u>
38356	8907	2.8%	3.1%		
11456	1600	0.1%	0.3%	<u>11,450</u>	<u>1,603</u>
11444	1605	0.1%	0.3%		
1238	212	5.4%	1.4%	<u>1,206</u>	<u>214</u>
1173	215	5.4%	1.4%		
1650	308	19.8%	19.1%	<u>1,831</u>	<u>341</u>
2012	373	19.8%	19.1%		
2193	405	2.4%	8.8%	<u>2,220</u>	<u>388</u>
2246	371	2.4%	8.8%		
3518	602	0.7%	1.0%	<u>3,506</u>	<u>605</u>
3493	608	0.7%	1.0%		
31	15	3.2%	18.2%	<u>32</u>	<u>17</u>
32	18	3.2%	18.2%		
69	89	6.0%	10.6%	<u>67</u>	<u>94</u>
65	99	6.0%	10.6%		
1296	176	1.4%	2.2%	<u>1,305</u>	<u>178</u>
1314	180	1.4%	2.2%		
14977	3000	6.1%	10.1%	<u>15,447</u>	<u>3,160</u>
15917	3320	6.1%	10.1%		
430	69	2.5%	4.4%	<u>436</u>	<u>68</u>
441	66	2.5%	4.4%		
165	155	2.4%	17.5%	<u>167</u>	<u>143</u>
169	130	2.4%	17.5%		
64	12	1.6%	8.7%	<u>65</u>	<u>12</u>
65	11	1.6%	8.7%		
27443	24860	11.2%	16.7%	<u>25,986</u>	<u>22,947</u>
24528	21033	11.2%	16.7%		
642	118	2.2%	16.3%	<u>649</u>	<u>129</u>
656	139	2.2%	16.3%		
Average		7%	13%		

Site Specific Calibration check

Date	EM-8 Lead 510 (mg/kg)	EM-8 Arsenic 91 mg/kg	% Difference Lead	% Difference Arsenic
11/6/2012	504	75	-1%	-18%
11/6/2012	505	75	-1%	-18%
11/6/2012	497	66	-3%	-27%
11/7/2012	492	68	-4%	-25%
11/7/2012	486	69	-5%	-24%
11/7/2012	508	65	0%	-29%
11/7/2012	512	77	0%	-15%
11/7/2012	488	74	-4%	-19%
11/7/2012	506	78	-1%	-14%
11/7/2012	507	79	-1%	-13%
11/7/2012	512	69	0%	-24%
11/7/2012	496	65	-3%	-29%
11/7/2012	487	72	-5%	-21%
11/7/2012	497	60	-3%	-34%
11/7/2012	497	70	-3%	-23%
11/8/2012	494	73	-3%	-20%
11/8/2012	499	63	-2%	-31%
11/8/2012	487	66	-5%	-27%
11/8/2012	491	61	-4%	-33%
11/8/2012	500	67	-2%	-26%
11/8/2012	499	67	-2%	-26%
11/8/2012	511	64	0%	-30%
11/8/2012	507	70	-1%	-23%
11/8/2012	493	78	-3%	-14%
11/8/2012	511	67	0%	-26%
11/8/2012	506	74	-1%	-19%
11/8/2012	496	66	-3%	-27%
11/8/2012	505	70	-1%	-23%
11/8/2012	485	76	-5%	-16%
11/13/2012	508	61	0%	-33%
11/13/2012	495	69	-3%	-24%
11/13/2012	483	63	-5%	-31%
11/13/2012	494	62	-3%	-32%
11/13/2012	486	65	-5%	-29%
11/13/2012	510	62	0%	-32%
11/13/2012	507	70	-1%	-23%
11/13/2012	476	77	-7%	-15%
11/13/2012	498	68	-2%	-25%
11/13/2012	486	70	-5%	-23%
11/14/2012	489	70	-4%	-23%
11/14/2012	502	60	-2%	-34%
11/14/2012	495	72	-3%	-21%
11/14/2012	483	73	-5%	-20%
11/14/2012	502	78	-2%	-14%
11/14/2012	497	62	-3%	-32%
11/14/2012	494	71	-3%	-22%
11/14/2012	494	67	-3%	-26%
11/14/2012	504	71	-1%	-22%
Average	502.3	68.1	-2%	-25%
Std Dev	12.87	8.50		

