REMOVAL ACTION REPORT

Iron King Mine Removal Action Site
Dewey-Humboldt, Yavapai County, Arizona

Prepared for:

U.S. Environmental Protection Agency
Region 9
Emergency Response Section
2445 North Palm Drive
Signal Hill, CA 90755

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LIST OF ABBREVIATIONS AND ACRONYMS

%	percent
ADEQ	Arizona Department of Environmental Quality
APN	Assessor Parcel Number
EPA	U.S. Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
ESRI	Environmental Systems Research Institute
ID	Identification
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	parts per million
RAL	Removal Action Level
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RM	Response Manager
SAP	Sampling and Analysis Plan
START	Superfund Technical Assessment and Response Team
TDD	Technical Direction Document
WESTON®	Weston Solutions, Inc.
XRF	X-ray fluorescence

1. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked the Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) to provide support with documentation, monitoring, and sampling activities at the Iron King Mine Removal Action Site (the Site) located in Dewey-Humboldt, Yavapai County, Arizona (See Figure 1, Appendix A). The removal action Site encompasses the town of Dewey-Humboldt which is located partially between, and in the vicinity of, the former Iron King Mine and the former Humboldt Smelter. The former Iron King Mine and Humboldt Smelter, as well as nearby waterways, in-town soil, and groundwater, comprise the Iron King Mine – Humboldt Smelter Superfund National Priorities List (NPL) site. This removal action was conducted within the NPL site and is considered part of the in-town soils. This removal action is a continuation of a previous removal action conducted in 2011 which completed the removal of contaminated soils from 13 properties. Removal action activities for this removal action were conducted from April 17 through July 3, 2017, under START Contract No. EP-S5-13-02 and Technical Direction Document (TDD) No. 0002/1302-T2-R9-17-03-0001.

This Removal Action Report is organized into the following sections:

- **Section 1: Introduction –** Briefly describes the removal action project
- **Section 2: Site Background** – Describes the Site location and summarizes the known regulatory history.
- **Section 3: Removal Activities** – Discussion of removal activities and procedures, access agreements and work plans, photo documentation, air monitoring and sampling, excavation and restoration activities, post-excavation sampling, resident completion packages, property specific removal actions, and transportation and placements of contaminated soils.
- **Section 4: Data Validation –** Describes validations, blank contaminations and reporting limits.
- **Section 5: Demobilization**
- **Section 6: Summary**
- **Section 7: References**

2. SITE BACKGROUND

Two previous removal actions occurred at the Site in 2006 and 2011. In 2006 EPA oversaw a cleanup of contaminated soil from four residential properties under an enforcement agreement with a potentially responsible party. In 2011, EPA conducted a removal action and remediated contaminated soils from 13 properties. Between 2012 and 2016 remedial investigations took place in multiple phases which included sampling an additional 190 properties, of which 35 warranted an additional removal action to remediate contaminated soils from residential properties.

The Iron King Mine - Humboldt Smelter Superfund site was listed on the NPL in 2008 and the Remedial Investigation was completed in 2016. The site was listed on the NPL in 2008 because of contamination caused by the historical operations at the former Iron King Mine and the former Humboldt Smelter. Mining operations at the Iron King Mine began in the late 1890s and encompassed approximately 150 acres. From approximately 1934 to 1970, Iron King Mine extracted, milled, and concentrated solid rock ores for lead, zinc, copper, gold, and silver. Smaller mining facilities also operated in the area between 1906 and 1934.

Mining and smelting operations at the Humboldt Smelter began in the late 1870s, and encompassed approximately 180 acres. After small-scale operations in the late 1800s, the Humboldt Smelter purified copper from mine ores between 1906 and about 1937. Most production took place during World War I. In the 1950s and 1960s, small processing operations attempted to recover metals from materials brought to the old smelter property.

A 4-million-cubic-yard tailings pile, containing high levels of arsenic and lead, remains at the Iron King Mine property. In about 1964, part of the pile collapsed. Mine pile tailings flowed into the Chaparral Gulch, passed downstream, and mixed with tailings from the Humboldt Smelter. There are braids of partially buried contaminated tailings in the Gulch upstream and downstream of 3rd Street. These contaminants move and mix with sediments from the mountains during heavy rains.

The Humboldt Smelter dumped tailings into a wide swale, or depression in the land, and into an expansive floodplain in the Lower Chaparral Gulch. Today, these tailings and tailings from the Iron King Mine are held back by a 25-foot concrete dam downstream of the former smelter. The dam is wedged in a narrow canyon upstream of the Agua Fria River. The extensive tailings are

heavily contaminated with arsenic and lead.

The former smelter also dumped slag, a molten waste material, over the side of a cliff overlying the Agua Fria River. In addition, a fine, grayish material called aluminum dross was crushed above the Chaparral Gulch on the former smelter property, most likely in the 1950s, with the intention of recovering saleable aluminum. The dross remains today and contains elevated levels of lead.

Some of the mine and smelter tailings and other forms of contamination also reached certain residential yards. Tailings or particles may have blown in the wind, been used as fill material, or been left in areas that later became yards (EPA, 2016).

2.1 SITE DESCRIPTION

The Site is located in the Town of Dewey-Humboldt, Yavapai County, Arizona (Figure 1, Figure 2). The Site consists of select properties located within the town of Dewey-Humboldt. The Town of Dewey-Humboldt is approximately 19 acres in size and at an elevation of approximately 4,600 feet above sea level. Dewey-Humboldt is roughly 85 miles north of Phoenix, AZ. The geographical coordinates for the approximate center of the town of Dewey-Humboldt are 34° 30′ 22″ north latitude and 112° 14′ 34″ west longitude. According to the 2010 U.S. census estimate the population of Dewey-Humboldt was 3,894. The former Iron King Mine and former Humboldt Smelter are within the town of Dewey-Humboldt. The Former Humboldt Smelter is adjacent to several site properties on Prescott Street. Three waterways interface with the town; the Agua Fria River runs along the eastern portion of town, the Chaparral Gulch transects the center of town and the Galena Gulch crosses the southwestern portion of the town.

2.2 SITE HISTORY

The EPA's concern about lead and arsenic soil contamination on public and residential properties at the Site is associated with the former operations at the Iron King Mine and the Humboldt Smelter, which are located in the south and west portions of the town of Dewey-Humboldt. The former Iron King Mine and Humboldt Smelter are part of the Iron King Mine – Humboldt Smelter Superfund NPL site. The NPL site was listed on the NPL in 2008 because of the contamination caused by the historical operations at the two facilities.

This 2017 EPA removal action was preceded by an EPA removal action in 2011 at other targeted residential properties in the town of Dewey-Humboldt; a remedial investigation (RI) and report; and other EPA and Arizona Department of Environmental Quality (ADEQ) investigations, which began in 2002. Results from these EPA investigations and actions have shown lead and arsenic contamination throughout the Site on both public and residential properties, which is primarily attributed to historical ore mining and smelting operations. A complete description of the previously collected removal assessment data, risk assessment data, and Site history is documented in the *Remedial Investigation Report, Iron-King Mine-Humboldt Smelter Superfund Site, Dewey-Humboldt, Yavapai County, Arizona* (CH2M Hill, 2016).

As a result of the remedial investigation phases occurring between 2012 and 2016, EPA identified approximately 35 residential properties which exceeded site specific Removal Action Levels (RAL) of 400 ppm for lead and 144 ppm for arsenic as defined in the EPA Action Memo. The lead RAL was selected by EPA based on the National lead policy memorandum, as identified in the Action Memo, that identifies a removal action level of 400 ppm for lead is appropriate. The arsenic RAL was determined during the remedial investigation using a site-specific bioavailability determination. The 35 properties had concentrations of lead up to 20,500 parts per million (ppm) and arsenic up to 1,630 ppm. As defined by Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act, lead and arsenic are hazardous substances. The elevated levels of lead and arsenic in the identified 35 properties constitute a release of hazardous substances to the environment and potential for human exposure.

These elevated levels of lead and arsenic, in conjunction with factors identified in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2), are the basis for EPA's determination that a removal action was needed. The NCP factors that determined the need for this removal action include; actual or potential exposure to nearby populations, animal or the food chain from hazardous substances or pollutants or contaminants; weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; and high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate. As described earlier in this section, high levels of lead and arsenic were found in residential properties. People living at or near these contaminated areas are likely to be exposed, via inhalation or ingestion, to the hazardous substances in the soils. During the monsoon

season, this area of Arizona experiences high winds and severe rains which could transport particulates or dissolved phase contaminants from the source areas of the former mine or smelter to the adjoining and nearby residential properties. Based on results from the remedial investigation, residential parcels closer to the former mine and smelter contain higher levels lead and arsenic than parcels farther from the former mine and smelter, which indicates that the closer parcels are being impacted by particulate migration or surface water transport of the contaminants.

2.3 PREVIOUS INVESTIGATIONS

Prior to the start of this EPA Region 9 removal action, the EPA and ADEQ were involved in various inspections, preliminary investigations, and removal actions associated with the Site. These initial investigations were focused on determining compliance with issued permits and regulatory requirements, characterizing the source materials, confirming whether releases of hazardous substances (primarily metals) had occurred, and assessing off-property impacts. The findings of these various efforts formed the basis for inclusion of the combined Iron King Mine-Humboldt Smelter Superfund Site on the NPL in 2008.

As a result of the remedial investigation phases occurring between 2012 and 2016, EPA identified approximately 35 residential properties which exceeded site specific RALs of 400 ppm for lead and 144 ppm for arsenic in soil. The 35 properties had soil concentrations of lead up to 20,500 part per million (ppm) and arsenic up to 1,630 ppm.

For a complete description of the previous investigations, as well as all EPA and ADEQ actions at Site to date, reference the *Remedial Investigation Report, Iron-King Mine-Humboldt Smelter Superfund Site, Dewey-Humboldt, Yavapai County, Arizona* (CH2M Hill, 2016).

3. REMOVAL ACTIVITIES

The following sections describe the removal activities at the Site.

3.1 REMOVAL ACTION ACTIVITIES

The EPA determined that soil removal actions were warranted at approximately 35 residential properties based on results from phases of the remedial investigation occurring between 2012 and 2016 (Figure 2). The remedial investigations identified levels of lead up to 20,500 ppm and levels

of arsenic up to 1,630 ppm in soils at these residences. The levels exceed the site specific RALs of 400ppm for lead and 144 ppm for arsenic. During this removal action, the collection of additional samples was required at potential removal action locations to confirm and further delineate lead and arsenic soil concentrations. Of the 35 residential properties identified by EPA for further investigation, excavation and restoration activities took place at 31 properties, with the other four properties identified by EPA as no longer warranting any action as described in section 3.2. Property specific activities as part of this removal action are discussed in Section 3.2.

The following sections describe the overall procedures and activities followed for each property.

3.1.1 Access Agreements and Pre-Remediation Work Plans

An access agreement and Pre-Remediation Work Plan (work plan) was prepared for each identified property during the spring and summer of 2017. During preparation of each property's work plan, EPA, START, and Emergency and Rapid Response Services (ERRS) personnel conducted a walkthrough of the property with the property owner to review and define the schedule of activities, methods and locations of excavation, restoration plans, materials and sources, decontamination procedures, property owner questions and concerns, existing property conditions, and physical site information. Following preparation of a property-specific work plan, the content was reviewed and signed for approval by the property owner, the EPA On-Scene Coordinator (OSC), and the ERRS Response Manager (RM) prior to removal actions.

3.1.2 Supplemental Sampling

During preparation of a property work plan, the EPA and START evaluated existing remedial investigation data to determine whether or not supplemental soil sampling was required to further delineate areas of concern and identify specific removal areas. START completed the supplemental soil sampling, X-ray fluorescence (XRF) analysis, and Site documentation as directed by EPA and in accordance with the site-specific Sampling and Analysis Plan (SAP) (WESTON, 2017), as described in Section 3.1.5. A total of 145 supplemental samples were collected as both discrete and composite samples as appropriate to further delineate the areas for removal. Between three and nine samples were collected at most properties, select properties did not require any additional sampling and select properties required over 9 additional samples. The supplemental sampling and XRF analysis results were documented in the Site database as sampling

and analysis was completed, and a new proposed excavation map was produced and included in the property work plan. Sampling results ranged from 14 ppm to 1,731 ppm for arsenic and 12 ppm to 7,285 ppm for lead. Sample results for all the supplemental sampling can be found in Table 3-1.

3.1.3 Photographic Documentation

Photographs and/or video were used to document pre- and post-removal action conditions of properties, streets, and sidewalks. Photographs and videos were taken by START as soon as practical following completion of backfill and restoration of the excavated areas for any given property. Photographic documentation of typical removal activities is presented in Appendix C.

3.1.4 Air Monitoring and Sampling

Prior to the initiation of any dust-generating activities at a property, four property or work zone perimeter air monitoring/sampling stations were established to determine whether airborne particulates were being produced or migrating from work zones or off of the property at concentrations above the Site-specific action levels (Table 3-2). Each air monitoring/sampling station included a Personal DataRAM particulate monitor or an AM 510 SidePak Aerosol Monitor, collocated with a GilAir5 Tri-Mode Air Sampler equipped with a 37-millimeter, 0.8-micrometer mixed-cellulose ester filter cassette for lead and arsenic analysis.

Daily air monitoring and sampling procedures were instituted throughout the removal action, during dust generating activities. Each day, prior to the beginning of any dust-generating field activities, sample pumps equipped with sample media were calibrated and deployed in conjunction with particulate monitors to the property/work zone perimeter locations. The monitors and sample pumps were observed periodically during work hours to confirm they were operating properly and then collected following completion of work each day.

Any anomalies in conditions, such as strong winds or significant vehicular traffic, were noted in the site logbook to later correlate with any spikes in monitoring data.

Table 3-2
Site Specific Air Particulate Action Levels
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Analyte	OSHA PEL (mg/m^3)	Maximum Site Concentration Based on Sample Data (mg/kg)	DataRAM Action Level Based on Sample Data (mg/m^3)	DataRAM Action Level Based on Sample Data for full face air-purifying respirator w/ protection factor of 50 (mg/m^3)
Arsenic	0.1	1630	**3.10**	**153**
Lead	0.05	20500	**1.2**	**61**

Notes: The site-specific action levels were developed using the OSHA PEL and the maximum site contaminant concentrations based on available site data.

mg/m^3 = milligrams per cubic meter

mg/kg = milligrams per kilogram

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

3.1.5 Backfill Source Selection and XRF Analysis

Prior to Site mobilization, the EPA and ERRS contractor identified sources for backfill materials to use to restore the residential properties following the removal of contaminated soils. Before using the selected materials, START collected or received samples of the fill materials and submitted them to a laboratory for analysis and analyzed them with the XRF to determine concentrations of Resource Conservation and Recovery Act (RCRA) 8 metals (lead, arsenic, barium, cadmium, chromium, mercury, selenium, and silver) in the fill material. Each five-point composite sample was collected from 5 random locations within every 500 cubic yards of backfill material. Each of the five 4-ounce samples that made up the composite sample were collected using a disposable plastic scoop and combined and homogenized into one composite sample. All backfill material samples were field analyzed using the XRF and ten percent (%) of field analyzed samples were submitted for laboratory analysis for confirmation. The lead and arsenic sampling results for each fill sample are presented in Table 3-3. All average concentrations of metals in the fill material were below the site-specific action levels of 400 parts ppm for lead and/or 144 ppm for arsenic. All RCRA 8 metals concentrations from laboratory analysis of fill materials were below their respective EPA regional screening level. All analytical reports are provided in Attachment C.

All soil and backfill material samples collected during the removal action were field analyzed

using XRF via Solid Waste-846 Method 6200. Ten % of samples field-analyzed by the XRF were sent to the EPA Region 9 Laboratory in Richmond, California for confirmation analysis of RCRA 8 metals concentrations. Samples analyzed in the field with the XRF, were sent to Test America and the Region 9 laboratory at the initiation of the removal action to establish the analytical precision and accuracy of the XRF. Samples were then routinely sent to the Region 9 laboratory to fulfill the 10% confirmation requirement and to ensure the XRF precision and accuracy was consistent and acceptable throughout the removal action. Lead and arsenic XRF analysis and laboratory analysis correlation graphs are attached as Figure 4 and Figure 5.

3.1.6 Excavation and Restoration Activities

Following work plan approval and supplemental sampling and analysis, ERRS personnel were mobilized to identified properties for removal of contaminated soils. Contaminated soils were excavated to a depth of one foot below ground surface by ERRS contractor personnel using various heavy equipment and techniques, including equipment excavation and hand-digging. In specific areas in select yards, an additional 6 inches of soil was excavated to a total depth of 18 inches to eliminate the need for snow fencing. In total, 8,099 cubic yards of contaminated soil was excavated from the residences and approximately 9,350 cubic yards of clean backfill was used for restoring all the properties.

Prior to backfilling excavated areas, START provided confirmation sampling and analysis (as described in Section 3.1.7) to document the concentrations of the remaining lead and arsenic in the soil. Based on confirmation sampling and analysis results, a visual barrier/marker (orange snow fencing) was placed over the excavation floor at any excavated area where lead or arsenic soil concentrations still remained above the site-specific action levels for lead and arsenic of 400 ppm for lead and/or 144 ppm for arsenic.

Excavation areas were backfilled by ERRS personnel with the appropriate clean fill materials and compacted, graded, and restored to final landscaping grade in accordance with the property's approved work plan. Approximately 9,350 cubic yards of clean backfill soil was used for restoring all the residences. At one location, the area of concern was not excavated, but capped-in-place with approximately 6 inches of Class II Road Base. All applicable backfill materials were sampled and analyzed by START prior to use (as described in Section 3.1.5) to document that concentrations

of RCRA 8 metals were significantly below any human-health-risk-based benchmarks and acceptable for use.

During soil excavation and remediation actions, START documented activities in written log books and in an electronic field data collection device using a mobile map via the Environmental Systems Research Institute, Inc. (ESRI) iOS Geographic Information System (ArcGIS®) application for real-time project tracking.

3.1.7 Post-Excavation Confirmation Sampling

START conducted soil sampling of the excavation floor at each of the excavation areas in order to document the concentrations of lead and arsenic at the limit of excavation in those areas and in accordance with the procedures identified in the SAP. The lead and arsenic concentrations left in place under the backfill for each excavated property are presented in Table 3-4. A visual barrier/marker (orange snow fencing) was placed over the excavation floor prior to backfill at any excavated area where lead or arsenic soil concentrations remained above the site-specific action levels for lead and/or arsenic. A Completion of Work package, as described in 3.1.8, included the lead and arsenic concentrations left in place was generated by START and the EPA for each of the property owners.

3.1.8 Resident Completion Packages

Following removal actions at each property, the EPA, START, and ERRS contractors developed a Completion of Work package for the property owner and Site records which confirmed that all work identified in the approved work plan was completed by EPA. The Completion of Work packages included a completion letter, the property access agreement, proposed excavation map, a signed work plan, pre-remediation photographs, post-remediation photographs, and a post-excavation sampling map. Each property work plan was approved and signed by the property owner, the EPA OSC, and the ERRS RM prior to completion of the removal action.

