

Appendix D
Summary of Supplemental RFI Soil
Sampling Results for Undeveloped
Lands

Summary of Supplemental RFI Soil Sampling Results for Undeveloped Lands

PREPARED FOR: Cindy Brooks/GETG
COPY TO: Lauri Gorton/GETG
PREPARED BY: CH2M
DATE: December 9, 2016

This technical memorandum summarizes the results of surface soil sampling performed in the area referred to as the Undeveloped Lands of the former ASARCO East Helena Smelter site (former Smelter site), as described in the *East Helena Facility Supplemental RFI Sampling and Analysis Plan (SAP)* (CH2M, 2015).

Surface Soil Sampling Summary

This section presents the purpose and scope of the soil sampling, sampling area description, chemicals of potential concern (COPCs), soil sample methodology, data quality validation results, and analytical results compared to cleanup levels. Cleanup levels for Undeveloped Lands are described in the *East Helena Superfund Site, Operable Unit No. 2, Residential Soils and Undeveloped Lands, Final Record of Decision* (USEPA, 2009).

Purpose and Scope

The SAP was developed to complete soil sampling in compliance with Paragraphs 37 and 38 of the First Modification to the 1998 RCRA Consent Decree (Dreher et al., 2012). The objectives of soil sampling at Undeveloped Lands is to confirm that the East Helena Superfund Site Operable Unit 2 (OU-2) Record of Decision (ROD) (USEPA, 2009) final corrective measures are still appropriate. As stated in the OU-2 ROD, the environmental conditions with respect to surface soil concentrations for COPCs will be evaluated whenever a change in land use is proposed, and if necessary, cleaned up to appropriate levels for the proposed use. Although no change in land use is currently anticipated, existing soil data were evaluated to assess whether additional data would change the nature and extent of the COPCs in soil.

Sampling Area Description

The Undeveloped Lands consist of Parcels 2, 3, 4, 6, 7, 9, 13, 14, 15, 21, 22, and the portion of Parcel 8 east of Highway 518 (8E) (**Figure 1**). These parcels are described in the OU-2 ROD as Lamping Fields, Dartman Parcel, and the East Fields. Parcel details include the following:

- Lamping Fields: This area encompasses the portion of Parcel 2 south of Prickly Pear Creek (PPC), and Parcels 3 and 22.
- Dartman Parcel: This area encompasses the portion of Parcel 2 north of PPC, and Parcels 4 and 6.
- East Fields: This area encompasses Parcels 7, 8E, 9, 13, and 14. Parcel 9 is part of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 residential soil repository that is still active as a component of the East Helena soil ordinance; as such, no sampling was proposed in Parcel 9.

- Parcel 21 extends south of Parcel 15 just west of S. Smelter Road and has a similar land use. As such, this parcel was evaluated in conjunction with Parcel 15.

As described in the SAP, relatively limited soil sampling was performed in Parcels 7, 8E, 13, and 14, and for this reason, these parcels were sampled as part of the supplemental RFI soil sampling in the areas of Undeveloped Lands. The other parcels that comprise the Undeveloped Lands (i.e., 2, 3, 4, 6, 9, 15, 21, and 22) have been sampled extensively as a part of earlier investigations, including the *Phase I RCRA Facility Investigation Site Characterization Report, East Helena Facility* (Phase I RI) (Asarco Consulting, Inc., 2005), *Phase II RCRA Facility Investigation, East Helena Facility* (Phase II RFI; GSI Water Solutions, Inc., 2014), and the U.S. Environmental Protection Agency's (USEPA's) residential sampling program described in the OU-2 ROD.

Chemicals of Potential Concern

The primary COPCs are lead and arsenic based on information developed in the baseline risk assessment and other studies conducted by the USEPA (USEPA, 2009, 2011). Although, other inorganic constituents have been detected in soil at concentrations higher than risk-based screening levels in some locations, the elevated concentrations are co-located with elevated lead and arsenic concentrations in soil. Consistent with the conclusion in the OU-2 ROD stating that once areas are cleaned up to address lead and arsenic, risks from other COPCs are further minimized (USEPA, 2009), the majority of the samples will be characterized for lead and arsenic only. However, to evaluate the relative concentrations of all COPCs in surface soil, 15 percent of samples were analyzed for an expanded COPC list of metals as described in the Phase II RFI. The expanded COPC list consists of antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, selenium, silver, thallium, vanadium, and zinc.

Soil Sample Methodology

The sampling approach was developed based on an understanding of the proposed cleanup levels and the incremental sampling methodology (ISM) adopted by the Interstate Technology and Regulatory Council (ITRC) as described in the *Incremental Sampling Methodology* guidance document (ITRC, 2012). The ISM not only describes the recommended field approaches, but incorporates prescribed laboratory processes that together are designed to provide an unbiased, statistically valid estimate of the mean value of an analyte within a decision unit (DU). Section 3 of the SAP describes the ISM used to obtain soil samples from the Undeveloped Lands parcels, including the selection of the DU size, number of increments per DU (30), and associated laboratory procedures.

Figure 1 illustrates the thirty (30) DUs that delineate the ISM soil sample areas within the respective Undeveloped Lands Parcels 7, 8E, 13, and 14. Sampling of Undeveloped Lands was completed from November 12, 2015, to December 11, 2015. **Attachment 1** contains photographs and field notes of the DU sampling.

Soil samples were collected following the procedures outlined in the SAP. In general, the field sampling procedure consisted of two primary steps:

1. Survey and mark soil subsample locations for each DU.
2. Collect 6-inch soil core samples at each subsample location and combine the subsamples in the field into one composite sample representing the entire DU.

Coordinates for each subsample location within a particular DU were extracted into tables from the geographic information system files prepared during SAP development. The coordinate tables were uploaded into a survey-grade global positioning system (GPS) instrument. The survey-grade GPS was then used to stake each subsample location, and positions were marked with labeled and color-coded pin flags.

After DU subsample locations were surveyed, the field crew collected samples using a hammer-drill mounted soil coring device. At each subsample location (30 per DU), the soil coring device was used to extract an equal volume of soil from the 0- to 6-inch soil interval. The entire soil core was placed in a plastic Ziploc-type bag labeled with the sample ID specified in the SAP. This process was repeated at each subsample location until all subsamples were combined into a single sample representative of the entire DU. The soil coring device was decontaminated between DUs using a three-step process of rinsing with (1) soap and water, (2) tap water, and (3) distilled or deionized water.

Samples were stored in coolers on ice before delivery to the analytical laboratory. In the majority of cases, samples were delivered to the laboratory the same day they were collected. Samples were transferred to the laboratory using standard chain-of-custody protocols as outlined in the SAP. The laboratory processed and analyzed the soil samples for the requested inorganic parameters in accordance with ISM protocols, as outlined in the SAP.

Data Quality Validation Results

In accordance with the *Addendum to East Helena Facility Supplemental RFI Sampling and Analysis Plan* (SAP Addendum) (CH2M, 2016), field quality control (QC) samples were collected and laboratory QC procedures were used to support the data validation process and to quantify whether the data are scientifically valid, defensible, and of sufficient quality to support decision-making. Quality assurance involves selecting and adhering to appropriate field methods (established in the SAP and SAP Addendum, and described above), following proper laboratory testing methods and protocol, and then evaluating (validating) results against established performance metrics and data quality objectives. The data validation was performed in accordance with the *Quality Assurance Project Plan Update for Environmental Data Collection Activities, East Helena Facility* (Appendix D of the SAP; Hydrometrics, 2015).

Attachment 2 contains a copy of the analytical laboratory results from Energy Laboratories in Billings, Montana. **Attachment 3** contains a copy of the data quality evaluation and validation report. The data quality evaluation was performed in advance of the analysis presented in the next section. Because the field notes were used to inform the data quality evaluation, they are also included in **Attachment 3**. The data review confirmed that the Undeveloped Lands soil data meet the data quality objectives and are of appropriate quality for their intended use.

Analytical Results Compared to Media Cleanup Standards

Table 1 summarizes the soil concentrations (in milligrams per kilogram) for the primary COPCs (arsenic and lead) compared to cleanup levels developed in the OU-2 ROD. Although land use for Undeveloped Lands is unknown at this time (or no land use change is currently anticipated), the data were evaluated against the respective cleanup levels for residential, commercial, and recreational use specified in the OU-2 ROD. As shown in **Figures 2, 3, and 4**, the results indicate the following in comparison to the cleanup levels (bold values in **Table 1** illustrate exceedances of the respective cleanup levels):

- For arsenic, the only DUs that exceed residential cleanup level are DU1 and DU2 from Parcel 8E.
- For lead, all the DUs exceed residential cleanup levels, except for DUs 11, 12, 13, 15, 16, and 25 through 30; only DU1 in Parcel 8E exceeds commercial cleanup levels; and none of the results exceeds recreational cleanup levels.

Table 2 summarizes results from the secondary COPCs suite collected from DUs 2, 7, 12, 17, and 22. These data were qualitatively compared to the USEPA regional screening levels as summarized in Table 3-1 of the SAP; this comparison demonstrates that concentrations for the secondary COPCs are comparable to background values, and except for chromium VI for P14-DU7, all data are below the respective residential and industrial cleanup levels. The sample results for chromium VI at P14-DU7 were 10 mg/kg, which is above the screening levels for residential and industrial use. This qualitative

assessment for the secondary COPCs confirms that lead and arsenic are the primary COPCs in the parcels sampled for Undeveloped Lands, which is consistent with the overall findings in the OU2 ROD.

References

Asarco Consulting, Inc. 2005. *Phase I RCRA Facility Investigation Site Characterization Report, East Helena Facility*. Prepared for ASARCO Incorporated. February 2003 (Revised 2005).

CH2M. 2015. *East Helena Facility Supplemental RFI Sampling and Analysis Plan*. Final. Prepared for The Montana Environmental Trust Group, LLC, and the Montana Environmental Custodial Trust. October.

CH2M. 2016. *Addendum to East Helena Facility Supplemental RFI Sampling and Analysis Plan*. Final. Prepared for The Montana Environmental Trust Group, LLC, and the Montana Environmental Custodial Trust. May.

Dreher, Robert G., E. Rockler, M.W. Cotter, L. Johnson/United States District Court for the District of Montana. 2012. *First Modification to the 1998 Consent Decree*. Civil Action No. CV 98-H-CCL. Case 6:98-cv-00003-CCL. Document 38. Filed January 17, 2012.

GSI Water Solutions, Inc. 2014. *Phase II RCRA Facility Investigation, East Helena Facility*. April 29.

Hydrometrics, Inc. 2015. *Quality Assurance Project Plan for Environmental Data Collection Activities, East Helena Facility*.

Interstate Technology & Regulatory Council (ITRC). 2012. *Incremental Sampling Methodology*. ISM-1. Washington, D.C.: Interstate Technology & Regulatory Council, Incremental Sampling Methodology Team. www.itrcweb.org.

U.S. Environmental Protection Agency (USEPA). 2009. *East Helena Superfund Site, Operable Unit No. 2, Residential Soils and Undeveloped Lands, Final Record of Decision*. USEPA ID: MTD006230346. September.

U.S. Environmental Protection Agency (USEPA). 2011. *Third Five-Year Report for the East Helena Superfund Site, East Helena, Lewis and Clark County, Montana*. September.

Tables

Table 1. Undeveloped Lands Soil Sample Results for Primary Contaminants of Concern
Summary of Supplemental RFI Soil Sampling Results for Undeveloped Lands

Sample ID ^a	Parameters ^b	Sample Date	Soil Sample Results		Figure 2		Figure 3		Figure 4	
			Total Arsenic	Total Lead	Exceeds Residential CL ^c		Exceeds Commercial CL ^d		Exceeds Recreational CL ^e	
			(mg/kg)	(mg/kg)	Arsenic CL	Lead CL	Arsenic CL	Lead CL	Arsenic CL	Lead CL
				100 mg/kg	500 mg/kg	572 mg/kg	1,482 mg/kg	794 mg/kg	3,245 mg/kg	
P8E-DU1-SS	Total Pb, As	11/12/2015	186	2010	Y	Y	N	Y	N	N
P8E-DU2-SS	Full suite of COPC	11/12/2015	118	1290	Y	Y	N	N	N	N
P14-DU3-SS	Total Pb, As	11/21/2015	81	918	N	Y	N	N	N	N
P14-DU4-SS	Total Pb, As	11/21/2015	65	818	N	Y	N	N	N	N
P14-DU5-SS	Total Pb, As	11/21/2015	60	662	N	Y	N	N	N	N
P14-DU6-SS	Total Pb, As	11/21/2015	54	582	N	Y	N	N	N	N
P14-DU7-SS	Full suite of COPC	11/22/2015	83	931	N	Y	N	N	N	N
P14-DU8-SS	Total Pb, As	11/22/2015	65	699	N	Y	N	N	N	N
P14-DU9-SS	Total Pb, As	11/22/2015	56	600	N	Y	N	N	N	N
P14-DU10-SS	Total Pb, As	11/22/2015	50	577	N	Y	N	N	N	N
P14-DU11-SS	Total Pb, As	11/22/2015	48	457	N	N	N	N	N	N
P14-DU12-SS	Full suite of COPC	11/22/2015	52	481	N	N	N	N	N	N
P13-DU13-SS	Total Pb, As	12/4/2015	58	668	N	Y	N	N	N	N
P13-DU14-SS	Total Pb, As	12/4/2015	40	538	N	Y	N	N	N	N
P13-DU15-SS	Total Pb, As	12/4/2015	42	469	N	N	N	N	N	N
P13-DU16-SS	Total Pb, As	12/4/2015	44	464	N	N	N	N	N	N
P13-DU17-SS	Full suite of COPC	12/4/2015	47	559	N	Y	N	N	N	N
P13-DU18-SS	Total Pb, As	12/4/2015	49	547	N	Y	N	N	N	N
P7-DU25-SS	Total Pb, As	12/9/2015	50	352	N	N	N	N	N	N
P7-DU26-SS	Total Pb, As	12/9/2015	52	348	N	N	N	N	N	N
P7-DU27-SS	Total Pb, As	12/9/2015	50	343	N	N	N	N	N	N
P7-DU28-SS	Total Pb, As	12/9/2015	43	305	N	N	N	N	N	N
P7-DU29-SS	Total Pb, As	12/9/2015	51	384	N	N	N	N	N	N
P7-DU30-SS	Total Pb, As	12/9/2015	58	473	N	N	N	N	N	N
P7-DU19-SS	Total Pb, As	12/11/2015	63	568	N	Y	N	N	N	N
P7-DU20-SS	Total Pb, As	12/11/2015	70	747	N	Y	N	N	N	N
P7-DU21-SS	Total Pb, As	12/11/2015	49	604	N	Y	N	N	N	N
P7-DU22-SS	Full suite of COPC	12/11/2015	70	714	N	Y	N	N	N	N
P7-DU23-SS	Total Pb, As	12/11/2015	62	664	N	Y	N	N	N	N
P7-DU24-SS	Total Pb, As	12/11/2015	81	805	N	Y	N	N	N	N

Table 1. Undeveloped Lands Soil Sample Results for Primary Contaminants of Concern
Summary of Supplemental RFI Soil Sampling Results for Undeveloped Lands

Sample ID ^a	Parameters ^b	Sample Date	Soil Sample Results		Figure 2		Figure 3		Figure 4	
			Total Arsenic	Total Lead	Exceeds Residential CL ^c		Exceeds Commercial CL ^d		Exceeds Recreational CL ^e	
			(mg/kg)	(mg/kg)	Arsenic CL	Lead CL	Arsenic CL	Lead CL	Arsenic CL	Lead CL
					100 mg/kg	500 mg/kg	572 mg/kg	1,482 mg/kg	794 mg/kg	3,245 mg/kg

^a Sample ID includes parcel number (first prefix) and decision unit (second prefix).

^b Samples from DUs 2, 7, 12, 17, and 22 analyzed for expanded COPC suite - results shown in Table 2.

^c Residential cleanup level (CL) per OU2 ROD.

^d Commercial cleanup level (CL) per OU2 ROD.

^e Recreational cleanup level (CL) per OU2 ROD.

Notes:

Figures 2, 3, and 4 illustrate decision units that exceed the respective cleanup level (CL) for residential, commercial, or recreational land use as specified in the OU2 ROD.

Bolded values illustrate exceedances of the respective cleanup levels.

AS = arsenic

COPC = chemical of potential concern

mg/kg = milligrams per kilogram

N = no

OU-2 ROD = Operable Unit 2 Record of Decision

Pb = lead

Y = yes

Table 2. Undeveloped Lands Soil Sample Results for Expanded List of Contaminants

Summary of Supplemental RFI Soil Sampling Results for Undeveloped Lands

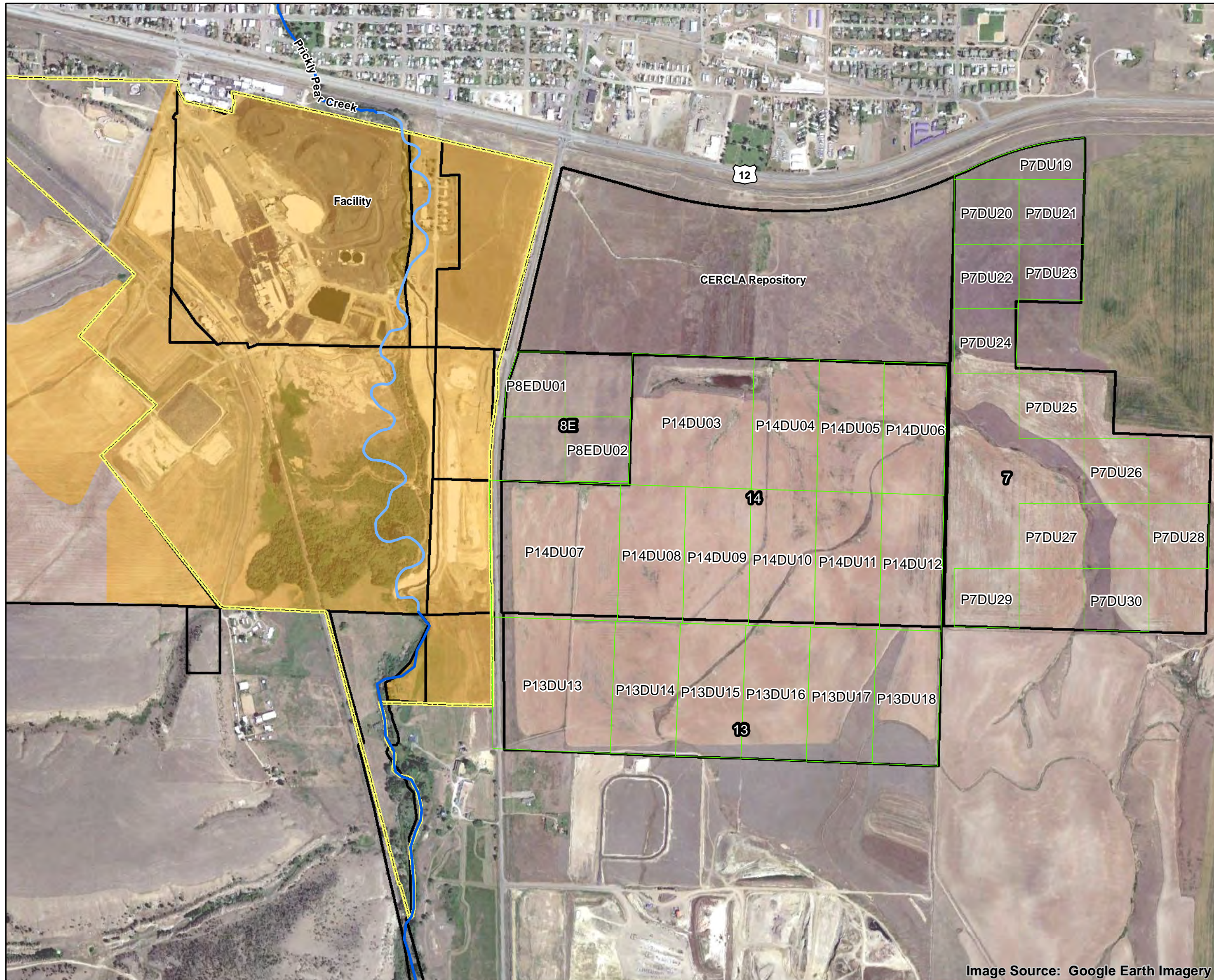
SampleID	Sample Date	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury	Cr VI
P14-DU12-SS	11/22/2015	161	14	25.9	7	67	22100	395	0.7	2.1	0.8	63	164	1.5	<0.3
P13-DU17-SS	12/4/2015	168	16.9	24.7	8	68	22400	423	0.8	2.3	1.1	59	180	1.9	<0.3
P7-DU22-SS	12/11/2015	139	19	26.7	8	100	21900	486	0.8	3.4	1.0	55	246	1.6	<0.3
P14-DU7-SS	11/22/2015	262	28.5	22.1	9	114	22200	604	1.3	4.3	1.5	45	313	4.9	10
P8E-DU2-SS	11/12/2015	175	35.5	23.4	8	136	22500	603	1.4	5.9	1.6	46	407	5	<1

Notes:

Sample results in milligrams per kilogram (mg/kg).

Sample ID includes parcel number (first prefix) and decision unit (second prefix).

Figures



LEGEND

- Sampled Decision Unit
- Area of Contamination Boundary
- CMS Parcel Undergoing Corrective Action
- Parcel Boundary
- Prickly Pear Creek
- Prickly Pear Creek Realignment

- Notes:
1. CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 2. RFI - RCRA Facility Investigation

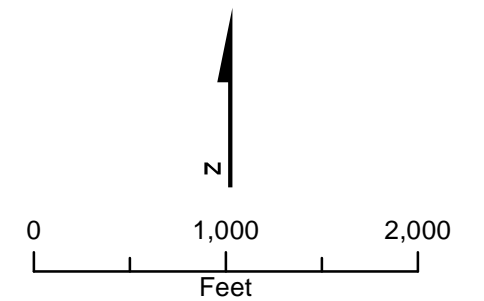
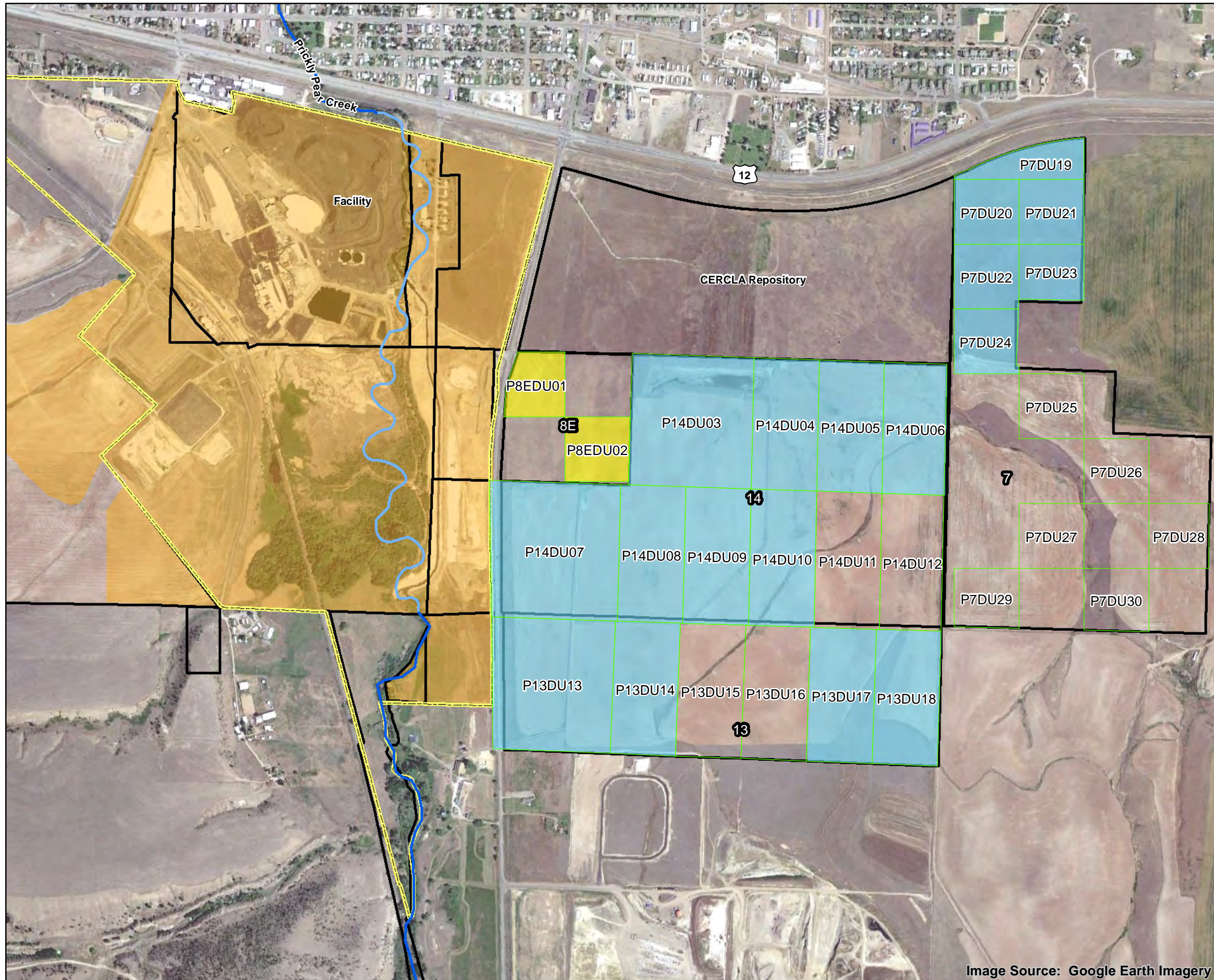


Figure 1
Supplemental RFI Sample Locations
 for Undeveloped Lands

Summary of RFI Soil Sample Results for Undeveloped Lands
 East Helena, Montana

Image Source: Google Earth Imagery



LEGEND

- Sampled Decision Unit
- Exceedance of Both Arsenic and Lead Cleanup Levels
- Exceedance of Lead Cleanup Levels
- Area of Contamination Boundary
- CMS Parcel Undergoing Corrective Action
- Parcel Boundary
- Prickly Pear Creek
- Prickly Pear Creek Realignment

- Notes:
1. CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 2. RFI - RCRA Facility Investigation
 3. Residential cleanup levels for arsenic are 100 mg/kg and for lead are 500 mg/kg as described in the *East Helena Superfund Site, Operable Unit No. 2, Residential Soils and Undeveloped Lands, Final Record of Decision (USEPA 2009)*.