NIST Calibration check

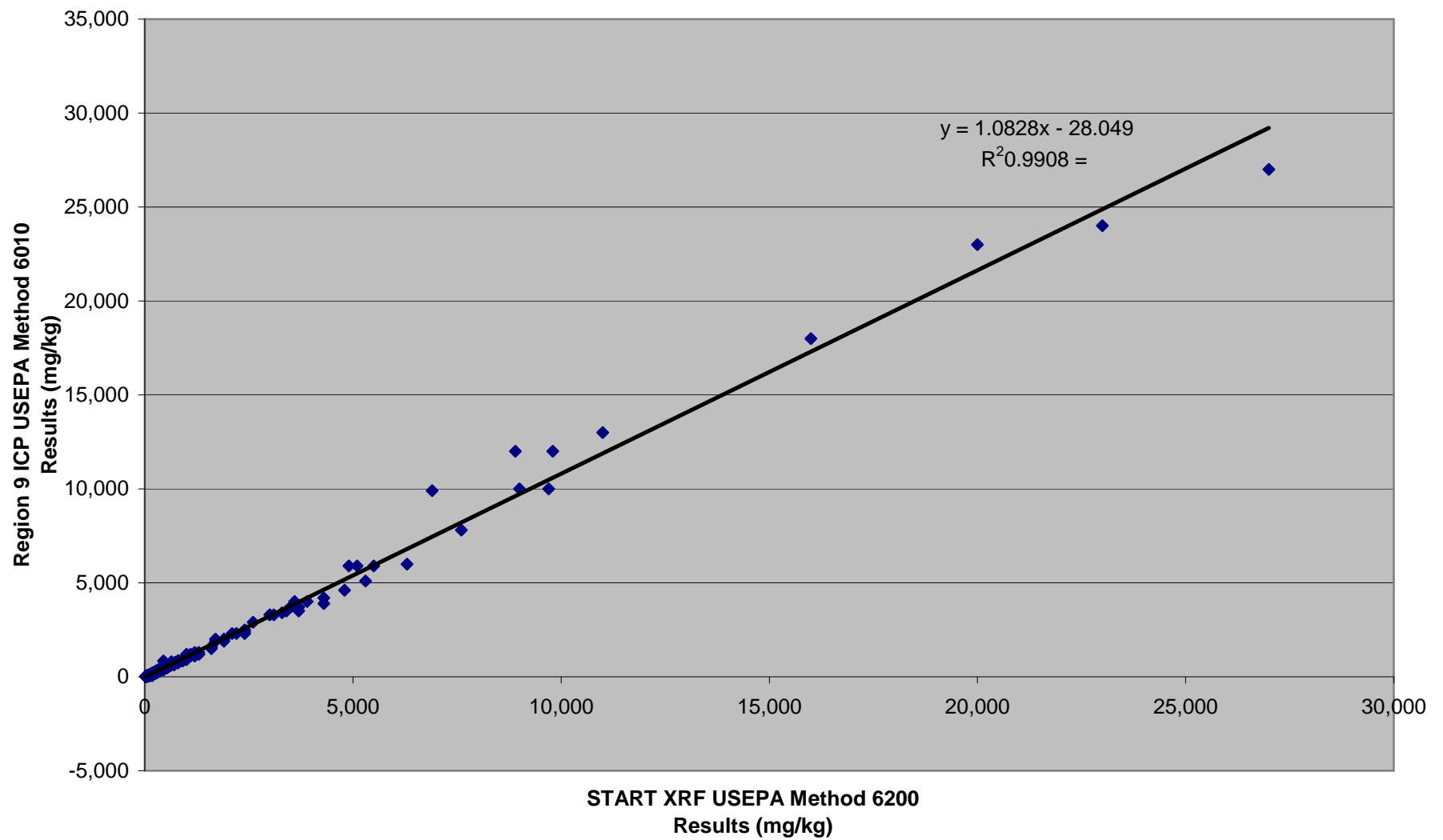
Date	NIST Lead 133 (mg/kg)	NIST Arsenic 45 mg/kg	% Difference Lead	% Difference Arsenic
10/16/2012	121	69	9%	53%
10/16/2012	121	47	9%	4%
10/17/2012	134	37	1%	18%
10/17/2012	123	44	8%	2%
10/17/2012	125	63	6%	40%
10/17/2012	127	70	5%	56%
10/18/2012	120	64	10%	42%
10/18/2012	132	38	1%	16%
10/19/2012	121	42	9%	7%
10/19/2012	137	41	3%	9%
10/19/2012	133	66	0%	47%
10/20/2012	125	49	6%	9%
10/20/2012	129	38	3%	16%
10/22/2012	136	43	2%	4%
10/22/2012	127	39	5%	13%
10/23/2012	127	39	5%	13%
10/23/2012	134	45	1%	0%
10/24/2012	128	37	4%	18%
10/24/2012	135	48	2%	7%
10/25/2012	128	37	4%	18%
10/25/2012	130	48	2%	7%
10/26/2012	135	45	2%	0%
10/26/2012	132	44	1%	2%
10/26/2012	134	45	1%	0%
10/26/2012	128	44	4%	2%
11/5/2012	130	44	2%	2%
11/5/2012	127	42	5%	7%
11/5/2012	139	39	5%	13%
11/5/2012	134	45	1%	0%
11/6/2012	123	44	8%	2%
11/6/2012	133	43	0%	4%
11/6/2012	128	44	4%	2%
11/6/2012	130	41	2%	9%
11/7/2012	131	46	2%	2%
11/7/2012	139	41	5%	9%
11/7/2012	131	38	2%	16%
11/7/2012	124	48	7%	7%
11/8/2012	137	42	3%	7%
11/8/2012	139	41	5%	9%
11/8/2012	134	44	1%	2%
11/8/2012	127	36	5%	20%
11/13/2012	141	36	6%	20%
11/13/2012	135	40	2%	11%
11/13/2012	128	48	4%	7%
11/13/2012	130	44	2%	2%
11/14/2012	131	37	2%	18%
11/14/2012	152	54	14%	20%
11/14/2012	132	37	1%	18%
11/14/2012	129	43	3%	4%
Average	130.7	44.9	2%	0%
Std Dev	6.0	8.3		