3.2 PROPERTY-SPECIFIC ACTIVITIES

The general work practices at each property have been discussed and identified in Sections 3.1.1 through 3.1.7. A summary of property specific removal actions, including contaminated soil removal volumes and snow fence placement, is provided in Table 3-5. All residents were able to

stay in their homes during removal activities. If residents were present during excavation activities, it was recommended for them to stay inside with the windows closed. Following excavation activities, lead and/or arsenic results of 13 properties in the bottom of the excavations exceeded the site-specific RALs of 400 ppm for lead and 144 ppm for arsenic. A visual barrier of snow fence was placed at the bottom of the excavation at these 13 properties. Excavation and restoration activities were completed at 31 properties. Four of the initial 35 properties did not require any remediation activities. The properties not requiring remediation activities during this action include the following:

- **EPA Yard Identification (ID) 109, Assessor Parcel Number (APN) 402-06-028U, No Address, E. Prescott Street.** This property was determined to be outside the scope of this removal action and was not addressed because of several factors: the steepness of the slope on the western portion of the property, the proximity to the former Humboldt Smelter property, and the physical inability to remove any aluminum dross on the property without impacting the adjacent Humboldt Smelter property and, subsequently, causing contamination to impact this property.
- **EPA Yard ID 157, APNs 402-08-017B and 402-08-018U, 2560 S. Colina Lane and S. Parker Street.** This property was erroneously added to the list of properties identified for the 2017 removal action. During the 2011 removal, the property had been addressed and determined to have no action needed, as noted in the 2012 removal report (Ecology & Environment, Inc., 2012).
- **EPA Yard ID 246 & 36W, APNs 402-07-042 and 402-07-042A, 13318 E. Wells Street and 13330 E. Wells Street.** During the 2017 removal action, EPA and START discussed remediation activities with the owner. The owner informed EPA that he had removed soils and replaced the area with 6 to 12 inches of gravel after the previous sampling events had been conducted by EPA. START resampled all the previously contaminated areas of the property and samples results were below the site-specific action levels. A letter stating no action was needed and a map with the sampling results was provided to the owner. No further action is needed at this property.
- **EPA Yard ID 182, APN 402-07-081A, 13065 E. Prescott Street.** EPA and START discussed remediation activities with the owner and provided a proposed additional sampling map at the owner's request. The owners declined any sampling or remediation activity on the property.

In July and August 2017, monsoon rains occurred in the Dewey-Humboldt area. The rains impacted 13 of the remediated properties and created significant rills in the newly placed clean backfill. From September 25, 2017 to October 4, 2017, EPA, START, and ERRS personnel mobilized to the Site and performed repair activities at the impacted properties. The following

properties were repaired or improved during the re-mobilization: EPA Yard IDs, 107B, 203B, 162, 2393, 2529, 2530, 247, 2615, 2602, 2408, 2406, 233 and 108.

3.3 TRANSPORTATION AND PLACEMENT OF CONTAMINATED SOIL

Excavated materials were transported to the Main Tailings Pile on the Iron King Mine property and used to cover exposed ash to control fugitive dust emissions. Loading and transport activities at residential yards were generally performed at the same rate as excavation to eliminate the need for stockpiling large quantities of material in the residential neighborhood. Figure 3 shows the area where the contaminated soils from this 2017 removal action were placed following removal excavation and rock retaining walls were established on the Main Tailings Pile. The rock retaining walls were established for erosion control along slopes in the southern and western portions of the Main Tailings Pile.

4. DATA VALIDATION

Laboratory data collected during the Iron King Mine Removal Action underwent a Tier 2 (Stage 2A) review by a WESTON chemist. The data validation package included documentation and quality control data provided by the laboratory, including custody records, shipping information, sample preparation/extraction records, and instrument calibration and method blank data.

The data validation was conducted in general accordance with the EPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (EPA, 2017a) and *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (EPA, 2017b), using quality control limits specific to the methods being used for the sample analyses. Laboratory validation reports for all samples collected during this removal action are presented in Appendix D.

5. DEMOBILIZATION

On July 1 and 3, 2017, EPA, START, and ERRS personnel demobilized from the Site. Additional field work was completed following demobilization, which included a re-mobilization of EPA, START, and ERRS personnel from September 25 to October 4, 2017 for repair work as a result of impacts from monsoon rains after the initial demobilization.

6. SUMMARY

The objective of the removal action was to reduce the potential threat to human health from exposure to elevated lead and arsenic concentrations in surface and subsurface soils at the Site. In total, 35 properties were addressed during this removal action, with remediation activities, including the excavation and/or capping of metals-impacted soils, completed at 31 properties. A total of 8,099 cubic yards of contaminated soils was excavated from yards and transported to the Iron King Mine. The backfill material was tested prior to use and imported from CEMEX and G&S to use as backfill and/or cap for excavation areas. The excavations were backfilled to original grade and compacted.

To document the concentration of lead and arsenic at the limit of excavation, confirmation composite soil samples were collected from the bottom of the excavations and analyzed for lead and arsenic using XRF technology. Lead and/or arsenic results of 13 properties exceeded the site-specific RALs of 400 ppm for lead and 144 ppm for arsenic. A visual barrier of snow fence was placed at the bottom of the excavation at these 13 properties.

Monsoon rains impacted the Dewey-Humboldt area after the initial site demobilization. Significant rills and drainage damage impacted 13 of the excavated and restored properties. A remobilization occurred and repair or improvement of all impacted properties was completed.

7. REFERENCES

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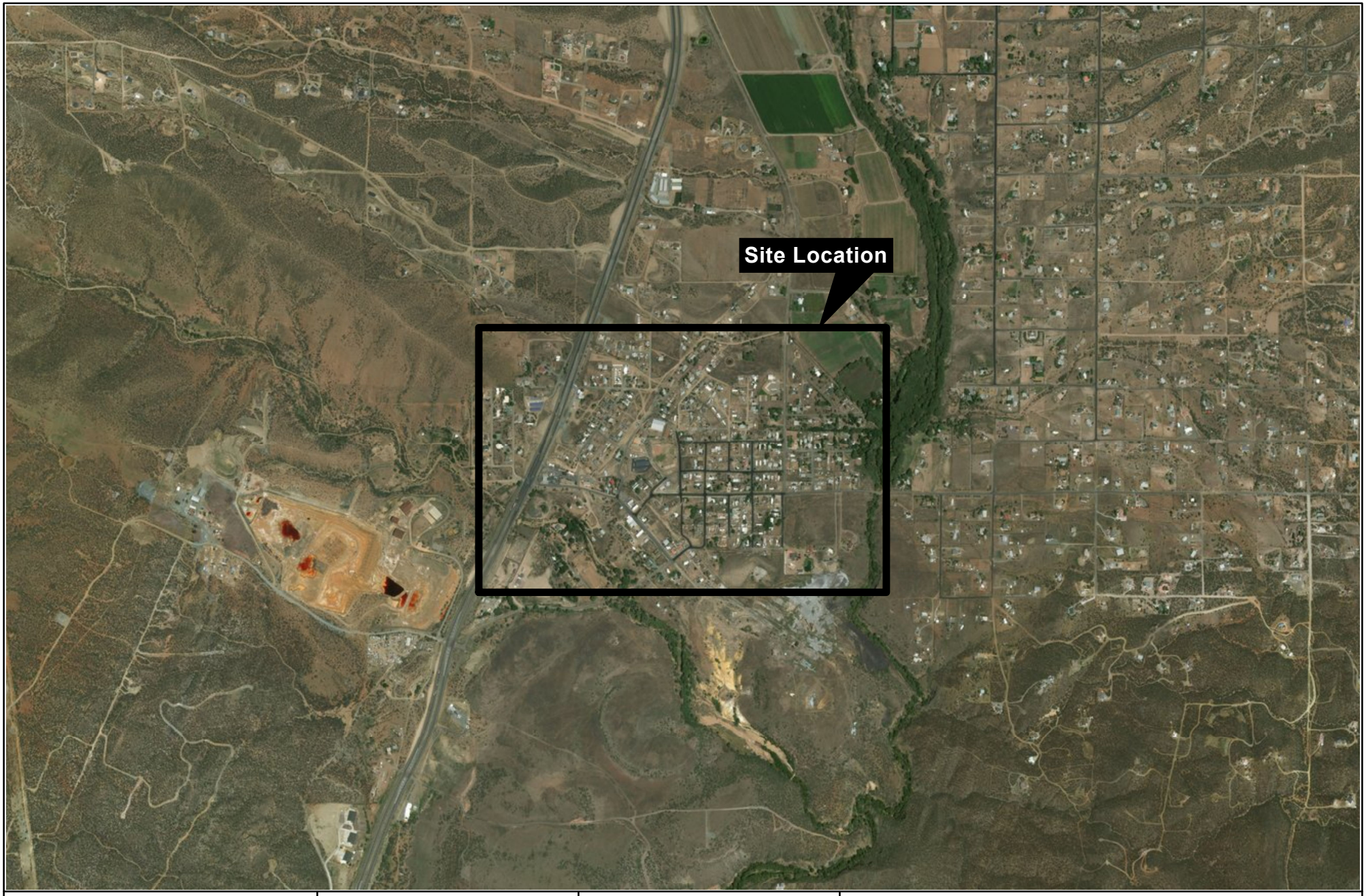
APPENDIX A
FIGURES



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0 Scale in Feet 4,000

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Emergency
Response
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Figure 1, Site Location Map

Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, AZ

TDD: 0002/1302-T2-R9-17-03-0001

DCN: 0144-08-ABAY

0 Scale in Feet 2,000

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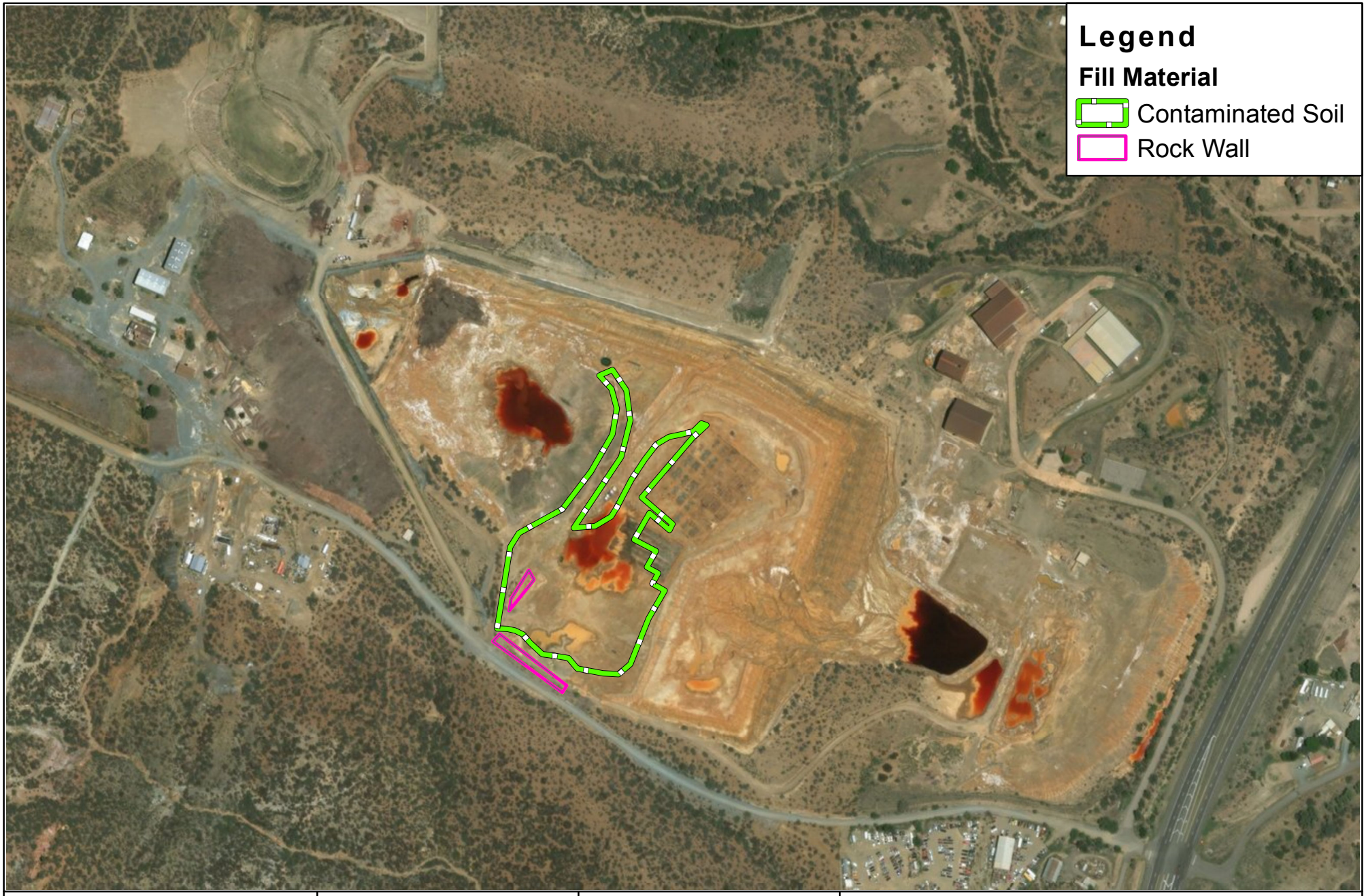
Figure 2, Subject Properties Map

Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, AZ

TDD: 0002/1302-T2-R9-17-03-0001

DCN: 0144-08-ABAY



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0 Scale in Feet 1,000

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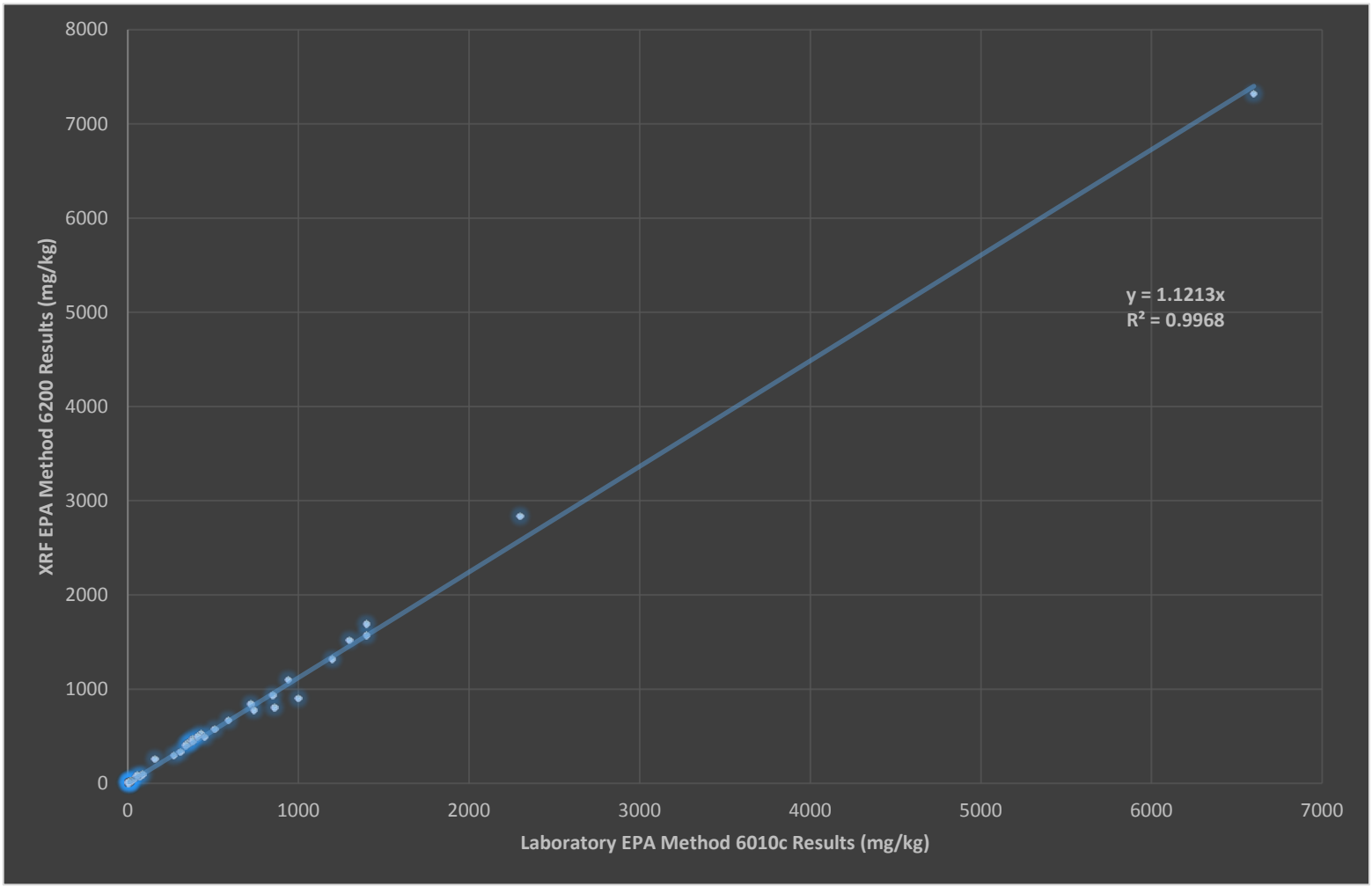
Figure 3, Contaminated Soil Placement Map
October 2017
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, AZ

TDD: 0002/1302-T2-R9-17-03-0001

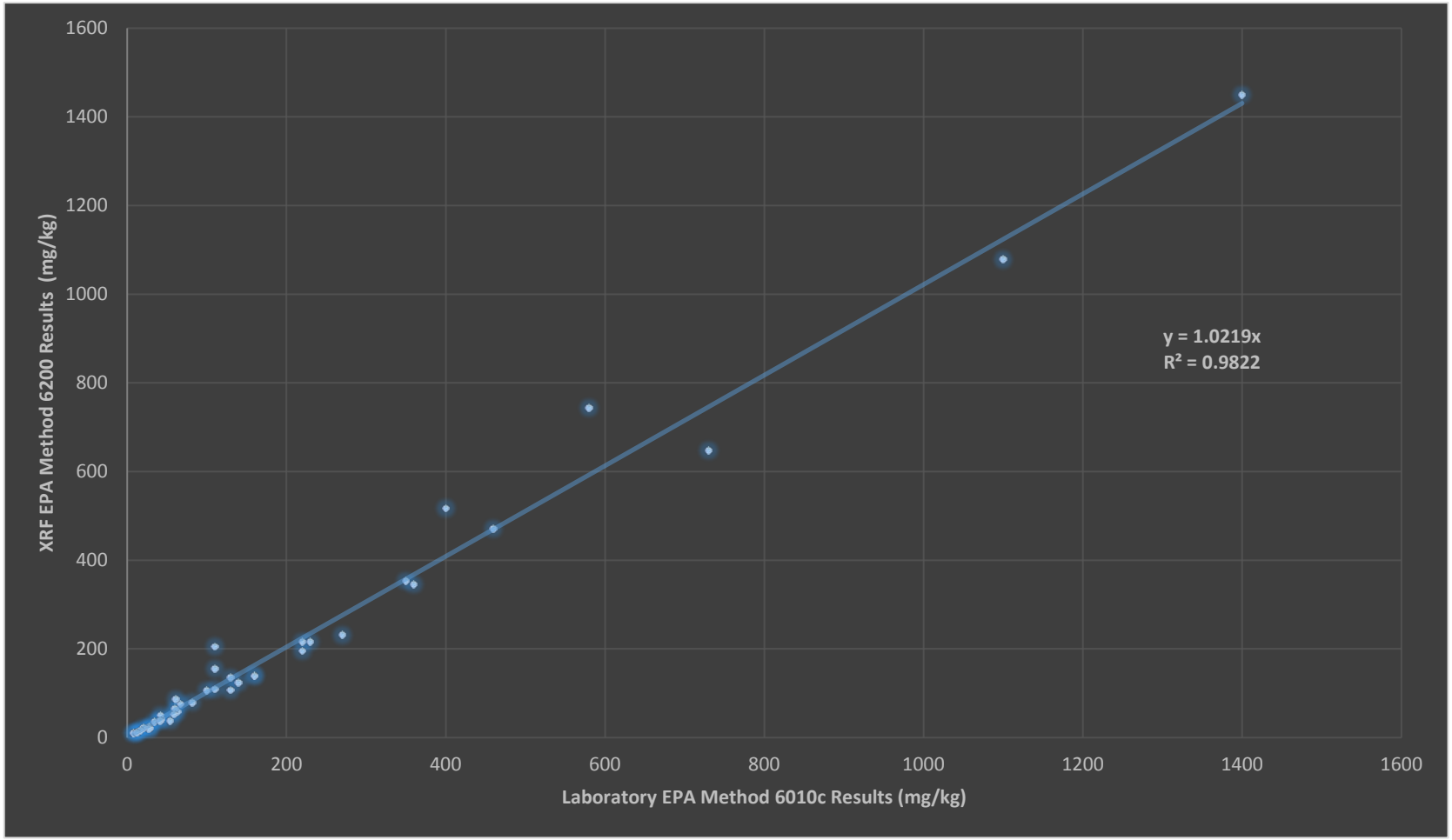
DCN: 0144-08-ABAY

Figure 4
Lead XRF vs Laboratory Linear Regression Correltation Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona