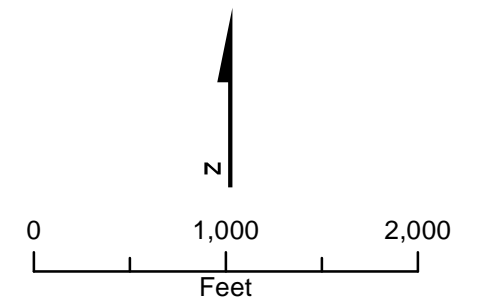
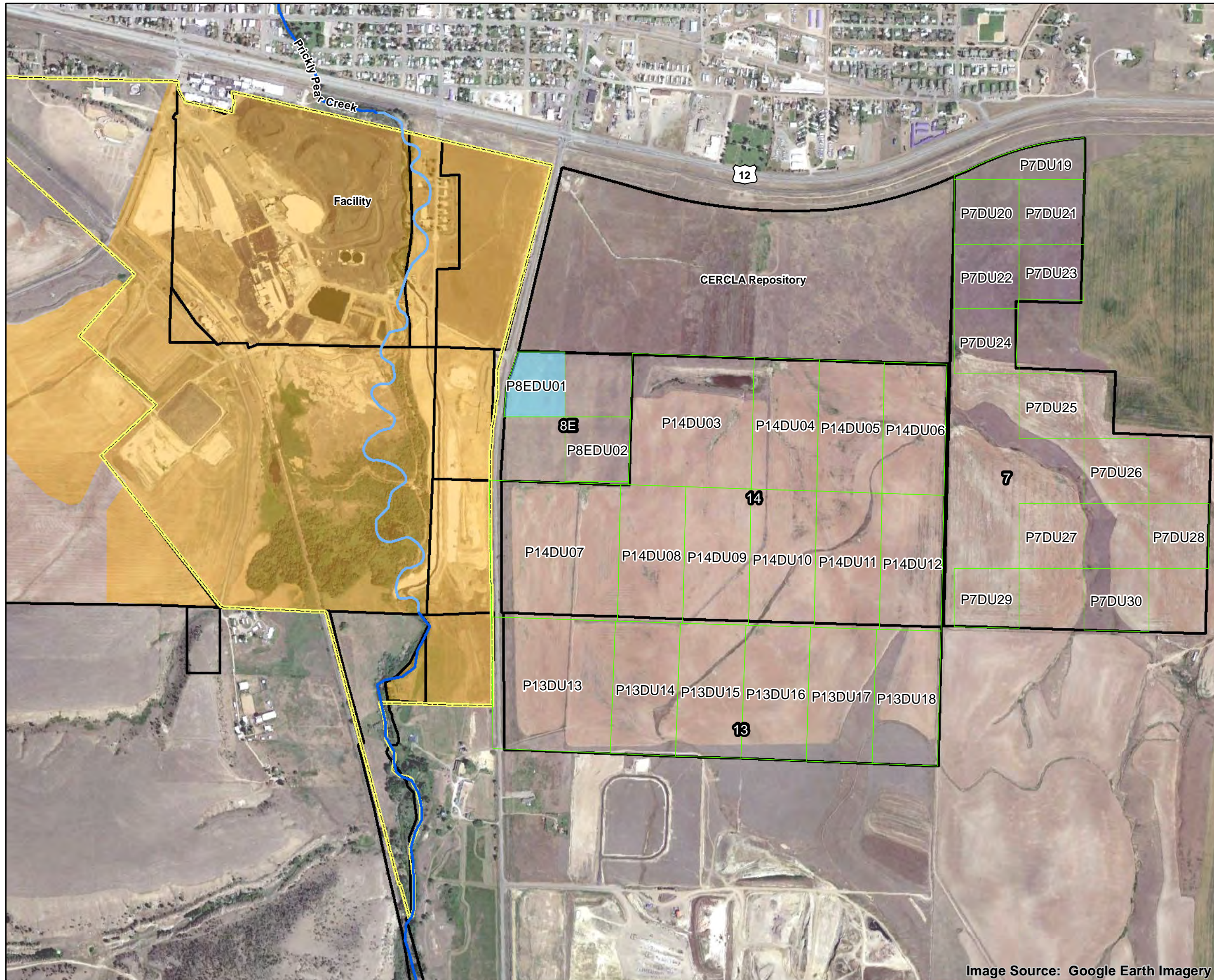


Figure 2
RFI Soil Sample Results - Exceedances of Residential Cleanup Levels
 Summary of RFI Soil Sample Results for Undeveloped Lands East Helena, Montana

Image Source: Google Earth Imagery



LEGEND

- Sampled Decision Unit
- Exceedance of Lead Cleanup Levels
- Area of Contamination Boundary
- CMS Parcel Undergoing Corrective Action
- Parcel Boundary
- Prickly Pear Creek
- Prickly Pear Creek Realignment

- Notes:
1. CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 2. RFI - RCRA Facility Investigation
 3. Commercial cleanup levels for arsenic are 572 mg/kg and for lead are 1482 mg/kg as described in the *East Helena Superfund Site, Operable Unit No. 2, Residential Soils and Undeveloped Lands, Final Record of Decision (USEPA 2009)*.

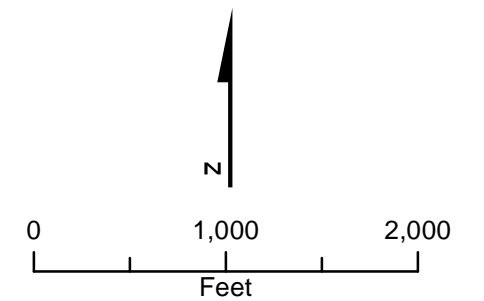
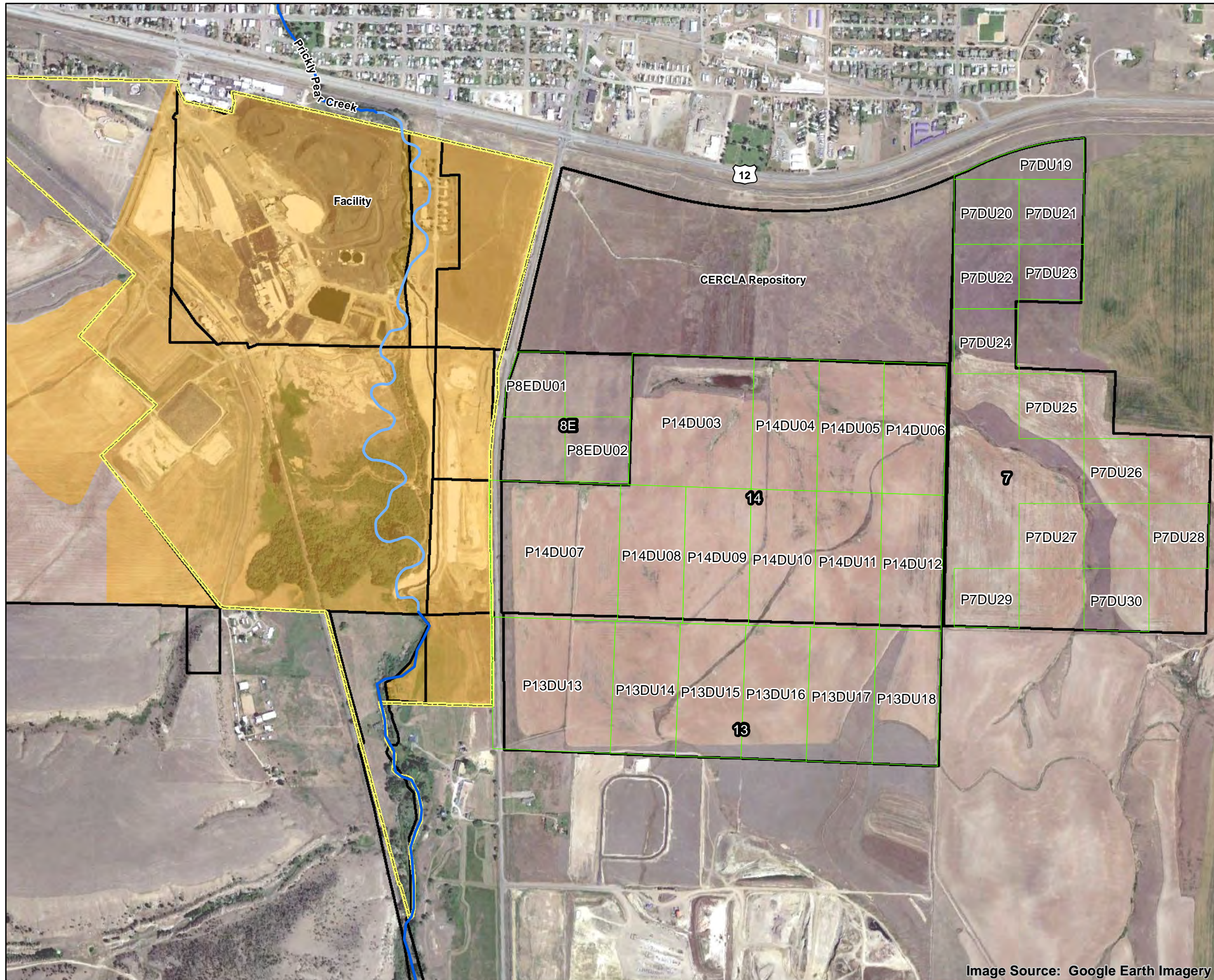


Figure 3
RFI Soil Sample Results -
Exceedances of Commercial Cleanup Levels
Summary of RFI Soil Sample Results for Undeveloped Lands
East Helena, Montana

Image Source: Google Earth Imagery



LEGEND

- Sampled Decision Unit
- Area of Contamination Boundary
- CMS Parcel Undergoing Corrective Action
- Parcel Boundary
- Prickly Pear Creek
- Prickly Pear Creek Realignment

- Notes:
1. CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 2. RFI - RCRA Facility Investigation
 3. Recreational cleanup levels for arsenic are 794 mg/kg and for lead are 3245 mg/kg as described in the *East Helena Superfund Site, Operable Unit No. 2, Residential Soils and Undeveloped Lands, Final Record of Decision (USEPA 2009)*.

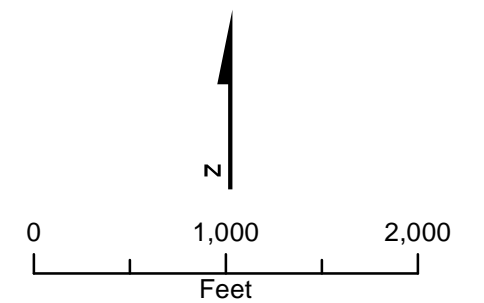


Figure 4
RFI Soil Sample Results -
Exceedances of Recreational Cleanup Levels
Summary of RFI Soil Sample Results for Undeveloped Lands
East Helena, Montana

Image Source: Google Earth Imagery

Attachment 1
Photographs and Field Notes



Photo 1. Four-wheeler Setup



Photo 2. Parcel 15 Decision Unit A1



Photo 3. Parcel 15 Decision Unit A2



Photo 4. Parcel 15 Decision Unit A3



Photo 5. Parcel 15 Decision Unit A4



Photo 6. Parcel 15 Decision Unit A5



Photo 7. Polaris at P21 Decision Unit 16

SOKKIA

MADE IN CHINA

METG Supplemental RFI Soil Sampling

SOKKIA

ENGINEER'S
FIELD BOOK

METG

Supplemental RFI
Soil Sampling
Sediment Sampling

November 2015 - May 2016

10022

Phase 006

Task 720 (2015)
724 (2016)

No. 8152-30

INDEX

Property of Hydrometrics

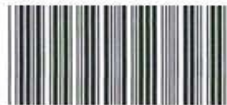
Address 3020 Bozeman Avenue
Helena, Montana 59601

Telephone 406-459-2873
406-443-4150

Jamie Poell, Hydrometrics 459-2873
Mark Walker, Hydrometrics 459-7229
Bob Anderson, Hydrometrics 431-0236
Blaine Cox, METG 461-5585

This Book is manufactured using a paper made from wood-free materials and is acid-free and archive safe.

815230



Gary Dabler (wheat lessee) 227-5409

J
N
B.
B.

November 11, 2015, PPC Sediment Sampling

Personnel: J Paell, A Montvone

Weather: 27°F, calm, overcast

Parcel 2a and Parcel 23

PPC Sediment Sampling

Due to cold + synoptic timing, samples will be held raw for sieving. Holding in fridge. Sieve to -2mm per FSP.

Safety: Ashton will sample in PPC - be careful w/ footing and use long waders/gloves to collect sample. Vehicle running to keep warm for breaks as needed.

Sites flagged & photographed. GPS points taken at center in PPC at each sampling site.

Done ①

Parcel 2a Sampling / 5-point Composite 11/11/15

Sample	Time	Description
2a-1-SD	0810	PPC ~ 20' wide, 12" depth, cobble to sand,
2a-2-SD	0845	PPC ~ 7' wide, middle PPC braided 6" depth water, sample
2a-3-SD	0830	PPC ~ 18' wide, cobble to clay PPC ~ 12" deep, sampler
2a-4-SD	0900	PPC ~ 12' wide, 10" depth, cobbles Feet laterally from center
2a-4-MSMSD	0900	
2a-1-D1-SD	0900	
2a-5-SD	0920	PPC ~ 9' wide, 10" depth, cobbles laterally from center
2a-6-SD	0935	PPC ~ 10' wide, North braid, 6" deep, 6" deep, sample 10' up & down, scats
2a-7-SD	0945	PPC ~ 35' wide above confluence Sample 10-15' from center,
2a-8-SD	1000	PPC ~ 28' wide, at staff gage, deeper water/edges, Sample 10'
2a-9-SD	1010	PPC ~ 30' wide, 6-20" deep, cobble edges. Sample 10' from center
2a-10-SD	1020	PPC ~ 29' wide, 6-18" deep, cobble and edges. Sample 10' from
2a-11-SD	1035	PPC ~ 30' wide, 6-24" deep, Cobble and edges. Sample 10' from
P2a-AFB	0650	Ambient field blank after sieving on
P2a-RB	1345	Rinate blank after sieving on

② GPM

11/11/15

Description (continued)

samples in eddies ~ 10' from center, ~ 0-4" depth
(N of Main PPC) flow ~ 30 gpm, silt/clay,
~ 0-4" sediment depth.

sand; sample from sediment, within ~ 10' of center
4" depth

to sand & clay/silt, sample 10' up & down, several
~ 0-4" depth

to sand & clay, sample 10' up & down, several feet
0-4" sampling depth

gravels & sand, silt, clay below beaver dam,
feet laterally from center, 0-4" depth

with braids, 6-18" deep, cobbles & gravels
0-4" depth

6-24" deep, cobbles & gravels, sand/silt/clay in
from center, 0-4" depth. Strong current.

and gravels center, sand/silt/clay in deeper water &
0-4" depth. Strong current.

and gravels in center, sand/silt/clay in deep water
center, 0-4". Strong current.

and gravel across, sand/silt/clay in deep water
center, 0-4" depth, strong current.

11/13/15

11/13/15

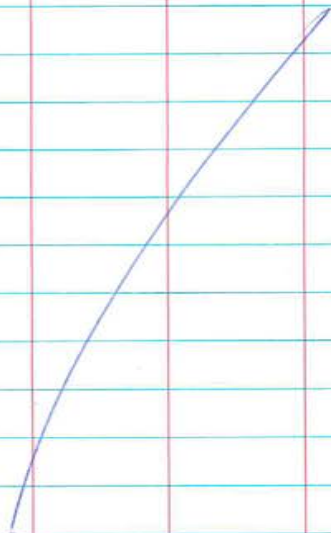


John

③

Parcel 23 Sediment Sampling, PPC 11/11/15
 Sprint composites

Sample	Time	Description
23-1-SD	1055	PPC ~ 42' wide, 6-12" deep, cobble sample 10' from center, 0-4"
23-2-SD	1115	PPC ~ 34' wide, 6-12" deep, cobble sample 10' from center
23-3-SD 23-3-MSMSD 23-FDI-SD	1135	PPC ~ 25' wide, 6-24" deep, in fast water, sand/silt/clay in
23-4-SD	1155	PPC ~ 30' wide, 12-24" deep, shallow water, sample 10' from
23-5-SD	1215	PPC ~ 38' wide, 10-30" deep, water + between large rocks,



J.P. ④

11/11/15

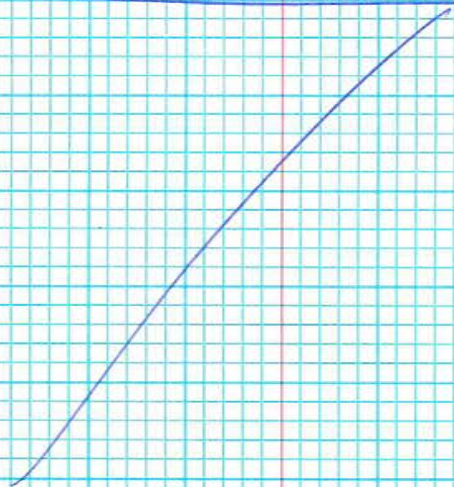
Description (continued)

and gravel / sediments deeper + edges,
depth. Strong current.

and gravel across, sediments deep + edges,
- 0-4" depth

just above confluence / logjam: cobbles
shallower water, sample 10' from center, 0-4" depth
cobbles + gravels with sand/silt/clay in slower
center, 0-4" depth

cobbles + gravels with sand, silt in slower
sample 10' from center, 0-4" depth



J.P. ⑤

November 12, 2015

Parcel 8E Soil Sampling

Personnel: J Paell

Weather: 30°F, calm, cloudy

Safety: Go slow with ATV/new
sampling gear

Parcel 8E Soil Sampling

DU	Sample	Time	composite texture	photo	site cover
0	PSE-AFB	0845	—	—	—
1	PSE-DV1-SS	1045	S: C	✓	grass
2	PSE-DV2-SS	1200	S: C	✓	grass
—	PSE-RB	1230	—	—	—

Ⓢ Paell

11/12/15

Notes

Ambient field blank

Pastureland

Pastureland

Rinsete blank

Paell Ⓢ

November 21, 2015

Parcel 14 Soil Sampling

Personnel: J Paell

Weather: 34°F, calm, cloudy

Safety: Be ~~care~~ careful with gates

Parcel ~~13~~ 14 Soil Sampling

DU	Sample	Time	Composite Texture	photo	Site Cover
3	P14-DU3-SS	1215	S; C	✓	some grass
3	P14-FM-SS	1215	S; L	—	—
4	P14-DU4-SS	1315	S; L	✓	stubble
5	P14-DU5-SS	1355	S; C	✓	stubble
6	P14-DU6-SS	1435	S; L	✓	stubble
—	P14-RBI	1615	S; C	—	—

⑧ J Paell

11/21/15

Notes

Grassland and cropland
— (field dup DU3)
cropland
cropland
cropland
— Rinsate Blank

J Paell

⑨

November 22, 2015

Parcel 14 Soil Sampling

Personnel: Paell

Weather: 30°, W wind, pty cloudy

Safety: Watch for corners and ditches on ATV

Parcel 14 Soil Sampling

DV	Sample	Time	Composite Texture	Photo
7	P14-DV7-SS	1025	SIC	✓
8	P14-DV8-SS	1105	SIL	✓
9	P14-DV9-SS	1140	SIC	✓
10	P14-DV10-SS	1225	SIC	✓
11	P14-DV11-SS	1250	SIL	✓
12	P14-DV12-SS	1345	SIC	✓
12	P14-DV12-MSMSD-SS	1345	SIC	—
12	P14-FD2-SS	1345	SIC	—
—	P14-AFB	0955	—	—
—	P14-RBZ	1550	—	—

(10)

Paell

11/22/15

Site Cover	Notes
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland (MSMSD DV12)
stubble	cropland (DV12 field dup)
—	Ambient field blank
—	Rinse blank

Paell

(11)

December 4, 2015

Parcel 13 Soil Sampling

Personnel: J Paell

Weather: 30°F, ~1" snow, calm, clear

Safety: Work slow / use proper footings in snow and ice / stay warm

Parcel 13 Soil Sampling

<u>DU</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>photo</u>
-	P13-AFB	1045	-	-
13	P13-DU13-SS	1110	S: C	✓
14	P13-DU14-SS	1155	S: C	✓
15	P13-DU15-SS	1240	S: C	✓
16	P13-DU16-SS	1310	S: L	✓
17	P13-DU17-SS	1345	S: C	✓
18	P13-DU18-SS	1425	S: C	✓
-	P13-RB	1500	-	-

(12)

JPaell

12/4/15

<u>site cover</u>	<u>Notes</u>
-	Ambient field blank
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	very cobby / cropland
-	Rinsete blank

JPaell

(13)

December 9, 2015

Parcel 7 Soil Sampling

Personnel: Paell

Weather: 38°F, calm, cloudy

Safety: Use caution w/ ATV dismount and mounting

Parcel 7 Soil Sampling

<u>DV</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>Photo</u>
—	P7-AFB	1330	—	—
25	P7-DU25-SS	1400	sic	✓
26	P7-DU26-SS	1445	sic	✓
27	P7-DU27-SS	1510	sic	✓
—	P7-RBI	1515	—	—
28	P7-DU28-SS	1550	sic	✓
29	P7-DU29-SS	1625	sic	✓
30	P7-DU30-SS	1700	sic	✓

(14) JPM

12/9/15

Site
Cover

Notes

—	Ambient field blank
grass	pastureland
grass	pastureland
stubble	cropland
—	Rinsate blank
grass	pastureland
stubble	cropland
stubble/grass	cropland + pastureland

JPM (15)

December 11, 2015

Parcel 7 Soil Sampling

Personnel: JPaell

Weather: 30°F, 1" snow, calm, clear

Safety: Be careful on snow and ice

Parcel 7 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
19	P7-DU19-SS	0850	SIC	✓
20	P7-DU20-SS	0940	SIC	✓
20	P7-DU20-MSMSD-SS	0945	SIL	✓
20	P7-FDI-SS	1010	SIL	✓
21	P7-DU21-SS	1030	SIC	✓
22	P7-DU22-SS	1105	SIC	✓
—	P7-RB2	1115	SIC	—
23	P7-DU23-SS	1150	SIC	✓
24	P7-DU24-SS	1225	SIC	✓

(16)

JPaell

12/11/15

Site Cover	Notes
grass	Pastureland
grass	Pastureland
grass	Pastureland - MSMSD DU20
grass	Pastureland - field dup DU20
grass	Pastureland
grass	Pastureland
—	Rinsate Blank
grass	Pastureland
grass	Pastureland

JPaell

(17)

April 6, 2016

Parcel 23 Soil Sampling

Personnel: Joell

Weather: 45°F, W wind, cloudy

Safety: Watch for ditches on ATV

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
1	P23-DU1-SS	0945	S:L	✓
2	P23-DU2-SS	1015	S:C	✓
3	P23-DU3-SS	1040	S:C	✓
3	P23-FD1-SS	1110	S:C	✓
4	P23-DU4-SS	1140	S:L	✓
5	P23-DU5-SS	1215	S:L	✓
6	P23-DU6-SS	1300	S:C	✓
7	P23-DU7-SS	1435	S:L	✓
8	P23-DU8-SS	1505	S:C	✓
-	P23-RB1	1515	-	-

(15) Joell

4/6/16

Site Cover

Notes

grass

grass

grass

grass - DU3 field dip

grass

grass

grass

grass

grass

grass

Pasture/land

Joell

(15)

April 7, 2016

Parcel 23 Soil Sampling

Personnel: JPell

Weather: 40°F, calm, cloudy

Safety: Watch for traffic on site

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
—	P23-AFB	0745	—	—
9	P23-DU9-SS	0800	SiL	✓
10	P23-DU10-SS	0835	SiC	✓
—	P23-RB2	0855	—	—

(20) JPell

4/7/16

Site Cover	Notes
—	Ambient field blank
grass	Pastureland
grass	Pastureland
—	Rinsete blank

JPell

(21)

April 10, 2016

Parcel 23 Soil Sampling

Personnel: OPall

Weather: 48°F, W wind, cloudy

Safety: Be careful in dense brush & PPC strike

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
11	P23-DU11-SS	0700	S:L	✓
12	P23-DU12-SS	0735	SL	✓
13	P23-DU13-SS	0810	S:L	✓
14	P23-DU14-SS	0850	SL	✓
15	P23-DU15-SS	0920	S:L	✓
16	P23-DU16-SS	1000	SL	✓
17	P23-DU17-SS	1030	S:L	✓
17	P23-FD2-SS	1040	S:L	—
18	P23-DU18-SS	1120	SL	✓
19	P23-DU19-SS	1155	S:L	✓
20	P23-DU20-SS	1230	S:L	✓
20	P23-DU20-MSMSD-SS	1240	—	—
20	P23-FD3-SS	1250	S:L	—
—	P23-RB3	1305	—	—

(22) J. P. All

4/10/16

Site Cover	Notes
grass and shrubs	same riparian on PPC
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass	(pastureland) field dup DU17
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	pastureland and PPC riparian
—	DU20 MSMSD
—	DU20 field dup
—	Rimacke Blank

J. P. All (23)

April 17, 2016

Parcel 23 Soil Sampling

Personnel: J Poell

Weather: 50°F, calm, clear

Safety: Be careful in dense brush

Parcel 23 Soil Sampling

DO	Sample	Time	Composite Texture	Photo
21	P23-DU21-SS	0750	SiC	✓
22	P23-DU22-SS	0840	SiC	✓
23	P23-DU23-SS	0935	SL	✓
24	P23-DU24-SS	1015	SiL	✓
25	P23-DU25-SS	1120	SL	✓
26	P23-DU26-SS	1210	SL	✓
27	P23-DU27-SS	1330	SL	✓
28	P23-DU28-SS	1450	SL	✓
28	P23-DU28-MSMSD-SS	1500	—	—
28	P23-FD4-SS	1510	—	—
29	P23-DU29-SS	1615	SL	✓
30	P23-DU30-SS	1730	SL	✓
—	P23-R03	1740	—	—
—	P23-AFB2	1750	—	—

(24) J Poell

4/17/16

Site Cover	Notes
grass	pastureland
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	pasture and PPC riparian area
grass and trees	pastureland and PPC riparian area
grass and shrubs	pastureland and PPC riparian area
grass and shrubs/trees	pastureland and PPC riparian area
—	DU28 MSMSD
—	DU28 field dup
shrubs, trees	PPC riparian area
shrubs, trees	PPC riparian area
—	Rinsate blank
—	Ambient field blank

J Poell

(25)

April 18, 2016

Parcel 2a Soil Sampling

Personnel: JPaeII

Weather: 60°F, W wind, pttly cloudy

Safety: Many ditches on site/careful with OTV use

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	Photo
1	P2a-DU1-SS	1430	SiC	✓
2	P2a-DU2-SS	1515	SiC	✓
3	P2a-DU3-SS	1600	SiC	✓
3	P2a-FD1-SS	1610	—	—
5	P2a-DU5-SS	1645	SiL	✓
6	P2a-DU6-SS	1730	SiC	✓
—	P2a-RBI	1740	—	—
—	P2a-AFB	1750	—	—

(26) JPaeII

4/18/16

Site/Lover	Notes
grass	pasture & PPC riparian area
grass	pasture
grass	pasture
—	DU3 field dup
grass	pasture and PPC riparian area
grass	pasture
—	Rinicate blank
—	Ambient field blank

JPaeII (27)

April 19, 2016

Parcel 2a Soil Sampling

Personnel: Orell

Weather: 55°F, w wind, pthly cloudy

Safety: walk carefully - terrain hazardous

Parcel 2a Soil Sampling

<u>DU</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>photo</u>
7	P2a-DU7-SS	1440	SiC	✓
11	P2a-DU11-SS	1520	SiC	✓
12	P2a-DU12-SS	1555	SiC	✓
13	P2a-DU13-SS	1640	SiC	✓
16	P2a-DU16-SS	1720	SiL	✓
—	P2a-RB2-SS	1730	—	—

(28) Orell

4/19/16

Site Cover

grass

grass

grass

grass

grass

—

Notes

pasture

pasture and PPC riparian area

pasture

pasture

pasture and PPC riparian area

Rinsate blank

Orell

(29)