MDL Study

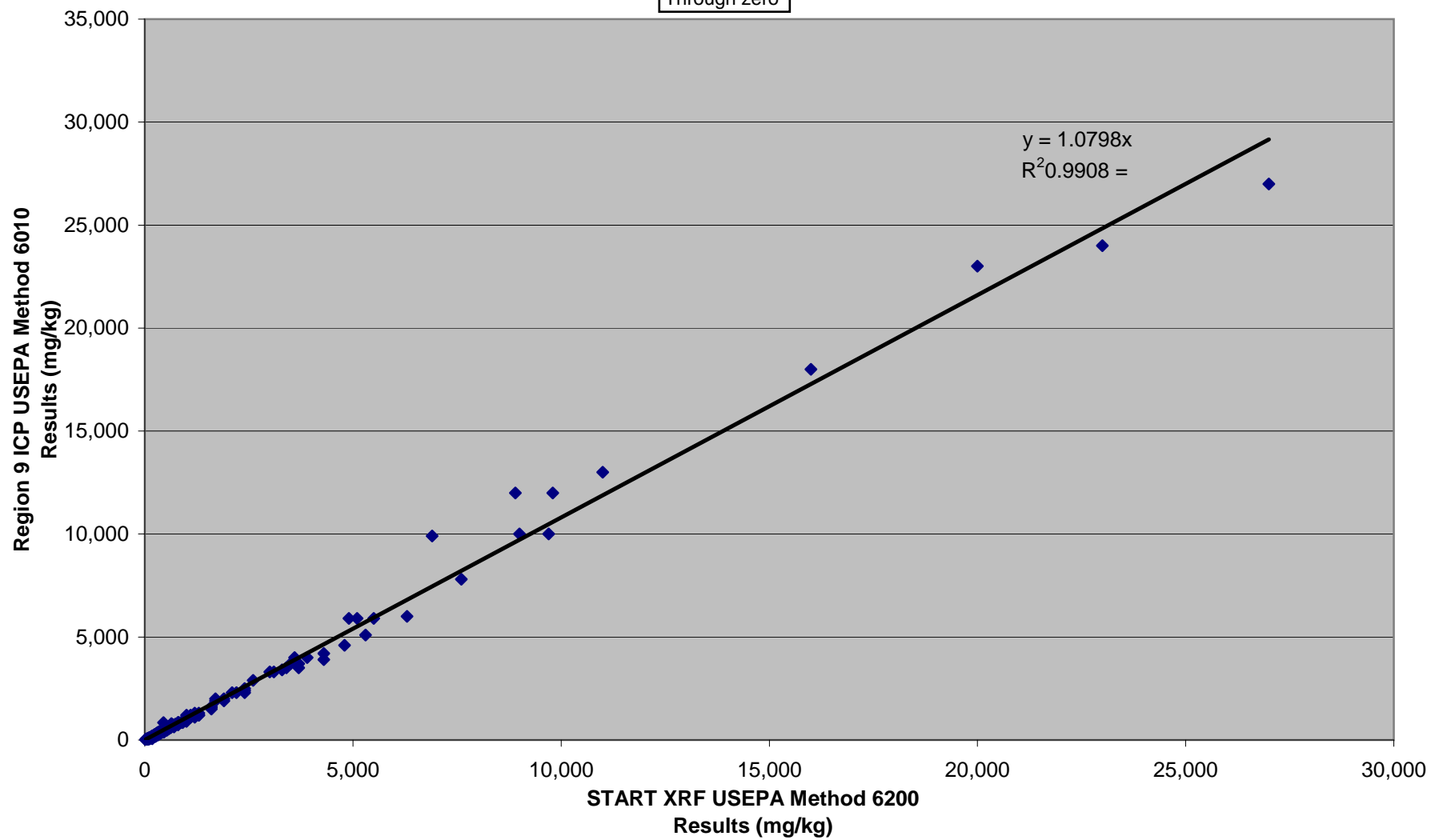
Instrument Serial #	Lead mg/kg	Arsenic mg/kg
11197	30	8
	33	10
	33	9
	30	12
	31	10
	32	10
	34	9
std dev	1.573591585	1.253566341
MDL	5	4
954	31	9
	25	14
	26	17
	32	9
	28	12
	23	14
	29	11
std dev	3.251373336	2.927700219
MDL	10	9
	30	8
	33	10
	33	9
	30	12
	31	10
std dev	32	10
	34	9
	31	9
	25	14
	26	17
	32	9
	28	12
	23	14
	29	11
std dev	3.262339213	2.541955637
MDL	10	8