Notes:
mg/kg = milligram per kilogram
R^2 = coefficient of determination
y = slope*x
XRF = X-Ray Fluorescence

Figure 5
Arsenic XRF vs Laboratory Linear Regression Correlation Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona



Notes:
EPA = United States Environmental Protection Agency
mg/kg = milligram per kilogram
R^2 = coefficient of determination
XRF = X-Ray Fluorescence
y = slope*x

APPENDIX B
TABLES

Table 3-1
Supplemental Sampling Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Parameter	Site Specific Action Levels	Method	Sample ID:	2328-1	2328-2	2328-3	164-2	164-DU-1	2408-1	2409-1	2409-2	2409-3	2409-4	2409-5
			Sample Date:	4/19/2017	4/19/2017	4/19/2017	4/20/2017	4/20/2017	4/22/2017	4/22/2017	4/22/2017	4/22/2017	4/22/2017	4/22/2017
			Units											
Lead	400	XRF by Method 6200	ppm	95	91	90	**7285**	**1449**	293	257	**1118**	371	72	327
Arsenic	144	XRF by Method 6200	ppm	67	57	70	**1731**	**902**	**231**	75	**292**	84	23	72
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	**1400**	270	N/A	N/A	N/A	72	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	**1000**	270	N/A	N/A	N/A	28	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	227-1	227-2	227-3	232-1	232-2	232-3	2408-2	2408-3	164-3	2406-1	2406-2
			Sample Date:	4/24/2017	4/24/2017	4/24/2017	4/24/2017	4/24/2017	4/24/2017	4/24/2017	4/24/2017	4/25/2017	4/25/2017	4/25/2017
			Units											
Lead	400	XRF by Method 6200	ppm	289	185	233	22	44	49	**427**	**419**	148	221	345
Arsenic	144	XRF by Method 6200	ppm	**203**	45	**179**	21	14	21	79	62	71	43	53
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	**360**	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	82	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	2406-3	2408-4	2408-5	2408-6	2408-7	141-1	141-2	141-3	141-4	141-5	141-6
			Sample Date:	4/25/2017	4/25/2017	4/25/2017	4/25/2017	4/25/2017	4/26/2017	4/26/2017	4/26/2017	4/26/2017	4/26/2017	4/26/2017
			Units											
Lead	400	XRF by Method 6200	ppm	131	**440**	**1691**	271	228	**1003**	**712**	**478**	**689**	**626**	**523**
Arsenic	144	XRF by Method 6200	ppm	40	58	**155**	41	60	**183**	88	69	73	59	65
Lead	400	EPA Method 6010C	ppm	N/A	**370**	**1400**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	63	110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	138B-1	138B-2	138B-3	2530-1	2530-2	141-DU1	162-1	162-2	162-3	246-DU1	246-DU2
			Sample Date:	4/27/2017	4/27/2017	4/27/2017	4/28/2017	4/28/2017	4/29/2017	4/29/2017	4/29/2017	4/29/2017	4/29/2017	4/29/2017
			Units											
Lead	400	XRF by Method 6200	ppm	253	**1542**	180	**462**	**1805**	390	38	24	39	312	272
Arsenic	144	XRF by Method 6200	ppm	53	**311**	52	59	102	56	46	35	40	106	106
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	246-DU3	246-DU4	247-1	247-2	247-3	120-1	120-2	120-3	153-1	2529-1	2529-2
			Sample Date:	4/29/2017	4/29/2017	4/29/2017	4/29/2017	4/29/2017	5/1/2017	5/1/2017	5/1/2017	5/1/2017	5/1/2017	5/1/2017
			Units											
Lead	400	XRF by Method 6200	ppm	162	159	36	31	73	21	16	82	**575**	**784**	381
Arsenic	144	XRF by Method 6200	ppm	50	51	22	17	66	17	20	23	37	62	37
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	164-1	232-4	2719-1	2719-2	2719-3	141-6	153-1	2615-EB6	116-1	116-2	116-3
			Sample Date:	5/2/2017	5/2/2017	5/6/2017	5/6/2017	5/6/2017	5/13/2017	5/13/2017	5/18/2017	5/19/2017	5/19/2017	5/19/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**3181**	145	**673**	226	**1316**	N/A	N/A	12	40	120	35
Arsenic	144	XRF by Method 6200	ppm	**726**	**1731**	132	42	**471**	N/A	N/A	19	27	70	27
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	**1200**	**430**	**510**	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	**460**	60	54	N/A	N/A	N/A	N/A

Table 3-1
Supplemental Sampling Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Parameter	Site Specific Action Levels	Method	Sample ID:	233-1	233-2	233-3	233-4	233-5	29 and 36W-IS	233-10	233-11	233-13	233-15	233-16
			Sample Date:	5/19/2017	5/19/2017	5/19/2017	5/19/2017	5/19/2017	5/23/2017	5/24/2017	5/24/2017	5/23/2017	5/24/2017	5/24/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**410**	**419**	270	279	**578**	**2673**	**405**	271	332	**2836**	318
Arsenic	144	XRF by Method 6200	ppm	59	52	43	42	78	**1635**	76	71	139	**1078**	54
Lead	400	EPA Method 6010C	ppm	**350**	N/A	N/A	N/A	N/A	N/A	**340**	N/A	310	**2300**	N/A
Arsenic	144	EPA Method 6010C	ppm	**59**	N/A	N/A	N/A	N/A	N/A	**67**	N/A	**160**	**1100**	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	233-6	233-7	233-8	233-9	105B-1	105B-2	105B-3	105B-4	105B-5	107B-1	107B-2
			Sample Date:	5/24/2017	5/24/2017	5/24/2017	5/24/2017	5/26/2017	5/26/2017	5/26/2017	5/26/2017	5/26/2017	5/25/2017	5/25/2017
			Units											
Lead	400	XRF by Method 6200	ppm	335	**497**	**412**	328	**834**	**1177**	**1096**	66	118	345	244
Arsenic	144	XRF by Method 6200	ppm	67	94	60	45	114	**294**	**353**	24	20	113	110
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	**940**	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	**350**	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	107B-3	107B-4	107B-5	233-23	233-27	233-17	233-18	233-19	233-21	233-22	233-24
			Sample Date:	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017
			Units											
Lead	400	XRF by Method 6200	ppm	304	269	324	75	315	**478**	216	218	176	**488**	**586**
Arsenic	144	XRF by Method 6200	ppm	97	79	106	36	67	61	44	74	49	77	122
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	233-25	233-26	233-28	107B-6	107B-7	107B-8	107B-9	107B-10	203B-1	203B-2	203B-3
			Sample Date:	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/25/2017
			Units											
Lead	400	XRF by Method 6200	ppm	304	**469**	122	**1029**	266	313	373	**840**	376	188	353
Arsenic	144	XRF by Method 6200	ppm	89	88	39	137	114	64	74	140	95	60	119
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**720**	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**160**	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	203B-4	203B-5	203B-6	203B-7	203B-8	203B-10	203B-11	203B-12	203B-9	176-1	176-10
			Sample Date:	5/25/2017	5/25/2017	5/25/2017	5/25/2017	5/26/2017	5/26/2017	5/26/2017	5/26/2017	5/26/2017	5/29/2017	5/30/2017
			Units											
Lead	400	XRF by Method 6200	ppm	75	276	**411**	**402**	**466**	**472**	357	52	318	314	238
Arsenic	144	XRF by Method 6200	ppm	38	84	128	**148**	133	**216**	96	14	100	48	46
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	380	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	**220**	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	176-2	176-3	176-4	176-5	176-6	176-7	176-8	176-9	105B-6	105B-7	105B-8
			Sample Date:	5/29/2017	5/29/2017	5/29/2017	5/29/2017	5/29/2017	5/29/2017	5/29/2017	5/30/2017	5/30/2017	5/30/2017	5/30/2017
			Units											
Lead	400	XRF by Method 6200	ppm	153	**621**	**515**	173	295	164	173	**552**	150	42	43
Arsenic	144	XRF by Method 6200	ppm	34	69	56	37	60	47	99	71	29	15	15
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-1
Supplemental Sampling Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Parameter	Site Specific Action Levels	Method	Sample ID:	109-1	176-11	2393-1	2393-2	2393-3	2393-4	2393-5	143-1	143-2	2393-3	Area D-1
			Sample Date:	5/30/2017	5/30/2017	5/31/2017	5/31/2017	5/31/2017	5/31/2017	6/1/2017	6/3/2017	6/3/2017	6/5/2017	6/13/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**1012**	315	112	279	**1518**	297	166	**490**	**596**	N/A	20
Arsenic	144	XRF by Method 6200	ppm	67	38	42	52	**216**	55	38	135	**164**	N/A	16
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**450**	N/A	**1300**	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	**230**	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	Area D-2	Area D-3	203B-DU1	203B-DU2	203B-DU3	203B-DU4
			Sample Date:	6/13/2017	6/13/2017	6/22/2017	6/22/2017	6/22/2017	6/22/2017
			Units						
Lead	400	XRF by Method 6200	ppm	50	45	198	151	139	296
Arsenic	144	XRF by Method 6200	ppm	25	39	64	62	53	114
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
Bold results exceed the site specific action level
EB = Excavation Bottom
ID = Identification
N/A = Not applicable
ppm = parts per million
ROW = Right of Way

Table 3-3
Backfill Material Sampling and Analysis Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Sample ID	Backfill Material	[1]Sample Type	Sample Date	Units	[2]Arsenic	[2]Lead
			Site Specific Action Levels	**mg/kg**	**144**	**400**
CEMEX-SP1	Common Fill	Composite	18-Apr-17	mg/kg	*8.2	*5.1
CEMEX-SP2	Common Fill	Composite	18-Apr-17	mg/kg	*8.4	*5.6
CEMEX-3	Common Fill	Composite	28-Apr-17	mg/kg	8	13
CEMEX-4	Common Fill	Composite	4-May-17	mg/kg	12	12
CEMEX-5	Common Fill	Composite	5-May-17	mg/kg	11	8
CEMEX-6	Common Fill	Composite	13-May-17	mg/kg	15	10
CEMEX-7	Common Fill	Composite	13-May-17	mg/kg	13	16
CEMEX-8	Common Fill	Composite	19-May-17	mg/kg	14	ND<8
CEMEX-9	Common Fill	Composite	19-May-17	mg/kg	15	17
CEMEX-10	Common Fill	Composite	20-May-17	mg/kg	11	10
CEMEX-11	Common Fill	Composite	20-May-17	mg/kg	13	12
CEMEX-12	Common Fill	Composite	22-May-17	mg/kg	12	15
CEMEX-13	Common Fill	Composite	24-May-17	mg/kg	17	12
CEMEX-14	Common Fill	Composite	26-May-17	mg/kg	16	ND<8
CEMEX-15	Common Fill	Composite	26-May-17	mg/kg	*13	*5.3
G & S-1	Class II Road Base	Composite	30-May-17	mg/kg	38	<8 U
CEMEX-16	Common Fill	Composite	31-May-17	mg/kg	16	13
CEMEX-17	Common Fill	Composite	31-May-17	mg/kg	12	10
CEMEX-18	Common Fill	Composite	31-May-17	mg/kg	11	13
CEMEX-19	Common Fill	Composite	31-May-17	mg/kg	17	ND<8
CEMEX-20	Common Fill	Composite	31-May-17	mg/kg	13	ND<8
CEMEX-21	Common Fill	Composite	1-Jun-17	mg/kg	15	12
CEMEX-22	Common Fill	Composite	1-Jun-17	mg/kg	12	13
G & S-2	Class II Road Base	Composite	6-Jun-17	mg/kg	*41	*4.9
G & S-3	Class II Road Base	Composite	6-Jun-17	mg/kg	32	10
G & S-4	Class II Road Base	Composite	6-Jun-17	mg/kg	38	ND<8
G & S-5	Class II Road Base	Composite	6-Jun-17	mg/kg	37	ND<9
CEMEX-23	Common Fill	Composite	7-Jun-17	mg/kg	16	12
CEMEX-24	Common Fill	Composite	7-Jun-17	mg/kg	15	ND<8
CEMEX-25	Common Fill	Composite	7-Jun-17	mg/kg	15	10
CEMEX-26	Common Fill	Composite	7-Jun-17	mg/kg	12	17
CEMEX-27	Common Fill	Composite	7-Jun-17	mg/kg	12	15
CEMEX-28	Common Fill	Composite	8-Jun-17	mg/kg	9	11

Table 3-3
Backfill Material Sampling and Analysis Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Sample ID	Backfill Material	[1]Sample Type	Sample Date	Units	[2]Arsenic	[2]Lead
			Site Specific Action Levels	**mg/kg**	**144**	**400**
CEMEX-29	Common Fill	Composite	8-Jun-17	mg/kg	12	10
CEMEX-30	Common Fill	Composite	8-Jun-17	mg/kg	16	8
CEMEX-31	Common Fill	Composite	8-Jun-17	mg/kg	11	10
CEMEX-32	Common Fill	Composite	8-Jun-17	mg/kg	*12	*5.4
CEMEX-33	Common Fill	Composite	13-Jun-17	mg/kg	12	9
CEMEX-34	Common Fill	Composite	13-Jun-17	mg/kg	14	13
CEMEX-35	Common Fill	Composite	13-Jun-17	mg/kg	12	14
CEMEX-36	Common Fill	Composite	13-Jun-17	mg/kg	18	9
CEMEX-37	Common Fill	Composite	13-Jun-17	mg/kg	14	9

Notes:

< = less than

ID = Identification

mg/kg = milligrams per kilogram

ND = Not detected

USEPA = United States Environmental Protection Agency

* = Laboratory Results

[1] = 5-point composite samples collected from stockpile material prior to use

[2] = Metals analysis performed by XRF EPA Method 6200

Table 3-4
Excavation Bottom Sample Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Parameter	Site Specific Action Levels	Method	Sample ID:	2410-EB1	2410-EB2	2410-EB3	222-EB1	222-EB2	2409-EB1	2409-EB2	2408-EB1	2408-EB2	138B-EB1	2408-EB3
			Sample Date:	4/22/2017	4/24/2017	4/24/2017	4/25/2017	4/25/2017	4/26/2017	4/26/2017	4/27/2017	4/27/2017	4/28/2017	4/28/2017
			Units											
Lead	400	XRF by Method 6200	ppm	181	**1569**	393	**763**	**438**	**2035**	**2161**	33	**1283**	**1231**	357
Arsenic	144	XRF by Method 6200	ppm	47	**647**	**381**	**237**	**222**	**312**	**426**	56	**318**	**260**	84
Lead	400	EPA Method 6010C	ppm	N/A	**1400***	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	**730***	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	2408-EB4	2408-EB5	2408-EB6	2406-EB1	138B-EB2	141-EB1	141-EB2	232-EB1	164-EB1	164-EB2	164-EB3
			Sample Date:	4/28/2017	4/28/2017	4/28/2017	4/28/2017	5/1/2017	5/1/2017	5/1/2017	5/2/2017	5/3/2017	5/3/2017	5/3/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**1046**	**7317**	**1546**	**648**	**896**	297	173	**804**	62	**32034**	**803**
Arsenic	144	XRF by Method 6200	ppm	131	**744**	**259**	**176**	**241**	52	34	107	24	**2667**	105
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	164-EB4	164-EB5	164-EB6	164-EB7	164-EB8	164-EB9	2529-EB1	2529-EB2	2530-EB1	2530-EB2	2530-EB3
			Sample Date:	5/3/2017	5/4/2017	5/4/2017	5/4/2017	5/5/2017	5/5/2017	5/6/2017	5/6/2017	5/10/2017	5/10/2017	5/10/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**2116**	388	315	211	**1404**	89	185	134	39	131	136
Arsenic	144	XRF by Method 6200	ppm	**301**	**165**	**154**	31	**242**	28	20	17	25	34	31
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	2719-EB1	2719-EB2	2719-EB3	2719-EB4	181-EB1	232-EB1	2602-EB1	2602-EB2	2615-EB1	2615-EB2	2615-EB3
			Sample Date:	5/12/2017	5/12/2017	5/12/2017	5/12/2017	5/13/2017	5/13/2017	5/16/2017	5/16/2017	5/17/2017	5/18/2017	5/18/2017
			Units											
Lead	400	XRF by Method 6200	ppm	98	281	**2980**	**674**	114	N/A	192	260	215	**1224**	19
Arsenic	144	XRF by Method 6200	ppm	37	79	117	111	33	N/A	78	51	86	**249**	68
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	**860**	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	2615-EB4	2615-EB5[1]	2615-EB6	247ROW-EB2	247-EB1	153-EB1	153-EB2	162-EB1	2328-EB1	2328-EB2	229-EB1
			Sample Date:	5/18/2017	5/18/2017	5/18/2017	5/19/2017	5/19/2017	5/20/2017	5/20/2017	5/22/2017	5/22/2017	5/22/2017	5/23/2017
			Units											
Lead	400	XRF by Method 6200	ppm	39	123	12	**1065**	26	287	248	354	45	110	30
Arsenic	144	XRF by Method 6200	ppm	50	35	19	**373**	19	46	37	71	33	126	27
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	229-EB2	229-EB3	227-EB1	227-EB2	227-EB3	227-EB4	116-EB1	120-EB1	116-EB2	108-EB1	108-EB2
			Sample Date:	5/24/2017	5/24/2017	5/25/2017	5/25/2017	5/25/2017	5/26/2017	5/27/2017	5/27/2017	5/29/2017	5/29/2017	5/29/2017
			Units											
Lead	400	XRF by Method 6200	ppm	103	43	158	86	25	120	29	10	9	141	53
Arsenic	144	XRF by Method 6200	ppm	51	20	70	50	35	60	27	16	26	35	22
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	23	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	34	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-4
Excavation Bottom Sample Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Parameter	Site Specific Action Levels	Method	Sample ID:	108-EB3	108-EB4	233-EB1	108-EB5	108-EB5a[2]	108-EB6	108-EB6a[3]	108-EB7	233-EB2	2393-EB1	2393-EB2
			Sample Date:	5/30/2017	5/31/2017	5/31/2017	5/31/2017	5/31/2017	5/31/2017	5/31/2017	5/31/2017	6/1/2017	6/3/2017	6/3/2017
			Units											
Lead	400	XRF by Method 6200	ppm	22	198	27	**1209**	22	**1143**	9	56	52	98	19
Arsenic	144	XRF by Method 6200	ppm	20	87	17	**174**	18	**241**	22	31	20	26	18
Lead	400	EPA Method 6010C	ppm	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	2393-EB3	233-EB3	233-EB4	233-EB5	233-EB6	176-EB1	176-EB2	176-EB3	143-EB1	107B-EB1	107B-EB1a[4]
			Sample Date:	6/5/2017	6/6/2017	6/6/2017	6/6/2017	6/7/2017	6/8/2017	6/8/2017	6/8/2017	6/9/2017	6/12/2017	6/12/2017
			Units											
Lead	400	XRF by Method 6200	ppm	40	315	**555**	**933**	**671**	91	70	334	93	**453**	232
Arsenic	144	XRF by Method 6200	ppm	22	50	95	**195**	109	20	28	61	33	106	67
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	**850**	**590**	N/A	N/A	N/A	N/A	380	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	**220**	110	N/A	N/A	N/A	N/A	100	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	107B-EB2	107B-EB3	107B-EB4	107B-EB5	107B-EB6	107B-EB7	107B-EB8	107B-EB9	107B-EB10	107B-EB11	107B-EB12
			Sample Date:	6/13/2017	6/14/2017	6/14/2017	6/15/2017	6/16/2017	6/16/2017	6/17/2017	6/17/2017	6/19/2017	6/19/2017	6/20/2017
			Units											
Lead	400	XRF by Method 6200	ppm	**497**	84	283	344	185	**777**	396	257	167	96	236
Arsenic	144	XRF by Method 6200	ppm	**345**	50	70	138	65	124	125	86	74	41	86
Lead	400	EPA Method 6010C	ppm	**410**	58	N/A	N/A	N/A	**740**	N/A	160	N/A	88	N/A
Arsenic	144	EPA Method 6010C	ppm	**360**	42	N/A	N/A	N/A	140	N/A	61	N/A	43	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	107B-EB13	107B-EB14	107B-EB15	107B-EB16	107B-EB17	107B-EB18	107B-EB19	107B-EB20	107B-EB21	107B-EB22	107B-EB23
			Sample Date:	6/20/2017	6/21/2017	6/21/2017	6/21/2017	6/21/2017	6/22/2017	6/22/2017	6/22/2017	6/22/2017	6/22/2017	6/22/2017
			Units											
Lead	400	XRF by Method 6200	ppm	236	283	295	357	118	179	148	150	117	173	186
Arsenic	144	XRF by Method 6200	ppm	101	116	102	**156**	85	98	50	57	50	69	68
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	107B-EB24	107B-EB25	107B-EB26	107B-EB27	107B-EB28	107B-EB29	107B-EB30	107B-EB31	107B-EB32	107B-EB33	203B-EB1
			Sample Date:	6/24/2017	6/24/2017	6/24/2017	6/24/2017	6/24/2017	6/26/2017	6/26/2017	6/26/2017	6/27/2017	6/27/2017	6/24/2017
			Units											
Lead	400	XRF by Method 6200	ppm	121	289	214	154	152	296	381	**592**	**1042**	**1186**	152
Arsenic	144	XRF by Method 6200	ppm	49	104	90	59	**346**	102	112	133	**180**	**186**	**346**
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Parameter	Site Specific Action Levels	Method	Sample ID:	203B-EB2	203B-EB3	203B-EB4	203B-EB5	203B-EB6	203B-EB7	105B-EB1
			Sample Date:	6/26/2017	6/26/2017	6/26/2017	6/27/2017	6/27/2017	6/27/2017	6/27/2017
			Units							
Lead	400	XRF by Method 6200	ppm	296	381	**592**	**1042**	**1186**	247	**1699**
Arsenic	144	XRF by Method 6200	ppm	102	112	133	**180**	**186**	98	**526**
Lead	400	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	144	EPA Method 6010C	ppm	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-4
Excavation Bottom Sample Results
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