April 20, 2016

Parcel 2a Soil Sampling

Personnel: Paell

Weather: 60°F, calm, pthly cloudy

Safety: Be careful with UTV on terrain, rocks

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	photo
17	P2a-DU17-SS	1330	S: C	✓
17	P2a-FD2-SS	1340	←	—
18	P2a-DU18-SS	1425	S: C	✓
22	P2a-DU22-SS	1505	S: L	✓
23	P2a-DU23-SS	1545	S: C	✓
28	P2a-DU28-SS	1630	S: L	✓
28	P2a-DU28-MSMSD-SS	1640	—	—
28	P2a-FD3-SS	1650	—	—
—	P2a-RB3	1700	—	—

(30) Paell

4/20/16

Site/cover	Notes
grass	pasture
—	DU17 field dup
grass	pasture
grass	pasture and PPC riparian area
grass	pasture
grass	pasture and PPC riparian area
—	DU28 MSMSD
—	DU28 field dup
—	Rinse blank

Paell (31)

April 21, 2016

Parcel 2a Soil Sampling

Personnel: JPall

Weather: 55°F, w wind, ptly cloudy

Safety: Be careful of Wylie Drive traffic

Parcel 2a Soil Sampling

DV	Sample	Time	Composite Texture	photo
4	P2a-DV4-SS	1300	SiC	✓
8	P2a-DV8-SS	1400	SiC	✓
9	P2a-DV9-SS	1450	SiC	✓
14	P2a-DV14-SS	1535	SiC	✓
15	P2a-DV15-SS	1625	SiC	✓
—	P2a-RB4	1710	—	—

(32) JPall

4/21/16

Site Cover	Notes
grass	pasture and PPC riparian area
grass	pasture
grass	pasture and PPC riparian area
grass	pasture
grass	pasture
—	Rinseate blank

JPall (33)

April 24, 2016

Parcel 2a Soil Sampling

Personnel: O'Neil

Weather: 45°F, W wind, pty cloudy

Safety: Terrain hazards/slope, rocks, trash

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	photo
10	P2a-DU10-SS	0815	SiL	✓
10	P2a-DU10-MSMSD-SS	0825	SiL	—
10	P2a-FD4-SS	0835	—	—
19	P2a-DU19-SS	0920	SiL	✓
20	P2a-DU20-SS	1005	SiC	✓
21	P2a-DU21-SS	1055	SiC	✓
24	P2a-DU24-SS	1140	SiC	✓
25	P2a-DU25-SS	1225	SiC	✓
26	P2a-DU26-SS	1310	SiC	✓
27	P2a-DU27-SS	1400	SiL	✓
—	P2a-RB5	1415	—	—

(34)

O'Neil

4/24/16

Site Cover

Notes

grass	pasture and PPC riparian areas
—	DU10 MSMSD
—	DU10 field dup
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
—	Rinsatch blank

O'Neil (35)

May 5, 2016

Parcel 15 Soil Sampling

Personnel: JPall

Weather: 50°F, W wind, ptly cloudy

Safety: Be careful of traffic

Parcel 15 Soil Sampling

DU	Sample	Time	Composite Texture	photo
1	P15-DU1-SS	0700	S:C	✓
2	P15-DU2-SS	0815	S:C	✓
3	P15-DU3-SS	0915	S:C	✓
4	P15-DU4-SS	1010	S:C	✓
5	P15-DU5-SS	1115	S:C	✓
6	P15-DU6-SS	1210	S:C	✓
7	P15-DU7-SS	1630	S:C	✓
8	P15-DU8-SS	1730	S:C	✓
9	P15-DU9-SS	1825	S:C	✓
10	P15-DU10-SS	1930	S:C	✓
10	P15-DU10-MSMSD-SS	1940	—	—
10	P15-FD1-SS	1950	—	—
—	P15-AFBI	2000	—	—
—	P15-RBI	2010	—	—

(36) JPall

5/5/16

Site Cover	Notes
grass	grassland
grass	grassland
grass & stubble	grassland / cropland
grass / stubble	grassland / cropland
stubble	cropland
grass & stubble	grassland / cropland
grass & stubble	grassland / cropland
grass & stubble	grassland / cropland
stubble	cropland
stubble	cropland
—	DU10 MSMSD
—	DU10 field dup
—	Ambient field blank
—	Rinse blank

JPall (37)

May 8, 2016

Parcel 15, 21 Soil Sampling

Personnel: JPall

Weather: 55°F, w wind, pthy cloudy

Safety: Be careful RR and highway crossings

Parcel 15, 21 Soil Sampling

DU	Sample	Time	Composite Texture	photo
11	P15-DU11-SS	0750	SIC	✓
12	P15-DU12-SS	0850	SIC	✓
12	P15-DU12-MSMSD-SS	0855	—	—
12	P15-FD2-SS	0900	—	—
13	P15-DU13-SS	1010	SIC	✓
14	P15-DU14-SS	1115	SIC	✓
15	P15-DU15-SS	1210	SIC	✓
16(Parcel 21)	P21-DU16-SS	1320	SIL	✓
—	P21-AFB1	1330	—	—
—	P21-RB1	1340	—	—
A1	P15-DUA1-SS	1445	SIC	✓
A2	P15-DUA2-SS	1550	SIC	✓
A3	P15-DUA3-SS	1645	SIC	✓
A4	P15-DUA4-SS	1740	SIC	✓
A5	P15-DUA5-SS	1855	SC	✓
A5	P15-DUA5-MSMSD-SS	1900	—	—
A5	P15-FD3-SS	1905	—	—

(38)

JPall

5/8/16

Site Layer	Notes
grass/weeds	cropland/weed cover
weeds	cropland/weeds
—	DU12 MSMSD
—	DU12 field dup
stubble	cropland, rocky soil
stubble/weeds	cropland/weeds
stubble/weeds	cropland/weeds
grass and trees	rangeland
—	Ambient field blank
—	Rinsate blank
grass	grassland
grass	grassland
grass	grassland
grass	META facilities area
grass/arena	Rodeo grounds/gravels and arena sand
—	DUA5 MSMSD
—	DUA5 field dup

JPall (39)

Attachment 2
Laboratory Reports



ANALYTICAL SUMMARY REPORT

December 24, 2015

Montana Environmental Custodial Trust
Gallusha, Higgins, Gallusha
Helena, MT 59601

Work Order: H15120210 Quote ID: H1089 - Metals Soil Sampling Spring 2015

Project Name: 10022 Supplemental RFI Soil Sampling

Energy Laboratories Inc Helena MT received the following 9 samples for Montana Environmental Custodial Trust on 12/11/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H15120210-001	P7-DU19-SS	12/11/15 8:50	12/11/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Soil Preparation
H15120210-002	P7-DU20-SS	12/11/15 9:40	12/11/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals
H15120210-003	P7-DU20-MSMSD-SS	12/11/15 9:45	12/11/15	Soil	Same As Above
H15120210-004	P7-FD1-SS	12/11/15 10:10	12/11/15	Soil	Same As Above
H15120210-005	P7-DU21-SS	12/11/15 10:30	12/11/15	Soil	Same As Above
H15120210-006	P7-DU22-SS	12/11/15 11:05	12/11/15	Soil	Metals by ICP/ICPMS, Total Chromium, Hexavalent Water Extraction for Hex Chromium Mercury in Solid By CVAA Digestion, Total Metals Digestion, Mercury by CVAA
H15120210-007	P7-RB2	12/11/15 11:15	12/11/15	Aqueous	Metals by ICP/ICPMS, Total Chromium, Hexavalent Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H15120210-008	P7-DU23-SS	12/11/15 11:50	12/11/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals
H15120210-009	P7-DU24-SS	12/11/15 12:25	12/11/15	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



CLIENT: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Work Order: H15120210

Report Date: 12/24/15

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-001
Client Sample ID: P7-DU19-SS

Report Date: 12/24/15
Collection Date: 12/11/15 08:50
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	63	mg/kg	D	2		SW6010B	12/21/15 15:16 / sld
Lead	568	mg/kg	D	3		SW6010B	12/21/15 15:16 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-002
Client Sample ID: P7-DU20-SS

Report Date: 12/24/15
Collection Date: 12/11/15 09:40
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	70	mg/kg	D	2		SW6010B	12/21/15 15:19 / sld
Lead	747	mg/kg	D	3		SW6010B	12/21/15 15:19 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-003
Client Sample ID: P7-DU20-MSMSD-SS

Report Date: 12/24/15
Collection Date: 12/11/15 09:45
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	73	mg/kg	D	2		SW6010B	12/21/15 15:23 / sld
Lead	772	mg/kg	D	3		SW6010B	12/21/15 15:23 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-004
Client Sample ID: P7-FD1-SS

Report Date: 12/24/15
Collection Date: 12/11/15 10:10
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	75	mg/kg	D	2		SW6010B	12/21/15 15:42 / sld
Lead	737	mg/kg	D	3		SW6010B	12/21/15 15:42 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-005
Client Sample ID: P7-DU21-SS

Report Date: 12/24/15
Collection Date: 12/11/15 10:30
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	49	mg/kg	D	2		SW6010B	12/21/15 15:53 / sld
Lead	604	mg/kg	D	3		SW6010B	12/21/15 15:53 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-006
Client Sample ID: P7-DU22-SS

Report Date: 12/24/15
Collection Date: 12/11/15 11:05
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	3	mg/kg		1		SW6020	12/18/15 19:04 / dck
Arsenic	70	mg/kg	D	2		SW6010B	12/21/15 15:56 / sld
Barium	139	mg/kg		1		SW6010B	12/21/15 15:56 / sld
Cadmium	19	mg/kg		1		SW6020	12/18/15 19:04 / dck
Chromium	27	mg/kg		1		SW6010B	12/21/15 15:56 / sld
Cobalt	8	mg/kg		1		SW6020	12/18/15 19:04 / dck
Copper	100	mg/kg		1		SW6010B	12/21/15 15:56 / sld
Iron	24000	mg/kg		5		SW6010B	12/21/15 15:56 / sld
Lead	714	mg/kg	D	3		SW6010B	12/21/15 15:56 / sld
Manganese	486	mg/kg		1		SW6010B	12/21/15 15:56 / sld
Selenium	ND	mg/kg		1		SW6020	12/18/15 19:04 / dck
Silver	3	mg/kg		1		SW6020	12/18/15 19:04 / dck
Thallium	1	mg/kg		1		SW6020	12/18/15 19:04 / dck
Vanadium	55	mg/kg		1		SW6020	12/18/15 19:04 / dck
Zinc	252	mg/kg		1		SW6010B	12/21/15 15:56 / sld
METALS, TOTAL							
Mercury	1.6	mg/kg		0.50		SW7471B	12/18/15 15:09 / rgk
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/22/15 13:18 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-007
Client Sample ID: P7-RB2

Report Date: 12/24/15
Collection Date: 12/11/15 11:15
Date Received: 12/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, DISSOLVED							
Chromium, Hexavalent	ND	mg/L		0.01		A3500-Cr B	12/11/15 15:34 / cmm
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/19/15 04:16 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/19/15 04:16 / dck
Barium	ND	mg/L		0.003		E200.8	12/19/15 04:16 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/19/15 04:16 / dck
Chromium	ND	mg/L		0.005		E200.8	12/19/15 04:16 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/19/15 04:16 / dck
Copper	ND	mg/L		0.002		E200.8	12/19/15 04:16 / dck
Iron	ND	mg/L		0.02		E200.8	12/19/15 04:16 / dck
Lead	ND	mg/L		0.0003		E200.8	12/19/15 04:16 / dck
Manganese	ND	mg/L		0.001		E200.8	12/19/15 04:16 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/17/15 15:36 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/19/15 04:16 / dck
Silver	ND	mg/L		0.0002		E200.8	12/19/15 04:16 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/19/15 04:16 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/19/15 04:16 / dck
Zinc	ND	mg/L		0.008		E200.8	12/19/15 04:16 / dck

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-008
Client Sample ID: P7-DU23-SS

Report Date: 12/24/15
Collection Date: 12/11/15 11:50
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	62	mg/kg	D	2		SW6010B	12/21/15 16:00 / sld
Lead	664	mg/kg	D	3		SW6010B	12/21/15 16:00 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120210-009
Client Sample ID: P7-DU24-SS

Report Date: 12/24/15
Collection Date: 12/11/15 12:25
Date Received: 12/11/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	81	mg/kg	D	2		SW6010B	12/21/15 16:04 / sld
Lead	805	mg/kg	D	3		SW6010B	12/21/15 16:04 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A3500-Cr B								Analytical Run: SPECTRO_151211A		
Lab ID: ICV_09172015		Initial Calibration Verification Standard								
Chromium, Hexavalent		0.0994	mg/L	0.010	99	90	110			12/11/15 15:34
Lab ID: CCV2_151211A								Continuing Calibration Verification Standard		
Chromium, Hexavalent		0.102	mg/L	0.010	102	90	110			12/11/15 15:34
Method: A3500-Cr B								Batch: 151211A-CR-HEX-W		
Lab ID: MBLK1_150120A		Method Blank								
Chromium, Hexavalent		ND	mg/L	0.005						Run: SPECTRO_151211A 12/11/15 15:34
Lab ID: H15120210-007BMS		Sample Matrix Spike								
Chromium, Hexavalent		0.0933	mg/L	0.010	93	80	120			Run: SPECTRO_151211A 12/11/15 15:34
Lab ID: H15120210-007BMSD		Sample Matrix Spike Duplicate								
Chromium, Hexavalent		0.0993	mg/L	0.010	99	80	120	6.3	30	Run: SPECTRO_151211A 12/11/15 15:34

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_151221B		
Lab ID: ICV	8	Initial Calibration Verification Standard								12/21/15 09:10
Arsenic		0.801	mg/L	0.011	100	90	110			
Barium		0.820	mg/L	0.10	103	90	110			
Chromium		0.815	mg/L	0.010	102	90	110			
Copper		0.797	mg/L	0.010	100	90	110			
Iron		4.01	mg/L	0.020	100	90	110			
Lead		0.788	mg/L	0.019	99	90	110			
Manganese		3.96	mg/L	0.010	99	90	110			
Zinc		0.801	mg/L	0.010	100	90	110			
Lab ID: ICSA	8	Interference Check Sample A								12/21/15 09:25
Arsenic		-0.0110	mg/L	0.011		0	0			
Barium		-0.000850	mg/L	0.10		0	0			
Chromium		0.00222	mg/L	0.010		0	0			
Copper		-0.000130	mg/L	0.010		0	0			
Iron		179	mg/L	0.020	89	80	120			
Lead		-0.0185	mg/L	0.019		0	0			
Manganese		-0.00750	mg/L	0.010		0	0			
Zinc		0.00409	mg/L	0.010		0	0			
Lab ID: ICSAB	8	Interference Check Sample AB								12/21/15 09:29
Arsenic		0.982	mg/L	0.011	98	80	120			
Barium		0.505	mg/L	0.10	101	80	120			
Chromium		0.478	mg/L	0.010	96	80	120			
Copper		0.502	mg/L	0.010	100	80	120			
Iron		180	mg/L	0.020	90	80	120			
Lead		0.887	mg/L	0.019	89	80	120			
Manganese		0.454	mg/L	0.010	91	80	120			
Zinc		0.991	mg/L	0.010	99	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_151218B		
Lab ID: ICV STD	15 Initial Calibration Verification Standard									12/19/15 00:41
Antimony		0.0602	mg/L	0.050	100	90	110			
Arsenic		0.0612	mg/L	0.0050	102	90	110			
Barium		0.0600	mg/L	0.10	100	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Chromium		0.0612	mg/L	0.010	102	90	110			
Cobalt		0.0614	mg/L	0.010	102	90	110			
Copper		0.0619	mg/L	0.010	103	90	110			
Iron		0.305	mg/L	0.020	102	90	110			
Lead		0.0596	mg/L	0.010	99	90	110			
Manganese		0.308	mg/L	0.010	103	90	110			
Selenium		0.0608	mg/L	0.0050	101	90	110			
Silver		0.0304	mg/L	0.0050	101	90	110			
Thallium		0.0593	mg/L	0.10	99	90	110			
Vanadium		0.0601	mg/L	0.10	100	90	110			
Zinc		0.0613	mg/L	0.010	102	90	110			
Lab ID: ICSA	15 Interference Check Sample A									12/19/15 00:44
Antimony		8.70E-05	mg/L	0.050						
Arsenic		9.00E-06	mg/L	0.0050						
Barium		8.70E-05	mg/L	0.10						
Cadmium		0.000319	mg/L	0.0010						
Chromium		0.000911	mg/L	0.010						
Cobalt		2.90E-05	mg/L	0.010						
Copper		5.30E-05	mg/L	0.010						
Iron		96.2	mg/L	0.020	96	70	130			
Lead		0.000218	mg/L	0.010						
Manganese		0.000262	mg/L	0.010						
Selenium		8.50E-05	mg/L	0.0050						
Silver		3.80E-05	mg/L	0.0050						
Thallium		6.80E-05	mg/L	0.10						
Vanadium		-0.000482	mg/L	0.10						
Zinc		0.00102	mg/L	0.010						
Lab ID: ICSAB	15 Interference Check Sample AB									12/19/15 00:47
Antimony		6.00E-06	mg/L	0.050		0	0			
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Barium		5.30E-05	mg/L	0.10		0	0			
Cadmium		0.00997	mg/L	0.0010	100	70	130			
Chromium		0.0210	mg/L	0.010	105	70	130			
Cobalt		0.0203	mg/L	0.010	102	70	130			
Copper		0.0195	mg/L	0.010	97	70	130			
Iron		97.2	mg/L	0.020	97	70	130			
Lead		0.000189	mg/L	0.010		0	0			
Manganese		0.0206	mg/L	0.010	103	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151218B			
Lab ID: ICSAB	15	Interference Check Sample AB						12/19/15 00:47			
Selenium		0.0104	mg/L	0.0050	104	70	130				
Silver		0.0187	mg/L	0.0050	94	70	130				
Thallium		1.40E-05	mg/L	0.10		0	0				
Vanadium		0.0200	mg/L	0.10	100	70	130				
Zinc		0.00992	mg/L	0.010	99	70	130				
Method: E200.8								Batch: 31469			
Lab ID: MB-31469	15	Method Blank						Run: ICPMS204-B_151218B 12/19/15 03:34			
Antimony		ND	mg/L	6E-05							
Arsenic		ND	mg/L	6E-05							
Barium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		0.07	mg/L	0.002							
Lead		0.00010	mg/L	3E-05							
Manganese		0.0007	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		ND	mg/L	0.0001							
Zinc		ND	mg/L	0.002							
Lab ID: LCS-31469	15	Laboratory Control Sample						Run: ICPMS204-B_151218B 12/19/15 03:38			
Antimony		0.521	mg/L	0.0010	104	85	115				
Arsenic		0.510	mg/L	0.0010	102	85	115				
Barium		0.524	mg/L	0.050	105	85	115				
Cadmium		0.253	mg/L	0.0010	101	85	115				
Chromium		0.501	mg/L	0.0050	100	85	115				
Cobalt		0.498	mg/L	0.0050	100	85	115				
Copper		0.493	mg/L	0.0050	99	85	115				
Iron		2.51	mg/L	0.020	98	85	115				
Lead		0.508	mg/L	0.0010	102	85	115				
Manganese		2.54	mg/L	0.0010	102	85	115				
Selenium		0.499	mg/L	0.0010	100	85	115				
Silver		0.0495	mg/L	0.0010	99	85	115				
Thallium		0.506	mg/L	0.00050	101	85	115				
Vanadium		0.501	mg/L	0.010	100	85	115				
Zinc		0.485	mg/L	0.010	97	85	115				
Lab ID: H15120220-004AMS3	15	Sample Matrix Spike						Run: ICPMS204-B_151218B 12/19/15 04:33			
Antimony		0.515	mg/L	0.0010	103	70	130				
Arsenic		0.498	mg/L	0.0010	100	70	130				
Barium		0.523	mg/L	0.050	105	70	130				

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust

Report Date: 12/28/15

Project: 10022 Supplemental RFI Soil Sampling

Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 31469										
Lab ID:	H15120220-004AMS3	15 Sample Matrix Spike			Run: ICPMS204-B_151218B				12/19/15 04:33	
Cadmium		0.249	mg/L	0.0010	100	70	130			
Chromium		0.497	mg/L	0.0050	99	70	130			
Cobalt		0.498	mg/L	0.0050	100	70	130			
Copper		0.493	mg/L	0.0050	98	70	130			
Iron		2.48	mg/L	0.020	99	70	130			
Lead		0.511	mg/L	0.0010	102	70	130			
Manganese		2.53	mg/L	0.0010	101	70	130			
Selenium		0.481	mg/L	0.0010	96	70	130			
Silver		0.0489	mg/L	0.0010	98	70	130			
Thallium		0.509	mg/L	0.00050	102	70	130			
Vanadium		0.493	mg/L	0.010	99	70	130			
Zinc		0.475	mg/L	0.010	95	70	130			
Lab ID:	H15120220-004AMSD	15 Sample Matrix Spike Duplicate			Run: ICPMS204-B_151218B				12/19/15 04:36	
Antimony		0.514	mg/L	0.0010	103	70	130	0.4	20	
Arsenic		0.497	mg/L	0.0010	99	70	130	0.4	20	
Barium		0.518	mg/L	0.050	104	70	130	1.0	20	
Cadmium		0.249	mg/L	0.0010	99	70	130	0.2	20	
Chromium		0.495	mg/L	0.0050	99	70	130	0.4	20	
Cobalt		0.495	mg/L	0.0050	99	70	130	0.5	20	
Copper		0.489	mg/L	0.0050	97	70	130	0.9	20	
Iron		2.48	mg/L	0.020	99	70	130	0.2	20	
Lead		0.503	mg/L	0.0010	101	70	130	1.7	20	
Manganese		2.53	mg/L	0.0010	101	70	130	0.1	20	
Selenium		0.482	mg/L	0.0010	96	70	130	0.1	20	
Silver		0.0484	mg/L	0.0010	97	70	130	1.1	20	
Thallium		0.500	mg/L	0.00050	100	70	130	1.8	20	
Vanadium		0.491	mg/L	0.010	98	70	130	0.4	20	
Zinc		0.477	mg/L	0.010	95	70	130	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: SUB-B253969	
Lab ID: ICV		Initial Calibration Verification Standard								12/17/15 14:13	
Mercury		0.000195	mg/L	1.0E-05	98	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/17/15 14:59	
Mercury		9.66E-05	mg/L	1.0E-05	97	90	110				
Method: E245.1										Batch: B_95641	
Lab ID: MB-95641		Method Blank								Run: SUB-B253969	12/17/15 15:30
Mercury		2E-06	mg/L	1E-06							
Lab ID: LCS-95641		Laboratory Control Sample								Run: SUB-B253969	12/17/15 15:33
Mercury		0.000188	mg/L	1.0E-05	93	85	115				
Lab ID: B15121143-005BMS		Sample Matrix Spike								Run: SUB-B253969	12/17/15 16:27
Mercury		0.000198	mg/L	1.0E-05	98	70	130				
Lab ID: B15121143-005BMSD		Sample Matrix Spike Duplicate								Run: SUB-B253969	12/17/15 16:30
Mercury		0.000197	mg/L	1.0E-05	97	70	130	0.5	30		
Lab ID: B15121137-001BMS		Sample Matrix Spike								Run: SUB-B253969	12/17/15 15:41
Mercury		0.000198	mg/L	1.0E-05	98	70	130				
Lab ID: B15121137-001BMSD		Sample Matrix Spike Duplicate								Run: SUB-B253969	12/17/15 15:44
Mercury		0.000197	mg/L	1.0E-05	97	70	130	0.5	30		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31510										
Lab ID: MB-31510	8	Method Blank								
Arsenic		0.6	mg/kg	0.4						
Barium		0.1	mg/kg	0.02						
Chromium		0.1	mg/kg	0.06						
Copper		ND	mg/kg	0.2						
Iron		2	mg/kg	0.6						
Lead		ND	mg/kg	0.7						
Manganese		0.04	mg/kg	0.02						
Zinc		0.5	mg/kg	0.10						
Lab ID: LFB-31510	8	Laboratory Fortified Blank								
Arsenic		54.0	mg/kg	1.0	103	80	120			
Barium		54.4	mg/kg	1.0	104	80	120			
Chromium		54.6	mg/kg	1.0	105	80	120			
Copper		53.4	mg/kg	1.0	103	80	120			
Iron		276	mg/kg	5.0	106	80	120			
Lead		53.2	mg/kg	1.0	102	80	120			
Manganese		270	mg/kg	1.0	104	80	120			
Zinc		55.3	mg/kg	1.0	105	80	120			
Lab ID: LCS-31510	8	Laboratory Control Sample								
Arsenic		163	mg/kg	1.8	83	71.4	105.1			
Barium		164	mg/kg	1.0	88	78.6	112.8			
Chromium		100	mg/kg	1.0	86	73.5	108.5			
Copper		116	mg/kg	1.1	85	76.6	108.8			
Iron		15300	mg/kg	5.0	94	51.7	131.9			
Lead		103	mg/kg	3.1	98	74.4	108.6			
Manganese		392	mg/kg	1.0	90	81.1	116.6			
Zinc		249	mg/kg	1.0	108	75.3	111.7			
Lab ID: H15120210-003APDS	8	Post Digestion/Distillation Spike								
Arsenic		325	mg/kg	1.9	96	75	125			
Barium		385	mg/kg	1.0	96	75	125			
Chromium		272	mg/kg	1.0	95	75	125			
Copper		349	mg/kg	1.2	95	75	125			
Iron		23100	mg/kg	5.0		75	125			A
Lead		1010	mg/kg	3.4	91	75	125			
Manganese		1740	mg/kg	1.0	96	75	125			
Zinc		517	mg/kg	1.0	95	75	125			
Lab ID: H15120210-003AMS	8	Sample Matrix Spike								
Arsenic		129	mg/kg	1.9	108	75	125			
Barium		200	mg/kg	1.0	130	75	125			S
Chromium		76.3	mg/kg	1.0	105	75	125			
Copper		154	mg/kg	1.1	110	75	125			
Iron		23300	mg/kg	5.0		75	125			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31510										
Lab ID: H15120210-003AMS	8	Sample Matrix Spike				Run: ICP2-HE_151221B			12/21/15 15:34	
Lead		848	mg/kg	3.3		75	125			A
Manganese		744	mg/kg	1.0	104	75	125			
Zinc		322	mg/kg	1.0		75	125			A
Lab ID: H15120210-003AMSD	8	Sample Matrix Spike Duplicate				Run: ICP2-HE_151221B			12/21/15 15:38	
Arsenic		117	mg/kg	1.8	88	75	125	9.8	20	
Barium		184	mg/kg	1.0	104	75	125	7.9	20	
Chromium		71.3	mg/kg	1.0	99	75	125	6.7	20	
Copper		139	mg/kg	1.1	85	75	125	10	20	
Iron		22300	mg/kg	5.0		75	125	4.6	20	A
Lead		777	mg/kg	3.2		75	125	8.7	20	A
Manganese		710	mg/kg	1.0	94	75	125	4.7	20	
Zinc		298	mg/kg	1.0		75	125	7.9	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020								Analytical Run: ICPMS204-B_151218A		
Lab ID: ICV STD	7	Initial Calibration Verification Standard							12/18/15 14:31	
Antimony		0.0600	mg/L	0.0010	100	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Cobalt		0.0609	mg/L	0.0010	101	90	110			
Selenium		0.0615	mg/L	0.0010	102	90	110			
Silver		0.0301	mg/L	0.0010	100	90	110			
Thallium		0.0599	mg/L	0.0010	100	90	110			
Vanadium		0.0593	mg/L	0.0010	99	90	110			
Lab ID: ICV STD	7	Initial Calibration Verification Standard							12/18/15 17:03	
Antimony		0.0598	mg/L	0.0010	100	90	110			
Cadmium		0.0312	mg/L	0.0010	104	90	110			
Cobalt		0.0622	mg/L	0.0010	104	90	110			
Selenium		0.0610	mg/L	0.0010	102	90	110			
Silver		0.0305	mg/L	0.0010	102	90	110			
Thallium		0.0602	mg/L	0.0010	100	90	110			
Vanadium		0.0602	mg/L	0.0010	100	90	110			
Lab ID: ICV STD	7	Initial Calibration Verification Standard							12/19/15 00:41	
Antimony		0.0602	mg/L	0.0010	100	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Cobalt		0.0614	mg/L	0.0010	102	90	110			
Selenium		0.0608	mg/L	0.0010	101	90	110			
Silver		0.0304	mg/L	0.0010	101	90	110			
Thallium		0.0593	mg/L	0.0010	99	90	110			
Vanadium		0.0601	mg/L	0.0010	100	90	110			
Method: SW6020								Batch: 31510		
Lab ID: MB-31510	7	Method Blank				Run: ICPMS204-B_151218A		12/18/15 18:14		
Antimony		ND	mg/kg	0.08						
Cadmium		ND	mg/kg	0.2						
Cobalt		ND	mg/kg	0.04						
Selenium		ND	mg/kg	0.2						
Silver		ND	mg/kg	0.05						
Thallium		ND	mg/kg	0.09						
Vanadium		ND	mg/kg	0.4						
Lab ID: LCS-31510	7	Laboratory Control Sample				Run: ICPMS204-B_151218A		12/18/15 18:17		
Antimony		42.9	mg/kg	1.0	18	0	92.9			
Cadmium		72.9	mg/kg	1.0	74	73.9	106.1			
Cobalt		80.4	mg/kg	1.0	74	74.2	105.6			
Selenium		147	mg/kg	1.0	72	71.2	110.2			
Silver		32.3	mg/kg	1.0	77	70.8	111.9			
Thallium		73.3	mg/kg	1.0	74	71.4	107.9			
Vanadium		80.0	mg/kg	1.0	70	67	107			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020 Batch: 31510										
Lab ID: LFB-31510	7	Laboratory Fortified Blank					Run: ICPMS204-B_151218A		12/18/15 18:20	
Antimony		53.4	mg/kg	1.0	103	80	120			
Cadmium		26.6	mg/kg	1.0	102	80	120			
Cobalt		52.4	mg/kg	1.0	101	80	120			
Selenium		51.5	mg/kg	1.0	99	80	120			
Silver		26.9	mg/kg	1.0	104	80	120			
Thallium		53.2	mg/kg	1.0	102	80	120			
Vanadium		50.3	mg/kg	1.0	97	80	120			
Lab ID: H15120210-003APDS	7	Post Digestion/Distillation Spike					Run: ICPMS204-B_151218A		12/18/15 18:39	
Antimony		517	mg/kg	1.0	100	75	125			
Cadmium		257	mg/kg	1.0	93	75	125			
Cobalt		487	mg/kg	1.0	94	75	125			
Selenium		462	mg/kg	1.0	90	75	125			
Silver		238	mg/kg	1.0	92	75	125			
Thallium		487	mg/kg	1.0	95	75	125			
Vanadium		530	mg/kg	1.0	94	75	125			
Lab ID: H15120210-003AMS	7	Sample Matrix Spike					Run: ICPMS204-B_151218A		12/18/15 18:42	
Antimony		18.1	mg/kg	1.0	29	75	125			S
Cadmium		46.1	mg/kg	1.0	106	75	125			
Cobalt		57.4	mg/kg	1.0	98	75	125			
Selenium		50.4	mg/kg	1.0	95	75	125			
Silver		29.3	mg/kg	1.0	100	75	125			E
Thallium		52.5	mg/kg	1.0	99	75	125			
Vanadium		107	mg/kg	1.0	112	75	125			
Lab ID: H15120210-003AMSD	7	Sample Matrix Spike Duplicate					Run: ICPMS204-B_151218A		12/18/15 18:45	
Antimony		15.7	mg/kg	1.0	26	75	125	14	20	S
Cadmium		40.3	mg/kg	1.0	86	75	125	13	20	
Cobalt		51.8	mg/kg	1.0	90	75	125	10	20	
Selenium		44.3	mg/kg	1.0	86	75	125	13	20	
Silver		26.4	mg/kg	1.0	91	75	125	11	20	E
Thallium		47.2	mg/kg	1.0	92	75	125	11	20	
Vanadium		97.3	mg/kg	1.0	97	75	125	9.2	20	