Appendix G:
XRF and
Laboratory Data
Correlation

**XRF/ICP
Lead
Data Correlation**

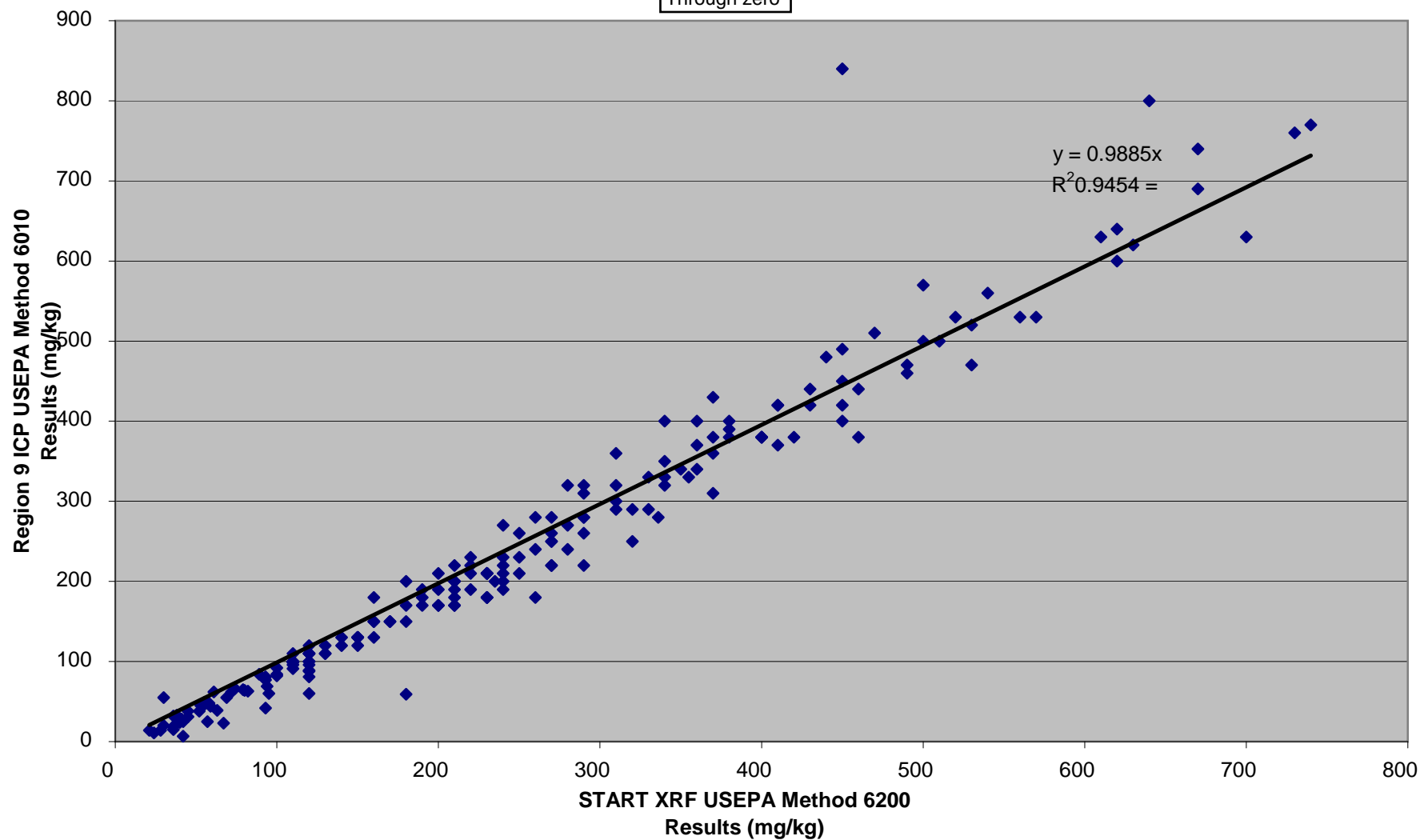


**XRF/ICP
Lead
Data Correlation**
Through zero

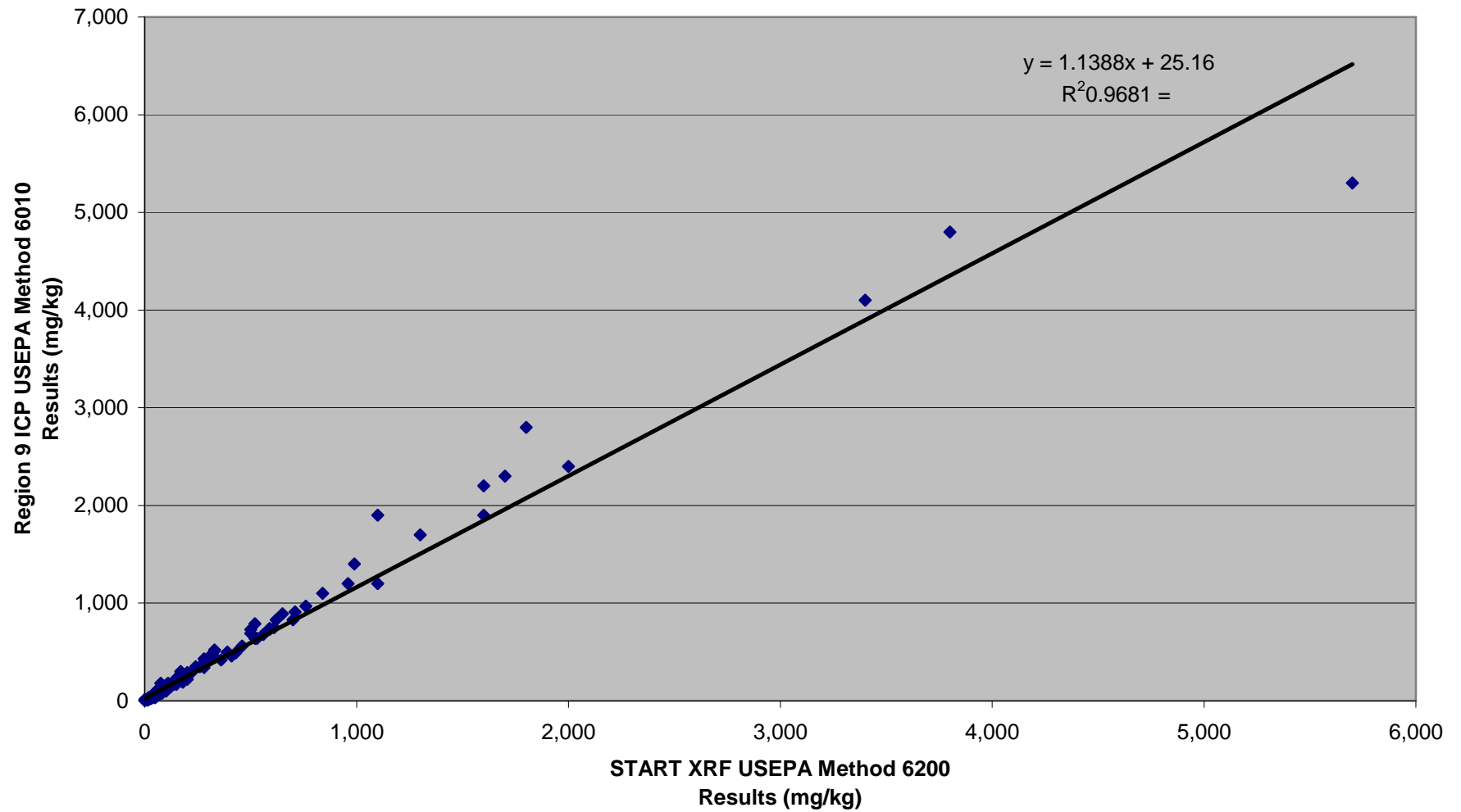


**XRF/ICP
Lead around the SSL