Notes:
Bold results exceed the site specific action level
EB = Excavation Bottom
ppm = parts per million
ID = Identification
ROW = Right of Way
[1] = Excavation in the same location but 6 inches depper than 2615-EB2
[2] = 108-EB5a was collected at an 18 inch depth, 6 inches below 108-EB5
[3] = 108-EB6a was collected at an 18 inch depth, 6 inches below 108-EB6
[4] = 107-EB1a was collected at an 18 inch depth, 6 inches below 107-EB1
* = Nomenclature changed after sample submission to laboratory
N/A = Not applicable

Table 3-5
Removal Properties Information
Iron King Mine Removal Action
Dewey-Humboldt, Yavapai County, Arizona

EPA Yard ID	Assessor Parcel Number	Start Date	Completion Date	Snow fence	Cubic Yards Removed
105B	402-06-028J	5/29/2017	6/28/2017	Yes	41
107B	402-06-028W	6/10/2017	10/3/2017	Yes	1926***
108	402-06-028S	5/27/2017	6/28/2017	No[2]	753
116	402-07-017H	5/27/2017	5/29/2017	No	32
120	402-07-017G	5/26/2017	5/29/2017	No	32
138B	402-07-028D	4/28/2017	5/2/2017	Yes	56
141	402-07-28D[1]	4/28/2017	5/19/2017	No	184
143	402-10-039	6/9/2017	6/13/2017	No	112
153	402-10-023	5/19/2017	5/22/2017	No	32
162	402-06-070	5/22/2017	5/22/2017	No	24
164	402-08-043	5/2/2017	5/13/2017	Yes	648
176	402-10-028A	6/7/2017	6/13/2017	No	56
181	402-07-084A	5/13/2017	5/15/2017	No	**
203B	402-06-028M, 402-06-028T	6/10/2017	10/3/2017	Yes	***
222	402-10-005A	4/24/2017	7/1/2017	Yes	1670*
232	402-10-008A	5/2/2017	5/2/2017	Yes	48
233	402-10-040	5/31/2017	6/9/2017	Yes[3]	144
247	402-06-074E	5/18/2017	5/19/2017	No	32
2328	402-09-023F	5/20/2017	5/23/2017	No	16
2393	402-08-032C	6/2/2017	6/14/2017	No	272
2406	402-10-074C	4/26/2017	7/1/2017	Yes	1670*
2408	402-10-074D	4/26/2017	7/1/2017	Yes	1670*
2409	402-06-102R	4/24/2017	7/1/2017	Yes	1670*
2410	402-06-102U	4/21/2017	7/1/2017	Yes	1670*
2529	402-06-064A	5/5/2017	5/12/2017	No	163
2530	402-06-063, 402-06-062	5/5/2017	5/12/2017	No	430
2602	402-07-083A	5/15/2017	5/20/2017	No	136
2615	402-07-023B	5/16/2017	5/20/2017	No	487
2719	402-07-055A	5/9/2017	5/15/2017	Yes	445
227 and 70J	402-07-052M, 402-07-061B	5/24/2017	5/27/2017	No[4]	160
229 and 36W	402-07-041	5/22/2017	5/26/2017	No[4]	200

Notes:
ROW = Right of Way
* = Cumulative total yards of 222, 2406, 2408, 2409, and 2410
** = The cubic yard removal for this yard is included in the total for yard ID 2615
*** = This is a combined total of yards 203B and 107B because the excavation area overlapped the parcel line between the two yards

[1] = This parcel number does not match the Yavapai County Assessor records, but was stated as the correct assessor parcel number by the homeowner

[2] = Two different areas within excavation area 2 were excavated to 18" to remove additional contamination

[3] = EB-6 Excavated to 18" still above action level snow fence installed. EB-4 Snow fence unable to dig past 12" due to fiber optic line. EB-5 Snow fence unable to dig past 12" due to fiber optic line.

[4] = Some areas were excavated past a one foot depth based on visual indication of tailings.

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPH LOG

Project Name:	Site Location:	TDD No.:
Iron King Mine Removal Action	Dewey-Humboldt, Arizona	0002/1302-T2-R9-17-03-0001

Photo No. 1	Date: 05/02/2017

Direction Photo Taken:

Northeast

Description:

Yard removal operations at yard ID 232.

Photo No. 2	Date: 05/06/2017

Direction Photo Taken:

East

Description:

View of snow fence placement in yard ID 164.

PHOTOGRAPH LOG

Project Name:	Site Location:	TDD No.:
Iron King Mine Removal Action	Dewey-Humboldt, Arizona	0002/1302-T2-R9-17-03-0001

Photo No. 3	Date: 06/09/2017

Direction Photo Taken:

Northeast

Description:

View of excavated, backfilled and restored areas in yard ID 233.

Photo No. 4	Date: 05/19/2017

Direction Photo Taken:

Southeast

Description:

View of backfill staging area.

PHOTOGRAPH LOG

Project Name:	Site Location:	TDD No.:
Iron King Mine Removal Action	Dewey-Humboldt, Arizona	0002/1302-T2-R9-17-03-0001

Photo No. 5	Date: 8/2/2017

Direction Photo Taken:

West

Description:

View of exposed snow fence caused by monsoon rains creating significant rills.

Photo No. 6	Date: 10/3/2017

Direction Photo Taken:

East

Description:

View of repaired area after monsoon damage.

PHOTOGRAPH LOG

Project Name:	Site Location:	TDD No.:
Iron King Mine Removal Action	Dewey-Humboldt, Arizona	0002/1302-T2-R9-17-03-0001

Photo No. 7	Date: 06/28/2017

Direction Photo Taken:

Northeast

Description:

Overview of placement of contaminated soils on the main tailings pile.

APPENDIX D
DATA VALIDATION REPORTS AND LABORATORY ANALYTICAL REPORTS

2017 IRON KING MINE REMOVAL ACTION
DEWEY-HUMBOLDT, YAVAPAI COUNTY, ARIZONA
DATA VALIDATION REPORT

Date: May 16, 2017
Laboratory: TestAmerica Laboratories, Inc., Corpus Christi, Texas
Laboratory Work Order #: 550-81724-1
Data Validation Performed By: Mindy Song, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Weston Work Order #: 20409.012.002.0144.00

This data validation report has been prepared by WESTON START under the START IV Region 9 contract. This report documents the data validation for 9 soil samples collected for the 2017 Iron King Mine Removal Action Site that were analyzed for the following parameters and U.S Environmental Protection Agency methods.

- Total RCRA 8 Metals by SW-846 Method 6010B/7471A

A level II data package was received from TestAmerica Laboratories, Inc., Corpus Christi, TX. A Stage 2A data validation was performed and was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated August 2014. The Attachment contains results summary sheets with any hand-written qualifiers applied during data validation.

Data Validation Report
2017 Iron King Mine Removal Action Site
TestAmerica Laboratories, Inc., Corpus Christi, TX
Laboratory Project #: 550-81724-1

TOTAL RCRA 8 METALS BY SW-846 METHOD 6010B/7471A

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
MDI-AS-1	550-81724-1	Soil	04/18/17	05/02/17 & 05/05/17
164-DU1	550-81724-2	Soil	04/20/17	05/02/17 & 05/05/17
2409-4	550-81724-3	Soil	04/22/17	05/02/17 & 05/05/17
2408-1	550-81724-4	Soil	04/22/17	05/02/17 & 05/05/17
2408-2	550-81724-5	Soil	04/22/17	05/02/17 & 05/05/17
232-1	550-81724-6	Soil	04/24/17	05/02/17 & 05/05/17
2410-DU2	550-81724-7	Soil	04/24/17	05/02/17 & 05/05/17
2408-4	550-81724-8	Soil	04/25/17	05/02/17 & 05/05/17
2408-5	550-81724-9	Soil	04/25/17	05/02/17 & 05/05/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days (28 days for mercury) from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the reporting limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Site-specific MS and MSD were not analyzed due to a limited volume of sample in XRF cup.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory duplicate was not analyzed but LCS Duplicate was analyzed. The relative percent differences (RPDs) were within laboratory QC limits.

7. Overall Assessment

TestAmerica Laboratory flagged sample results with the following laboratory qualifier:

D2: Indicates that the sample was diluted due to presence of high concentration of iron and manganese which interfere with arsenic and barium. The reporting limit was raised due to dilution. This qualifier was removed by the data validator.

The total RCRA 8 metals data are acceptable for use based on the information received.

Data Validation Report
2017 Iron King Mine Removal Action Site
TestAmerica Laboratories, Inc., Corpus Christi, TX
Laboratory Project #: 550-81724-1

ATTACHMENT

TESTAMERICA LABORATORIES INC.
RESULTS SUMMARY WITH QUALIFIERS

Client Sample ID: MDI-AS-1

Lab Sample ID: 550-81724-1
Matrix: Solid
Date Collected: 04/18/17 00:00
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	270	~~D2~~	30		mg/Kg		05/02/17 19:30	05/05/17 23:17	10
Barium	270	~~D2~~	50		mg/Kg		05/02/17 19:30	05/05/17 23:17	10
Cadmium	0.84		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:14	1
Chromium	310		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Lead	58		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Silver	ND	U	2.5		mg/Kg		05/02/17 19:30	05/03/17 22:05	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.058		0.056		mg/Kg		05/01/17 14:54	05/02/17 12:29	1

Client Sample ID: 164-DU1

Lab Sample ID: 550-81724-2
Matrix: Solid
Date Collected: 04/20/17 00:00
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1000	~~D2~~	30		mg/Kg		05/02/17 19:30	05/05/17 23:22	10
Barium	150	~~D2~~	50		mg/Kg		05/02/17 19:30	05/05/17 23:22	10
Cadmium	3.6		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:19	1
Chromium	18		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Lead	1400		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Silver	5.9		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:10	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.4	~~D2~~	0.59		mg/Kg		05/01/17 14:54	05/02/17 12:53	10

Client Sample ID: 2409-4

Lab Sample ID: 550-81724-3
Matrix: Solid
Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	28		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Barium	220		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Cadmium	ND	U	0.50		mg/Kg		05/02/17 19:30	05/04/17 20:24	1
Chromium	25		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Lead	72		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Silver	ND	U	2.5		mg/Kg		05/02/17 19:30	05/03/17 22:15	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.17		0.059		mg/Kg		05/01/17 14:54	05/02/17 12:32	1

Client Sample ID: 2408-1

Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-4
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	270	~~D2~~	30		mg/Kg		05/02/17 19:30	05/05/17 23:32	10
Barium	280	~~D2~~	50		mg/Kg		05/02/17 19:30	05/05/17 23:32	10
Cadmium	2.9		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:29	1
Chromium	20		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Lead	270		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Silver	7.7		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:20	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.61		0.056		mg/Kg		05/01/17 14:54	05/02/17 12:33	1

Client Sample ID: 2408-2

Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-5
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	82		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Barium	200		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Cadmium	2.5		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:34	1
Chromium	26		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Lead	360		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Silver	3.8		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:25	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.97		0.057		mg/Kg		05/01/17 14:54	05/02/17 12:34	1

Client Sample ID: 232-1

Date Collected: 04/24/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-6
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	29		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Barium	67		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Cadmium	ND	U	0.50		mg/Kg		05/02/17 19:30	05/04/17 20:39	1
Chromium	130		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Lead	15		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Silver	ND	U	2.5		mg/Kg		05/02/17 19:30	05/03/17 22:30	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	U	0.059		mg/Kg		05/01/17 14:54	05/02/17 12:35	1

Client Sample ID: 2410-DU2

Lab Sample ID: 550-81724-7

Date Collected: 04/24/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	730	~~D2~~	30		mg/Kg		05/02/17 19:30	05/05/17 23:39	10
Barium	250	~~D2~~	50		mg/Kg		05/02/17 19:30	05/05/17 23:39	10
Cadmium	3.8		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:44	1
Chromium	20		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Lead	1400		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Silver	20		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:35	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.8	~~D2~~	0.60		mg/Kg		05/01/17 14:54	05/02/17 12:54	10

Client Sample ID: 2408-4

Lab Sample ID: 550-81724-8

Date Collected: 04/25/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	63		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Barium	170		4.9		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Cadmium	3.5		0.49		mg/Kg		05/02/17 19:30	05/04/17 20:54	1
Chromium	23		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Lead	370		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Selenium	ND	U	4.9		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Silver	2.8		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:45	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.0		0.059		mg/Kg		05/01/17 14:54	05/02/17 12:38	1

Client Sample ID: 2408-5

Lab Sample ID: 550-81724-9

Date Collected: 04/25/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	110		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Barium	170		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Cadmium	8.4		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:59	1
Chromium	23		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Lead	1400		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Selenium	ND	U	5.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Silver	8.3		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:50	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	5.2	~~D2~~	0.57		mg/Kg		05/01/17 14:54	05/02/17 12:56	10

2017 IRON KING MINE REMOVAL ACTION
DEWEY-HUMBOLDT, YAVAPAI COUNTY, ARIZONA
DATA VALIDATION REPORT

Date: May 16, 2017
Laboratory: TestAmerica Laboratories, Inc., Corpus Christi, Texas
Laboratory Work Order #: 560-67509-1
Data Validation Performed By: Mindy Song, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Weston Work Order #: 20409.012.002.0144.00

This data validation report has been prepared by WESTON START under the START IV Region 9 contract. This report documents the data validation for 4 soil samples collected for the 2017 Iron King Mine Removal Action Site that were analyzed for the following parameters and U.S Environmental Protection Agency methods.

- Total RCRA 8 Metals by SW-846 Method 6010B/7471A

A level II data package was received from TestAmerica Laboratories, Inc., Corpus Christi, TX. A Stage 2A data validation was performed and was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated August 2014. The Attachment contains results summary sheets with any hand-written qualifiers applied during data validation.

Data Validation Report
2017 Iron King Mine Removal Action Site
TestAmerica Laboratories, Inc., Corpus Christi, TX
Laboratory Project #: 560-67509-1

TOTAL RCRA 8 METALS BY SW-846 METHOD 6010B/7471A

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
CEMEX-SP1	560-67509-1	Soil	04/18/17	04/20/17
CEMEX-SP2	560-67509-2	Soil	04/18/17	04/20/17
MDI-CB1	560-67509-3	Soil	04/18/17	04/20/17
MDI-AG1	560-67509-4	Soil	04/18/17	04/20/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days (28 days for mercury) from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the reporting limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Site-specific MS and MSD were not analyzed due to a limited volume of sample in XRF cup.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory duplicate was not analyzed and no field duplicate sample was collected from this sampling event.

7. Overall Assessment

The total RCRA 8 metals data are acceptable for use based on the information received.