Qualifiers:

RL - Analyte reporting limit.

E - Estimated value. Result exceeds the instrument upper quantitation limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7196A								Analytical Run: SPECTRO_151222A		
Lab ID: ICV_09172015		Initial Calibration Verification Standard								12/22/15 12:41
Chromium, Hexavalent		0.0971	mg/L	0.010	97	90	110			
Lab ID: CCV2_151215A								Continuing Calibration Verification Standard		
Chromium, Hexavalent		0.104	mg/L	0.010	104	90	110			12/22/15 13:18
Method: SW7196A								Batch: 31554		
Lab ID: MBLK1_150120A		Method Blank								12/22/15 12:41
Chromium, Hexavalent		ND	mg/L	0.005				Run: SPECTRO_151222A		
Lab ID: H15120100-022ADUP								Sample Duplicate		
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120210

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7471B								Analytical Run: HGCV201-H_151218A		
Lab ID: ICV		Initial Calibration Verification Standard								12/18/15 14:12
Mercury		0.00100	mg/kg	0.50	100	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								12/18/15 14:14
Mercury		0.0024	mg/kg	0.50	97	90	110			
Method: SW7471B								Batch: 31514		
Lab ID: MB-31514		Method Blank								12/18/15 14:38
Mercury		ND	mg/kg	0.010						
Lab ID: LCS-31514		Laboratory Control Sample								12/18/15 14:56
Mercury		5.7	mg/kg	0.50	115	71	126.4			
Lab ID: LFB-31514		Laboratory Fortified Blank								12/18/15 15:07
Mercury		1.1	mg/kg	0.50	106	80	120			
Lab ID: H15120210-006AMS		Sample Matrix Spike								12/18/15 15:13
Mercury		2.5	mg/kg	0.99	87	80	120			
Lab ID: H15120210-006AMSD		Sample Matrix Spike Duplicate								12/18/15 15:15
Mercury		2.3	mg/kg	0.99	75	80	120	5.1	20	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



Work Order Receipt Checklist

Montana Environmental Custodial Trust

H15120210

Login completed by: Tracy L. Lorash

Date Received: 12/11/2015

Reviewed by: BL2000\rwilliams

Received by: TLL

Reviewed Date: 12/15/2015

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	-1.2°C Blue Ice - From Field		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	SAMPLERS: (Signature)		NO. OF CONTAINERS	COMMONS UF / RAW	Nutrients UF / H ₂ SO ₄	Diss. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	BTEX	TPH	REMARKS
		COMP	GRAB									
10022	Supplemental RFI Soil Sampling			2 water								H5120210
		X	P7-AFB	1 soil							X	
		X	P7-DU19-SS	1 soil							X	
		X	P7-DU20-SS	1 soil							X	
		X	P7-DU20-MSMSD-SS	1 soil							X	
		X	P7-F01-SS	1 soil							X	
		X	P7-DU21-SS	1 soil							X	
		X	P7-DU22-SS	1 soil							X	
		X	P7-RB2	2 water							X	
		X	P7-DU23-SS	1 soil							X	
		X	P7-DU24-SS	1 soil							X	

Relinquished (Signature)	Date / Time	Received by (Signature)	Lab	P.O. #	Shipped via: Bus FedEx UPS <input checked="" type="checkbox"/> other hand-deliver
<i>JRM</i>	12/11/15 1350			See Remarks	

Remarks - 1.2 2TB Blue Ice Hand del
Send invoice to Jen Roberts, METG

Relinquished (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Date / Time	Enclosed: <input checked="" type="checkbox"/> Parameter sheet w/detection limits <input type="checkbox"/> QA / AC standard mixing instructions <input checked="" type="checkbox"/> Cover letter <input type="checkbox"/> Other
		<i>Traey Was</i>		12/11/15 13:50	

Split Samples: Accepted Declined

Signature: _____

Return results & electronic copy to:
QA / QC Dept. at address at top of page

December 11, 2015

Energy Laboratories, Inc.
3161 East Lyndale Avenue
Helena, Montana 59601

RE: December 11, 2015 East Helena Supplemental RFI Soil Sampling Samples

Jon,

This letter accompanies:

- eight (8) Parcel 7 soil samples, and
- one (1) Parcel 7 rinsate blank sample (2 containers)

Samples were collected December 11, 2015 at Parcel 7 for the 2015 East Helena Supplemental RFI Soil Sampling program. The samples should be analyzed per the accompanying Chain of Custody forms and parameters list. Analytical reports should be sent to Linda Tangen and to my attention at Hydrometrics. The invoice for these analyses should be forwarded to Jen Roberts at METG. Please feel free to call if you have any questions.

Sincerely,



Jamie Poell
Environmental Scientist

Enclosures

Table 3-1

Regional Screening Levels - Soil and Sediment

East Helena Facility supplemental RFI Sampling and Analysis Plan, East Helena, Montana

Constituent	Resident Soil RSL (mg/kg)		Industrial Soil RSL (mg/kg)		Background (mg/kg)		Laboratory Reporting Limits*
	P2RFI	June 2015 ^a	P2RFI	June 2015	P2RFI	Sept 2013 ^a	
Antimony	31	31	410	470	0.66	0.4	0.1
Arsenic	0.39	0.68	1.6	3	17	22.5	0.2
Barium	15000	15000	190000	220000	NA	429	5
Cadmium	70	71	800	980	0.24	0.7	0.1
Chromium ^b	0.29	0.3	5.6	6.3	NA	41.7	0.3
Hex Chromium							0.3
Cobalt	23	23	300	350	NA	10	1
Copper	3100	3100	41000	47000	16	165	5
Iron	55000	55000	720000	820000	15000	24400	5
Lead	400	400	800	800	12	29.8	1
Manganese	1800	1800	23000	26000	340	880	5
Mercury	5.6	7.8	34	40	0.08	NC	0.05
Selenium	390	390	5100	5800	0.07	0.7	0.5
Silver	390	390	5100	5800	NA	0.3	0.3
Thallium ^c	NA	0.78	NA	120	NA	0.41	0.1
Vanadium ^d	5.5	390	72	5800	NA	52.6	1
Zinc	23000	23000	310000	350000	47	118	5

Notes:

NC - not calculated

RSL = U.S. Environmental Protection Agency Regional Screening Level

RSL Summary Table - June 2015 for 10-6 excess cancer risk for residential exposure scenario.

RSL Summary Table - June 2015 for 10-6 excess cancer risk for industrial exposure scenario.

mg/kg = milligrams per kilogram

NA = not applicable

P2RFI = Phase II RFI; Values were presented in Table 4-2 and summarized as follows:

RSL Summary Table - November 2010 for 10-6 excess cancer risk for residential exposure scenario.

RSL Summary Table - November 2010 for 10-6 excess cancer risk for industrial exposure scenario.

Background Concentrations for Inorganics in Soil, December 2007, MDEQ.

RFI = RCRA Facility Investigation

RCRA = Resource Conservation and Recovery Act

^a Project Report Background Concentrations of Inorganic Constituents in Montana Surface Soils Prepared for Montana Department of Environmental Quality (MDEQ), Prepared by Hydrometrics, Inc.

^b Chromium RSLs are based on the lower of the chromium III or chromium VI values.

^c Thallium RSLs are based on the values for thallium (soluble salts).

^d 2010 vanadium values were based on the lowest (metallic vanadium) value that is not in the June 2015 RSL table; the lowest 2015 resident vanadium RSL (vanadium and compounds) was used.

Project screening levels by media

* All limits are based off no matrix interference. RL could be raised due to matrix interference.



ANALYTICAL SUMMARY REPORT

December 21, 2015

Montana Environmental Custodial Trust
Gallusha, Higgins, Gallusha
Helena, MT 59601

Work Order: H15120169 Quote ID: H1089 - Metals Soil Sampling Spring 2015

Project Name: 10022 Supplemental RFI Soil Sampling

Energy Laboratories Inc Helena MT received the following 8 samples for Montana Environmental Custodial Trust on 12/10/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H15120169-001	P7-AFB	12/09/15 13:30	12/10/15	Aqueous	Metals by ICP/ICPMS, Total Chromium, Hexavalent Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H15120169-002	P7-DU25-SS	12/09/15 14:00	12/10/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Soil Preparation
H15120169-003	P7-DU26-SS	12/09/15 14:45	12/10/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals
H15120169-004	P7-DU27-SS	12/09/15 15:10	12/10/15	Soil	Same As Above
H15120169-005	P7-RB1	12/09/15 15:15	12/10/15	Aqueous	Metals by ICP/ICPMS, Total Chromium, Hexavalent Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H15120169-006	P7-DU28-SS	12/09/15 15:50	12/10/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals
H15120169-007	P7-DU29-SS	12/09/15 16:25	12/10/15	Soil	Same As Above
H15120169-008	P7-DU30-SS	12/09/15 17:00	12/10/15	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-001
Client Sample ID: P7-AFB

Report Date: 12/21/15
Collection Date: 12/09/15 13:30
Date Received: 12/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, DISSOLVED							
Chromium, Hexavalent	ND	mg/L		0.01		A3500-Cr B	12/10/15 12:58 / cmm
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/19/15 01:45 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/19/15 01:45 / dck
Barium	ND	mg/L		0.003		E200.8	12/19/15 01:45 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/19/15 01:45 / dck
Chromium	ND	mg/L		0.005		E200.8	12/19/15 01:45 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/19/15 01:45 / dck
Copper	ND	mg/L		0.002		E200.8	12/19/15 01:45 / dck
Iron	ND	mg/L		0.02		E200.8	12/19/15 01:45 / dck
Lead	ND	mg/L		0.0003		E200.8	12/19/15 01:45 / dck
Manganese	ND	mg/L		0.001		E200.8	12/19/15 01:45 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/14/15 16:24 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/19/15 01:45 / dck
Silver	ND	mg/L		0.0002		E200.8	12/19/15 01:45 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/19/15 01:45 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/19/15 01:45 / dck
Zinc	ND	mg/L		0.008		E200.8	12/19/15 01:45 / dck

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-002
Client Sample ID: P7-DU25-SS

Report Date: 12/21/15
Collection Date: 12/09/15 14:00
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	50	mg/kg		1		SW6020	12/18/15 01:28 / dck
Lead	352	mg/kg		1		SW6020	12/18/15 01:28 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-003
Client Sample ID: P7-DU26-SS

Report Date: 12/21/15
Collection Date: 12/09/15 14:45
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	52	mg/kg		1		SW6020	12/18/15 01:31 / dck
Lead	348	mg/kg		1		SW6020	12/18/15 01:31 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-004
Client Sample ID: P7-DU27-SS

Report Date: 12/21/15
Collection Date: 12/09/15 15:10
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	50	mg/kg		1		SW6020	12/18/15 01:34 / dck
Lead	343	mg/kg		1		SW6020	12/18/15 01:34 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-005
Client Sample ID: P7-RB1

Report Date: 12/21/15
Collection Date: 12/09/15 15:15
Date Received: 12/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, DISSOLVED							
Chromium, Hexavalent	ND	mg/L		0.01		A3500-Cr B	12/10/15 12:58 / cmm
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/19/15 01:48 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/19/15 01:48 / dck
Barium	ND	mg/L		0.003		E200.8	12/19/15 01:48 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/19/15 01:48 / dck
Chromium	ND	mg/L		0.005		E200.8	12/19/15 01:48 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/19/15 01:48 / dck
Copper	ND	mg/L		0.002		E200.8	12/19/15 01:48 / dck
Iron	ND	mg/L		0.02		E200.8	12/19/15 01:48 / dck
Lead	ND	mg/L		0.0003		E200.8	12/19/15 01:48 / dck
Manganese	ND	mg/L		0.001		E200.8	12/19/15 01:48 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/14/15 16:31 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/19/15 01:48 / dck
Silver	ND	mg/L		0.0002		E200.8	12/19/15 01:48 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/19/15 01:48 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/19/15 01:48 / dck
Zinc	ND	mg/L		0.008		E200.8	12/19/15 01:48 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-006
Client Sample ID: P7-DU28-SS

Report Date: 12/21/15
Collection Date: 12/09/15 15:50
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	43	mg/kg		1		SW6020	12/18/15 01:37 / dck
Lead	305	mg/kg		1		SW6020	12/18/15 01:37 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-007
Client Sample ID: P7-DU29-SS

Report Date: 12/21/15
Collection Date: 12/09/15 16:25
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	51	mg/kg		1		SW6020	12/18/15 01:41 / dck
Lead	384	mg/kg		1		SW6020	12/18/15 01:41 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120169-008
Client Sample ID: P7-DU30-SS

Report Date: 12/21/15
Collection Date: 12/09/15 17:00
Date Received: 12/10/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	58	mg/kg		1		SW6020	12/18/15 01:44 / dck
Lead	473	mg/kg		1		SW6020	12/18/15 01:44 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A3500-Cr B								Analytical Run: SPECTRO_151210A		
Lab ID: ICV_09172015	Initial Calibration Verification Standard									
Chromium, Hexavalent		0.104	mg/L	0.010	104	90	110			12/10/15 12:57
Method: A3500-Cr B								Batch: 151210A-CR-HEX-W		
Lab ID: MBLK1_150120A	Method Blank									
Chromium, Hexavalent		ND	mg/L	0.005						Run: SPECTRO_151210A 12/10/15 12:57
Lab ID: H15120169-001BMS	Sample Matrix Spike									
Chromium, Hexavalent		0.0950	mg/L	0.010	95	80	120			Run: SPECTRO_151210A 12/10/15 12:58
Lab ID: H15120169-001BMSD	Sample Matrix Spike Duplicate									
Chromium, Hexavalent		0.0994	mg/L	0.010	99	80	120	4.5	30	Run: SPECTRO_151210A 12/10/15 12:58

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 31453										
Lab ID: MB-31453	15	Method Blank						Run: ICPMS204-B_151216A		12/17/15 00:32
Antimony		ND	mg/L	6E-05						
Arsenic		ND	mg/L	6E-05						
Barium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	1E-05						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	3E-05						
Copper		ND	mg/L	0.0002						
Iron		0.005	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.0002						
Selenium		ND	mg/L	0.0004						
Silver		ND	mg/L	5E-05						
Thallium		ND	mg/L	9E-05						
Vanadium		ND	mg/L	0.0001						
Zinc		ND	mg/L	0.002						
Lab ID: LCS-31453	15	Laboratory Control Sample						Run: ICPMS204-B_151216A		12/17/15 00:35
Antimony		0.527	mg/L	0.0010	105	85	115			
Arsenic		0.523	mg/L	0.0010	105	85	115			
Barium		0.523	mg/L	0.050	105	85	115			
Cadmium		0.260	mg/L	0.0010	104	85	115			
Chromium		0.522	mg/L	0.0050	104	85	115			
Cobalt		0.523	mg/L	0.0050	105	85	115			
Copper		0.518	mg/L	0.0050	104	85	115			
Iron		2.57	mg/L	0.020	103	85	115			
Lead		0.510	mg/L	0.0010	102	85	115			
Manganese		2.50	mg/L	0.0010	100	85	115			
Selenium		0.514	mg/L	0.0010	103	85	115			
Silver		0.0515	mg/L	0.0010	103	85	115			
Thallium		0.510	mg/L	0.00050	102	85	115			
Vanadium		0.529	mg/L	0.010	106	85	115			
Zinc		0.510	mg/L	0.010	102	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_151218B		
Lab ID: ICV STD	15	Initial Calibration Verification Standard							12/19/15 00:41	
Antimony		0.0602	mg/L	0.050	100	90	110			
Arsenic		0.0612	mg/L	0.0050	102	90	110			
Barium		0.0600	mg/L	0.10	100	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Chromium		0.0612	mg/L	0.010	102	90	110			
Cobalt		0.0614	mg/L	0.010	102	90	110			
Copper		0.0619	mg/L	0.010	103	90	110			
Iron		0.305	mg/L	0.020	102	90	110			
Lead		0.0596	mg/L	0.010	99	90	110			
Manganese		0.308	mg/L	0.010	103	90	110			
Selenium		0.0608	mg/L	0.0050	101	90	110			
Silver		0.0304	mg/L	0.0050	101	90	110			
Thallium		0.0593	mg/L	0.10	99	90	110			
Vanadium		0.0601	mg/L	0.10	100	90	110			
Zinc		0.0613	mg/L	0.010	102	90	110			
Lab ID: ICSA	15	Interference Check Sample A							12/19/15 00:44	
Antimony		8.70E-05	mg/L	0.050						
Arsenic		9.00E-06	mg/L	0.0050						
Barium		8.70E-05	mg/L	0.10						
Cadmium		0.000319	mg/L	0.0010						
Chromium		0.000911	mg/L	0.010						
Cobalt		2.90E-05	mg/L	0.010						
Copper		5.30E-05	mg/L	0.010						
Iron		96.2	mg/L	0.020	96	70	130			
Lead		0.000218	mg/L	0.010						
Manganese		0.000262	mg/L	0.010						
Selenium		8.50E-05	mg/L	0.0050						
Silver		3.80E-05	mg/L	0.0050						
Thallium		6.80E-05	mg/L	0.10						
Vanadium		-0.000482	mg/L	0.10						
Zinc		0.00102	mg/L	0.010						
Lab ID: ICSAB	15	Interference Check Sample AB							12/19/15 00:47	
Antimony		6.00E-06	mg/L	0.050		0	0			
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Barium		5.30E-05	mg/L	0.10		0	0			
Cadmium		0.00997	mg/L	0.0010	100	70	130			
Chromium		0.0210	mg/L	0.010	105	70	130			
Cobalt		0.0203	mg/L	0.010	102	70	130			
Copper		0.0195	mg/L	0.010	97	70	130			
Iron		97.2	mg/L	0.020	97	70	130			
Lead		0.000189	mg/L	0.010		0	0			
Manganese		0.0206	mg/L	0.010	103	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151218B			
Lab ID: ICSAB	15	Interference Check Sample AB						12/19/15 00:47			
Selenium		0.0104	mg/L	0.0050	104	70	130				
Silver		0.0187	mg/L	0.0050	94	70	130				
Thallium		1.40E-05	mg/L	0.10		0	0				
Vanadium		0.0200	mg/L	0.10	100	70	130				
Zinc		0.00992	mg/L	0.010	99	70	130				
Method: E200.8								Batch: 31453			
Lab ID: MB-31453	15	Method Blank						Run: ICPMS204-B_151218B 12/19/15 01:42			
Antimony		ND	mg/L	6E-05							
Arsenic		ND	mg/L	6E-05							
Barium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		ND	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		ND	mg/L	0.0001							
Zinc		ND	mg/L	0.002							
Lab ID: H15120192-001AMS3	15	Sample Matrix Spike						Run: ICPMS204-B_151218B 12/19/15 03:09			
Antimony		0.517	mg/L	0.0010	103	70	130				
Arsenic		0.502	mg/L	0.0010	100	70	130				
Barium		0.537	mg/L	0.050	104	70	130				
Cadmium		0.249	mg/L	0.0010	100	70	130				
Chromium		0.496	mg/L	0.0050	99	70	130				
Cobalt		0.494	mg/L	0.0050	99	70	130				
Copper		0.488	mg/L	0.0050	97	70	130				
Iron		2.47	mg/L	0.020	98	70	130				
Lead		0.507	mg/L	0.0010	101	70	130				
Manganese		2.53	mg/L	0.0010	101	70	130				
Selenium		0.485	mg/L	0.0010	97	70	130				
Silver		0.0486	mg/L	0.0010	97	70	130				
Thallium		0.506	mg/L	0.00050	101	70	130				
Vanadium		0.494	mg/L	0.010	99	70	130				
Zinc		0.473	mg/L	0.010	95	70	130				
Lab ID: H15120192-001AMSD	15	Sample Matrix Spike Duplicate						Run: ICPMS204-B_151218B 12/19/15 03:12			
Antimony		0.512	mg/L	0.0010	102	70	130	0.9	20		
Arsenic		0.506	mg/L	0.0010	101	70	130	0.9	20		
Barium		0.534	mg/L	0.050	103	70	130	0.6	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Batch: 31453	
Lab ID:	H15120192-001AMSD 15 Sample Matrix Spike Duplicate			Run: ICPMS204-B_151218B					12/19/15 03:12		
Cadmium		0.249	mg/L	0.0010	100	70	130	0.1	20		
Chromium		0.497	mg/L	0.0050	99	70	130	0.1	20		
Cobalt		0.495	mg/L	0.0050	99	70	130	0.3	20		
Copper		0.487	mg/L	0.0050	97	70	130	0.0	20		
Iron		2.50	mg/L	0.020	99	70	130	0.8	20		
Lead		0.502	mg/L	0.0010	100	70	130	0.9	20		
Manganese		2.53	mg/L	0.0010	101	70	130	0.1	20		
Selenium		0.485	mg/L	0.0010	97	70	130	0.0	20		
Silver	0.0487		mg/L	0.0010	97	70	130	0.2	20		
Thallium		0.506	mg/L	0.00050	101	70	130	0.1	20		
Vanadium		0.497	mg/L	0.010	99	70	130	0.6	20		
Zinc		0.474	mg/L	0.010	95	70	130	0.2	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: SUB-B253763	
Lab ID: ICV		Initial Calibration Verification Standard								12/14/15 15:29	
Mercury		0.000202	mg/L	1.0E-05	101	90	110				
Method: E245.1										Batch: B_95558	
Lab ID: MB-95558		Method Blank								Run: SUB-B253763	12/14/15 16:03
Mercury		1E-06	mg/L	1E-06							
Lab ID: LCS-95558		Laboratory Control Sample								Run: SUB-B253763	12/14/15 16:06
Mercury		0.000191	mg/L	1.0E-05	95	85	115				
Lab ID: B15120881-001AMS		Sample Matrix Spike								Run: SUB-B253763	12/14/15 16:19
Mercury		0.000196	mg/L	1.0E-05	96	70	130				
Lab ID: B15120881-001AMSD		Sample Matrix Spike Duplicate								Run: SUB-B253763	12/14/15 16:21
Mercury		0.000195	mg/L	1.0E-05	96	70	130	0.5	30		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/21/15
Work Order: H15120169

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW6020								Analytical Run: ICPMS204-B_151217A			
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/17/15 17:34	
Arsenic		0.0603	mg/L	0.0010	100	90	110				
Lead		0.0589	mg/L	0.0010	98	90	110				
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/17/15 23:03	
Arsenic		0.0611	mg/L	0.0010	102	90	110				
Lead		0.0595	mg/L	0.0010	99	90	110				
Method: SW6020								Batch: 31471			
Lab ID: MB-31471	2	Method Blank								Run: ICPMS204-B_151217A 12/18/15 01:09	
Arsenic		ND	mg/kg	0.05							
Lead		ND	mg/kg	0.09							
Lab ID: LCS-31471	2	Laboratory Control Sample								Run: ICPMS204-B_151217A 12/18/15 01:12	
Arsenic		175	mg/kg	1.0	90	71.4	105.1				
Lead		104	mg/kg	1.0	99	74.4	108.6				
Lab ID: LFB-31471	2	Laboratory Fortified Blank								Run: ICPMS204-B_151217A 12/18/15 01:15	
Arsenic		53.7	mg/kg	1.0	101	80	120				
Lead		54.0	mg/kg	1.0	102	80	120				
Lab ID: H15120169-008APDS	2	Post Digestion/Distillation Spike								Run: ICPMS204-B_151217A 12/18/15 01:50	
Arsenic		541	mg/kg	1.0	95	75	125				
Lead		942	mg/kg	1.0	92	75	125				
Lab ID: H15120169-008AMS	2	Sample Matrix Spike								Run: ICPMS204-B_151217A 12/18/15 01:53	
Arsenic		109	mg/kg	1.0	103	75	125				
Lead		521	mg/kg	1.0		75	125			A	
Lab ID: H15120169-008AMSD	2	Sample Matrix Spike Duplicate								Run: ICPMS204-B_151217A 12/18/15 01:56	
Arsenic		108	mg/kg	1.0	97	75	125	1.0	20		
Lead		498	mg/kg	1.0		75	125	4.5	20	A	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