Data Correlation**

Through zero

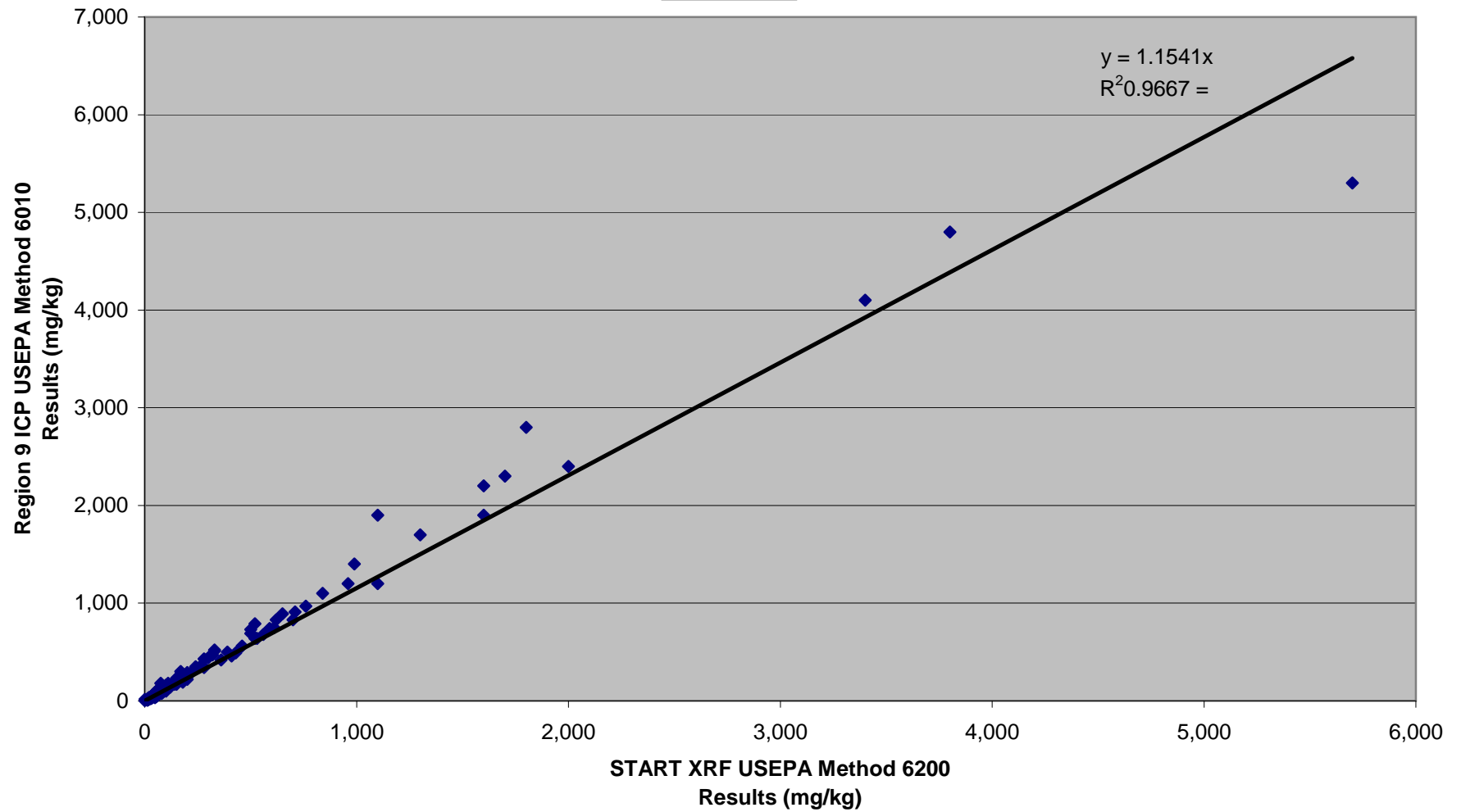


**XRF/ICP
Arsenic
Data Correlation**

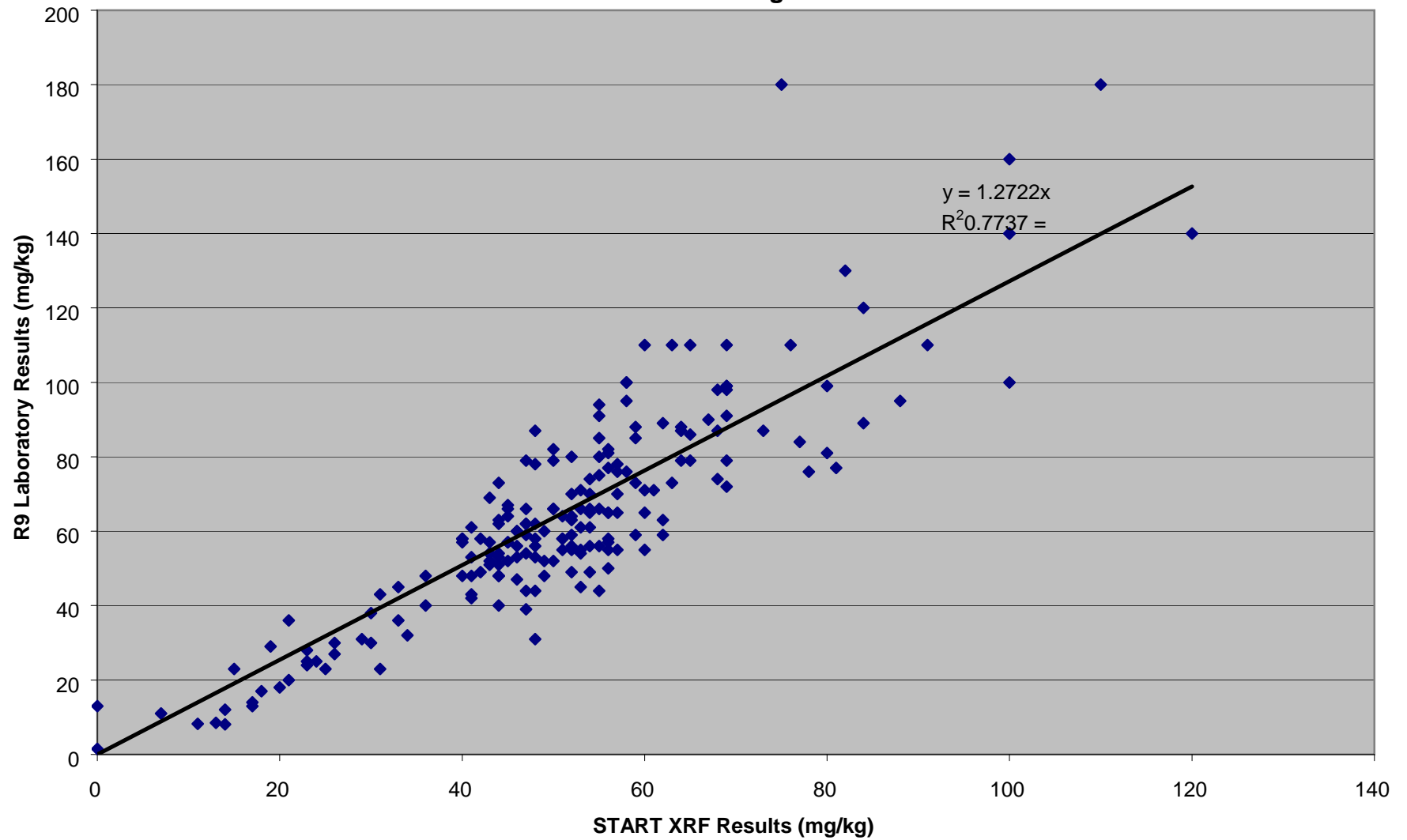


**XRF/ICP
Arsenic
Data Correlation**

Through zero



XRF/ICP
Arsenic around the SSL
Data Correlation Through Zero



Appendix H: **Poster Sized Maps**

Figure 12	Town of Eureka Contamination Location Map (0 to 2 inches)
Figure 13	Town of Eureka Contamination Location Map (2 to 6 inches)
Figure 14	Town of Eureka Contamination Location Map (6 to 12 inches)
Figure 15	Town of Eureka Elevated Contamination Location Map
Figure 16B	Town of Eureka Iso-Concentration Map for Arsenic
Figure 17B	Town of Eureka Iso-Concentration Map for Lead