Data Validation Report
2017 Iron King Mine Removal Action Site
TestAmerica Laboratories, Inc., Corpus Christi, TX
Laboratory Project #: 560-67509-1

ATTACHMENT

TESTAMERICA LABORATORIES INC.
RESULTS SUMMARY WITH QUALIFIERS

Client Sample ID: CEMEX-SP1 — **Lab Sample ID: 560-67509-1**
Date Collected: 04/18/17 09:30 — **Matrix: Solid**
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.2		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Barium	150		0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Cadmium	0.57		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Chromium	21		0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Lead	5.1		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Selenium	ND	U	0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Silver	ND	U	0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.37		0.11		mg/Kg		04/20/17 11:15	04/20/17 13:33	1

Client Sample ID: CEMEX-SP2 — **Lab Sample ID: 560-67509-2**
Date Collected: 04/18/17 09:33 — **Matrix: Solid**
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.4		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Barium	150		0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Cadmium	0.61		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Chromium	19		0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Lead	5.6		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Selenium	ND	U	0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Silver	ND	U	0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	U	0.11		mg/Kg		04/20/17 11:15	04/20/17 13:35	1

Client Sample ID: MDI-CB1 — **Lab Sample ID: 560-67509-3**
Date Collected: 04/18/17 10:05 — **Matrix: Solid**
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	400		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Barium	310		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Cadmium	0.71		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Chromium	160		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Lead	9.4		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Selenium	1.5		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Silver	ND	U	0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.15		0.11		mg/Kg		04/20/17 11:15	04/20/17 13:37	1

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Client Sample ID: MDI-AG1
Date Collected: 04/18/17 10:10
Date Received: 04/19/17 09:30

Lab Sample ID: 560-67509-4
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	110		1.8		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Barium	230		0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Cadmium	2.4		0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Chromium	270		0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Lead	44		0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Selenium	ND	U	0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Silver	ND	U	0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	U	0.099		mg/Kg		04/20/17 11:15	04/20/17 13:39	1

2017 IRON KING MINE REMOVAL ACTION
DEWEY-HUMBOLDT, YAVAPAI COUNTY, ARIZONA
DATA VALIDATION REPORT

Date: June 14, 2017
Laboratory: U.S. Environmental Protection Agency Region 9 (EPA) Laboratory, Richmond, California
Laboratory Work Order #: 1705053, SDG 17142A
Data Validation Performed By: Mindy Song, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Weston Work Order #: 20409.012.002.0144.00

This data validation report has been prepared by WESTON START under the START IV Region 9 contract. This report documents the data validation for 5 soil samples collected for the 2017 Iron King Mine Removal Action Site that were analyzed for the following parameters and U.S Environmental Protection Agency method.

- Total Arsenic and Lead by SW-846 Method 6010C

A level II data package was received from EPA Region 9 Laboratory located in Richmond, California. A Stage 2A data validation was performed and was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated August 2014. The Attachment contains results summary sheets with any hand-written qualifiers applied during data validation.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1705053, SDG 17142A

TOTAL ARSENIC AND LEAD BY SW-846 METHOD 6010C

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
153-1	1705053-01	Soil	5/13/17	5/26/17
141-6	1705053-02	Soil	5/13/17	5/26/17
2719-3	1705053-03	Soil	5/13/17	5/26/17
2408-DU5	1705053-04	Soil	5/13/17	5/26/17
232-EB1	1705053-05	Soil	5/13/17	5/26/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the quantitation limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Sample 141-6 was used for MS and MSD analysis and the recoveries were within the laboratory-established quality control (QC) limits.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory duplicate was not analyzed but MS Duplicate was analyzed. The relative percent differences (RPDs) of arsenic and lead were within QC limits.

7. Overall Assessment

The total arsenic and lead data are acceptable for use based on the information received.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1705053, SDG 17142A

ATTACHMENT

EPA REGION 9 LABORATORY
RESULTS SUMMARY WITH QUALIFIERS

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17142A
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/05/17 15:41
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1705053-01**									**Soil - Sampled: 05/13/17 07:30**
Sample ID: **153-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		54		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		510		3	"	"	"	"	6010C
Lab ID: **1705053-02**									**Soil - Sampled: 05/13/17 07:31**
Sample ID: **141-6**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		60		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		430		3	"	"	"	"	6010C
Lab ID: **1705053-03**									**Soil - Sampled: 05/13/17 07:32**
Sample ID: **2719-3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		460		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		1,200		3	"	"	"	"	6010C
Lab ID: **1705053-04**									**Soil - Sampled: 05/13/17 07:33**
Sample ID: **2408-DU5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		580		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		6,600		3	"	"	"	"	6010C
Lab ID: **1705053-05**									**Soil - Sampled: 05/13/17 07:34**
Sample ID: **232-EB1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		130		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		860		3	"	"	"	"	6010C

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17E152 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 05/25/17 Analyzed: 05/26/17**
										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B17E152-BLK1)										
Arsenic	ND	U	2	mg/kg wet						
Lead	ND	U	3	"						
Matrix Spike (B17E152-MS1)		**Source: 1705053-02**								
Arsenic	449		2	mg/kg wet	400	59.8	97	75-125		
Lead	548	Q10	3	"	100	432	116	75-125		
Matrix Spike Dup (B17E152-MSD1)		**Source: 1705053-02**								
Arsenic	431		2	mg/kg wet	388	59.8	95	75-125	4	20
Lead	518	Q10	3	"	97.1	432	89	75-125	6	20
Reference (B17E152-SRM1)										
Arsenic	262		2	mg/kg wet	254		103	60.9-139		
Lead	54.7		3	"	57.1		96	72.8-127		

2017 IRON KING MINE REMOVAL ACTION
DEWEY-HUMBOLDT, YAVAPAI COUNTY, ARIZONA
DATA VALIDATION REPORT

Date: June 19, 2017
Laboratory: U.S. Environmental Protection Agency Region 9 (EPA) Laboratory, Richmond, California
Laboratory Work Order #: 1706002, SDG 17152D
Data Validation Performed By: Mindy Song, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Weston Work Order #: 20409.012.002.0144.00

This data validation report has been prepared by WESTON START under the START IV Region 9 contract. This report documents the data validation for 10 soil and 4 air filter samples collected for the 2017 Iron King Mine Removal Action Site that were analyzed for the following parameters by U.S Environmental Protection Agency (USEPA) Method and National Institute for Occupational Safety and Health (NIOSH) Method.

- Total Arsenic and Lead by SW-846 USEPA Method 6010C
- Total Lead by NIOSH Method 7300M

A level II data package was received from EPA Region 9 Laboratory located in Richmond, California. A Stage 2A data validation was performed and was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated August 2014. The Attachment contains results summary sheets with any hand-written qualifiers applied during data validation.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1706002, SDG 17152D

TOTAL ARSENIC AND LEAD BY SW-846 METHOD 6010C

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
108-EB3	1706002-01	Soil	5/30/17	6/9/17
203b-10	1706002-02	Soil	5/26/17	6/9/17
233-1	1706002-03	Soil	5/19/17	6/9/17
107b-10	1706002-04	Soil	5/25/17	6/9/17
105b-3	1706002-05	Soil	5/24/17	6/9/17
227-EB3	1706002-06	Soil	5/25/17	6/9/17
233-15	1706002-07	Soil	5/23/17	6/9/17
233-10	1706002-08	Soil	5/23/17	6/9/17
233-13	1706002-09	Soil	5/23/17	6/9/17
CEMEX-15	1706002-10	Soil	5/26/17	6/9/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the quantitation limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Sample 203b-10 was used for MS and MSD analysis and the recoveries were within the laboratory-established quality control (QC) limits.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory duplicate was not analyzed but MS Duplicate was analyzed. The relative percent differences (RPDs) of arsenic and lead were within QC limits.

7. Overall Assessment

The total arsenic and lead data are acceptable for use based on the information received.

TOTAL LEAD BY NIOSH METHOD 7300M

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
LV-7-050217	1706002-11	Air Filter	5/2/17	6/9/17
LV-2-050317	1706002-12	Air Filter	5/2/17	6/9/17
LV-7-050617	1706002-13	Air Filter	5/6/17	6/9/17
LV-4-052517	1706002-14	Air Filter	5/25/17	6/9/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the quantitation limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

MS/MSD analysis was not required.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory duplicate was not analyzed but LCS Duplicate was analyzed. The RPD of lead was within QC limits.

7. Overall Assessment

The laboratory flagged sample results with the following laboratory qualifiers:

C1: Indicates that the analyte was detected below the quantitation limit and that the results should be considered estimated. The "J" flag was left in place but the "C1" flag was removed by the data validator.

The total lead data are acceptable for use based on the information received.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1706002, SDG 17152D

ATTACHMENT

EPA REGION 9 LABORATORY
RESULTS SUMMARY WITH QUALIFIERS

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1706002-01									**Soil - Sampled: 05/30/17 08:10**
Sample ID: 108-EB3									**Metals by EPA 6000/7000 Series Methods**
Arsenic		27		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		14		3	"	"	"	"	6010C
Lab ID: 1706002-02									**Soil - Sampled: 05/26/17 12:00**
Sample ID: 203b-10									**Metals by EPA 6000/7000 Series Methods**
Arsenic		220		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		380		3	"	"	"	"	6010C
Lab ID: 1706002-03									**Soil - Sampled: 05/19/17 11:10**
Sample ID: 233-1									**Metals by EPA 6000/7000 Series Methods**
Arsenic		59		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		350		3	"	"	"	"	6010C
Lab ID: 1706002-04									**Soil - Sampled: 05/25/17 09:47**
Sample ID: 107b-10									**Metals by EPA 6000/7000 Series Methods**
Arsenic		160		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		720		3	"	"	"	"	6010C
Lab ID: 1706002-05									**Soil - Sampled: 05/24/17 15:19**
Sample ID: 105b-3									**Metals by EPA 6000/7000 Series Methods**
Arsenic		350		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		940		3	"	"	"	"	6010C
Lab ID: 1706002-06									**Soil - Sampled: 05/25/17 14:30**
Sample ID: 227-EB3									**Metals by EPA 6000/7000 Series Methods**
Arsenic		34		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		23		3	"	"	"	"	6010C
Lab ID: 1706002-07									**Soil - Sampled: 05/23/17 15:38**
Sample ID: 233-15									**Metals by EPA 6000/7000 Series Methods**
Arsenic		1,100		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		2,300		3	"	"	"	"	6010C
Lab ID: 1706002-08									**Soil - Sampled: 05/23/17 15:16**
Sample ID: 233-10									**Metals by EPA 6000/7000 Series Methods**
Arsenic		67		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		340		3	"	"	"	"	6010C
Lab ID: 1706002-09									**Soil - Sampled: 05/23/17 15:34**
Sample ID: 233-13									**Metals by EPA 6000/7000 Series Methods**
Arsenic		160		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		310		3	"	"	"	"	6010C
Lab ID: 1706002-10									**Soil - Sampled: 05/26/17 15:10**
Sample ID: CEMEX-15									**Metals by EPA 6000/7000 Series Methods**
Arsenic		13		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		5.3		3	"	"	"	"	6010C
Lab ID: 1706002-11									**MCE cassette filter - Sampled: 05/02/17 17:00**

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1706002-11**									**MCE cassette filter - Sampled: 05/02/17 17:00**
Sample ID: **LV-7-050217**									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		0.10	~~C~~1, J	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: **1706002-12**									**MCE cassette filter - Sampled: 05/03/17 16:58**
Sample ID: **LV-2-050317**									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: **1706002-13**									**MCE cassette filter - Sampled: 05/06/17 16:37**
Sample ID: **LV-7-050617**									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: **1706002-14**									**MCE cassette filter - Sampled: 05/25/17 17:15**
Sample ID: **LV-4-052517**									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17F032 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 06/07/17 Analyzed: 06/09/17**
										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B17F032-BLK1)										
Arsenic	ND	U	2	mg/kg						
Lead	ND	U	3	"						
Matrix Spike (B17F032-MS1)		**Source: 1706002-02**								
Arsenic	595		2	mg/kg	392	220	96	75-125		
Lead	463		3	"	98.0	379	86	75-125		
Matrix Spike Dup (B17F032-MSD1)		**Source: 1706002-02**								
Arsenic	593		2	mg/kg	392	220	95	75-125	0.2	20
Lead	467		3	"	98.0	379	90	75-125	0.9	20
Reference (B17F032-SRM1)										
Arsenic	282		2	mg/kg	254		111	60.9-139		
Lead	53.8		3	"	57.1		94	72.8-127		
Batch B17F041 - Air Filter Digestion - Lead on Air Filters										**Prepared: 06/09/17 Analyzed: 06/12/17**
										Federal Equivalent Methods for Ambient Air Monitoring - Quality Control
Blank (B17F041-BLK1)										
Lead	ND	U	0.18	ug/Filter						
LCS (B17F041-BS1)										
Lead	1.9		0.18	ug/Filter	2.00		95	80-120		
LCS Dup (B17F041-BSD1)										
Lead	1.87		0.18	ug/Filter	2.00		94	80-120	1	20

2017 IRON KING MINE REMOVAL ACTION
DEWEY-HUMBOLDT, YAVAPAI COUNTY, ARIZONA
DATA VALIDATION REPORT

Date: July 11, 2017
Laboratory: U.S. Environmental Protection Agency Region 9 (EPA) Laboratory, Richmond, California
Laboratory Work Order #: 1706044, SDG 17172B
Data Validation Performed By: Mindy Song, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Weston Work Order #: 20409.012.002.0144.00

This data validation report has been prepared by WESTON START under the START IV Region 9 contract. This report documents the data validation for 15 soil samples collected for the 2017 Iron King Mine Removal Action Site that were analyzed for the following parameters and U.S Environmental Protection Agency methods.

- Total Arsenic and Lead by SW-846 Method 6010C
- Toxicity Characteristic Leaching Procedure (TCLP) Metals by SW-846 Methods 1311/6010B/245.1

A level II data package was received from EPA Region 9 Laboratory located in Richmond, California. A Stage 2A data validation was performed and was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated August 2014. The Attachment contains results summary sheets with any hand-written qualifiers applied during data validation.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1706044, SDG 17172B

TOTAL ARSENIC AND LEAD BY SW-846 METHOD 6010C

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
233-EB6	1706044-01	Soil	6/7/17	6/26/17
108-5	1706044-02	Soil	6/1/17	6/26/17
107b-EB1	1706044-03	Soil	6/12/17	6/26/17
143-1	1706044-04	Soil	6/3/17	6/26/17
233-EB5	1706044-05	Soil	6/6/17	6/26/17
2393-3	1706044-06	Soil	6/5/17	6/26/17
107b-EB9	1706044-07	Soil	6/17/17	6/26/17
Area D-1	1706044-08	Soil	6/13/17	6/26/17
107b-EB2	1706044-09	Soil	6/13/17	6/26/17
107b-EB11	1706044-10	Soil	6/19/17	6/26/17
107b-EB7	1706044-11	Soil	6/16/17	6/26/17
107b-EB3	1706044-12	Soil	6/14/17	6/26/17
G&S-2	1706044-13	Soil	6/6/17	6/26/17
CEMEX-32	1706044-14	Soil	6/8/17	6/26/17

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the required holding time limit of 180 days from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the total metals analysis and was free of target analytes above the quantitation limits.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. **Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results**

Sample 233-EB6 was used for MS and MSD analysis and the recovery of lead in 233-EB6 MSD was outside the laboratory-established quality control (QC) limits. Qualification was not required because the concentration of lead present in the parent sample was greater than 4x the spiked amount.

6. **Laboratory Duplicate/ Field Duplicate Results**

The laboratory duplicate was not analyzed but MS Duplicate was analyzed. The relative percent differences (RPDs) of arsenic and lead were within QC limits.

7. **Overall Assessment**

The total arsenic and lead data are acceptable for use based on the information received.

TCLP METALS BY SW-846 METHODS 1311/6010C/245.1

The following table summarizes the sample for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
109-2	1706044-15	Soil	6/19/17	6/30/17 & 7/5/17

1. **Data Verification Check**

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For work orders associated with this review, requested analytical data package items were received from the laboratory and the analyses requested were performed.

2. **Holding Times**

The sample was analyzed within the required holding time limit of 180 days (28 days for mercury) from sample collection. Holding times were met.

3. Blanks

Method blank was analyzed with the metals analyses and was free of target compound contamination above the quantitation limit.

4. Laboratory Control Sample (LCS) Results

The LCS recovery was within laboratory quality control (QC) limits. Laboratory accuracy appears adequate.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Sample 109-2 was used for MS and MSD analyses and the percent recoveries were within the laboratory-established quality control (QC) limits.

6. Laboratory Duplicate/ Field Duplicate Results

The laboratory analyzed sample 109-2 as a laboratory duplicate and the RPDs were within the control limit. Laboratory duplicate results are acceptable.

7. Overall Assessment

The laboratory flagged sample results with the following laboratory qualifiers:

C1: Indicates that the analyte was detected below the quantitation limit and that the results should be considered estimated. The "J" flag was left in place but the "C1" flag was removed by the data validator.

A2: Indicates the sample was received above the recommended temperature range. These qualifiers were removed by the data validator and either "J" or "UJ" qualifiers were added.

The TCLP metals data are acceptable for use as qualified based on the information received.

Data Validation Report
2017 Iron King Mine Removal Action Site
U.S. Environmental Protection Agency Region 9 Laboratory
Laboratory Project #: 1706044, SDG 17172B

ATTACHMENT

EPA REGION 9 LABORATORY
RESULTS SUMMARY WITH QUALIFIERS

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17172B
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 07/07/17 16:14
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1706044-01**									**Soil - Sampled: 06/07/17 12:33**
Sample ID: **233-EB6**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		110		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		590		3	"	"	"	"	6010C
Lab ID: **1706044-02**									**Soil - Sampled: 06/01/17 06:50**
Sample ID: **108-5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		21		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		9.5		3	"	"	"	"	6010C
Lab ID: **1706044-03**									**Soil - Sampled: 06/12/17 14:29**
Sample ID: **107b-EB1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		100		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		380		3	"	"	"	"	6010C
Lab ID: **1706044-04**									**Soil - Sampled: 06/03/17 09:26**
Sample ID: **143-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		130		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		450		3	"	"	"	"	6010C
Lab ID: **1706044-05**									**Soil - Sampled: 06/06/17 14:05**
Sample ID: **233-EB5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		220		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		850		3	"	"	"	"	6010C
Lab ID: **1706044-06**									**Soil - Sampled: 06/05/17 08:32**
Sample ID: **2393-3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		230		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		1,300		3	"	"	"	"	6010C
Lab ID: **1706044-07**									**Soil - Sampled: 06/17/17 10:15**
Sample ID: **107b-EB9**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		61		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		160		3	"	"	"	"	6010C
Lab ID: **1706044-08**									**Soil - Sampled: 06/13/17 10:14**
Sample ID: **Area D-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		17		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		15		3	"	"	"	"	6010C
Lab ID: **1706044-09**									**Soil - Sampled: 06/13/17 10:12**
Sample ID: **107b-EB2**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		360		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		410		3	"	"	"	"	6010C
Lab ID: **1706044-10**									**Soil - Sampled: 06/19/17 12:18**
Sample ID: **107b-EB11**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		43		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		88		3	"	"	"	"	6010C
Lab ID: **1706044-11**									**Soil - Sampled: 06/16/17 11:39**

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Project Manager: Martin Powell
Project Number: R17S63
Project: Iron King Mine 2017 Removal Assessment

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

SDG: 17172B
Reported: 07/07/17 16:14

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1706044-11									**Soil - Sampled: 06/16/17 11:39**
Sample ID: 107b-EB7									
									Metals by EPA 6000/7000 Series Methods
Arsenic		140		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		740		3	"	"	"	"	6010C
Lab ID: 1706044-12									**Soil - Sampled: 06/14/17 10:56**
Sample ID: 107b-EB3									
									Metals by EPA 6000/7000 Series Methods
Arsenic		42		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		58		3	"	"	"	"	6010C
Lab ID: 1706044-13									**Soil - Sampled: 06/06/17 09:02**
Sample ID: G&S-2									
									Metals by EPA 6000/7000 Series Methods
Arsenic		41		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		4.9		3	"	"	"	"	6010C
Lab ID: 1706044-14									**Soil - Sampled: 06/08/17 14:34**
Sample ID: CEMEX-32									
									Metals by EPA 6000/7000 Series Methods
Arsenic		12		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		5.4		3	"	"	"	"	6010C
Lab ID: 1706044-15									**Soil - Sampled: 06/19/17 11:20**
Sample ID: 109-2									
									Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts
Arsenic		ND	U	0.20	mg/L	B17F140	06/29/17	06/30/17	6010C
Barium		1.9		0.50	"	"	"	"	6010C
Cadmium		0.042	~~G1,J~~ J	0.050	"	"	"	"	6010C
Chromium		ND	U	0.10	"	"	"	"	6010C
Lead		1.6		0.30	"	"	"	"	6010C
Selenium		ND	U	0.20	"	"	"	"	6010C
Silver		ND	U	0.10	"	"	"	"	6010C
Mercury		ND	~~A2,J,U~~ U J	0.00030	"	B17G004	07/05/17	07/05/17	245.1
TCLP Extraction		Performed			N/A	B17F130	06/28/17	07/05/17	1311

United States Environmental Protection Agency
Region 9 Laboratory

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

Date: **6/5/2017**

Subject: **Analytical Testing Results - Project R17S63**
SDG: 17142A

From: **Peter Husby, Director**
EPA Region 9 Laboratory
EMD-3-1

To: **Martin Powell**
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Iron King Mine 2017 Removal Assessment** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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

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

Electronic CC: Rod Tobias, Weston Solutions, Inc.
Mindy Song, CSS Dynamac, Inc.