Work Order Receipt Checklist

Montana Environmental Custodial Trust

H15120169

Login completed by: Wanda Johnson

Date Received: 12/10/2015

Reviewed by: BL2000\rwilliams

Received by: bjs

Reviewed Date: 12/15/2015

Carrier name: Hand Del

Shipping container/cooler in good condition? Yes [checked] No [] Not Present []
Custody seals intact on all shipping container(s)/cooler(s)? Yes [] No [] Not Present [checked]
Custody seals intact on all sample bottles? Yes [] No [] Not Present [checked]
Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Samples in proper container/bottle? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []
All samples received within holding time? Yes [checked] No []
Temp Blank received in all shipping container(s)/cooler(s)? Yes [checked] No [] Not Applicable []
Container/Temp Blank temperature: 0.3°C On Blue Ice
Water - VOA vials have zero headspace? Yes [] No [] Not Applicable [checked]
Water - pH acceptable upon receipt? Yes [checked] No [] Not Applicable []

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Client put a date of November as the month it was received, samples received in December. wj 12/10/15

CHAIN OF CUSTODY RECORD



Hydrometrics, Inc.
 3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO. 10022		PROJECT NAME Supplemental RFI Soil Sampling		SAMPLERS: (Signature) <i>JRB</i>		NO. OF TAINERS		COMMONS UF / RAW		NUTRIENTS UF / H ₂ SO ₄		DISS. METAL F / HNO ₃		CN UF / NaOH		TOTAL METALS UF / HNO ₃		TOTAL RECOVERABLE METALS UF / HNO ₃		BTEX		TPH		TOTAL AS, Pb		COPCS		REMARKS			
DATE	TIME	COMP	GRAB	SAMPLE NUMBER		TAINERS																									
12/9/15	1330	X	X	P7-AFB		2 water																								H15120170	
	1400	X		P7-DU 25-SS		1 soil																								H5120169	
	1445	X		P7-DU 26-SS		1 soil																									
	1510	X		P7-DU 27-SS		1 soil																									
	1515		X	P7-RB1		2 water																									
	1550	X		P7-DU 28-SS		1 soil																									
	1625	X		P7-DU 29-SS		1 soil																									
	1700	X		P7-DU 30-SS		1 soil																									
Relinquished (Signature) <i>JRB</i>		Date / Time 11/10/15 10:40		Received by (Signature)		Lab 2.3 + D containing blue ice see Remarks hand off		P.O. #		Shipped via: Bus FedEx UPS Air Bill # <i>head-deliver</i>		Remarks Send invoice to Jen Roberts, METS		Date / Time 12/10/15 10:40		Received for Laboratory by (Signature) <i>Brendy Schae</i>		Enclosed: <input checked="" type="checkbox"/> Parameter sheet w/detection limits <input type="checkbox"/> QA / AC standard mixing instructions <input checked="" type="checkbox"/> Cover letter <input type="checkbox"/> Other		Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined		Signature									

Return results & electronic copy to:
 QA / QC Dept. at address at top of page



December 10, 2015

Energy Laboratories, Inc.
3161 East Lyndale Avenue
Helena, Montana 59601

RE: December 9, 2015 East Helena Supplemental RFI Soil Sampling Samples

Jon,

This letter accompanies:

- six (6) Parcel 7 soil samples,
- one (1) Parcel 7 ambient field blank sample (2 containers), and
- one (1) Parcel 7 rinsate blank sample (2 containers)

Samples were collected December 9, 2015 at Parcel 7 for the 2015 East Helena Supplemental RFI Soil Sampling program. The samples should be analyzed per the accompanying Chain of Custody forms and parameters list. Analytical reports should be sent to Linda Tangen and to my attention at Hydrometrics. The invoice for these analyses should be forwarded to Jen Roberts at METG. Please feel free to call if you have any questions.

Sincerely,

Jamie Poell
Environmental Scientist

Enclosures

Table 3-1

Regional Screening Levels - Soil and Sediment
 East Helena Facility supplemental RFI Sampling and Analysis Plan, East Helena, Montana

Constituent	Resident Soil RSL (mg/kg)		Industrial Soil RSL (mg/kg)		Background (mg/kg)		Laboratory Reporting Limits*
	P2RFI	June 2015	P2RFI	June 2015	P2RFI	Sept. 2013 ^a	
Antimony	31	31	410	470	0.66	0.4	0.1
Arsenic	0.39	0.68	1.6	3	17	22.5	0.2
Barium	15000	15000	190000	220000	NA	429	5
Bismuth	70	71	800	980	0.24	0.7	0.1
Chromium ^b	0.29	0.3	5.6	6.3	NA	41.7	0.3
Hexavalent Chromium							0.3
Cobalt	23	23	300	350	NA	10	1
Copper	3100	3100	41000	47000	16	165	5
Lead	55000	55000	720000	820000	15000	24400	5
Manganese	400	400	800	800	12	29.8	1
Mercury	1800	1800	23000	26000	340	880	5
Molybdenum	5.6	7.8	34	40	0.08	NC	0.05
Nickel	390	390	5100	5800	0.07	0.7	0.5
Vanadium	390	390	5100	5800	NA	0.3	0.3
Thallium ^c	NA	0.78	NA	120	NA	0.41	0.1
Zinc	5.5	390	72	5800	NA	52.6	1
Chromium (Total)	23000	23000	310000	350000	47	118	5

- Notes:
- IC - not calculated
 - SL = U.S. Environmental Protection Agency Regional Screening Level
 - RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for residential exposure scenario.
 - RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for industrial exposure scenario.

mg/kg = milligrams per kilogram
 NA = not applicable

P2RFI = Phase II RFI; Values were presented in Table 4-2 and summarized as follows:
 RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for residential exposure scenario.
 RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for industrial exposure scenario.
 Background Concentrations for Inorganics in Soil, December 2007, MDEQ.

FI = RCRA Facility Investigation
 CRA = Resource Conservation and Recovery Act
 Project Report Background Concentrations of Inorganic Constituents in Montana Surface Soils Prepared for Montana Department of Environmental Quality (MDEQ), Prepared by Hydrometrics, Inc.
 Chromium RSLs are based on the lower of the chromium III or chromium VI values.
 Thallium RSLs are based on the values for thallium (soluble salts).
 2010 vanadium values were based on the lowest (metallic vanadium) value that is not in the June 2015 RSL table;
 the lowest 2015 resident vanadium RSL (vanadium and compounds) was used.

Project screening levels by media

All limits are based off no matrix interference. RL could be raised due to matrix interference.



ANALYTICAL SUMMARY REPORT

December 28, 2015

Montana Environmental Custodial Trust
Gallusha, Higgins, Gallusha
Helena, MT 59601

Work Order: H15120100 Quote ID: H1089 - Metals Soil Sampling Spring 2015
Project Name: 10022 Supplemental RFI Soil Sampling

Energy Laboratories Inc Helena MT received the following 24 samples for Montana Environmental Custodial Trust on 12/7/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H15120100-001	P14-DU3-SS	11/21/15 12:15	12/07/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves Soil Preparation
H15120100-002	P14-FD1-SS	11/21/15 17:00	12/07/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves
H15120100-003	P14-DU4-SS	11/21/15 13:15	12/07/15	Soil	Same As Above
H15120100-004	P14-DU5-SS	11/21/15 13:55	12/07/15	Soil	Same As Above
H15120100-005	P14-DU6-SS	11/21/15 14:35	12/07/15	Soil	Same As Above
H15120100-006	P14-RB1	11/21/15 16:15	12/07/15	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H15120100-007	P14-AFB	11/22/15 9:55	12/07/15	Aqueous	Same As Above
H15120100-008	P14-DU7-SS	11/22/15 10:25	12/07/15	Soil	Metals by ICP/ICPMS, Total Chromium, Hexavalent Water Extraction for Hex Chromium Mercury in Solid By CVAA Digestion, Total Metals Digestion, Mercury by CVAA Sieves
H15120100-009	P14-DU8-SS	11/22/15 11:05	12/07/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves
H15120100-010	P14-DU9-SS	11/22/15 11:40	12/07/15	Soil	Same As Above
H15120100-011	P14-DU10-SS	11/22/15 12:25	12/07/15	Soil	Same As Above
H15120100-012	P14-DU11-SS	11/22/15 12:50	12/07/15	Soil	Same As Above
H15120100-013	P14-DU12-SS	11/22/15 13:45	12/07/15	Soil	Metals by ICP/ICPMS, Total Chromium, Hexavalent Water Extraction for Hex Chromium Mercury in Solid By CVAA Digestion, Total Metals Digestion, Mercury by CVAA Sieves
H15120100-014	P14-DU12-MSMSD-SS	11/22/15 13:45	12/07/15	Soil	Same As Above
H15120100-015	P14-FD2-SS	11/22/15 17:00	12/07/15	Soil	Same As Above



ANALYTICAL SUMMARY REPORT

H15120100-016	P14-RB2	11/22/15 15:50	12/07/15	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA
H15120100-017	P13-AFB	12/04/15 10:45	12/07/15	Aqueous	Same As Above
H15120100-018	P13-DU13-SS	12/04/15 11:10	12/07/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves
H15120100-019	P13-DU14-SS	12/04/15 11:55	12/07/15	Soil	Same As Above
H15120100-020	P13-DU15-SS	12/04/15 12:40	12/07/15	Soil	Same As Above
H15120100-021	P13-DU16-SS	12/04/15 13:10	12/07/15	Soil	Same As Above
H15120100-022	P13-DU17-SS	12/04/15 13:45	12/07/15	Soil	Metals by ICP/ICPMS, Total Chromium, Hexavalent Water Extraction for Hex Chromium Mercury in Solid By CVAA Digestion, Total Metals Digestion, Mercury by CVAA Sieves
H15120100-023	P13-DU18-SS	12/04/15 14:25	12/07/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves
H15120100-024	P13-RB	12/04/15 15:00	12/07/15	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



CLIENT: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Work Order: H15120100

Report Date: 12/28/15

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Samples were received by the laboratory. Each sample was carefully placed in a plastic lined pan and allowed to air dry at ambient temperatures. Aggregated clumps were reduced and the samples were mixed in the pans to facilitate complete drying. Once dry, samples were mixed further, then disaggregated with a ceramic mortar and pestle, and passed through a No. 10 (2mm) sieve, coarse fragments that were retained on the sieve (>2mm) were discarded. Samples then underwent further particle size reduction with the use of a ceramic-plate pulverizer, no sample was discarded prior to this point. Samples were then split for metals analysis; using a riffle splitter, the samples were continuously split until the final subsample was reduced in volume to fit in a 4oz amber soil jar. Samples were stored in said jars until they were digested for metals analysis.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-001
Client Sample ID: P14-DU3-SS

Report Date: 12/28/15
Collection Date: 11/21/15 12:15
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	81	mg/kg	D	2		SW6010B	12/15/15 12:26 / sld
Lead	918	mg/kg	D	3		SW6010B	12/15/15 12:26 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-002
Client Sample ID: P14-FD1-SS

Report Date: 12/28/15
Collection Date: 11/21/15 17:00
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	78	mg/kg	D	2		SW6010B	12/15/15 12:30 / sld
Lead	876	mg/kg	D	3		SW6010B	12/15/15 12:30 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-003
Client Sample ID: P14-DU4-SS

Report Date: 12/28/15
Collection Date: 11/21/15 13:15
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	65	mg/kg	D	2		SW6010B	12/15/15 12:41 / sld
Lead	818	mg/kg	D	3		SW6010B	12/15/15 12:41 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-004
Client Sample ID: P14-DU5-SS

Report Date: 12/28/15
Collection Date: 11/21/15 13:55
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	60	mg/kg	D	2		SW6010B	12/15/15 12:45 / sld
Lead	662	mg/kg	D	3		SW6010B	12/15/15 12:45 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-005
Client Sample ID: P14-DU6-SS

Report Date: 12/28/15
Collection Date: 11/21/15 14:35
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	54	mg/kg	D	2		SW6010B	12/15/15 12:48 / sld
Lead	582	mg/kg	D	3		SW6010B	12/15/15 12:48 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-006
Client Sample ID: P14-RB1

Report Date: 12/28/15
Collection Date: 11/21/15 16:15
Date Received: 12/07/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/10/15 21:13 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/10/15 21:13 / dck
Barium	ND	mg/L		0.003		E200.8	12/10/15 21:13 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/18/15 11:06 / dck
Chromium	ND	mg/L		0.005		E200.8	12/10/15 21:13 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/10/15 21:13 / dck
Copper	ND	mg/L		0.002		E200.8	12/10/15 21:13 / dck
Iron	ND	mg/L		0.02		E200.8	12/16/15 21:57 / dck
Lead	ND	mg/L		0.0003		E200.8	12/10/15 21:13 / dck
Manganese	ND	mg/L		0.001		E200.8	12/15/15 06:47 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/10/15 17:06 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/10/15 21:13 / dck
Silver	ND	mg/L		0.0002		E200.8	12/10/15 21:13 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/10/15 21:13 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/10/15 21:13 / dck
Zinc	ND	mg/L		0.008		E200.8	12/15/15 06:47 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-007
Client Sample ID: P14-AFB

Report Date: 12/28/15
Collection Date: 11/22/15 09:55
Date Received: 12/07/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/10/15 21:16 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/10/15 21:16 / dck
Barium	ND	mg/L		0.003		E200.8	12/10/15 21:16 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/16/15 22:01 / dck
Chromium	ND	mg/L		0.005		E200.8	12/10/15 21:16 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/10/15 21:16 / dck
Copper	ND	mg/L		0.002		E200.8	12/10/15 21:16 / dck
Iron	ND	mg/L		0.02		E200.8	12/16/15 22:01 / dck
Lead	ND	mg/L		0.0003		E200.8	12/10/15 21:16 / dck
Manganese	ND	mg/L		0.001		E200.8	12/15/15 06:50 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/10/15 17:14 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/10/15 21:16 / dck
Silver	ND	mg/L		0.0002		E200.8	12/10/15 21:16 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/10/15 21:16 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/10/15 21:16 / dck
Zinc	ND	mg/L		0.008		E200.8	12/15/15 06:50 / dck

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-008
Client Sample ID: P14-DU7-SS

Report Date: 12/28/15
Collection Date: 11/22/15 10:25
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	3.5	mg/kg		0.1		SW6020	12/15/15 14:02 / dck
Arsenic	83	mg/kg	D	2		SW6010B	12/15/15 12:52 / sld
Barium	262	mg/kg		5		SW6010B	12/15/15 18:52 / sld
Cadmium	28.5	mg/kg		0.1		SW6010B	12/15/15 12:52 / sld
Chromium	22.1	mg/kg		0.3		SW6010B	12/15/15 12:52 / sld
Cobalt	9	mg/kg		1		SW6020	12/15/15 14:02 / dck
Copper	114	mg/kg		5		SW6010B	12/15/15 12:52 / sld
Iron	22200	mg/kg		5		SW6010B	12/15/15 12:52 / sld
Lead	931	mg/kg	D	3		SW6010B	12/15/15 12:52 / sld
Manganese	604	mg/kg		5		SW6010B	12/15/15 12:52 / sld
Selenium	1.3	mg/kg		0.5		SW6020	12/15/15 14:02 / dck
Silver	4.3	mg/kg		0.3		SW6020	12/15/15 14:02 / dck
Thallium	1.5	mg/kg		0.1		SW6020	12/15/15 14:02 / dck
Vanadium	45	mg/kg		1		SW6010B	12/15/15 12:52 / sld
Zinc	313	mg/kg		5		SW6010B	12/15/15 12:52 / sld
METALS, TOTAL							
Mercury	4.9	mg/kg		0.50		SW7471B	12/15/15 13:08 / AHN
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	10	mg/kg		1.0		SW7196A	12/22/15 12:41 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-009
Client Sample ID: P14-DU8-SS

Report Date: 12/28/15
Collection Date: 11/22/15 11:05
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	65	mg/kg	D	2		SW6010B	12/15/15 12:56 / sld
Lead	699	mg/kg	D	3		SW6010B	12/15/15 12:56 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-010
Client Sample ID: P14-DU9-SS

Report Date: 12/28/15
Collection Date: 11/22/15 11:40
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	56	mg/kg	D	2		SW6010B	12/15/15 12:59 / sld
Lead	600	mg/kg	D	3		SW6010B	12/15/15 12:59 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-011
Client Sample ID: P14-DU10-SS

Report Date: 12/28/15
Collection Date: 11/22/15 12:25
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	50	mg/kg	D	2		SW6010B	12/15/15 13:03 / sld
Lead	577	mg/kg	D	3		SW6010B	12/15/15 13:03 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-012
Client Sample ID: P14-DU11-SS

Report Date: 12/28/15
Collection Date: 11/22/15 12:50
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	48	mg/kg	D	2		SW6010B	12/15/15 13:07 / sld
Lead	457	mg/kg	D	3		SW6010B	12/15/15 13:07 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-013
Client Sample ID: P14-DU12-SS

Report Date: 12/28/15
Collection Date: 11/22/15 13:45
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	2.0	mg/kg		0.1		SW6020	12/15/15 14:27 / dck
Arsenic	52	mg/kg	D	2		SW6010B	12/15/15 13:10 / sld
Barium	161	mg/kg		5		SW6010B	12/15/15 18:56 / sld
Cadmium	14.0	mg/kg		0.1		SW6010B	12/15/15 13:10 / sld
Chromium	25.9	mg/kg		0.3		SW6010B	12/15/15 13:10 / sld
Cobalt	7	mg/kg		1		SW6020	12/15/15 14:27 / dck
Copper	67	mg/kg		5		SW6010B	12/15/15 13:10 / sld
Iron	22100	mg/kg		5		SW6010B	12/15/15 13:10 / sld
Lead	481	mg/kg	D	3		SW6010B	12/15/15 13:10 / sld
Manganese	395	mg/kg		5		SW6010B	12/15/15 13:10 / sld
Selenium	0.7	mg/kg		0.5		SW6020	12/15/15 14:27 / dck
Silver	2.1	mg/kg		0.3		SW6020	12/15/15 14:27 / dck
Thallium	0.8	mg/kg		0.1		SW6020	12/15/15 14:27 / dck
Vanadium	63	mg/kg		1		SW6010B	12/15/15 13:10 / sld
Zinc	164	mg/kg		5		SW6010B	12/15/15 13:10 / sld
METALS, TOTAL							
Mercury	1.5	mg/kg		0.50		SW7471B	12/15/15 12:11 / AHN
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/22/15 12:41 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-014
Client Sample ID: P14-DU12-MSMSD-SS

Report Date: 12/28/15
Collection Date: 11/22/15 13:45
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	1.9	mg/kg		0.1		SW6020	12/15/15 14:30 / dck
Arsenic	51	mg/kg	D	2		SW6010B	12/15/15 13:14 / sld
Barium	161	mg/kg		5		SW6010B	12/15/15 18:59 / sld
Cadmium	12.3	mg/kg		0.1		SW6010B	12/15/15 13:14 / sld
Chromium	24.4	mg/kg		0.3		SW6010B	12/15/15 13:14 / sld
Cobalt	7	mg/kg		1		SW6020	12/15/15 14:30 / dck
Copper	64	mg/kg		5		SW6010B	12/15/15 13:14 / sld
Iron	21600	mg/kg		5		SW6010B	12/15/15 13:14 / sld
Lead	425	mg/kg	D	3		SW6010B	12/15/15 13:14 / sld
Manganese	374	mg/kg		5		SW6010B	12/15/15 13:14 / sld
Selenium	0.7	mg/kg		0.5		SW6020	12/15/15 14:30 / dck
Silver	1.9	mg/kg		0.3		SW6020	12/15/15 14:30 / dck
Thallium	0.8	mg/kg		0.1		SW6020	12/15/15 14:30 / dck
Vanadium	63	mg/kg		1		SW6010B	12/15/15 13:14 / sld
Zinc	150	mg/kg		5		SW6010B	12/15/15 13:14 / sld
METALS, TOTAL							
Mercury	1.2	mg/kg		0.50		SW7471B	12/15/15 12:13 / AHN
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/22/15 12:41 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-015
Client Sample ID: P14-FD2-SS

Report Date: 12/28/15
Collection Date: 11/22/15 17:00
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	2.0	mg/kg		0.1		SW6020	12/15/15 14:55 / dck
Arsenic	51	mg/kg	D	2		SW6010B	12/15/15 13:47 / sld
Barium	163	mg/kg		5		SW6010B	12/15/15 19:18 / sld
Cadmium	14.6	mg/kg		0.1		SW6010B	12/15/15 13:47 / sld
Chromium	25.3	mg/kg		0.3		SW6010B	12/15/15 13:47 / sld
Cobalt	7	mg/kg		1		SW6020	12/15/15 14:55 / dck
Copper	74	mg/kg		5		SW6010B	12/15/15 13:47 / sld
Iron	22200	mg/kg		5		SW6010B	12/15/15 13:47 / sld
Lead	500	mg/kg	D	3		SW6010B	12/15/15 13:47 / sld
Manganese	386	mg/kg		5		SW6010B	12/15/15 13:47 / sld
Selenium	0.9	mg/kg		0.5		SW6020	12/15/15 14:55 / dck
Silver	2.5	mg/kg		0.3		SW6020	12/15/15 14:55 / dck
Thallium	0.9	mg/kg		0.1		SW6020	12/15/15 14:55 / dck
Vanadium	63	mg/kg		1		SW6010B	12/15/15 13:47 / sld
Zinc	172	mg/kg		5		SW6010B	12/15/15 13:47 / sld
METALS, TOTAL							
Mercury	1.4	mg/kg		0.50		SW7471B	12/15/15 12:15 / AHN
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/22/15 12:41 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-016
Client Sample ID: P14-RB2

Report Date: 12/28/15
Collection Date: 11/22/15 15:50
Date Received: 12/07/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/10/15 21:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/10/15 21:19 / dck
Barium	ND	mg/L		0.003		E200.8	12/10/15 21:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/16/15 22:04 / dck
Chromium	ND	mg/L		0.005		E200.8	12/10/15 21:19 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/10/15 21:19 / dck
Copper	ND	mg/L		0.002		E200.8	12/10/15 21:19 / dck
Iron	ND	mg/L		0.02		E200.8	12/10/15 21:19 / dck
Lead	ND	mg/L		0.0003		E200.8	12/10/15 21:19 / dck
Manganese	ND	mg/L		0.001		E200.8	12/15/15 06:53 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/10/15 17:16 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/10/15 21:19 / dck
Silver	ND	mg/L		0.0002		E200.8	12/10/15 21:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/10/15 21:19 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/10/15 21:19 / dck
Zinc	ND	mg/L		0.008		E200.8	12/15/15 06:53 / dck

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-017
Client Sample ID: P13-AFB

Report Date: 12/28/15
Collection Date: 12/04/15 10:45
Date Received: 12/07/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/10/15 21:22 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/10/15 21:22 / dck
Barium	ND	mg/L		0.003		E200.8	12/10/15 21:22 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/16/15 22:07 / dck
Chromium	ND	mg/L		0.005		E200.8	12/10/15 21:22 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/10/15 21:22 / dck
Copper	ND	mg/L		0.002		E200.8	12/10/15 21:22 / dck
Iron	ND	mg/L		0.02		E200.8	12/10/15 21:22 / dck
Lead	ND	mg/L		0.0003		E200.8	12/10/15 21:22 / dck
Manganese	ND	mg/L		0.001		E200.8	12/15/15 06:56 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/10/15 17:19 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/10/15 21:22 / dck
Silver	ND	mg/L		0.0002		E200.8	12/10/15 21:22 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/10/15 21:22 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/10/15 21:22 / dck
Zinc	ND	mg/L		0.008		E200.8	12/10/15 21:22 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-018
Client Sample ID: P13-DU13-SS

Report Date: 12/28/15
Collection Date: 12/04/15 11:10
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	58	mg/kg	D	2		SW6010B	12/15/15 13:51 / sld
Lead	668	mg/kg	D	3		SW6010B	12/15/15 13:51 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-019
Client Sample ID: P13-DU14-SS

Report Date: 12/28/15
Collection Date: 12/04/15 11:55
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	40	mg/kg	D	2		SW6010B	12/15/15 13:55 / sld
Lead	538	mg/kg	D	3		SW6010B	12/15/15 13:55 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-020
Client Sample ID: P13-DU15-SS

Report Date: 12/28/15
Collection Date: 12/04/15 12:40
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	42	mg/kg	D	2		SW6010B	12/15/15 13:58 / sld
Lead	469	mg/kg	D	3		SW6010B	12/15/15 13:58 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-021
Client Sample ID: P13-DU16-SS

Report Date: 12/28/15
Collection Date: 12/04/15 13:10
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	44	mg/kg	D	2		SW6010B	12/15/15 14:36 / sld
Lead	464	mg/kg	D	3		SW6010B	12/15/15 14:36 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-022
Client Sample ID: P13-DU17-SS

Report Date: 12/28/15
Collection Date: 12/04/15 13:45
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	2.0	mg/kg		0.1		SW6020	12/15/15 15:10 / dck
Barium	168	mg/kg		5		SW6010B	12/15/15 19:22 / sld
Cadmium	16.9	mg/kg		0.1		SW6010B	12/15/15 14:40 / sld
Chromium	24.7	mg/kg		0.3		SW6010B	12/15/15 14:40 / sld
Cobalt	8	mg/kg		1		SW6020	12/15/15 15:10 / dck
Copper	68	mg/kg		5		SW6010B	12/15/15 14:40 / sld
Iron	22400	mg/kg		5		SW6010B	12/15/15 14:40 / sld
Manganese	423	mg/kg		5		SW6010B	12/15/15 14:40 / sld
Selenium	0.8	mg/kg		0.5		SW6020	12/15/15 15:10 / dck
Silver	2.3	mg/kg		0.3		SW6020	12/15/15 15:10 / dck
Thallium	1.1	mg/kg		0.1		SW6020	12/15/15 15:10 / dck
Vanadium	59	mg/kg		1		SW6010B	12/15/15 14:40 / sld
Zinc	180	mg/kg		5		SW6010B	12/15/15 14:40 / sld
METALS, TOTAL							
Mercury	1.9	mg/kg		0.50		SW7471B	12/15/15 12:17 / AHN
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/22/15 12:41 / cmm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-023
Client Sample ID: P13-DU18-SS

Report Date: 12/28/15
Collection Date: 12/04/15 14:25
Date Received: 12/07/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	49	mg/kg	D	2		SW6010B	12/15/15 14:43 / sld
Lead	547	mg/kg	D	3		SW6010B	12/15/15 14:43 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15120100-024
Client Sample ID: P13-RB