Analyses included in this report:

Metals by ICP	Percent Solids

United States Environmental Protection Agency
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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17142A
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/05/17 15:41
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
153-1	1705053-01	Soil	05/13/17 07:30	05/22/17 14:33
141-6	1705053-02	Soil	05/13/17 07:31	05/22/17 14:33
2719-3	1705053-03	Soil	05/13/17 07:32	05/22/17 14:33
2408-DU5	1705053-04	Soil	05/13/17 07:33	05/22/17 14:33
232-EB1	1705053-05	Soil	05/13/17 07:34	05/22/17 14:33

Work Order 1705053

These samples were received pre-dried and sieved in XRF cups. Percent solids determination was not performed and results are reported "as received" (not dry-weight corrected).

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Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/05/17 15:41
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1705053-01**									**Soil - Sampled: 05/13/17 07:30**
Sample ID: **153-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		54		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		510		3	"	"	"	"	6010C
Lab ID: **1705053-02**									**Soil - Sampled: 05/13/17 07:31**
Sample ID: **141-6**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		60		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		430		3	"	"	"	"	6010C
Lab ID: **1705053-03**									**Soil - Sampled: 05/13/17 07:32**
Sample ID: **2719-3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		460		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		1,200		3	"	"	"	"	6010C
Lab ID: **1705053-04**									**Soil - Sampled: 05/13/17 07:33**
Sample ID: **2408-DU5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		580		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		6,600		3	"	"	"	"	6010C
Lab ID: **1705053-05**									**Soil - Sampled: 05/13/17 07:34**
Sample ID: **232-EB1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		130		2	mg/kg wet	B17E152	05/25/17	05/26/17	6010C
Lead		860		3	"	"	"	"	6010C

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17E152 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 05/25/17 Analyzed: 05/26/17**
										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B17E152-BLK1)										
Arsenic	ND	U	2	mg/kg wet						
Lead	ND	U	3	"						
Matrix Spike (B17E152-MS1)		**Source: 1705053-02**								
Arsenic	449		2	mg/kg wet	400	59.8	97	75-125		
Lead	548	Q10	3	"	100	432	116	75-125		
Matrix Spike Dup (B17E152-MSD1)		**Source: 1705053-02**								
Arsenic	431		2	mg/kg wet	388	59.8	95	75-125	4	20
Lead	518	Q10	3	"	97.1	432	89	75-125	6	20
Reference (B17E152-SRM1)										
Arsenic	262		2	mg/kg wet	254		103	60.9-139		
Lead	54.7		3	"	57.1		96	72.8-127		

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17142A
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/05/17 15:41
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Qualifiers and Comments

Q10 The analyte concentration in the unfortified sample is significantly greater than the concentration spiked into the matrix spike and matrix spike duplicate. The reported spike recovery is not a meaningful measure of the dataset's analytical accuracy.

U Not Detected

NR Not Reported

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

United States Environmental Protection Agency
Region 9 Laboratory

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

Date: **6/13/2017**

Subject: **Analytical Testing Results - Project R17S63**
SDG: 17152D

From: **Peter Husby, Director**
EPA Region 9 Laboratory
EMD-3-1

To: **Martin Powell**
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Iron King Mine 2017 Removal Assessment** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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

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

Electronic CC: Rod Tobias, Weston Solutions, Inc.
Mindy Song, CSS Dynamac, Inc.

Analyses included in this report:

Lead on Air Filters
Metals by ICP
Percent Solids

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
108-EB3	1706002-01	Soil	05/30/17 08:10	06/01/17 09:49
203b-10	1706002-02	Soil	05/26/17 12:00	06/01/17 09:49
233-1	1706002-03	Soil	05/19/17 11:10	06/01/17 09:49
107b-10	1706002-04	Soil	05/25/17 09:47	06/01/17 09:49
105b-3	1706002-05	Soil	05/24/17 15:19	06/01/17 09:49
227-EB3	1706002-06	Soil	05/25/17 14:30	06/01/17 09:49
233-15	1706002-07	Soil	05/23/17 15:38	06/01/17 09:49
233-10	1706002-08	Soil	05/23/17 15:16	06/01/17 09:49
233-13	1706002-09	Soil	05/23/17 15:34	06/01/17 09:49
CEMEX-15	1706002-10	Soil	05/26/17 15:10	06/01/17 09:49
LV-7-050217	1706002-11	MCE cassette filter	05/02/17 17:00	06/01/17 09:49
LV-2-050317	1706002-12	MCE cassette filter	05/03/17 16:58	06/01/17 09:49
LV-7-050617	1706002-13	MCE cassette filter	05/06/17 16:37	06/01/17 09:49
LV-4-052517	1706002-14	MCE cassette filter	05/25/17 17:15	06/01/17 09:49

Work Order 1706002

Samples 1706002-01 through 1706002-10 are pre-dried and pre-sieved soil samples received in XRF cups. No percent soilds determination was performed. Results are reported on an "as received" basis (no dry-weight correction performed).

Samples 1706002-11 through 1706002-14 are 37 mm MCE air filters received in filter cassettes. Results are expressed in total micrograms of lead on each filter.

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1706002-01**									**Soil - Sampled: 05/30/17 08:10**
Sample ID: **108-EB3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		27		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		14		3	"	"	"	"	6010C
Lab ID: **1706002-02**									**Soil - Sampled: 05/26/17 12:00**
Sample ID: **203b-10**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		220		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		380		3	"	"	"	"	6010C
Lab ID: **1706002-03**									**Soil - Sampled: 05/19/17 11:10**
Sample ID: **233-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		59		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		350		3	"	"	"	"	6010C
Lab ID: **1706002-04**									**Soil - Sampled: 05/25/17 09:47**
Sample ID: **107b-10**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		160		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		720		3	"	"	"	"	6010C
Lab ID: **1706002-05**									**Soil - Sampled: 05/24/17 15:19**
Sample ID: **105b-3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		350		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		940		3	"	"	"	"	6010C
Lab ID: **1706002-06**									**Soil - Sampled: 05/25/17 14:30**
Sample ID: **227-EB3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		34		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		23		3	"	"	"	"	6010C
Lab ID: **1706002-07**									**Soil - Sampled: 05/23/17 15:38**
Sample ID: **233-15**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		1,100		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		2,300		3	"	"	"	"	6010C
Lab ID: **1706002-08**									**Soil - Sampled: 05/23/17 15:16**
Sample ID: **233-10**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		67		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		340		3	"	"	"	"	6010C
Lab ID: **1706002-09**									**Soil - Sampled: 05/23/17 15:34**
Sample ID: **233-13**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		160		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		310		3	"	"	"	"	6010C
Lab ID: **1706002-10**									**Soil - Sampled: 05/26/17 15:10**
Sample ID: **CEMEX-15**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		13		2	mg/kg	B17F032	06/07/17	06/09/17	6010C
Lead		5.3		3	"	"	"	"	6010C
Lab ID: **1706002-11**									**MCE cassette filter - Sampled: 05/02/17 17:00**

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1706002-11									**MCE cassette filter - Sampled: 05/02/17 17:00**
Sample ID: LV-7-050217									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		0.10	C1, J	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: 1706002-12									**MCE cassette filter - Sampled: 05/03/17 16:58**
Sample ID: LV-2-050317									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: 1706002-13									**MCE cassette filter - Sampled: 05/06/17 16:37**
Sample ID: LV-7-050617									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192
Lab ID: 1706002-14									**MCE cassette filter - Sampled: 05/25/17 17:15**
Sample ID: LV-4-052517									**Federal Equivalent Methods for Ambient Air Monitoring**
Lead		ND	U	0.18	ug/Filter	B17F041	06/09/17	06/12/17	EQL-0710-192

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17F032 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 06/07/17 Analyzed: 06/09/17**
										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B17F032-BLK1)										
Arsenic	ND	U	2	mg/kg						
Lead	ND	U	3	"						
Matrix Spike (B17F032-MS1)		**Source: 1706002-02**								
Arsenic	595		2	mg/kg	392	220	96	75-125		
Lead	463		3	"	98.0	379	86	75-125		
Matrix Spike Dup (B17F032-MSD1)		**Source: 1706002-02**								
Arsenic	593		2	mg/kg	392	220	95	75-125	0.2	20
Lead	467		3	"	98.0	379	90	75-125	0.9	20
Reference (B17F032-SRM1)										
Arsenic	282		2	mg/kg	254		111	60.9-139		
Lead	53.8		3	"	57.1		94	72.8-127		
Batch B17F041 - Air Filter Digestion - Lead on Air Filters										**Prepared: 06/09/17 Analyzed: 06/12/17**
										Federal Equivalent Methods for Ambient Air Monitoring - Quality Control
Blank (B17F041-BLK1)										
Lead	ND	U	0.18	ug/Filter						
LCS (B17F041-BS1)										
Lead	1.9		0.18	ug/Filter	2.00		95	80-120		
LCS Dup (B17F041-BSD1)										
Lead	1.87		0.18	ug/Filter	2.00		94	80-120	1	20

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17152D
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 06/13/17 15:00
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Qualifiers and Comments

J	The reported result for this analyte should be considered an estimated value.
C1	The reported concentration for this analyte is below the quantitation limit.
U	Not Detected
NR	Not Reported
RE1, RE2, etc:	Result is from a sample re-analysis.

United States Environmental Protection Agency
Region 9 Laboratory

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

Date: **7/7/2017**

Subject: **Analytical Testing Results - Project R17S63**
SDG: 17172B

From: **Peter Husby, Director**
EPA Region 9 Laboratory
EMD-3-1

To: **Martin Powell**
Emergency Response Section
SFD-9-2

Attached are the results from the analysis of samples from the **Iron King Mine 2017 Removal Assessment** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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

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

Electronic CC: Rod Tobias, Weston Solutions, Inc.
Mindy Song, CSS Dynamac, Inc.

Analyses included in this report:

Metals by ICP	TCLP Metals by ICP
TCLP Mercury	Percent Solids
TCLP Extraction by 1311	

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell
Project Number: R17S63
Project: Iron King Mine 2017 Removal Assessment

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

SDG: 17172B
Reported: 07/07/17 16:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
233-EB6	1706044-01	Soil	06/07/17 12:33	06/21/17 09:55
108-5	1706044-02	Soil	06/01/17 06:50	06/21/17 09:55
107b-EB1	1706044-03	Soil	06/12/17 14:29	06/21/17 09:55
143-1	1706044-04	Soil	06/03/17 09:26	06/21/17 09:55
233-EB5	1706044-05	Soil	06/06/17 14:05	06/21/17 09:55
2393-3	1706044-06	Soil	06/05/17 08:32	06/21/17 09:55
107b-EB9	1706044-07	Soil	06/17/17 10:15	06/21/17 09:55
Area D-1	1706044-08	Soil	06/13/17 10:14	06/21/17 09:55
107b-EB2	1706044-09	Soil	06/13/17 10:12	06/21/17 09:55
107b-EB11	1706044-10	Soil	06/19/17 12:18	06/21/17 09:55
107b-EB7	1706044-11	Soil	06/16/17 11:39	06/21/17 09:55
107b-EB3	1706044-12	Soil	06/14/17 10:56	06/21/17 09:55
G&S-2	1706044-13	Soil	06/06/17 09:02	06/21/17 09:55
CEMEX-32	1706044-14	Soil	06/08/17 14:34	06/21/17 09:55
109-2	1706044-15	Soil	06/19/17 11:20	06/21/17 09:55

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17172B
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 07/07/17 16:14
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1706044-01**									**Soil - Sampled: 06/07/17 12:33**
Sample ID: **233-EB6**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		110		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		590		3	"	"	"	"	6010C
Lab ID: **1706044-02**									**Soil - Sampled: 06/01/17 06:50**
Sample ID: **108-5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		21		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		9.5		3	"	"	"	"	6010C
Lab ID: **1706044-03**									**Soil - Sampled: 06/12/17 14:29**
Sample ID: **107b-EB1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		100		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		380		3	"	"	"	"	6010C
Lab ID: **1706044-04**									**Soil - Sampled: 06/03/17 09:26**
Sample ID: **143-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		130		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		450		3	"	"	"	"	6010C
Lab ID: **1706044-05**									**Soil - Sampled: 06/06/17 14:05**
Sample ID: **233-EB5**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		220		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		850		3	"	"	"	"	6010C
Lab ID: **1706044-06**									**Soil - Sampled: 06/05/17 08:32**
Sample ID: **2393-3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		230		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		1,300		3	"	"	"	"	6010C
Lab ID: **1706044-07**									**Soil - Sampled: 06/17/17 10:15**
Sample ID: **107b-EB9**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		61		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		160		3	"	"	"	"	6010C
Lab ID: **1706044-08**									**Soil - Sampled: 06/13/17 10:14**
Sample ID: **Area D-1**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		17		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		15		3	"	"	"	"	6010C
Lab ID: **1706044-09**									**Soil - Sampled: 06/13/17 10:12**
Sample ID: **107b-EB2**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		360		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		410		3	"	"	"	"	6010C
Lab ID: **1706044-10**									**Soil - Sampled: 06/19/17 12:18**
Sample ID: **107b-EB11**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		43		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		88		3	"	"	"	"	6010C
Lab ID: **1706044-11**									**Soil - Sampled: 06/16/17 11:39**

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17172B
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 07/07/17 16:14
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **1706044-11**									**Soil - Sampled: 06/16/17 11:39**
Sample ID: **107b-EB7**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		140		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		740		3	"	"	"	"	6010C
Lab ID: **1706044-12**									**Soil - Sampled: 06/14/17 10:56**
Sample ID: **107b-EB3**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		42		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		58		3	"	"	"	"	6010C
Lab ID: **1706044-13**									**Soil - Sampled: 06/06/17 09:02**
Sample ID: **G&S-2**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		41		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		4.9		3	"	"	"	"	6010C
Lab ID: **1706044-14**									**Soil - Sampled: 06/08/17 14:34**
Sample ID: **CEMEX-32**									**Metals by EPA 6000/7000 Series Methods**
Arsenic		12		2	mg/kg wet	B17F104	06/22/17	06/26/17	6010C
Lead		5.4		3	"	"	"	"	6010C
Lab ID: **1706044-15**									**Soil - Sampled: 06/19/17 11:20**
Sample ID: **109-2**									**Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts**
Arsenic		ND	U	0.20	mg/L	B17F140	06/29/17	06/30/17	6010C
Barium		1.9		0.50	"	"	"	"	6010C
Cadmium		0.042	C1, J	0.050	"	"	"	"	6010C
Chromium		ND	U	0.10	"	"	"	"	6010C
Lead		1.6		0.30	"	"	"	"	6010C
Selenium		ND	U	0.20	"	"	"	"	6010C
Silver		ND	U	0.10	"	"	"	"	6010C
Mercury		ND	A2, J, U	0.00030	"	B17G004	07/05/17	07/05/17	245.1
TCLP Extraction		Performed			N/A	B17F130	06/28/17	07/05/17	1311

United States Environmental Protection Agency
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Project Manager: Martin Powell
Project Number: R17S63
Project: Iron King Mine 2017 Removal Assessment

Emergency Response Section
75 Hawthorne Street
San Francisco CA, 94105

SDG: 17172B
Reported: 07/07/17 16:14

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17F104 - 3050B Sld Acid Dig - Metals by 6010										**Prepared: 06/22/17 Analyzed: 06/26/17**
										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B17F104-BLK1)										
Arsenic	ND	U	2	mg/kg wet						
Lead	ND	U	3	"						
Matrix Spike (B17F104-MS1)		**Source: 1706044-01**								
Arsenic	522		2	mg/kg wet	400	111	103	75-125		
Lead	710	Q10	3	"	100	591	119	75-125		
Matrix Spike Dup (B17F104-MSD1)		**Source: 1706044-01**								
Arsenic	541		2	mg/kg wet	400	111	108	75-125	4	20
Lead	748	Q10	3	"	100	591	**157**	75-125	5	20
Reference (B17F104-SRM1)										
Arsenic	285		2	mg/kg wet	253		113	60.9-139		
Lead	57.6		3	"	56.9		101	72.8-127		
Batch B17F130 - 1311 TCLP - TCLP extraction										**Prepared: 06/28/17 Analyzed: 07/05/17**
										Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control
Blank (B17F130-BLK1)										
TCLP Extraction	Performed			N/A						
Duplicate (B17F130-DUP1)		**Source: 1706044-15**								
TCLP Extraction	Performed			N/A		Performed				200
Batch B17F140 - Leachate Digest - Metals, TCLP, ICP										**Prepared: 06/29/17 Analyzed: 06/30/17**
										Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control
Blank (B17F140-BLK1)										
Arsenic	ND	U	0.2	mg/L						
Barium	ND	U	0.5	"						
Cadmium	ND	U	0.05	"						
Chromium	ND	U	0.1	"						
Lead	ND	U	0.3	"						
Selenium	ND	U	0.2	"						
Silver	ND	U	0.1	"						
LCS (B17F140-BS1)										
Arsenic	21.5		0.2	mg/L	20.0		108	80-120		
Barium	19.7		0.5	"	20.0		98	80-120		
Cadmium	0.511		0.05	"	0.500		102	80-120		
Chromium	1.99		0.1	"	2.00		100	80-120		
Lead	4.84		0.3	"	5.00		97	80-120		
Selenium	20.5		0.2	"	20.0		102	80-120		
Silver	0.484		0.1	"	0.500		97	80-120		
Duplicate (B17F140-DUP1)		**Source: 1706044-15**								
Arsenic	ND	U	0.2	mg/L		ND				20
Barium	1.89		0.5	"		1.89			0.07	20

United States Environmental Protection Agency
Region 9 Laboratory

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

Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17172B
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 07/07/17 16:14
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B17F140 - Leachate Digest - Metals, TCLP, ICP									**Prepared: 06/29/17 Analyzed: 06/30/17**	
									Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control	
Duplicate (B17F140-DUP1)		**Source: 1706044-15**								
Cadmium	0.043	C1, J	0.05	"		0.042			0.3	20
Chromium	ND	U	0.1	"		ND				20
Lead	1.64		0.3	"		1.55			6	20
Selenium	ND	U	0.2	"		ND				20
Silver	ND	U	0.1	"		ND				20
Matrix Spike (B17F140-MS1)		**Source: 1706044-15**								
Arsenic	21.1		0.2	mg/L	20.0	ND	106	75-125		
Barium	21		0.5	"	20.0	1.89	95	75-125		
Cadmium	0.542		0.05	"	0.500	0.042	100	75-125		
Chromium	1.96		0.1	"	2.00	ND	98	75-125		
Lead	6.3		0.3	"	5.00	1.55	95	75-125		
Selenium	20.5		0.2	"	20.0	ND	102	75-125		
Silver	0.473		0.1	"	0.500	ND	95	75-125		
Matrix Spike Dup (B17F140-MSD1)		**Source: 1706044-15**								
Arsenic	21.2		0.2	mg/L	20.0	ND	106	75-125	0.03	20
Barium	20.9		0.5	"	20.0	1.89	95	75-125	0.3	20
Cadmium	0.541		0.05	"	0.500	0.042	100	75-125	0.3	20
Chromium	1.98		0.1	"	2.00	ND	99	75-125	1	20
Lead	6.32		0.3	"	5.00	1.55	95	75-125	0.3	20
Selenium	20.4		0.2	"	20.0	ND	102	75-125	0.3	20
Silver	0.48		0.1	"	0.500	ND	96	75-125	1	20
Batch B17G004 - Leachate Digest - Metals, TCLP, Mercury									**Prepared & Analyzed: 07/05/17**	
									Analysis of Toxicity Characteristic Leaching Procedure (TCLP) Extracts - Quality Control	
Blank (B17G004-BLK1)										
Mercury	ND	U	0.0003	mg/L						
LCS (B17G004-BS1)										
Mercury	0.00203		0.0003	mg/L	0.0020(		102	85-115		
Duplicate (B17G004-DUP1)		**Source: 1706044-15**								
Mercury	ND	U	0.0003	mg/L		ND				20
Matrix Spike (B17G004-MS1)		**Source: 1706044-15**								
Mercury	0.00206		0.0003	mg/L	0.0020(	ND	103	70-130		
Matrix Spike Dup (B17G004-MSD1)		**Source: 1706044-15**								
Mercury	0.00213		0.0003	mg/L	0.0020(	ND	106	70-130	3	20

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Project Manager: Martin Powell	**Emergency Response Section**	**SDG:** 17172B
Project Number: R17S63	**75 Hawthorne Street**	**Reported:** 07/07/17 16:14
Project: Iron King Mine 2017 Removal Assessment	**San Francisco CA, 94105**	

Qualifiers and Comments

Q10	The analyte concentration in the unfortified sample is significantly greater than the concentration spiked into the matrix spike and matrix spike duplicate. The reported spike recovery is not a meaningful measure of the dataset's analytical accuracy.
J	The reported result for this analyte should be considered an estimated value.
C1	The reported concentration for this analyte is below the quantitation limit.
A2	The sample was received above the recommended temperature range.
U	Not Detected
NR	Not Reported
RE1, RE2, etc:	Result is from a sample re-analysis.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-67509-1
TestAmerica Sample Delivery Group: 20409.016.002.0144.00
Client Project/Site: Iron King RA

For:
Weston Solutions, Inc.
9301 Oakdale Avenue
Suite 320
Chatsworth, California 91311

Attn: Rod Tobias

Authorized for release by:
4/21/2017 7:38:37 AM

Carlene McCutcheon, Project Manager II
(602)659-7612
carlene.mccutcheon@testamericainc.com

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Qualifiers

Metals

Qualifier	Qualifier Description
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated blank spike was acceptable.
M2	Matrix spike recovery was low, the associated blank spike recovery was acceptable.
R4	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Glossary

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

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Job ID: 560-67509-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-67509-1

Comments
No additional comments.

Receipt
The samples were received on 4/19/2017 9:30 AM; the samples arrived in good condition. The temperature of the cooler at receipt was 24.9º C.

Receipt Exceptions

The following samples was received at the laboratory outside the required temperature criteria: CEMEX-SP1 (560-67509-1), CEMEX-SP2 (560-67509-2), MDI-CB1 (560-67509-3) and MDI-AG1 (560-67509-4). There was no cooling media present in the cooler.

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

Detection Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Client Sample ID: CEMEX-SP1 — Lab Sample ID: 560-67509-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	8.2		1.9		mg/Kg	1		6010B	Total/NA
Barium	150		0.93		mg/Kg	1		6010B	Total/NA
Cadmium	0.57		0.47		mg/Kg	1		6010B	Total/NA
Chromium	21		0.93		mg/Kg	1		6010B	Total/NA
Lead	5.1		0.47		mg/Kg	1		6010B	Total/NA
Mercury	0.37		0.11		mg/Kg	1		7471A	Total/NA

Client Sample ID: CEMEX-SP2 — Lab Sample ID: 560-67509-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	8.4		1.9		mg/Kg	1		6010B	Total/NA
Barium	150		0.95		mg/Kg	1		6010B	Total/NA
Cadmium	0.61		0.47		mg/Kg	1		6010B	Total/NA
Chromium	19		0.95		mg/Kg	1		6010B	Total/NA
Lead	5.6		0.47		mg/Kg	1		6010B	Total/NA

Client Sample ID: MDI-CB1 — Lab Sample ID: 560-67509-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	400		1.9		mg/Kg	1		6010B	Total/NA
Barium	310		0.94		mg/Kg	1		6010B	Total/NA
Cadmium	0.71		0.47		mg/Kg	1		6010B	Total/NA
Chromium	160		0.94		mg/Kg	1		6010B	Total/NA
Lead	9.4		0.47		mg/Kg	1		6010B	Total/NA
Selenium	1.5		0.94		mg/Kg	1		6010B	Total/NA
Mercury	0.15		0.11		mg/Kg	1		7471A	Total/NA

Client Sample ID: MDI-AG1 — Lab Sample ID: 560-67509-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	110		1.8		mg/Kg	1		6010B	Total/NA
Barium	230		0.92		mg/Kg	1		6010B	Total/NA
Cadmium	2.4		0.46		mg/Kg	1		6010B	Total/NA
Chromium	270		0.92		mg/Kg	1		6010B	Total/NA
Lead	44		0.46		mg/Kg	1		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: CEMEX-SP1

Lab Sample ID: 560-67509-1

Date Collected: 04/18/17 09:30
Matrix: Solid
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**8.2**		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Barium	**150**		0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Cadmium	**0.57**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Chromium	**21**		0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Lead	**5.1**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Selenium	ND		0.93		mg/Kg		04/20/17 09:30	04/20/17 13:29	1
Silver	ND		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:29	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.37**		0.11		mg/Kg		04/20/17 11:15	04/20/17 13:33	1

Client Sample ID: CEMEX-SP2

Lab Sample ID: 560-67509-2

Date Collected: 04/18/17 09:33
Matrix: Solid
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**8.4**		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Barium	**150**		0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Cadmium	**0.61**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Chromium	**19**		0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Lead	**5.6**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Selenium	ND		0.95		mg/Kg		04/20/17 09:30	04/20/17 13:41	1
Silver	ND		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:41	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.11		mg/Kg		04/20/17 11:15	04/20/17 13:35	1

Client Sample ID: MDI-CB1

Lab Sample ID: 560-67509-3

Date Collected: 04/18/17 10:05
Matrix: Solid
Date Received: 04/19/17 09:30

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**400**		1.9		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Barium	**310**		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Cadmium	**0.71**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Chromium	**160**		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Lead	**9.4**		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Selenium	**1.5**		0.94		mg/Kg		04/20/17 09:30	04/20/17 13:45	1
Silver	ND		0.47		mg/Kg		04/20/17 09:30	04/20/17 13:45	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.15**		0.11		mg/Kg		04/20/17 11:15	04/20/17 13:37	1

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Client Sample ID: MDI-AG1
Date Collected: 04/18/17 10:10
Date Received: 04/19/17 09:30

Lab Sample ID: 560-67509-4
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	110		1.8		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Barium	230		0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Cadmium	2.4		0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Chromium	270		0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Lead	44		0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Selenium	ND		0.92		mg/Kg		04/20/17 09:30	04/20/17 13:49	1
Silver	ND		0.46		mg/Kg		04/20/17 09:30	04/20/17 13:49	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.099		mg/Kg		04/20/17 11:15	04/20/17 13:39	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 560-138682/1-A
Matrix: Solid
Analysis Batch: 138702

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 138682

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.0		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Barium	ND		1.0		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Cadmium	ND		0.50		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Chromium	ND		1.0		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Lead	ND		0.50		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Selenium	ND		1.0		mg/Kg		04/20/17 09:30	04/20/17 13:06	1
Silver	ND		0.50		mg/Kg		04/20/17 09:30	04/20/17 13:06	1

Lab Sample ID: LCS 560-138682/2-A
Matrix: Solid
Analysis Batch: 138702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 138682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	12.5	12.5		mg/Kg		100	80 - 120
Barium	12.5	13.1		mg/Kg		105	80 - 120
Cadmium	12.5	13.0		mg/Kg		104	80 - 120
Chromium	12.5	13.5		mg/Kg		108	80 - 120
Lead	12.5	12.5		mg/Kg		100	80 - 120
Selenium	12.5	12.1		mg/Kg		97	80 - 120
Silver	12.5	12.5		mg/Kg		100	80 - 120

Lab Sample ID: 560-67510-A-1-B MS
Matrix: Solid
Analysis Batch: 138702

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 138682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	3.8		11.4	15.8		mg/Kg		105	75 - 125
Barium	220	M3	11.4	244	M3	mg/Kg		245	75 - 125
Cadmium	0.58		11.4	12.3		mg/Kg		103	75 - 125
Chromium	14		11.4	24.2		mg/Kg		88	75 - 125
Lead	14	R4 M2	11.4	23.6		mg/Kg		81	75 - 125
Selenium	ND		11.4	11.4		mg/Kg		97	75 - 125
Silver	ND		11.4	11.8		mg/Kg		104	75 - 125

Lab Sample ID: 560-67510-A-1-C MSD
Matrix: Solid
Analysis Batch: 138702

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 138682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	3.8		11.4	14.9		mg/Kg		97	75 - 125	6	20
Barium	220	M3	11.4	202	M3	mg/Kg		-127	75 - 125	19	20
Cadmium	0.58		11.4	12.5		mg/Kg		105	75 - 125	2	20
Chromium	14		11.4	23.7		mg/Kg		84	75 - 125	2	20
Lead	14	R4 M2	11.4	19.0	M2 R4	mg/Kg		41	75 - 125	22	20
Selenium	ND		11.4	11.8		mg/Kg		99	75 - 125	3	20
Silver	ND		11.4	12.4		mg/Kg		109	75 - 125	5	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 560-138691/4-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 138700 — **Prep Batch: 138691**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.12		mg/Kg		04/20/17 11:15	04/20/17 13:23	1

Lab Sample ID: LCS 560-138691/5-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 138700 — **Prep Batch: 138691**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.250	0.234		mg/Kg		93	80 - 120

Lab Sample ID: 560-67510-A-1-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 138700 — **Prep Batch: 138691**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.20	M2	0.197	0.314	M2	mg/Kg		57	80 - 120

Lab Sample ID: 560-67510-A-1-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 138700 — **Prep Batch: 138691**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.20	M2	0.197	0.316	M2	mg/Kg		58	80 - 120	0	20

Accreditation/Certification Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Laboratory: TestAmerica Corpus Christi

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oklahoma	State Program	6	2015-119	08-31-17
Texas	NELAP	6	T104704210-16-18	03-31-18
USDA	Federal		P330-16-00403	12-28-19

Laboratory: TestAmerica Phoenix

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	ELLAP		154268	07-01-17
AIHA-LAP, LLC	IHLAP		154268	07-01-17
Arizona	State Program	9	AZ0728	06-09-17
California	State Program	9	2941	11-30-17
Nevada	State Program	9	AZ01030	07-31-17
Oregon	NELAP	10	AZ100001	03-09-18
USDA	Federal		P330-16-00302	08-27-19

Method Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL CC
7471A	Mercury (CVAA)	SW846	TAL CC

Protocol References:

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

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

Sample Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 560-67509-1
SDG: 20409.016.002.0144.00

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-67509-1	CEMEX-SP1	Solid	04/18/17 09:30	04/19/17 09:30
560-67509-2	CEMEX-SP2	Solid	04/18/17 09:33	04/19/17 09:30
560-67509-3	MDI-CB1	Solid	04/18/17 10:05	04/19/17 09:30
560-67509-4	MDI-AG1	Solid	04/18/17 10:10	04/19/17 09:30

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TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

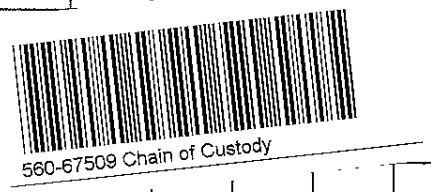
Obs. 24.7
Cor. 24.9
IR10
No IR6

Loc: 560
67509

Page 1 of 1

Client Name/Address: Weston Solutions 5881 Obispo Ave Long Beach, CA 90805	Project/PO Number: Iron King Mine 20409.016.002.0144.00
Project Manager: Rod Tobias	Phone Number: 818-807-0667
Sampler: Rod Tobias	Email Address: rodotobias@WestonSolutions.com

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	RCRA 8 Metals	Analysis Required	Special Instructions
CEMEX-SP1	Soil	XRF cups	1	4-18-17	0930	NA			
CEMEX-SP2	"	"	1	"	0933	"			
MDI-CB1	"	"	1	"	1005	"			
MDI-AG1	"	"	1	"	1010	"			



Relinquished By:	Date/Time:	Received By:	Date/Time:
	4-18-17 / 1400		4-19-17 0930
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received in Lab By.	Date/Time:

Turnaround Time: (Check)
same day _____ 72 hours _____
24 hours _____ 5 days _____
48 hours X normal _____

Sample Integrity: (Check)
intact _____ on ice _____

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 560-67509-1
SDG Number: 20409.016.002.0144.00

Login Number: 67509
List Number: 1
Creator: Etter, Corey M

List Source: TestAmerica Corpus Christi

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-81724-1
TestAmerica Sample Delivery Group: 20409.016.007.0144.00
Client Project/Site: Iron King RA

For:
Weston Solutions, Inc.
9301 Oakdale Avenue
Suite 320
Chatsworth, California 91311

Attn: Rod Tobias

Authorized for release by:
5/8/2017 4:47:55 PM

Carlene McCutcheon, Project Manager II
(602)659-7612
carlene.mccutcheon@testamericainc.com

Table of Contents

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Qualifiers

Metals

Qualifier	Qualifier Description
D2	Sample required dilution due to high concentration of analyte.

Glossary

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

Case Narrative

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Job ID: 550-81724-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-81724-1

Comments
No additional comments.

Receipt
The samples were received on 4/26/2017 9:30 AM; the samples arrived in good condition. The temperature of the cooler at receipt was 20.0º C.

Metals
Method(s) 6010C: The following samples was diluted due to the presence of Iron (Fe) and Manganese (Mn) which interferes with Arsenic (As) and Barium (Ba): MDI-AS-1 (550-81724-1), 164-DU1 (550-81724-2), 2409-4 (550-81724-3), 2408-1 (550-81724-4), 2408-2 (550-81724-5), 232-1 (550-81724-6), 2410-DU2 (550-81724-7) and 2408-4 (550-81724-8). Elevated reporting limits (RLs) are provided.

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

Sample Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-81724-1	MDI-AS-1	Solid	04/18/17 00:00	04/26/17 09:30
550-81724-2	164-DU1	Solid	04/20/17 00:00	04/26/17 09:30
550-81724-3	2409-4	Solid	04/22/17 00:00	04/26/17 09:30
550-81724-4	2408-1	Solid	04/22/17 00:00	04/26/17 09:30
550-81724-5	2408-2	Solid	04/22/17 00:00	04/26/17 09:30
550-81724-6	232-1	Solid	04/24/17 00:00	04/26/17 09:30
550-81724-7	2410-DU2	Solid	04/24/17 00:00	04/26/17 09:30
550-81724-8	2408-4	Solid	04/25/17 00:00	04/26/17 09:30
550-81724-9	2408-5	Solid	04/25/17 00:00	04/26/17 09:30

Detection Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: MDI-AS-1 — Lab Sample ID: 550-81724-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	270	D2	30		mg/Kg	10		6010C	Total/NA
Barium	270	D2	50		mg/Kg	10		6010C	Total/NA
Cadmium	0.84		0.50		mg/Kg	1		6010C	Total/NA
Chromium	310		2.0		mg/Kg	1		6010C	Total/NA
Lead	58		1.0		mg/Kg	1		6010C	Total/NA
Mercury	0.058		0.056		mg/Kg	1		7471B	Total/NA

Client Sample ID: 164-DU1 — Lab Sample ID: 550-81724-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1000	D2	30		mg/Kg	10		6010C	Total/NA
Barium	150	D2	50		mg/Kg	10		6010C	Total/NA
Cadmium	3.6		0.50		mg/Kg	1		6010C	Total/NA
Chromium	18		2.0		mg/Kg	1		6010C	Total/NA
Lead	1400		1.0		mg/Kg	1		6010C	Total/NA
Silver	5.9		2.5		mg/Kg	1		6010C	Total/NA
Mercury	3.4	D2	0.59		mg/Kg	10		7471B	Total/NA

Client Sample ID: 2409-4 — Lab Sample ID: 550-81724-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	28		3.0		mg/Kg	1		6010C	Total/NA
Barium	220		5.0		mg/Kg	1		6010C	Total/NA
Chromium	25		2.0		mg/Kg	1		6010C	Total/NA
Lead	72		1.0		mg/Kg	1		6010C	Total/NA
Mercury	0.17		0.059		mg/Kg	1		7471B	Total/NA

Client Sample ID: 2408-1 — Lab Sample ID: 550-81724-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	270	D2	30		mg/Kg	10		6010C	Total/NA
Barium	280	D2	50		mg/Kg	10		6010C	Total/NA
Cadmium	2.9		0.50		mg/Kg	1		6010C	Total/NA
Chromium	20		2.0		mg/Kg	1		6010C	Total/NA
Lead	270		0.99		mg/Kg	1		6010C	Total/NA
Silver	7.7		2.5		mg/Kg	1		6010C	Total/NA
Mercury	0.61		0.056		mg/Kg	1		7471B	Total/NA

Client Sample ID: 2408-2 — Lab Sample ID: 550-81724-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	82		3.0		mg/Kg	1		6010C	Total/NA
Barium	200		5.0		mg/Kg	1		6010C	Total/NA
Cadmium	2.5		0.50		mg/Kg	1		6010C	Total/NA
Chromium	26		2.0		mg/Kg	1		6010C	Total/NA
Lead	360		1.0		mg/Kg	1		6010C	Total/NA
Silver	3.8		2.5		mg/Kg	1		6010C	Total/NA
Mercury	0.97		0.057		mg/Kg	1		7471B	Total/NA

Client Sample ID: 232-1 — Lab Sample ID: 550-81724-6

This Detection Summary does not include radiochemical test results.