Report Date: 12/28/15
Collection Date: 12/04/15 15:00
Date Received: 12/07/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	12/10/15 21:25 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/10/15 21:25 / dck
Barium	ND	mg/L		0.003		E200.8	12/10/15 21:25 / dck
Cadmium	ND	mg/L		0.00003		E200.8	12/16/15 22:10 / dck
Chromium	ND	mg/L		0.005		E200.8	12/10/15 21:25 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/10/15 21:25 / dck
Copper	ND	mg/L		0.002		E200.8	12/10/15 21:25 / dck
Iron	ND	mg/L		0.02		E200.8	12/10/15 21:25 / dck
Lead	ND	mg/L		0.0003		E200.8	12/10/15 21:25 / dck
Manganese	ND	mg/L		0.001		E200.8	12/15/15 07:00 / dck
Mercury	ND	mg/L		0.00001		E245.1	12/10/15 17:21 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	12/10/15 21:25 / dck
Silver	ND	mg/L		0.0002		E200.8	12/10/15 21:25 / dck
Thallium	ND	mg/L		0.0002		E200.8	12/10/15 21:25 / dck
Vanadium	ND	mg/L		0.01		E200.8	12/10/15 21:25 / dck
Zinc	ND	mg/L		0.008		E200.8	12/10/15 21:25 / dck

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_151215A		
Lab ID: ICV	10	Initial Calibration Verification Standard							12/15/15 10:16	
Arsenic		0.771	mg/L	0.011	96	90	110			
Barium		0.821	mg/L	0.10	103	90	110			
Cadmium		0.382	mg/L	0.0010	95	90	110			
Chromium		0.794	mg/L	0.010	99	90	110			
Copper		0.813	mg/L	0.010	102	90	110			
Iron		3.93	mg/L	0.020	98	90	110			
Lead		0.779	mg/L	0.019	97	90	110			
Manganese		3.92	mg/L	0.010	98	90	110			
Vanadium		0.789	mg/L	0.10	99	90	110			
Zinc		0.771	mg/L	0.010	96	90	110			
Lab ID: ICSA	10	Interference Check Sample A							12/15/15 10:31	
Arsenic		0.00153	mg/L	0.011		0	0			
Barium		0.000760	mg/L	0.10		0	0			
Cadmium		0.00360	mg/L	0.0010		0	0			
Chromium		0.0105	mg/L	0.010		0	0			
Copper		-0.000600	mg/L	0.010		0	0			
Iron		181	mg/L	0.020	91	80	120			
Lead		-0.0183	mg/L	0.019		0	0			
Manganese		-0.00380	mg/L	0.010		0	0			
Vanadium		-4.00E-05	mg/L	0.10		0	0			
Zinc		-0.00335	mg/L	0.010		0	0			
Lab ID: ICSAB	10	Interference Check Sample AB							12/15/15 10:35	
Arsenic		0.979	mg/L	0.011	98	80	120			
Barium		0.509	mg/L	0.10	102	80	120			
Cadmium		0.918	mg/L	0.0010	92	80	120			
Chromium		0.492	mg/L	0.010	98	80	120			
Copper		0.516	mg/L	0.010	103	80	120			
Iron		181	mg/L	0.020	91	80	120			
Lead		0.943	mg/L	0.019	94	80	120			
Manganese		0.481	mg/L	0.010	96	80	120			
Vanadium		0.485	mg/L	0.10	97	80	120			
Zinc		0.979	mg/L	0.010	98	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_151210A		
Lab ID: ICV STD	13	Initial Calibration Verification Standard								12/10/15 13:38
Antimony		0.0603	mg/L	0.050	101	90	110			
Arsenic		0.0601	mg/L	0.0050	100	90	110			
Barium		0.0609	mg/L	0.10	102	90	110			
Chromium		0.0611	mg/L	0.010	102	90	110			
Cobalt		0.0613	mg/L	0.010	102	90	110			
Copper		0.0625	mg/L	0.010	104	90	110			
Iron		0.316	mg/L	0.020	105	90	110			
Lead		0.0601	mg/L	0.010	100	90	110			
Selenium		0.0614	mg/L	0.0050	102	90	110			
Silver		0.0305	mg/L	0.0050	102	90	110			
Thallium		0.0602	mg/L	0.10	100	90	110			
Vanadium		0.0602	mg/L	0.10	100	90	110			
Zinc		0.0626	mg/L	0.010	104	90	110			
Lab ID: ICSA	13	Interference Check Sample A								12/10/15 13:42
Antimony		0.000310	mg/L	0.050						
Arsenic		0.000135	mg/L	0.0050						
Barium		0.000266	mg/L	0.10						
Chromium		0.00120	mg/L	0.010						
Cobalt		0.000172	mg/L	0.010						
Copper		7.10E-05	mg/L	0.010						
Iron		107	mg/L	0.020	107	70	130			
Lead		0.000396	mg/L	0.010						
Selenium		0.000456	mg/L	0.0050						
Silver		0.000210	mg/L	0.0050						
Thallium		0.000225	mg/L	0.10						
Vanadium		-0.000413	mg/L	0.10						
Zinc		0.00130	mg/L	0.010						
Lab ID: ICSAB	13	Interference Check Sample AB								12/10/15 13:45
Antimony		0.000178	mg/L	0.050		0	0			
Arsenic		0.0114	mg/L	0.0050	114	70	130			
Barium		0.000164	mg/L	0.10		0	0			
Chromium		0.0233	mg/L	0.010	117	70	130			
Cobalt		0.0223	mg/L	0.010	111	70	130			
Copper		0.0217	mg/L	0.010	108	70	130			
Iron		108	mg/L	0.020	108	70	130			
Lead		0.000307	mg/L	0.010		0	0			
Selenium		0.0118	mg/L	0.0050	118	70	130			
Silver		0.0214	mg/L	0.0050	107	70	130			
Thallium		8.90E-05	mg/L	0.10		0	0			
Vanadium		0.0219	mg/L	0.10	109	70	130			
Zinc		0.0117	mg/L	0.010	117	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151210A			
Lab ID: ICV STD	13	Initial Calibration Verification Standard							12/10/15 17:28		
Antimony		0.0596	mg/L	0.050	99	90	110				
Arsenic		0.0604	mg/L	0.0050	101	90	110				
Barium		0.0595	mg/L	0.10	99	90	110				
Chromium		0.0608	mg/L	0.010	101	90	110				
Cobalt		0.0615	mg/L	0.010	102	90	110				
Copper		0.0631	mg/L	0.010	105	90	110				
Iron		0.313	mg/L	0.020	104	90	110				
Lead		0.0598	mg/L	0.010	100	90	110				
Selenium		0.0609	mg/L	0.0050	102	90	110				
Silver		0.0305	mg/L	0.0050	102	90	110				
Thallium		0.0597	mg/L	0.10	99	90	110				
Vanadium		0.0597	mg/L	0.10	100	90	110				
Zinc		0.0624	mg/L	0.010	104	90	110				
Lab ID: ICSA	13	Interference Check Sample A							12/10/15 17:31		
Antimony		0.000322	mg/L	0.050							
Arsenic		1.80E-05	mg/L	0.0050							
Barium		0.000224	mg/L	0.10							
Chromium		0.00115	mg/L	0.010							
Cobalt		0.000161	mg/L	0.010							
Copper		0.000234	mg/L	0.010							
Iron		109	mg/L	0.020	109	70	130				
Lead		0.000383	mg/L	0.010							
Selenium		0.000230	mg/L	0.0050							
Silver		0.000156	mg/L	0.0050							
Thallium		0.000220	mg/L	0.10							
Vanadium		-0.00170	mg/L	0.10							
Zinc		0.00142	mg/L	0.010							
Lab ID: ICSAB	13	Interference Check Sample AB							12/10/15 17:34		
Antimony		0.000145	mg/L	0.050		0	0				
Arsenic		0.0111	mg/L	0.0050	111	70	130				
Barium		0.000161	mg/L	0.10		0	0				
Chromium		0.0230	mg/L	0.010	115	70	130				
Cobalt		0.0222	mg/L	0.010	111	70	130				
Copper		0.0218	mg/L	0.010	109	70	130				
Iron		108	mg/L	0.020	107	70	130				
Lead		0.000312	mg/L	0.010		0	0				
Selenium		0.0110	mg/L	0.0050	110	70	130				
Silver		0.0206	mg/L	0.0050	103	70	130				
Thallium		0.000127	mg/L	0.10		0	0				
Vanadium		0.0208	mg/L	0.10	104	70	130				
Zinc		0.0117	mg/L	0.010	117	70	130				

Method: E200.8

Batch: 31415

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8 Batch: 31415											
Lab ID: MB-31415	15 Method Blank			Run: ICPMS204-B_151210A				12/10/15 15:00			
Antimony		ND	mg/L	6E-05							
Arsenic		0.0002	mg/L	6E-05							
Barium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		0.004	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		0.004	mg/L	0.0001							
Zinc		ND	mg/L	0.002							
Lab ID: LCS-31415	15 Laboratory Control Sample			Run: ICPMS204-B_151210A				12/10/15 15:03			
Antimony		0.542	mg/L	0.0010	108	85	115				
Arsenic		0.527	mg/L	0.0010	105	85	115				
Barium		0.534	mg/L	0.050	107	85	115				
Cadmium		0.265	mg/L	0.0010	106	85	115				
Chromium		0.529	mg/L	0.0050	106	85	115				
Cobalt		0.517	mg/L	0.0050	103	85	115				
Copper		0.514	mg/L	0.0050	103	85	115				
Iron		2.58	mg/L	0.020	103	85	115				
Lead		0.521	mg/L	0.0010	104	85	115				
Manganese		2.59	mg/L	0.0010	103	85	115				
Selenium		0.522	mg/L	0.0010	104	85	115				
Silver		0.0521	mg/L	0.0010	104	85	115				
Thallium		0.523	mg/L	0.00050	105	85	115				
Vanadium		0.534	mg/L	0.010	106	85	115				
Zinc		0.517	mg/L	0.010	103	85	115				
Lab ID: H15120093-018CMS3	15 Sample Matrix Spike			Run: ICPMS204-B_151210A				12/10/15 20:54			
Antimony		1.05	mg/L	0.0010	105	70	130				
Arsenic		1.04	mg/L	0.0010	104	70	130				
Barium		1.04	mg/L	0.050	104	70	130				
Cadmium		0.518	mg/L	0.0010	104	70	130				
Chromium		1.06	mg/L	0.0050	106	70	130				
Cobalt		1.04	mg/L	0.0050	104	70	130				
Copper		1.04	mg/L	0.0050	104	70	130				
Iron		5.14	mg/L	0.020	103	70	130				
Lead		1.03	mg/L	0.0010	103	70	130				
Manganese		5.07	mg/L	0.0010	101	70	130				

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 31415										
Lab ID:	H15120093-018CMS3	15	Sample Matrix Spike							
						Run: ICPMS204-B_151210A				12/10/15 20:54
Selenium		1.01	mg/L	0.0010	101	70	130			
Silver		0.105	mg/L	0.0010	104	70	130			
Thallium		1.03	mg/L	0.00050	103	70	130			
Vanadium		1.07	mg/L	0.010	106	70	130			
Zinc		1.02	mg/L	0.010	102	70	130			
Lab ID:	H15120093-018CMSD	15	Sample Matrix Spike Duplicate							
						Run: ICPMS204-B_151210A				12/10/15 20:57
Antimony		1.06	mg/L	0.0010	106	70	130	0.7	20	
Arsenic		1.05	mg/L	0.0010	105	70	130	1.0	20	
Barium		1.05	mg/L	0.050	105	70	130	0.9	20	
Cadmium		0.523	mg/L	0.0010	105	70	130	1.0	20	
Chromium		1.06	mg/L	0.0050	106	70	130	0.2	20	
Cobalt		1.05	mg/L	0.0050	105	70	130	0.7	20	
Copper		1.03	mg/L	0.0050	103	70	130	1.2	20	
Iron		5.14	mg/L	0.020	103	70	130	0.0	20	
Lead		1.04	mg/L	0.0010	104	70	130	0.7	20	
Manganese		5.05	mg/L	0.0010	101	70	130	0.4	20	
Selenium		1.02	mg/L	0.0010	102	70	130	0.5	20	
Silver		0.105	mg/L	0.0010	105	70	130	0.4	20	
Thallium		1.04	mg/L	0.00050	104	70	130	0.9	20	
Vanadium		1.08	mg/L	0.010	107	70	130	1.0	20	
Zinc		1.02	mg/L	0.010	102	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151214B			
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/15/15 02:29	
Manganese		0.308	mg/L	0.010	103	90	110				
Zinc		0.0589	mg/L	0.010	98	90	110				
Lab ID: ICSA	2	Interference Check Sample A								12/15/15 02:32	
Manganese		0.000951	mg/L	0.010							
Zinc		-0.00108	mg/L	0.010							
Lab ID: ICSAB	2	Interference Check Sample AB								12/15/15 02:35	
Manganese		0.0211	mg/L	0.010	106	70	130				
Zinc		0.00921	mg/L	0.010	92	70	130				
Method: E200.8								Batch: 31415			
Lab ID: MB-31415	15	Method Blank								Run: ICPMS204-B_151214B 12/15/15 06:37	
Antimony		ND	mg/L	6E-05							
Arsenic		ND	mg/L	6E-05							
Barium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		ND	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		0.0007	mg/L	0.0001							
Zinc		ND	mg/L	0.002							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151216A			
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/16/15 19:05	
Cadmium		0.0308	mg/L	0.0010	103	90	110				
Iron		0.312	mg/L	0.020	104	90	110				
Lab ID: ICSA	2	Interference Check Sample A								12/16/15 19:08	
Cadmium		0.000603	mg/L	0.0010							
Iron		98.1	mg/L	0.020	98	70	130				
Lab ID: ICSAB	2	Interference Check Sample AB								12/16/15 19:11	
Cadmium		0.0103	mg/L	0.0010	103	70	130				
Iron		97.2	mg/L	0.020	97	70	130				
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/16/15 23:28	
Cadmium		0.0306	mg/L	0.0010	102	90	110				
Iron		0.313	mg/L	0.020	104	90	110				
Lab ID: ICSA	2	Interference Check Sample A								12/16/15 23:31	
Cadmium		0.00101	mg/L	0.0010							
Iron		98.1	mg/L	0.020	98	70	130				
Lab ID: ICSAB	2	Interference Check Sample AB								12/16/15 23:34	
Cadmium		0.0101	mg/L	0.0010	101	70	130				
Iron		99.2	mg/L	0.020	99	70	130				
Method: E200.8								Batch: 31415			
Lab ID: MB-31415	15	Method Blank								Run: ICPMS204-B_151216A 12/16/15 21:38	
Antimony		ND	mg/L	6E-05							
Arsenic		ND	mg/L	6E-05							
Barium		0.0001	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		0.0001	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		ND	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		0.0002	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		ND	mg/L	0.0001							
Zinc		ND	mg/L	0.002							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151217B			
Lab ID: ICV STD	Initial Calibration Verification Standard										
Cadmium		0.0309	mg/L	0.0010	103	90	110			12/17/15 23:03	
Lab ID: ICSA	Interference Check Sample A										
Cadmium		0.000360	mg/L	0.0010						12/17/15 23:06	
Lab ID: ICSAB	Interference Check Sample AB										
Cadmium		0.0101	mg/L	0.0010	101	70	130			12/17/15 23:09	
Method: E200.8								Batch: 31415			
Lab ID: MB-31415	15 Method Blank										
						Run: ICPMS204-B_151217B				12/18/15 11:03	
Antimony		ND	mg/L	6E-05							
Arsenic		ND	mg/L	6E-05							
Barium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	1E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	3E-05							
Copper		ND	mg/L	0.0002							
Iron		0.002	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0002							
Selenium		ND	mg/L	0.0004							
Silver		ND	mg/L	5E-05							
Thallium		ND	mg/L	9E-05							
Vanadium		0.0002	mg/L	0.0001							
Zinc		ND	mg/L	0.002							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1										Analytical Run: SUB-B253629
Lab ID: ICV		Initial Calibration Verification Standard								12/10/15 15:08
Mercury		0.000188	mg/L	1.0E-05	94	90	110			
Method: E245.1										Batch: B_95482
Lab ID: MB-95482		Method Blank								12/10/15 16:34
Mercury		1E-06	mg/L	1E-06						Run: SUB-B253629
Lab ID: LCS-95482		Laboratory Control Sample								12/10/15 16:37
Mercury		0.000188	mg/L	1.0E-05	93	85	115			Run: SUB-B253629
Lab ID: B15120766-024AMS		Sample Matrix Spike								12/10/15 17:24
Mercury		0.000196	mg/L	1.0E-05	97	70	130			Run: SUB-B253629
Lab ID: B15120766-024AMSD		Sample Matrix Spike Duplicate								12/10/15 17:26
Mercury		0.000196	mg/L	1.0E-05	97	70	130	0.0	30	Run: SUB-B253629
Lab ID: H15120093-010C		Sample Matrix Spike								12/10/15 16:42
Mercury		0.000208	mg/L	1.0E-05	92	70	130			Run: SUB-B253629
Lab ID: H15120093-010C		Sample Matrix Spike Duplicate								12/10/15 16:44
Mercury		0.000209	mg/L	1.0E-05	93	70	130	0.5	30	Run: SUB-B253629

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31459										
Lab ID: MB-31459	10	Method Blank					Run: ICP2-HE_151215A		12/15/15 12:15	
Arsenic		ND	mg/kg	0.4						
Barium		0.2	mg/kg	0.02						
Cadmium		ND	mg/kg	0.01						
Chromium		0.2	mg/kg	0.2						
Copper		ND	mg/kg	0.2						
Iron		4	mg/kg	0.6						
Lead		ND	mg/kg	0.6						
Manganese		0.08	mg/kg	0.02						
Vanadium		ND	mg/kg	0.1						
Zinc		0.3	mg/kg	0.09						
Lab ID: LFB-31459	10	Laboratory Fortified Blank					Run: ICP2-HE_151215A		12/15/15 12:19	
Arsenic		48.6	mg/kg	1.0	106	80	120			
Barium		50.0	mg/kg	1.0	109	80	120			
Cadmium		25.1	mg/kg	1.0	109	80	120			
Chromium		50.4	mg/kg	1.0	110	80	120			
Copper		48.4	mg/kg	1.0	105	80	120			
Iron		254	mg/kg	5.0	109	80	120			
Lead		50.3	mg/kg	1.0	110	80	120			
Manganese		244	mg/kg	1.0	106	80	120			
Vanadium		49.8	mg/kg	1.0	108	80	120			
Zinc		48.0	mg/kg	1.0	104	80	120			
Lab ID: LCS-31459	10	Laboratory Control Sample					Run: ICP2-HE_151215A		12/15/15 12:23	
Arsenic		162	mg/kg	1.8	83	71.4	105.1			
Barium		176	mg/kg	1.0	94	78.6	112.8			
Cadmium		93.1	mg/kg	1.0	94	73.9	106.1			
Chromium		110	mg/kg	1.0	94	73.5	108.5			
Copper		125	mg/kg	1.1	91	76.6	108.8			
Iron		16300	mg/kg	5.0	100	51.7	131.9			
Lead		109	mg/kg	3.1	104	74.4	108.6			
Manganese		421	mg/kg	1.0	97	81.1	116.6			
Vanadium		112	mg/kg	1.0	98	67	107			
Zinc		234	mg/kg	1.0	101	75.3	111.7			
Lab ID: H15120100-014APDS	10	Post Digestion/Distillation Spike					Run: ICP2-HE_151215A		12/15/15 13:36	
Arsenic		304	mg/kg	1.9	94	75	125			
Barium		445	mg/kg	1.0	105	75	125			
Cadmium		132	mg/kg	1.0	89	75	125			
Chromium		273	mg/kg	1.0	93	75	125			
Copper		333	mg/kg	1.2	100	75	125			
Iron		23600	mg/kg	5.0		75	125			A
Lead		670	mg/kg	3.4	92	75	125			
Manganese		1610	mg/kg	1.0	92	75	125			
Vanadium		316	mg/kg	1.0	94	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust

Report Date: 12/28/15

Project: 10022 Supplemental RFI Soil Sampling

Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31459										
Lab ID: H15120100-014APDS	10	Post Digestion/Distillation Spike					Run: ICP2-HE_151215A			12/15/15 13:36
Zinc		396	mg/kg	1.0	92	75	125			
Lab ID: H15120100-014AMS	10	Sample Matrix Spike					Run: ICP2-HE_151215A			12/15/15 13:40
Arsenic		103	mg/kg	1.9	99	75	125			
Barium		234	mg/kg	1.0	134	75	125			S
Cadmium		37.2	mg/kg	1.0	96	75	125			
Chromium		77.9	mg/kg	1.0	103	75	125			
Copper		125	mg/kg	1.1	117	75	125			
Iron		22700	mg/kg	5.0		75	125			A
Lead		473	mg/kg	3.3		75	125			A
Manganese		649	mg/kg	1.0	106	75	125			
Vanadium		122	mg/kg	1.0	113	75	125			
Zinc		204	mg/kg	1.0	104	75	125			
Lab ID: H15120100-014AMSD	10	Sample Matrix Spike Duplicate					Run: ICP2-HE_151215A			12/15/15 13:44
Arsenic		106	mg/kg	1.9	103	75	125	2.8	20	
Barium		237	mg/kg	1.0	136	75	125	1.0	20	S
Cadmium		39.4	mg/kg	1.0	102	75	125	5.8	20	
Chromium		79.1	mg/kg	1.0	103	75	125	1.6	20	
Copper		126	mg/kg	1.2	118	75	125	1.0	20	
Iron		22800	mg/kg	5.0		75	125	0.4	20	A
Lead		509	mg/kg	3.4		75	125	7.3	20	A
Manganese		661	mg/kg	1.0	108	75	125	1.8	20	
Vanadium		121	mg/kg	1.0	109	75	125	0.8	20	
Zinc		212	mg/kg	1.0	117	75	125	4.0	20	
Lab ID: H15120100-014APDS	10	Post Digestion/Distillation Spike					Run: ICP2-HE_151215A			12/15/15 19:07
Arsenic		542	mg/kg	3.9	92	75	125			
Barium		663	mg/kg	1.0	94	75	125			
Cadmium		245	mg/kg	1.0	87	75	125			
Chromium		519	mg/kg	1.0	92	75	125			
Copper		559	mg/kg	2.4	93	75	125			
Iron		24600	mg/kg	6.3		75	125			A
Lead		876	mg/kg	6.8	86	75	125			
Manganese		2730	mg/kg	1.0	88	75	125			
Vanadium		536	mg/kg	1.6	89	75	125			
Zinc		649	mg/kg	1.0	92	75	125			
Lab ID: H15120100-014AMS	10	Sample Matrix Spike					Run: ICP2-HE_151215A			12/15/15 19:11
Arsenic		99.9	mg/kg	3.8	92	75	125			
Barium		225	mg/kg	1.0	124	75	125			
Cadmium		36.8	mg/kg	1.0	93	75	125			
Chromium		82.1	mg/kg	1.0	108	75	125			
Copper		119	mg/kg	2.3	108	75	125			
Iron		22600	mg/kg	6.1		75	125			A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 31459
Lab ID:	H15120100-014AMS	10 Sample Matrix Spike					Run: ICP2-HE_151215A			12/15/15 19:11
Lead		462	mg/kg	6.6		75	125			A
Manganese		641	mg/kg	1.0	101	75	125			
Vanadium		115	mg/kg	1.5	104	75	125			
Zinc		212	mg/kg	1.0	108	75	125			
Lab ID:	H15120100-014AMSD	10 Sample Matrix Spike Duplicate					Run: ICP2-HE_151215A			12/15/15 19:14
Arsenic		106	mg/kg	3.8	101	75	125	5.7	20	
Barium		224	mg/kg	1.0	120	75	125	0.4	20	
Cadmium		39.5	mg/kg	1.0	101	75	125	7.2	20	
Chromium		81.4	mg/kg	1.0	104	75	125	0.9	20	
Copper		122	mg/kg	2.3	111	75	125	2.3	20	
Iron		23100	mg/kg	6.2		75	125	2.0	20	A
Lead		496	mg/kg	6.8		75	125	7.1	20	A
Manganese		665	mg/kg	1.0	108	75	125	3.7	20	
Vanadium		119	mg/kg	1.6	110	75	125	3.6	20	
Zinc		221	mg/kg	1.0	122	75	125	3.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020								Analytical Run: ICPMS204-B_151214A		
Lab ID: ICV STD	5	Initial Calibration Verification Standard								12/14/15 14:09
Antimony		0.0599	mg/L	0.0010	100	90	110			
Cobalt		0.0613	mg/L	0.0010	102	90	110			
Selenium		0.0606	mg/L	0.0010	101	90	110			
Silver		0.0308	mg/L	0.0010	103	90	110			
Thallium		0.0590	mg/L	0.0010	98	90	110			
Lab ID: ICV STD	5	Initial Calibration Verification Standard								12/15/15 02:29
Antimony		0.0602	mg/L	0.0010	100	90	110			
Cobalt		0.0616	mg/L	0.0010	103	90	110			
Selenium		0.0609	mg/L	0.0010	101	90	110			
Silver		0.0310	mg/L	0.0010	103	90	110			
Thallium		0.0598	mg/L	0.0010	100	90	110			
Lab ID: ICV STD	5	Initial Calibration Verification Standard								12/15/15 09:36
Antimony		0.0596	mg/L	0.0010	99	90	110			
Cobalt		0.0614	mg/L	0.0010	102	90	110			
Selenium		0.0603	mg/L	0.0010	100	90	110			
Silver		0.0304	mg/L	0.0010	101	90	110			
Thallium		0.0588	mg/L	0.0010	98	90	110			
Method: SW6020								Batch: 31459		
Lab ID: MB-31459	5	Method Blank						Run: ICPMS204-B_151214A		12/15/15 13:27
Antimony		ND	mg/kg	0.07						
Cobalt		ND	mg/kg	0.03						
Selenium		ND	mg/kg	0.2						
Silver		ND	mg/kg	0.05						
Thallium		ND	mg/kg	0.08						
Lab ID: LCS-31459	5	Laboratory Control Sample						Run: ICPMS204-B_151214A		12/15/15 13:30
Antimony		63.4	mg/kg	1.0	26	0	92.9			
Cobalt		110	mg/kg	1.0	102	74.2	105.6			
Selenium		200	mg/kg	1.0	97	71.2	110.2			
Silver		41.0	mg/kg	1.0	97	70.8	111.9			
Thallium		94.3	mg/kg	1.0	95	71.4	107.9			
Lab ID: LFB-31459	5	Laboratory Fortified Blank						Run: ICPMS204-B_151214A		12/15/15 13:33
Antimony		48.5	mg/kg	1.0	106	80	120			
Cobalt		50.0	mg/kg	1.0	109	80	120			
Selenium		52.1	mg/kg	1.0	114	80	120			
Silver		25.0	mg/kg	1.0	109	80	120			
Thallium		50.4	mg/kg	1.0	110	80	120			
Lab ID: H15120100-014APDS	5	Post Digestion/Distillation Spike						Run: ICPMS204-B_151214A		12/15/15 14:36
Antimony		522	mg/kg	1.0	100	75	125			
Cobalt		496	mg/kg	1.0	94	75	125			
Selenium		511	mg/kg	1.0	98	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020 Batch: 31459										
Lab ID: H15120100-014APDS	5	Post Digestion/Distillation Spike					Run: ICPMS204-B_151214A			12/15/15 14:36
Silver		227	mg/kg	1.0	87	75	125			
Thallium		485	mg/kg	1.0	93	75	125			
Lab ID: H15120100-014AMS	5	Sample Matrix Spike					Run: ICPMS204-B_151214A			12/15/15 14:39
Antimony		26.8	mg/kg	1.0	48	75	125			S
Cobalt		69.2	mg/kg	1.0	119	75	125			
Selenium		63.9	mg/kg	1.0	122	75	125			
Silver		32.5	mg/kg	1.0	118	75	125			
Thallium		64.5	mg/kg	1.0	123	75	125			
Lab ID: H15120100-014AMSD	5	Sample Matrix Spike Duplicate					Run: ICPMS204-B_151214A			12/15/15 14:42
Antimony		20.4	mg/kg	1.0	35	75	125	27	20	SR
Cobalt		63.0	mg/kg	1.0	105	75	125	9.4	20	
Selenium		58.8	mg/kg	1.0	110	75	125	8.2	20	
Silver		30.7	mg/kg	1.0	109	75	125	5.6	20	
Thallium		56.0	mg/kg	1.0	104	75	125	14	20	

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW7196A								Analytical Run: SPECTRO_151222A			
Lab ID: ICV_09172015	Initial Calibration Verification Standard										
Chromium, Hexavalent		0.0971	mg/L	0.010	97	90	110			12/22/15 12:41	
Lab ID: CCV2_151215A								Continuing Calibration Verification Standard			
Chromium, Hexavalent		0.104	mg/L	0.010	104	90	110			12/22/15 13:18	
Method: SW7196A								Batch: 31554			
Lab ID: MBLK1_150120A	Method Blank										
Chromium, Hexavalent		ND	mg/L	0.005				Run: SPECTRO_151222A		12/22/15 12:41	
Lab ID: H15120100-008ADUP	Sample Duplicate										
Chromium, Hexavalent - Soluble		8.9	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41	
Lab ID: H15120100-013ADUP	Sample Duplicate										
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41	
Lab ID: H15120100-014ADUP	Sample Duplicate										
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41	
Lab ID: H15120100-015ADUP	Sample Duplicate										
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41	
Lab ID: H15120100-022ADUP	Sample Duplicate										
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0				Run: SPECTRO_151222A		12/22/15 12:41	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/28/15
Work Order: H15120100

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW7471B								Analytical Run: HGCV201-H_151215A			
Lab ID: ICV		Initial Calibration Verification Standard								12/15/15 09:44	
Mercury		0.0010	mg/kg	0.50	102	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/15/15 09:46	
Mercury		0.0024	mg/kg	0.50	96	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/15/15 12:05	
Mercury		0.0024	mg/kg	0.50	97	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/15/15 12:19	
Mercury		0.0024	mg/kg	0.50	97	90	110				
Method: SW7471B								Batch: 31460			
Lab ID: MB-31460		Method Blank								Run: HGCV201-H_151215A 12/15/15 10:26	
Mercury		ND	mg/kg	0.010							
Lab ID: LCS-31460		Laboratory Control Sample								Run: HGCV201-H_151215A 12/15/15 10:28	
Mercury		5.9	mg/kg	0.50	118	71	126.4				
Lab ID: LFB-31460		Laboratory Fortified Blank								Run: HGCV201-H_151215A 12/15/15 10:30	
Mercury		1.1	mg/kg	0.50	107	80	120				
Lab ID: H15120100-014AMS		Sample Matrix Spike								Run: HGCV201-H_151215A 12/15/15 10:44	
Mercury		2.0	mg/kg	0.50	73	80	120			S	
Lab ID: H15120100-014AMSD		Sample Matrix Spike Duplicate								Run: HGCV201-H_151215A 12/15/15 10:46	
Mercury		2.3	mg/kg	0.50	106	80	120	15	20		
Lab ID: H15120093-038AMS		Sample Matrix Spike								Run: HGCV201-H_151215A 12/15/15 11:25	
Mercury		1.7	mg/kg-dry	0.50	109	80	120				
Lab ID: H15120093-038AMSD		Sample Matrix Spike Duplicate								Run: HGCV201-H_151215A 12/15/15 12:01	
Mercury		1.6	mg/kg-dry	0.50	108	80	120	1.3	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



Work Order Receipt Checklist

Montana Environmental Custodial Trust

H15120100

Login completed by: Wanda Johnson

Date Received: 12/7/2015

Reviewed by: BL2000\rwilliams

Received by: bjs

Reviewed Date: 12/9/2015

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	5.9°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Samples 002 & 015 time estimated in the laboratory. Per Jamie no Hex Chromium to be analyzed due to no unpreserved sample received for waters. wj 12/7/15

CHAIN OF CUSTODY RECORD



Hydrometrics, Inc.
 3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF / RAW	Nutrients UF / H ₂ SO ₄	Dis. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	Total Recoverable Metals UF / HNO ₃	BTEX	TPH	Total As, Pb COPCs	REMARKS		
11/21/15	1215	X		P14-DU3-SS	01										HIS RPT 001		
		X		P14-FD1-SS	01										002		
		X		P14-DU4-SS	01										003		
		X		P14-DU5-SS	01										004		
		X		P14-DU6-SS	01										005		
11/21/15	1615		X	P14-RB1	01										006		
11/22/15	0955		X	P14-AFB	01										007		
	1025	X		P14-DU7-SS	01										008		
	1105	X		P14-DU8-SS	01										009		
	1140	X		P14-DU9-SS	01										010		
	1225	X		P14-DU10-SS	01										011		
	1250	X		P14-DU11-SS	01										012		
	1345	X		P14-DU12-SS	01										013		
11/22/15	1335	X		P14-DU12-SS	01										014		
Relinquished (Signature) <i>[Signature]</i>					Date / Time	Received by (Signature)	Lab 5.9 cooling ice								P.O. #	Shipped via: Bus FedEx UPS	
Relinquished (Signature) <i>[Signature]</i>					12/1/15	1125		Send invoice to Jen Roberts, METG								See Roberts	Other <i>[Signature]</i> kind-deliver
Relinquished (Signature)					Date / Time	Received for Laboratory by (Signature)	Remarks										
Relinquished (Signature)					12/1/15	1125	<i>[Signature]</i>										

HF0RM-1 07/11
 Action Print 406-442-7396

Return results & electronic copy to:
 QA / QC Dept. at address at top of page

Enclosed: Parameter sheet w/detection limits
 QA / AC standard mixing instructions Cover letter
 Other

Split Samples: Accepted Declined

Signature _____

CHAIN OF CUSTODY RECORD



Hydrometrics, Inc.
 3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H ₂ SO ₄	Diss. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	Total Recoverable Metals UF / HNO ₃	BTEX	TPH	Total As, Pb COPCS	REMARKS
11/22/15	—	X		P14-ED2-SS	01										H15120100-05
11/22/15	1550		X	P14-RB2	01										-014
12/14/15	1045		X	P13-AFB	01										-017
		X		P13-DU13-SS	01										-018
		X		P13-DU14-SS	01										019
		X		P13-DU15-SS	01										020
		X		P13-DU16-SS	01										021
		X		P13-DU17-SS	01										022
		X		P13-DU18-SS	01										023
12/14/15	1500		X	P13-RB	01										024

PROJ. NO. 10022 PROJECT NAME Supplemental RFI Soil Sampling
 SAMPLERS: (Signature) *[Signature]*

Relinquished (Signature) *[Signature]* Date / Time 12/14/15 1125 Received by (Signature) *[Signature]*

Relinquished (Signature) *[Signature]* Date / Time *[Blank]* Received by (Signature) *[Blank]*

Relinquished (Signature) *[Blank]* Date / Time *[Blank]* Received for Laboratory by (Signature) *[Signature]*

Received by (Signature) *[Signature]* Date / Time 12/11/15 11:25 Remarks Lab 5.9 cobalt line hand del. Send invoice to Jen Roberts, METG

Enclosed: Parameter sheet w/detection limits
 QA / AC standard mixing instructions
 Cover letter

Split Samples: Accepted Declined

Signature *[Blank]*



December 7, 2015

Energy Laboratories, Inc.
3161 East Lyndale Avenue
Helena, Montana 59601

RE: November 21-22 and December 4, 2015 East Helena Supplemental RFI Soil Sampling Samples

Jon,

This letter accompanies:

- thirteen (13) Parcel 14 soil samples,
- two (2) Parcel 14 rinsate blank samples,
- one (1) Parcel 14 ambient field blank sample,
- six (6) Parcel 13 soil samples,
- one (1) Parcel 13 rinsate blank sample, and
- one (1) Parcel 13 ambient field blank sample

Samples were collected November 21-22, 2015 (Parcel 14) and December 4, 2015 (Parcel 13) for the 2015 East Helena Supplemental RFI Soil Sampling program. The samples should be analyzed per the accompanying Chain of Custody forms and parameters list. Analytical reports should be sent to Linda Tangen and to my attention at Hydrometrics. The invoice for these analyses should be forwarded to Jen Roberts at METG. Please feel free to call if you have any questions.

Sincerely,

Jamie Poell
Environmental Scientist

Enclosures

Table 3-1

Regional Screening Levels - Soil and Sediment

East Helena Facility supplemental RFI Sampling and Analysis Plan, East Helena, Montana

Constituent	Resident Soil RSL (mg/kg)		Industrial Soil RSL (mg/kg)		Background (mg/kg)		Laboratory Reporting Limits*
	P2RFI	June 2015	P2RFI	June 2015	P2RFI	Sept 2013 ^a	
Antimony	31	31	410	470	0.66	0.4	0.1
Arsenic	0.39	0.68	1.6	3	17	22.5	0.2
Barium	15000	15000	190000	220000	NA	429	5
Cadmium	70	71	800	980	0.24	0.7	0.1
Chromium ^b	0.29	0.3	5.6	6.3	NA	41.7	0.3
Hex Chromium							0.3
Cobalt	23	23	300	350	NA	10	1
Copper	3100	3100	41000	47000	16	165	5
Iron	55000	55000	720000	820000	15000	24400	5
Lead	400	400	800	800	12	29.8	1
Manganese	1800	1800	23000	26000	340	880	5
Mercury	5.6	7.8	34	40	0.08	NC	0.05
Selenium	390	390	5100	5800	0.07	0.7	0.5
Silver	390	390	5100	5800	NA	0.3	0.3
Thallium ^c	NA	0.78	NA	120	NA	0.41	0.1
Vanadium ^d	5.5	390	72	5800	NA	52.6	1
Zinc	23000	23000	310000	350000	47	118	5

Notes:

NC - not calculated

RSL = U.S. Environmental Protection Agency Regional Screening Level

RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for residential exposure scenario.

RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for industrial exposure scenario.

mg/kg = milligrams per kilogram

NA = not applicable

P2RFI = Phase II RFI; Values were presented in Table 4-2 and summarized as follows:

RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for residential exposure scenario.

RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for industrial exposure scenario.

Background Concentrations for Inorganics in Soil, December 2007, MDEQ.

RFI = RCRA Facility Investigation

RCRA = Resource Conservation and Recovery Act

^a Project Report Background Concentrations of Inorganic Constituents in Montana Surface Soils Prepared for Montana Department of Environmental Quality (MDEQ), Prepared by Hydrometrics, Inc.

^b Chromium RSLs are based on the lower of the chromium III or chromium VI values.

^c Thallium RSLs are based on the values for thallium (soluble salts).

^d 2010 vanadium values were based on the lowest (metallic vanadium) value that is not in the June 2015 RSL table; the lowest 2015 resident vanadium RSL (vanadium and compounds) was used.

Project screening levels by media

* All limits are based off no matrix interference. RL could be raised due to matrix interference.



ANALYTICAL SUMMARY REPORT

December 29, 2015

Montana Environmental Custodial Trust
Gallusha, Higgins, Gallusha
Helena, MT 59601

Work Order: H15110258 Quote ID: H1089 - Metals Soil Sampling Spring 2015
Project Name: 10022 Supplemental RFI Soil Sampling

Energy Laboratories Inc Helena MT received the following 26 samples for Montana Environmental Custodial Trust on 11/13/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H15110258-001	2a-1-SD	11/11/15 8:10	11/13/15	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves Soil Preparation
H15110258-002	2a-2-SD	11/11/15 8:45	11/13/15	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves
H15110258-003	2a-3-SD	11/11/15 8:30	11/13/15	Sediment	Same As Above
H15110258-004	2a-4-SD	11/11/15 9:00	11/13/15	Sediment	Same As Above
H15110258-005	2a-4-MS/MSD	11/11/15 9:00	11/13/15	Sediment	Same As Above
H15110258-006	2a-FD1-SD	11/11/15 9:00	11/13/15	Sediment	Same As Above
H15110258-007	2a-5-SD	11/11/15 9:20	11/13/15	Sediment	Same As Above
H15110258-008	2a-6-SD	11/11/15 9:35	11/13/15	Sediment	Same As Above
H15110258-009	2a-7-SD	11/11/15 9:45	11/13/15	Sediment	Same As Above
H15110258-010	2a-8-SD	11/11/15 10:00	11/13/15	Sediment	Same As Above
H15110258-011	2a-9-SD	11/11/15 10:10	11/13/15	Sediment	Same As Above
H15110258-012	2a-10-SD	11/11/15 10:20	11/13/15	Sediment	Same As Above
H15110258-013	2a-11-SD	11/11/15 10:35	11/13/15	Sediment	Same As Above
H15110258-014	23-1-SD	11/11/15 10:55	11/13/15	Sediment	Same As Above
H15110258-015	23-2-SD	11/11/15 11:15	11/13/15	Sediment	Same As Above
H15110258-016	23-3-SD	11/11/15 11:35	11/13/15	Sediment	Same As Above
H15110258-017	23-3-MS/MSD	11/11/15 11:35	11/13/15	Sediment	Same As Above
H15110258-018	23-FD1-SD	11/11/15 11:35	11/13/15	Sediment	Same As Above
H15110258-019	23-4-SD	11/11/15 11:55	11/13/15	Sediment	Same As Above
H15110258-020	23-5-SD	11/11/15 12:15	11/13/15	Sediment	Same As Above
H15110258-021	P8E-AFB	11/12/15 8:45	11/13/15	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Mercury by CVAA



ANALYTICAL SUMMARY REPORT

H15110258-022	P8E-DU1-SS	11/12/15 10:45	11/13/15	Soil	Metals by ICP/ICPMS, Total Digestion, Total Metals Sieves Soil Preparation
H15110258-023	P8E-DU2-SS	11/12/15 12:00	11/13/15	Soil	Metals by ICP/ICPMS, Total Chromium, Hexavalent Water Extraction for Hex Chromium Mercury in Solid By CVAA Digestion, Total Metals Digestion, Mercury by CVAA Sieves Soil Preparation
H15110258-024	P8E-RB	11/12/15 12:30	11/13/15	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Mercury by CVAA
H15110258-025	P2a-AFB	11/13/15 6:50	11/13/15	Aqueous	Metals by ICP/ICPMS, Total Metals Digestion by EPA 200.2
H15110258-026	P2a-RB	11/13/15 13:45	11/13/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2015.12.29 11:02:01 -07:00



CLIENT: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Work Order: H15110258

Revised Date: 12/29/15

Report Date: 12/09/15

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Samples were received by the laboratory. Each sample was carefully placed in a plastic lined pan and allowed to air dry at ambient temperatures. Aggregated clumps were reduced and the samples were mixed in the pans to facilitate complete drying. Once dry, samples were mixed further, then disaggregated with a ceramic mortar and pestle, and passed through a No. 10 (2mm) sieve, coarse fragments that were retained on the sieve (>2mm) were discarded. Samples then underwent further particle size reduction with the use of a ceramic-plate pulverizer, no sample was discarded prior to this point. Samples were then split for metals analysis; using a riffle splitter, the samples were continuously split until the final subsample was reduced in volume to fit in a 4oz amber soil jar. Samples were stored in said jars until they were digested for metals analysis. stp 12/9/15

Jamie Poell contacted laboratory stating ID's for sample 022 & 024 were incorrect. They should be "P8E-DU1-SS & P8E-RB", the correction has been made. The QC did not change on this report. wj 12/29/15



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-001
Client Sample ID: 2a-1-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 08:10
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	12	mg/kg	D	2		SW6010B	12/02/15 18:57 / sld
Lead	83	mg/kg	D	3		SW6010B	12/02/15 18:57 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-002
Client Sample ID: 2a-2-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 08:45
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	54	mg/kg	D	2		SW6010B	12/02/15 19:00 / sld
Lead	402	mg/kg	D	3		SW6010B	12/02/15 19:00 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-003
Client Sample ID: 2a-3-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 08:30
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	21	mg/kg	D	2		SW6010B	12/02/15 19:04 / sld
Lead	132	mg/kg	D	3		SW6010B	12/02/15 19:04 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-004
Client Sample ID: 2a-4-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:00
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	33	mg/kg	D	2		SW6010B	12/02/15 19:08 / sld
Lead	177	mg/kg	D	3		SW6010B	12/02/15 19:08 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-005
Client Sample ID: 2a-4-MS/MSD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:00
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	29	mg/kg	D	2		SW6010B	12/02/15 19:11 / sld
Lead	237	mg/kg	D	3		SW6010B	12/08/15 10:34 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-006
Client Sample ID: 2a-FD1-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:00
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	27	mg/kg	D	2		SW6010B	12/02/15 19:37 / sld
Lead	284	mg/kg	D	3		SW6010B	12/08/15 10:52 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-007
Client Sample ID: 2a-5-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:20
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	18	mg/kg	D	2		SW6010B	12/02/15 19:41 / sld
Lead	85	mg/kg	D	3		SW6010B	12/02/15 19:41 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-008
Client Sample ID: 2a-6-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:35
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	20	mg/kg	D	2		SW6010B	12/02/15 19:45 / sld
Lead	139	mg/kg	D	3		SW6010B	12/02/15 19:45 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-009
Client Sample ID: 2a-7-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 09:45
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	46	mg/kg	D	2		SW6010B	12/02/15 19:48 / sld
Lead	306	mg/kg	D	3		SW6010B	12/08/15 11:04 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-010
Client Sample ID: 2a-8-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 10:00
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	20	mg/kg	D	2		SW6010B	12/02/15 19:52 / sld
Lead	106	mg/kg	D	3		SW6010B	12/02/15 19:52 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-011
Client Sample ID: 2a-9-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 10:10
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	33	mg/kg	D	2		SW6010B	12/02/15 19:56 / sld
Lead	188	mg/kg	D	3		SW6010B	12/02/15 19:56 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-012
Client Sample ID: 2a-10-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 10:20
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	26	mg/kg	D	2		SW6010B	12/02/15 19:59 / sld
Lead	138	mg/kg	D	3		SW6010B	12/02/15 19:59 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-013
Client Sample ID: 2a-11-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 10:35
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	32	mg/kg	D	2		SW6010B	12/02/15 20:03 / sld
Lead	201	mg/kg	D	3		SW6010B	12/02/15 20:03 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-014
Client Sample ID: 23-1-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 10:55
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	25	mg/kg	D	2		SW6010B	12/02/15 20:14 / sld
Lead	150	mg/kg	D	3		SW6010B	12/02/15 20:14 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-015
Client Sample ID: 23-2-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 11:15
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	15	mg/kg	D	2		SW6010B	12/02/15 20:18 / sld
Lead	83	mg/kg	D	3		SW6010B	12/02/15 20:18 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-016
Client Sample ID: 23-3-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 11:35
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	20	mg/kg	D	2		SW6010B	12/02/15 20:22 / sld
Lead	91	mg/kg	D	3		SW6010B	12/02/15 20:22 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-017
Client Sample ID: 23-3-MS/MSD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 11:35
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	19	mg/kg	D	2		SW6010B	12/02/15 20:36 / sld
Lead	110	mg/kg	D	3		SW6010B	12/02/15 20:36 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-018
Client Sample ID: 23-FD1-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 11:35
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	20	mg/kg	D	2		SW6010B	12/08/15 11:07 / sld
Lead	95	mg/kg	D	3		SW6010B	12/02/15 21:02 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-019
Client Sample ID: 23-4-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 11:55
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	19	mg/kg	D	2		SW6010B	12/02/15 21:06 / sld
Lead	152	mg/kg	D	3		SW6010B	12/02/15 21:06 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-020
Client Sample ID: 23-5-SD

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/11/15 12:15
Date Received: 11/13/15
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	10	mg/kg		1		SW6020	12/03/15 19:17 / dck
Lead	47	mg/kg	D	3		SW6010B	12/08/15 11:11 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-021
Client Sample ID: P8E-AFB

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/12/15 08:45
Date Received: 11/13/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	11/18/15 19:25 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/15 19:25 / dck
Barium	ND	mg/L		0.003		E200.8	11/18/15 19:25 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/15 19:25 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/15 19:25 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/15 19:25 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/15 19:25 / dck
Iron	ND	mg/L		0.02		E200.8	11/18/15 19:25 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/15 19:25 / dck
Manganese	ND	mg/L		0.001		E200.8	11/18/15 19:25 / dck
Mercury	ND	mg/L		0.00001		E245.1	11/23/15 15:59 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	11/18/15 19:25 / dck
Silver	ND	mg/L		0.0002		E200.8	11/18/15 19:25 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/15 19:25 / dck
Vanadium	ND	mg/L		0.01		E200.8	11/18/15 19:25 / dck
Zinc	ND	mg/L		0.008		E200.8	11/18/15 19:25 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-022
Client Sample ID: P8E-DU1-SS

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/12/15 10:45
Date Received: 11/13/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Arsenic	186	mg/kg	D	2		SW6010B	12/02/15 21:13 / sld
Lead	2010	mg/kg	D	3		SW6010B	12/02/15 21:13 / sld

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-023
Client Sample ID: P8E-DU2-SS

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/12/15 12:00
Date Received: 11/13/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
3050 EXTRACTABLE METALS							
Antimony	5.5	mg/kg		0.1		SW6020	12/03/15 19:21 / dck
Arsenic	118	mg/kg	D	2		SW6010B	12/02/15 21:17 / sld
Barium	175	mg/kg		5		SW6020	12/03/15 19:21 / dck
Cadmium	35.5	mg/kg		0.1		SW6010B	12/02/15 21:17 / sld
Chromium	23.4	mg/kg		0.3		SW6010B	12/02/15 21:17 / sld
Cobalt	8	mg/kg		1		SW6020	12/03/15 19:21 / dck
Copper	136	mg/kg		5		SW6010B	12/02/15 21:17 / sld
Iron	22500	mg/kg		5		SW6010B	12/02/15 21:17 / sld
Lead	1290	mg/kg	D	3		SW6010B	12/02/15 21:17 / sld
Manganese	603	mg/kg		5		SW6010B	12/02/15 21:17 / sld
Selenium	1.4	mg/kg		0.5		SW6020	12/03/15 19:21 / dck
Silver	5.9	mg/kg		0.3		SW6020	12/03/15 19:21 / dck
Thallium	1.6	mg/kg		0.1		SW6020	12/03/15 19:21 / dck
Vanadium	46	mg/kg		1		SW6010B	12/02/15 21:17 / sld
Zinc	407	mg/kg		5		SW6010B	12/02/15 21:17 / sld
METALS, TOTAL							
Mercury	5.0	mg/kg	D	0.97		SW7471B	11/19/15 10:37 / rgk
TOTAL METALS ANALYSES							
Chromium, Hexavalent - Soluble	ND	mg/kg		1.0		SW7196A	12/08/15 20:09 / cmm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-024
Client Sample ID: P8E-RB

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/12/15 12:30
Date Received: 11/13/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Antimony	ND	mg/L		0.0005		E200.8	11/18/15 19:28 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/15 19:28 / dck
Barium	ND	mg/L		0.003		E200.8	11/18/15 19:28 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/15 19:28 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/15 19:28 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/15 19:28 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/15 19:28 / dck
Iron	ND	mg/L		0.02		E200.8	11/18/15 19:28 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/15 19:28 / dck
Manganese	ND	mg/L		0.001		E200.8	11/18/15 19:28 / dck
Mercury	ND	mg/L		0.00001		E245.1	11/23/15 16:01 / eli-b40
Selenium	ND	mg/L		0.001		E200.8	11/18/15 19:28 / dck
Silver	ND	mg/L		0.0002		E200.8	11/18/15 19:28 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/15 19:28 / dck
Vanadium	ND	mg/L		0.01		E200.8	11/18/15 19:28 / dck
Zinc	ND	mg/L		0.008		E200.8	11/18/15 19:28 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-025
Client Sample ID: P2a-AFB

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/13/15 06:50
Date Received: 11/13/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	11/18/15 19:41 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/15 19:41 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling
Lab ID: H15110258-026
Client Sample ID: P2a-RB

Revised Date: 12/29/15
Report Date: 12/09/15
Collection Date: 11/13/15 13:45
Date Received: 11/13/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	ND	mg/L		0.001		E200.8	11/18/15 19:57 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/15 19:57 / dck

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7		Analytical Run: ICP2-HE_151202B								
Lab ID: ICV	9	Initial Calibration Verification Standard								12/02/15 09:29
Arsenic		0.782	mg/L	0.011	98	90	110			
Cadmium		0.383	mg/L	0.0010	96	90	110			
Chromium		0.789	mg/L	0.010	99	90	110			
Copper		0.797	mg/L	0.010	100	90	110			
Iron		3.97	mg/L	0.020	99	90	110			
Lead		0.749	mg/L	0.019	94	90	110			
Manganese		3.92	mg/L	0.010	98	90	110			
Vanadium		0.792	mg/L	0.10	99	90	110			
Zinc		0.793	mg/L	0.010	99	90	110			
Lab ID: ICSA	9	Interference Check Sample A								12/02/15 09:44
Arsenic		-0.0106	mg/L	0.011		0	0			
Cadmium		0.00243	mg/L	0.0010		0	0			
Chromium		0.0128	mg/L	0.010		0	0			
Copper		-0.00220	mg/L	0.010		0	0			
Iron		185	mg/L	0.020	93	80	120			
Lead		0.00361	mg/L	0.019		0	0			
Manganese		-0.00111	mg/L	0.010		0	0			
Vanadium		0.00468	mg/L	0.10		0	0			
Zinc		-0.00126	mg/L	0.010		0	0			
Lab ID: ICSAB	9	Interference Check Sample AB								12/02/15 09:48
Arsenic		0.969	mg/L	0.011	97	80	120			
Cadmium		0.899	mg/L	0.0010	90	80	120			
Chromium		0.480	mg/L	0.010	96	80	120			
Copper		0.524	mg/L	0.010	105	80	120			
Iron		185	mg/L	0.020	92	80	120			
Lead		0.899	mg/L	0.019	90	80	120			
Manganese		0.479	mg/L	0.010	96	80	120			
Vanadium		0.484	mg/L	0.10	97	80	120			
Zinc		0.979	mg/L	0.010	98	80	120			
Method: E200.7		Analytical Run: ICP2-HE_151208B								
Lab ID: ICV	2	Initial Calibration Verification Standard								12/08/15 09:22
Arsenic		0.809	mg/L	0.011	101	90	110			
Lead		0.785	mg/L	0.019	98	90	110			
Lab ID: ICSA	2	Interference Check Sample A								12/08/15 09:37
Arsenic		-0.00530	mg/L	0.011		0	0			
Lead		0.00191	mg/L	0.019		0	0			
Lab ID: ICSAB	2	Interference Check Sample AB								12/08/15 09:41
Arsenic		0.997	mg/L	0.011	100	80	120			
Lead		0.910	mg/L	0.019	91	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS204-B_151117B									
Lab ID: ICV STD	15	Initial Calibration Verification Standard							11/17/15 13:32		
Antimony		0.0592	mg/L	0.050	99	90	110				
Arsenic		0.0598	mg/L	0.0050	100	90	110				
Barium		0.0592	mg/L	0.10	99	90	110				
Cadmium		0.0304	mg/L	0.0010	101	90	110				
Chromium		0.0598	mg/L	0.010	100	90	110				
Cobalt		0.0605	mg/L	0.010	101	90	110				
Copper		0.0614	mg/L	0.010	102	90	110				
Iron		0.312	mg/L	0.020	104	90	110				
Lead		0.0589	mg/L	0.010	98	90	110				
Manganese		0.304	mg/L	0.010	102	90	110				
Selenium		0.0618	mg/L	0.0050	103	90	110				
Silver		0.0299	mg/L	0.0050	100	90	110				
Thallium		0.0586	mg/L	0.10	98	90	110				
Vanadium		0.0596	mg/L	0.10	99	90	110				
Zinc		0.0617	mg/L	0.010	103	90	110				
Lab ID: ICSA	15	Interference Check Sample A							11/17/15 13:36		
Antimony		0.000254	mg/L	0.050							
Arsenic		0.000156	mg/L	0.0050							
Barium		0.000152	mg/L	0.10							
Cadmium		0.000546	mg/L	0.0010							
Chromium		0.00110	mg/L	0.010							
Cobalt		6.80E-05	mg/L	0.010							
Copper		0.000215	mg/L	0.010							
Iron		98.3	mg/L	0.020	98	70	130				
Lead		0.000279	mg/L	0.010							
Manganese		-6.40E-05	mg/L	0.010							
Selenium		0.000257	mg/L	0.0050							
Silver		0.000133	mg/L	0.0050							
Thallium		0.000101	mg/L	0.10							
Vanadium		0.000239	mg/L	0.10							
Zinc		0.00119	mg/L	0.010							
Lab ID: ICSAB	15	Interference Check Sample AB							11/17/15 13:39		
Antimony		0.000126	mg/L	0.050		0	0				
Arsenic		0.0106	mg/L	0.0050	106	70	130				
Barium		0.000101	mg/L	0.10		0	0				
Cadmium		0.0102	mg/L	0.0010	102	70	130				
Chromium		0.0210	mg/L	0.010	105	70	130				
Cobalt		0.0204	mg/L	0.010	102	70	130				
Copper		0.0198	mg/L	0.010	99	70	130				
Iron		97.6	mg/L	0.020	98	70	130				
Lead		0.000229	mg/L	0.010		0	0				
Manganese		0.0202	mg/L	0.010	101	70	130				