TestAmerica Phoenix

Client Sample ID: 232-1 (Continued) — Lab Sample ID: 550-81724-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	29		3.0		mg/Kg	1		6010C	Total/NA
Barium	67		5.0		mg/Kg	1		6010C	Total/NA
Chromium	130		2.0		mg/Kg	1		6010C	Total/NA
Lead	15		0.99		mg/Kg	1		6010C	Total/NA

Client Sample ID: 2410-DU2 — Lab Sample ID: 550-81724-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	730	D2	30		mg/Kg	10		6010C	Total/NA
Barium	250	D2	50		mg/Kg	10		6010C	Total/NA
Cadmium	3.8		0.50		mg/Kg	1		6010C	Total/NA
Chromium	20		2.0		mg/Kg	1		6010C	Total/NA
Lead	1400		0.99		mg/Kg	1		6010C	Total/NA
Silver	20		2.5		mg/Kg	1		6010C	Total/NA
Mercury	4.8	D2	0.60		mg/Kg	10		7471B	Total/NA

Client Sample ID: 2408-4 — Lab Sample ID: 550-81724-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	63		3.0		mg/Kg	1		6010C	Total/NA
Barium	170		4.9		mg/Kg	1		6010C	Total/NA
Cadmium	3.5		0.49		mg/Kg	1		6010C	Total/NA
Chromium	23		2.0		mg/Kg	1		6010C	Total/NA
Lead	370		0.99		mg/Kg	1		6010C	Total/NA
Silver	2.8		2.5		mg/Kg	1		6010C	Total/NA
Mercury	1.0		0.059		mg/Kg	1		7471B	Total/NA

Client Sample ID: 2408-5 — Lab Sample ID: 550-81724-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	110		3.0		mg/Kg	1		6010C	Total/NA
Barium	170		5.0		mg/Kg	1		6010C	Total/NA
Cadmium	8.4		0.50		mg/Kg	1		6010C	Total/NA
Chromium	23		2.0		mg/Kg	1		6010C	Total/NA
Lead	1400		1.0		mg/Kg	1		6010C	Total/NA
Silver	8.3		2.5		mg/Kg	1		6010C	Total/NA
Mercury	5.2	D2	0.57		mg/Kg	10		7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: MDI-AS-1

Lab Sample ID: 550-81724-1
Date Collected: 04/18/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**270**	**D2**	30		mg/Kg		05/02/17 19:30	05/05/17 23:17	10
Barium	**270**	**D2**	50		mg/Kg		05/02/17 19:30	05/05/17 23:17	10
Cadmium	**0.84**		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:14	1
Chromium	**310**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Lead	**58**		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:05	1
Silver	ND		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:05	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.058**		0.056		mg/Kg		05/01/17 14:54	05/02/17 12:29	1

Client Sample ID: 164-DU1

Lab Sample ID: 550-81724-2
Date Collected: 04/20/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1000**	**D2**	30		mg/Kg		05/02/17 19:30	05/05/17 23:22	10
Barium	**150**	**D2**	50		mg/Kg		05/02/17 19:30	05/05/17 23:22	10
Cadmium	**3.6**		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:19	1
Chromium	**18**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Lead	**1400**		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:10	1
Silver	**5.9**		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:10	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**3.4**	**D2**	0.59		mg/Kg		05/01/17 14:54	05/02/17 12:53	10

Client Sample ID: 2409-4

Lab Sample ID: 550-81724-3
Date Collected: 04/22/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**28**		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Barium	**220**		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Cadmium	ND		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:24	1
Chromium	**25**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Lead	**72**		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:15	1
Silver	ND		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:15	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.17**		0.059		mg/Kg		05/01/17 14:54	05/02/17 12:32	1

Client Sample Results

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: 2408-1

Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-4
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**270**	**D2**	30		mg/Kg		05/02/17 19:30	05/05/17 23:32	10
Barium	**280**	**D2**	50		mg/Kg		05/02/17 19:30	05/05/17 23:32	10
Cadmium	**2.9**		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:29	1
Chromium	**20**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Lead	**270**		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:20	1
Silver	**7.7**		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:20	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.61**		0.056		mg/Kg		05/01/17 14:54	05/02/17 12:33	1

Client Sample ID: 2408-2

Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-5
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**82**		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Barium	**200**		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Cadmium	**2.5**		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:34	1
Chromium	**26**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Lead	**360**		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:25	1
Silver	**3.8**		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:25	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.97**		0.057		mg/Kg		05/01/17 14:54	05/02/17 12:34	1

Client Sample ID: 232-1

Date Collected: 04/24/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-6
Matrix: Solid

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**29**		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Barium	**67**		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Cadmium	ND		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:39	1
Chromium	**130**		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Lead	**15**		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:30	1
Silver	ND		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:30	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.059		mg/Kg		05/01/17 14:54	05/02/17 12:35	1

Client Sample ID: 2410-DU2

Lab Sample ID: 550-81724-7
Date Collected: 04/24/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	730	D2	30		mg/Kg		05/02/17 19:30	05/05/17 23:39	10
Barium	250	D2	50		mg/Kg		05/02/17 19:30	05/05/17 23:39	10
Cadmium	3.8		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:44	1
Chromium	20		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Lead	1400		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:35	1
Silver	20		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:35	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.8	D2	0.60		mg/Kg		05/01/17 14:54	05/02/17 12:54	10

Client Sample ID: 2408-4

Lab Sample ID: 550-81724-8
Date Collected: 04/25/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	63		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Barium	170		4.9		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Cadmium	3.5		0.49		mg/Kg		05/02/17 19:30	05/04/17 20:54	1
Chromium	23		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Lead	370		0.99		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Selenium	ND		4.9		mg/Kg		05/02/17 19:30	05/03/17 22:45	1
Silver	2.8		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:45	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.0		0.059		mg/Kg		05/01/17 14:54	05/02/17 12:38	1

Client Sample ID: 2408-5

Lab Sample ID: 550-81724-9
Date Collected: 04/25/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	110		3.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Barium	170		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Cadmium	8.4		0.50		mg/Kg		05/02/17 19:30	05/04/17 20:59	1
Chromium	23		2.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Lead	1400		1.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 22:50	1
Silver	8.3		2.5		mg/Kg		05/02/17 19:30	05/03/17 22:50	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	5.2	D2	0.57		mg/Kg		05/01/17 14:54	05/02/17 12:56	10

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 550-116395/1-A
Matrix: Solid
Analysis Batch: 116515

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 116395

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0		mg/Kg		05/02/17 19:30	05/03/17 21:33	1
Barium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 21:33	1
Chromium	ND		2.0		mg/Kg		05/02/17 19:30	05/03/17 21:33	1
Lead	ND		0.99		mg/Kg		05/02/17 19:30	05/03/17 21:33	1
Selenium	ND		5.0		mg/Kg		05/02/17 19:30	05/03/17 21:33	1
Silver	ND		2.5		mg/Kg		05/02/17 19:30	05/03/17 21:33	1

Lab Sample ID: MB 550-116395/1-A
Matrix: Solid
Analysis Batch: 116681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 116395

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.50		mg/Kg		05/02/17 19:30	05/04/17 19:42	1

Lab Sample ID: LCS 550-116395/2-A
Matrix: Solid
Analysis Batch: 116515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	48.8	45.9		mg/Kg		94	77 - 105
Barium	48.8	48.5		mg/Kg		99	84 - 111
Chromium	48.8	48.3		mg/Kg		99	85 - 112
Lead	48.8	48.6		mg/Kg		99	83 - 108
Selenium	48.8	46.1		mg/Kg		94	77 - 107
Silver	3.66	3.53		mg/Kg		96	87 - 111

Lab Sample ID: LCS 550-116395/2-A
Matrix: Solid
Analysis Batch: 116681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	48.8	45.8		mg/Kg		94	82 - 104

Lab Sample ID: LCSD 550-116395/3-A
Matrix: Solid
Analysis Batch: 116515

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	48.7	46.1		mg/Kg		95	77 - 105	0	20
Barium	48.7	48.7		mg/Kg		100	84 - 111	0	20
Chromium	48.7	48.4		mg/Kg		99	85 - 112	0	20
Lead	48.7	48.5		mg/Kg		100	83 - 108	0	20
Selenium	48.7	46.3		mg/Kg		95	77 - 107	1	20
Silver	3.65	3.52		mg/Kg		96	87 - 111	0	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 550-116395/3-A
Matrix: Solid
Analysis Batch: 116681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	48.7	45.6		mg/Kg		94	82 - 104	0	20

Lab Sample ID: 550-81862-A-1-C MS
Matrix: Solid
Analysis Batch: 116515

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.2		49.2	46.5		mg/Kg		86	75 - 125
Barium	5.6		49.2	47.5		mg/Kg		85	75 - 125
Chromium	3.8		49.2	45.1		mg/Kg		84	75 - 125
Lead	ND		49.2	44.6		mg/Kg		91	75 - 125
Selenium	ND		49.2	46.3		mg/Kg		94	75 - 125
Silver	ND		3.69	3.37		mg/Kg		91	75 - 125

Lab Sample ID: 550-81862-A-1-C MS
Matrix: Solid
Analysis Batch: 116681

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		49.2	43.7		mg/Kg		89	75 - 125

Lab Sample ID: 550-81862-A-1-C MS ^10
Matrix: Solid
Analysis Batch: 116766

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND	D2	49.2	47.3	D2	mg/Kg		96	75 - 125

Lab Sample ID: 550-81862-A-1-D MSD
Matrix: Solid
Analysis Batch: 116515

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.2		49.6	53.1		mg/Kg		98	75 - 125	13	20
Barium	5.6		49.6	54.7		mg/Kg		99	75 - 125	14	20
Chromium	3.8		49.6	50.3		mg/Kg		94	75 - 125	11	20
Lead	ND		49.6	43.1		mg/Kg		87	75 - 125	3	20
Selenium	ND		49.6	46.0		mg/Kg		93	75 - 125	1	20
Silver	ND		3.72	3.78		mg/Kg		102	75 - 125	12	20

Lab Sample ID: 550-81862-A-1-D MSD
Matrix: Solid
Analysis Batch: 116681

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 116395

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		49.6	46.5		mg/Kg		94	75 - 125	6	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 550-81862-A-1-D MSD ^10 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116766 — **Prep Batch: 116395**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND	D2	49.6	51.8	D2	mg/Kg		104	75 - 125	9	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 550-116237/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116333 — **Prep Batch: 116237**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.058		mg/Kg		05/01/17 14:54	05/02/17 12:07	1

Lab Sample ID: LCS 550-116237/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116333 — **Prep Batch: 116237**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.987	1.02		mg/Kg		103	80 - 120

Lab Sample ID: LCSD 550-116237/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116333 — **Prep Batch: 116237**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.988	1.02		mg/Kg		103	80 - 120	0	20

Lab Sample ID: 550-81202-C-3-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116333 — **Prep Batch: 116237**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.961	0.984		mg/Kg		102	80 - 120

Lab Sample ID: 550-81202-C-3-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 116333 — **Prep Batch: 116237**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.985	0.986		mg/Kg		100	80 - 120	0	20

QC Association Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Metals

Prep Batch: 116237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	7471B	
550-81724-2	164-DU1	Total/NA	Solid	7471B	
550-81724-3	2409-4	Total/NA	Solid	7471B	
550-81724-4	2408-1	Total/NA	Solid	7471B	
550-81724-5	2408-2	Total/NA	Solid	7471B	
550-81724-6	232-1	Total/NA	Solid	7471B	
550-81724-7	2410-DU2	Total/NA	Solid	7471B	
550-81724-8	2408-4	Total/NA	Solid	7471B	
550-81724-9	2408-5	Total/NA	Solid	7471B	
MB 550-116237/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 550-116237/2-A	Lab Control Sample	Total/NA	Solid	7471B	
LCSD 550-116237/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	
550-81202-C-3-H MS	Matrix Spike	Total/NA	Solid	7471B	
550-81202-C-3-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	

Analysis Batch: 116333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	7471B	116237
550-81724-2	164-DU1	Total/NA	Solid	7471B	116237
550-81724-3	2409-4	Total/NA	Solid	7471B	116237
550-81724-4	2408-1	Total/NA	Solid	7471B	116237
550-81724-5	2408-2	Total/NA	Solid	7471B	116237
550-81724-6	232-1	Total/NA	Solid	7471B	116237
550-81724-7	2410-DU2	Total/NA	Solid	7471B	116237
550-81724-8	2408-4	Total/NA	Solid	7471B	116237
550-81724-9	2408-5	Total/NA	Solid	7471B	116237
MB 550-116237/1-A	Method Blank	Total/NA	Solid	7471B	116237
LCS 550-116237/2-A	Lab Control Sample	Total/NA	Solid	7471B	116237
LCSD 550-116237/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	116237
550-81202-C-3-H MS	Matrix Spike	Total/NA	Solid	7471B	116237
550-81202-C-3-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	116237

Prep Batch: 116395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	3050B	
550-81724-2	164-DU1	Total/NA	Solid	3050B	
550-81724-3	2409-4	Total/NA	Solid	3050B	
550-81724-4	2408-1	Total/NA	Solid	3050B	
550-81724-5	2408-2	Total/NA	Solid	3050B	
550-81724-6	232-1	Total/NA	Solid	3050B	
550-81724-7	2410-DU2	Total/NA	Solid	3050B	
550-81724-8	2408-4	Total/NA	Solid	3050B	
550-81724-9	2408-5	Total/NA	Solid	3050B	
MB 550-116395/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 550-116395/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 550-116395/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
550-81862-A-1-C MS	Matrix Spike	Total/NA	Solid	3050B	
550-81862-A-1-C MS ^10	Matrix Spike	Total/NA	Solid	3050B	
550-81862-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
550-81862-A-1-D MSD ^10	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Metals (Continued)

Analysis Batch: 116515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	6010C	116395
550-81724-2	164-DU1	Total/NA	Solid	6010C	116395
550-81724-3	2409-4	Total/NA	Solid	6010C	116395
550-81724-4	2408-1	Total/NA	Solid	6010C	116395
550-81724-5	2408-2	Total/NA	Solid	6010C	116395
550-81724-6	232-1	Total/NA	Solid	6010C	116395
550-81724-7	2410-DU2	Total/NA	Solid	6010C	116395
550-81724-8	2408-4	Total/NA	Solid	6010C	116395
550-81724-9	2408-5	Total/NA	Solid	6010C	116395
MB 550-116395/1-A	Method Blank	Total/NA	Solid	6010C	116395
LCS 550-116395/2-A	Lab Control Sample	Total/NA	Solid	6010C	116395
LCSD 550-116395/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	116395
550-81862-A-1-C MS	Matrix Spike	Total/NA	Solid	6010C	116395
550-81862-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	6010C	116395

Analysis Batch: 116681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	6010C	116395
550-81724-2	164-DU1	Total/NA	Solid	6010C	116395
550-81724-3	2409-4	Total/NA	Solid	6010C	116395
550-81724-4	2408-1	Total/NA	Solid	6010C	116395
550-81724-5	2408-2	Total/NA	Solid	6010C	116395
550-81724-6	232-1	Total/NA	Solid	6010C	116395
550-81724-7	2410-DU2	Total/NA	Solid	6010C	116395
550-81724-8	2408-4	Total/NA	Solid	6010C	116395
550-81724-9	2408-5	Total/NA	Solid	6010C	116395
MB 550-116395/1-A	Method Blank	Total/NA	Solid	6010C	116395
LCS 550-116395/2-A	Lab Control Sample	Total/NA	Solid	6010C	116395
LCSD 550-116395/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	116395
550-81862-A-1-C MS	Matrix Spike	Total/NA	Solid	6010C	116395
550-81862-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	6010C	116395

Analysis Batch: 116766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-81724-1	MDI-AS-1	Total/NA	Solid	6010C	116395
550-81724-2	164-DU1	Total/NA	Solid	6010C	116395
550-81724-4	2408-1	Total/NA	Solid	6010C	116395
550-81724-7	2410-DU2	Total/NA	Solid	6010C	116395
550-81862-A-1-C MS ^10	Matrix Spike	Total/NA	Solid	6010C	116395
550-81862-A-1-D MSD ^10	Matrix Spike Duplicate	Total/NA	Solid	6010C	116395

Lab Chronicle

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: MDI-AS-1

Lab Sample ID: 550-81724-1
Matrix: Solid
Date Collected: 04/18/17 00:00
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:05	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:14	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		10	116766	05/05/17 23:17	CJM	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:29	JTG	TAL PHX

Client Sample ID: 164-DU1

Lab Sample ID: 550-81724-2
Matrix: Solid
Date Collected: 04/20/17 00:00
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:10	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:19	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		10	116766	05/05/17 23:22	CJM	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		10	116333	05/02/17 12:53	JTG	TAL PHX

Client Sample ID: 2409-4

Lab Sample ID: 550-81724-3
Matrix: Solid
Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:15	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:24	KLH	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:32	JTG	TAL PHX

Client Sample ID: 2408-1

Lab Sample ID: 550-81724-4
Matrix: Solid
Date Collected: 04/22/17 00:00
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:20	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX

Lab Chronicle

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: 2408-1

Lab Sample ID: 550-81724-4

Date Collected: 04/22/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	116681	05/04/17 20:29	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		10	116766	05/05/17 23:32	CJM	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:33	JTG	TAL PHX

Client Sample ID: 2408-2

Lab Sample ID: 550-81724-5

Date Collected: 04/22/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:25	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:34	KLH	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:34	JTG	TAL PHX

Client Sample ID: 232-1

Lab Sample ID: 550-81724-6

Date Collected: 04/24/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:30	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:39	KLH	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:35	JTG	TAL PHX

Client Sample ID: 2410-DU2

Lab Sample ID: 550-81724-7

Date Collected: 04/24/17 00:00
Matrix: Solid
Date Received: 04/26/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:35	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:44	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		10	116766	05/05/17 23:39	CJM	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		10	116333	05/02/17 12:54	JTG	TAL PHX

Lab Chronicle

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Client Sample ID: 2408-4

Date Collected: 04/25/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:45	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:54	KLH	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		1	116333	05/02/17 12:38	JTG	TAL PHX

Client Sample ID: 2408-5

Date Collected: 04/25/17 00:00
Date Received: 04/26/17 09:30

Lab Sample ID: 550-81724-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116515	05/03/17 22:50	KLH	TAL PHX
Total/NA	Prep	3050B			116395	05/02/17 19:30	EXZ	TAL PHX
Total/NA	Analysis	6010C		1	116681	05/04/17 20:59	KLH	TAL PHX
Total/NA	Prep	7471B			116237	05/01/17 14:54	JTG	TAL PHX
Total/NA	Analysis	7471B		10	116333	05/02/17 12:56	JTG	TAL PHX

Laboratory References:

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

Accreditation/Certification Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-17 *

Analysis Method	Prep Method	Matrix	Analyte

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Weston Solutions, Inc.
Project/Site: Iron King RA

TestAmerica Job ID: 550-81724-1
SDG: 20409.016.007.0144.00

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL PHX
7471B	Mercury (CVAA)	SW846	TAL PHX

Protocol References:

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

Laboratory References:

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (0116)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340

81724

5/8/2017

Page 1 of 1

Client Name/Address: Weston Solutions 5881 Obispo Ave Long Beach, CA 90805	Project/PO Number: Iron King Mine 20409.016.002.0144.00
Project Manager: Rod Tobias	Phone Number: 818-801-0667
Sampler: Rod Tobias	Email Address: rod.tobias@WestonSolutions.com

Analysis Required

RCRA 8 metals

550-81724 Chain of Custody

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	RCRA 8 metals	Special Instructions
MDI-AS-1	Soil	2oz Cup	1	4/18/17	NA	NA	X	-01
164-DU1				4/20/17			X	-02
2409-4				4/22/17			X	-03
2408-1				4/22/17			X	-04
2408-2				4/22/17			X	-05
232-1				4/24/17			X	-06
2410-DU2				4/24/17			X	-07
2408-4				4/25/17			X	-08
2408-5				4/25/17			X	-09

Relinquished By:	Date/Time: 4/25/17 1215	Received By: FedEx	Date/Time:
Relinquished By: FedEx	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time: 4/26/17 9:30

Turnaround Time: (Check)

same day		72 hours	
24 hours		5 days	
48 hours		normal	X

Sample Integrity: (Check)

intact ✓ on ice

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

(20.00) No ice

Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 550-81724-1
SDG Number: 20409.016.007.0144.00

Login Number: 81724
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

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