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS204-B_151117B			
Lab ID: ICSAB	15	Interference Check Sample AB						11/17/15 13:39			
Selenium		0.0103	mg/L	0.0050	103	70	130				
Silver		0.0190	mg/L	0.0050	95	70	130				
Thallium		4.20E-05	mg/L	0.10		0	0				
Vanadium		0.0206	mg/L	0.10	103	70	130				
Zinc		0.0106	mg/L	0.010	106	70	130				
Lab ID: ICV STD	15	Initial Calibration Verification Standard						11/17/15 20:12			
Antimony		0.0601	mg/L	0.050	100	90	110				
Arsenic		0.0604	mg/L	0.0050	101	90	110				
Barium		0.0601	mg/L	0.10	100	90	110				
Cadmium		0.0311	mg/L	0.0010	104	90	110				
Chromium		0.0600	mg/L	0.010	100	90	110				
Cobalt		0.0614	mg/L	0.010	102	90	110				
Copper		0.0617	mg/L	0.010	103	90	110				
Iron		0.313	mg/L	0.020	104	90	110				
Lead		0.0593	mg/L	0.010	99	90	110				
Manganese		0.307	mg/L	0.010	102	90	110				
Selenium		0.0623	mg/L	0.0050	104	90	110				
Silver		0.0299	mg/L	0.0050	100	90	110				
Thallium		0.0593	mg/L	0.10	99	90	110				
Vanadium		0.0599	mg/L	0.10	100	90	110				
Zinc		0.0622	mg/L	0.010	104	90	110				
Lab ID: ICSA	15	Interference Check Sample A						11/17/15 20:15			
Antimony		0.000197	mg/L	0.050							
Arsenic		0.000134	mg/L	0.0050							
Barium		2.90E-05	mg/L	0.10							
Cadmium		0.000527	mg/L	0.0010							
Chromium		0.00102	mg/L	0.010							
Cobalt		4.40E-05	mg/L	0.010							
Copper		0.000436	mg/L	0.010							
Iron		98.9	mg/L	0.020	99	70	130				
Lead		0.000237	mg/L	0.010							
Manganese		-0.000662	mg/L	0.010							
Selenium		0.000273	mg/L	0.0050							
Silver		0.000122	mg/L	0.0050							
Thallium		8.10E-05	mg/L	0.10							
Vanadium		0.000225	mg/L	0.10							
Zinc		0.00114	mg/L	0.010							
Lab ID: ICSAB	15	Interference Check Sample AB						11/17/15 20:18			
Antimony		8.60E-05	mg/L	0.050		0	0				
Arsenic		0.0106	mg/L	0.0050	106	70	130				
Barium		2.90E-05	mg/L	0.10		0	0				
Cadmium		0.0102	mg/L	0.0010	102	70	130				

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_151117B		
Lab ID: ICSAB	15	Interference Check Sample AB							11/17/15 20:18	
Chromium		0.0210	mg/L	0.010	105	70	130			
Cobalt		0.0203	mg/L	0.010	102	70	130			
Copper		0.0201	mg/L	0.010	101	70	130			
Iron		97.8	mg/L	0.020	98	70	130			
Lead		0.000205	mg/L	0.010		0	0			
Manganese		0.0197	mg/L	0.010	99	70	130			
Selenium		0.0101	mg/L	0.0050	101	70	130			
Silver		0.0190	mg/L	0.0050	95	70	130			
Thallium		3.20E-05	mg/L	0.10		0	0			
Vanadium		0.0204	mg/L	0.10	102	70	130			
Zinc		0.0107	mg/L	0.010	107	70	130			
Lab ID: ICV STD	15	Initial Calibration Verification Standard							11/18/15 16:53	
Antimony		0.0605	mg/L	0.050	101	90	110			
Arsenic		0.0602	mg/L	0.0050	100	90	110			
Barium		0.0611	mg/L	0.10	102	90	110			
Cadmium		0.0314	mg/L	0.0010	105	90	110			
Chromium		0.0610	mg/L	0.010	102	90	110			
Cobalt		0.0612	mg/L	0.010	102	90	110			
Copper		0.0623	mg/L	0.010	104	90	110			
Iron		0.314	mg/L	0.020	105	90	110			
Lead		0.0597	mg/L	0.010	99	90	110			
Manganese		0.310	mg/L	0.010	103	90	110			
Selenium		0.0607	mg/L	0.0050	101	90	110			
Silver		0.0303	mg/L	0.0050	101	90	110			
Thallium		0.0601	mg/L	0.10	100	90	110			
Vanadium		0.0596	mg/L	0.10	99	90	110			
Zinc		0.0626	mg/L	0.010	104	90	110			
Lab ID: ICSA	15	Interference Check Sample A							11/18/15 16:56	
Antimony		0.000174	mg/L	0.050						
Arsenic		0.000110	mg/L	0.0050						
Barium		6.50E-05	mg/L	0.10						
Cadmium		0.000512	mg/L	0.0010						
Chromium		0.00103	mg/L	0.010						
Cobalt		1.90E-05	mg/L	0.010						
Copper		0.000374	mg/L	0.010						
Iron		98.6	mg/L	0.020	99	70	130			
Lead		0.000226	mg/L	0.010						
Manganese		-5.70E-05	mg/L	0.010						
Selenium		0.000116	mg/L	0.0050						
Silver		0.000106	mg/L	0.0050						
Thallium		5.60E-05	mg/L	0.10						
Vanadium		0.000236	mg/L	0.10						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_151117B		
Lab ID: ICSA	15	Interference Check Sample A								11/18/15 16:56
Zinc		0.00110	mg/L	0.010						
Lab ID: ICSAB	15	Interference Check Sample AB								11/18/15 17:00
Antimony		5.20E-05	mg/L	0.050		0	0			
Arsenic		0.0106	mg/L	0.0050	106	70	130			
Barium		8.00E-05	mg/L	0.10		0	0			
Cadmium		0.0104	mg/L	0.0010	104	70	130			
Chromium		0.0214	mg/L	0.010	107	70	130			
Cobalt		0.0208	mg/L	0.010	104	70	130			
Copper		0.0203	mg/L	0.010	101	70	130			
Iron		99.7	mg/L	0.020	100	70	130			
Lead		0.000213	mg/L	0.010		0	0			
Manganese		0.0205	mg/L	0.010	103	70	130			
Selenium		0.0101	mg/L	0.0050	101	70	130			
Silver		0.0191	mg/L	0.0050	96	70	130			
Thallium		1.80E-05	mg/L	0.10		0	0			
Vanadium		0.0206	mg/L	0.10	103	70	130			
Zinc		0.0106	mg/L	0.010	106	70	130			
Method: E200.8								Batch: 31244		
Lab ID: MB-31244	15	Method Blank								Run: ICPMS204-B_151117B 11/18/15 17:25
Antimony		9E-05	mg/L	6E-05						
Arsenic		0.0002	mg/L	6E-05						
Barium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	1E-05						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	3E-05						
Copper		0.0002	mg/L	0.0002						
Iron		0.002	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.0002						
Selenium		ND	mg/L	0.0004						
Silver		0.0002	mg/L	5E-05						
Thallium		ND	mg/L	9E-05						
Vanadium		0.0010	mg/L	0.0001						
Zinc		ND	mg/L	0.002						
Lab ID: LCS-31244	15	Laboratory Control Sample								Run: ICPMS204-B_151117B 11/18/15 17:29
Antimony		0.510	mg/L	0.0010	102	85	115			
Arsenic		0.516	mg/L	0.0010	103	85	115			
Barium		0.508	mg/L	0.050	102	85	115			
Cadmium		0.250	mg/L	0.0010	100	85	115			
Chromium		0.503	mg/L	0.0050	101	85	115			
Cobalt		0.501	mg/L	0.0050	100	85	115			
Copper		0.494	mg/L	0.0050	99	85	115			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8 Batch: 31244											
Lab ID: LCS-31244	15	Laboratory Control Sample			Run: ICPMS204-B_151117B			11/18/15 17:29			
Iron		2.49	mg/L	0.020	99	85	115				
Lead		0.506	mg/L	0.0010	101	85	115				
Manganese		2.48	mg/L	0.0010	99	85	115				
Selenium		0.511	mg/L	0.0010	102	85	115				
Silver		0.0485	mg/L	0.0010	97	85	115				
Thallium		0.507	mg/L	0.00050	101	85	115				
Vanadium		0.493	mg/L	0.010	98	85	115				
Zinc		0.502	mg/L	0.010	100	85	115				
Lab ID: H15110258-025AMS3	15	Sample Matrix Spike			Run: ICPMS204-B_151117B			11/18/15 19:44			
Antimony		0.524	mg/L	0.0010	105	70	130				
Arsenic		0.517	mg/L	0.0010	103	70	130				
Barium		0.521	mg/L	0.050	104	70	130				
Cadmium		0.253	mg/L	0.0010	101	70	130				
Chromium		0.507	mg/L	0.0050	101	70	130				
Cobalt		0.513	mg/L	0.0050	103	70	130				
Copper		0.500	mg/L	0.0050	100	70	130				
Iron		2.54	mg/L	0.020	102	70	130				
Lead		0.514	mg/L	0.0010	103	70	130				
Manganese		2.54	mg/L	0.0010	102	70	130				
Selenium		0.502	mg/L	0.0010	100	70	130				
Silver		0.0491	mg/L	0.0010	98	70	130				
Thallium		0.510	mg/L	0.00050	102	70	130				
Vanadium		0.503	mg/L	0.010	100	70	130				
Zinc		0.508	mg/L	0.010	102	70	130				
Lab ID: H15110258-025AMSD	15	Sample Matrix Spike Duplicate			Run: ICPMS204-B_151117B			11/18/15 19:47			
Antimony		0.522	mg/L	0.0010	104	70	130	0.5	20		
Arsenic		0.520	mg/L	0.0010	104	70	130	0.5	20		
Barium		0.520	mg/L	0.050	104	70	130	0.2	20		
Cadmium		0.254	mg/L	0.0010	102	70	130	0.4	20		
Chromium		0.506	mg/L	0.0050	101	70	130	0.2	20		
Cobalt		0.513	mg/L	0.0050	103	70	130	0.0	20		
Copper		0.500	mg/L	0.0050	100	70	130	0.1	20		
Iron		2.56	mg/L	0.020	102	70	130	0.7	20		
Lead		0.517	mg/L	0.0010	103	70	130	0.5	20		
Manganese		2.55	mg/L	0.0010	102	70	130	0.5	20		
Selenium		0.502	mg/L	0.0010	100	70	130	0.0	20		
Silver		0.0492	mg/L	0.0010	98	70	130	0.2	20		
Thallium		0.521	mg/L	0.00050	104	70	130	2.1	20		
Vanadium		0.502	mg/L	0.010	100	70	130	0.2	20		
Zinc		0.505	mg/L	0.010	101	70	130	0.6	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1								Analytical Run: SUB-B252886		
Lab ID: ICV	Initial Calibration Verification Standard									
Mercury	0.000198	mg/L	1.0E-05	99	90	110				11/23/15 15:31
Method: E245.1								Batch: B_95090		
Lab ID: MB-95090	Method Blank									
Mercury	4E-06	mg/L	1E-06				Run: SUB-B252886			11/23/15 15:45
Lab ID: LCS-95090	Laboratory Control Sample									
Mercury	0.000196	mg/L	1.0E-05	96	85	115	Run: SUB-B252886			11/23/15 15:48
Lab ID: B15111557-005AMS	Sample Matrix Spike									
Mercury	0.000191	mg/L	1.0E-05	93	70	130	Run: SUB-B252886			11/23/15 15:53
Lab ID: B15111557-005AMSD	Sample Matrix Spike Duplicate									
Mercury	0.000194	mg/L	1.0E-05	95	70	130	Run: SUB-B252886	1.6	30	11/23/15 15:56

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31361										
Lab ID: MB-31361	2	Method Blank								
										Run: ICP2-HE_151202B 12/02/15 18:45
Arsenic		0.4	mg/kg	0.4						
Lead		ND	mg/kg	0.6						
Lab ID: LFB-31361	2	Laboratory Fortified Blank								
										Run: ICP2-HE_151202B 12/02/15 18:49
Arsenic		48.3	mg/kg	1.0	100	80	120			
Lead		49.2	mg/kg	1.0	102	80	120			
Lab ID: LCS-31361	2	Laboratory Control Sample								
										Run: ICP2-HE_151202B 12/02/15 18:53
Arsenic		172	mg/kg	1.8	88	71.4	105.1			
Lead		106	mg/kg	3.3	101	74.4	108.6			
Lab ID: H15110258-005APDS	2	Post Digestion/Distillation Spike								
										Run: ICP2-HE_151202B 12/02/15 19:19
Arsenic		273	mg/kg	1.9	94	75	125			
Lead		474	mg/kg	3.3	92	75	125			
Lab ID: H15110258-005AMS	2	Sample Matrix Spike								
										Run: ICP2-HE_151202B 12/02/15 19:30
Arsenic		72.7	mg/kg	1.8	87	75	125			
Lead		157	mg/kg	3.2		75	125			A
Lab ID: H15110258-005AMSD	2	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_151202B 12/02/15 19:34
Arsenic		72.5	mg/kg	1.8	85	75	125	0.3	20	
Lead		208	mg/kg	3.2		75	125	28	20	AR

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

Method: SW6010B Batch: 31362										
Lab ID: MB-31362	9	Method Blank								
										Run: ICP2-HE_151202B 12/02/15 20:25
Arsenic		ND	mg/kg	0.4						
Cadmium		ND	mg/kg	0.01						
Chromium		ND	mg/kg	0.2						
Copper		0.3	mg/kg	0.2						
Iron		3	mg/kg	0.6						
Lead		ND	mg/kg	0.6						
Manganese		0.09	mg/kg	0.02						
Vanadium		0.2	mg/kg	0.2						
Zinc		0.6	mg/kg	0.09						
Lab ID: LFB-31362	9	Laboratory Fortified Blank								
										Run: ICP2-HE_151202B 12/02/15 20:29
Arsenic		50.9	mg/kg	1.0	101	80	120			
Cadmium		26.4	mg/kg	1.0	105	80	120			
Chromium		50.1	mg/kg	1.0	99	80	120			
Copper		51.0	mg/kg	1.0	100	80	120			
Iron		263	mg/kg	5.0	103	80	120			
Lead		53.9	mg/kg	1.0	107	80	120			
Manganese		259	mg/kg	1.0	103	80	120			
Vanadium		52.0	mg/kg	1.0	103	80	120			
Zinc		51.4	mg/kg	1.0	101	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

R - RPD exceeds advisory limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust

Report Date: 12/09/15

Project: 10022 Supplemental RFI Soil Sampling

Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B Batch: 31362										
Lab ID: LFB-31362	9	Laboratory Fortified Blank						Run: ICP2-HE_151202B		12/02/15 20:29
Lab ID: LCS-31362	9	Laboratory Control Sample						Run: ICP2-HE_151202B		12/02/15 20:33
Arsenic		165	mg/kg	1.8	84	71.4	105.1			
Cadmium		93.4	mg/kg	1.0	94	73.9	106.1			
Chromium		106	mg/kg	1.0	90	73.5	108.5			
Copper		124	mg/kg	1.1	91	76.6	108.8			
Iron		16500	mg/kg	5.0	101	51.7	131.9			
Lead		97.4	mg/kg	3.2	93	74.4	108.6			
Manganese		422	mg/kg	1.0	97	81.1	116.6			
Vanadium		111	mg/kg	1.0	97	67	107			
Zinc		242	mg/kg	1.0	104	75.3	111.7			
Lab ID: H15110258-017APDS	9	Post Digestion/Distillation Spike						Run: ICP2-HE_151202B		12/02/15 20:44
Arsenic		254	mg/kg	1.8	95	75	125			
Cadmium		120	mg/kg	1.0	95	75	125			
Chromium		240	mg/kg	1.0	90	75	125			
Copper		261	mg/kg	1.1	92	75	125			
Iron		17800	mg/kg	5.0		75	125			A
Lead		346	mg/kg	3.2	95	75	125			
Manganese		1640	mg/kg	1.0	92	75	125			
Vanadium		276	mg/kg	1.0	92	75	125			
Zinc		638	mg/kg	1.0	94	75	125			
Lab ID: H15110258-017AMS	9	Sample Matrix Spike						Run: ICP2-HE_151202B		12/02/15 20:48
Arsenic		65.9	mg/kg	1.7	96	75	125			
Cadmium		26.2	mg/kg	1.0	102	75	125			
Chromium		57.8	mg/kg	1.0	88	75	125			
Copper		78.8	mg/kg	1.1	97	75	125			
Iron		16700	mg/kg	5.0		75	125			A
Lead		146	mg/kg	3.1	75	75	125			
Manganese		697	mg/kg	1.0	84	75	125			
Vanadium		89.7	mg/kg	1.0	89	75	125			
Zinc		409	mg/kg	1.0		75	125			A
Lab ID: H15110258-017AMSD	9	Sample Matrix Spike Duplicate						Run: ICP2-HE_151202B		12/02/15 20:59
Arsenic		70.6	mg/kg	1.7	106	75	125	6.9	20	
Cadmium		26.7	mg/kg	1.0	104	75	125	2.0	20	
Chromium		59.5	mg/kg	1.0	92	75	125	2.9	20	
Copper		79.4	mg/kg	1.1	99	75	125	0.7	20	
Iron		14700	mg/kg	5.0		75	125	13	20	A
Lead		145	mg/kg	3.1	74	75	125	0.4	20	S
Manganese		712	mg/kg	1.0	91	75	125	2.2	20	
Vanadium		87.3	mg/kg	1.0	84	75	125	2.8	20	
Zinc		402	mg/kg	1.0		75	125	1.7	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW6010B Batch: 31362											
Lab ID: H15110258-017AMSD	9	Sample Matrix Spike Duplicate									Run: ICP2-HE_151202B 12/02/15 20:59
- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.											
Method: SW6010B Batch: 31402											
Lab ID: MB-31402	2	Method Blank									Run: ICP2-HE_151208B 12/08/15 10:23
Arsenic		0.6	mg/kg	0.4							
Lead		ND	mg/kg	0.7							
Lab ID: LFB-31402	2	Laboratory Fortified Blank									Run: ICP2-HE_151208B 12/08/15 10:27
Arsenic		54.4	mg/kg	1.0	101	80	120				
Lead		54.6	mg/kg	1.0	102	80	120				
Lab ID: LCS-31402	2	Laboratory Control Sample									Run: ICP2-HE_151208B 12/08/15 10:31
Arsenic		164	mg/kg	1.7	84	71.4	105.1				
Lead		90.0	mg/kg	3.1	86	74.4	108.6				
Lab ID: H15110258-005APDS	2	Post Digestion/Distillation Spike									Run: ICP2-HE_151208B 12/08/15 10:42
Arsenic		253	mg/kg	1.9	87	75	125				
Lead		456	mg/kg	3.3	84	75	125				
Lab ID: H15110258-005AMS	2	Sample Matrix Spike									Run: ICP2-HE_151208B 12/08/15 10:45
Arsenic		75.0	mg/kg	1.8	99	75	125				
Lead		206	mg/kg	3.2		75	125			A	
Lab ID: H15110258-005AMSD	2	Sample Matrix Spike Duplicate									Run: ICP2-HE_151208B 12/08/15 10:49
Arsenic		77.4	mg/kg	1.8	102	75	125	3.2	20		
Lead		231	mg/kg	3.2		75	125	11	20	A	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust

Report Date: 12/09/15

Project: 10022 Supplemental RFI Soil Sampling

Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW6020										Analytical Run: ICPMS204-B_151203B	
Lab ID: ICV STD	7	Initial Calibration Verification Standard							12/03/15 11:38		
Antimony		0.0597	mg/L	0.0010	100	90	110				
Arsenic		0.0600	mg/L	0.0010	100	90	110				
Barium		0.0599	mg/L	0.0010	100	90	110				
Cobalt		0.0610	mg/L	0.0010	102	90	110				
Selenium		0.0612	mg/L	0.0010	102	90	110				
Silver		0.0300	mg/L	0.0010	100	90	110				
Thallium		0.0592	mg/L	0.0010	99	90	110				
Method: SW6020										Batch: 31362	
Lab ID: MB-31362	7	Method Blank							Run: ICPMS204-B_151203B 12/03/15 18:42		
Antimony		ND	mg/kg	0.08							
Arsenic		0.6	mg/kg	0.05							
Barium		ND	mg/kg	0.4							
Cobalt		ND	mg/kg	0.04							
Selenium		0.2	mg/kg	0.2							
Silver		0.2	mg/kg	0.05							
Thallium		ND	mg/kg	0.09							
Lab ID: LCS-31362	7	Laboratory Control Sample							Run: ICPMS204-B_151203B 12/03/15 18:46		
Antimony		61.8	mg/kg	1.0	26	0	92.9				
Arsenic		160	mg/kg	1.0	81	71.4	105.1				
Barium		174	mg/kg	1.0	93	78.6	112.8				
Cobalt		102	mg/kg	1.0	95	74.2	105.6				
Selenium		190	mg/kg	1.0	93	71.2	110.2				
Silver		39.3	mg/kg	1.0	93	70.8	111.9				
Thallium		89.4	mg/kg	1.0	90	71.4	107.9				
Lab ID: LFB-31362	7	Laboratory Fortified Blank							Run: ICPMS204-B_151203B 12/03/15 18:49		
Antimony		51.2	mg/kg	1.0	101	80	120				
Arsenic		49.8	mg/kg	1.0	97	80	120				
Barium		51.6	mg/kg	1.0	102	80	120				
Cobalt		49.2	mg/kg	1.0	97	80	120				
Selenium		51.1	mg/kg	1.0	101	80	120				
Silver		25.3	mg/kg	1.0	99	80	120				
Thallium		48.9	mg/kg	1.0	97	80	120				
Lab ID: H15110258-017APDS	7	Post Digestion/Distillation Spike							Run: ICPMS204-B_151203B 12/03/15 19:02		
Antimony		486	mg/kg	1.0	101	75	125				
Arsenic		468	mg/kg	1.0	93	75	125				
Barium		558	mg/kg	1.0	100	75	125				
Cobalt		445	mg/kg	1.0	91	75	125				
Selenium		453	mg/kg	1.0	94	75	125				
Silver		213	mg/kg	1.0	88	75	125				
Thallium		450	mg/kg	1.0	93	75	125				

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6020 Batch: 31362										
Lab ID: H15110258-017AMS	7	Sample Matrix Spike				Run: ICPMS204-B_151203B				12/03/15 19:05
Antimony		28.4	mg/kg	1.0	57	75	125			S
Arsenic		65.0	mg/kg	1.0	97	75	125			
Barium		122	mg/kg	1.0	100	75	125			
Cobalt		52.6	mg/kg	1.0	98	75	125			
Selenium		49.7	mg/kg	1.0	101	75	125			
Silver		25.9	mg/kg	1.0	102	75	125			
Thallium		46.9	mg/kg	1.0	96	75	125			
Lab ID: H15110258-017AMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_151203B				12/03/15 19:08
Antimony		30.7	mg/kg	1.0	62	75	125	7.9	20	S
Arsenic		68.1	mg/kg	1.0	103	75	125	4.7	20	
Barium		118	mg/kg	1.0	93	75	125	2.7	20	
Cobalt		52.3	mg/kg	1.0	97	75	125	0.5	20	
Selenium		48.5	mg/kg	1.0	99	75	125	2.3	20	
Silver		25.6	mg/kg	1.0	101	75	125	1.3	20	
Thallium		47.5	mg/kg	1.0	97	75	125	1.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW7196A										Batch: 31433
Lab ID: H15110258-023ADUP		Sample Duplicate								Run: SPECTRO_151208B
Chromium, Hexavalent - Soluble		ND	mg/kg	1.0						12/08/15 20:09

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Montana Environmental Custodial Trust
Project: 10022 Supplemental RFI Soil Sampling

Report Date: 12/09/15
Work Order: H15110258

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: SW7471B Analytical Run: HGCV201-H_151119A											
Lab ID: ICV		Initial Calibration Verification Standard									11/19/15 09:47
Mercury		0.0010	mg/kg	0.50	100	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									11/19/15 09:49
Mercury		0.0025	mg/kg	0.50	102	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									11/19/15 10:33
Mercury		0.0026	mg/kg	0.50	106	90	110				
Method: SW7471B Batch: 31263											
Lab ID: MB-31263		Method Blank									11/19/15 09:56
Mercury		ND	mg/kg	0.010						Run: HGCV201-H_151119A	
Lab ID: LCS-31263		Laboratory Control Sample									11/19/15 09:58
Mercury		5.8	mg/L	0.20	116	75	125			Run: HGCV201-H_151119A	
Lab ID: LFB-31263		Laboratory Fortified Blank									11/19/15 10:06
Mercury		1.1	mg/L	0.10	112	80	120			Run: HGCV201-H_151119A	
Lab ID: H15110256-001AMS		Sample Matrix Spike									11/19/15 10:10
Mercury		1.0	mg/kg	0.50	106	80	120			Run: HGCV201-H_151119A	
Lab ID: H15110256-001AMSD		Sample Matrix Spike Duplicate									11/19/15 10:12
Mercury		1.0	mg/kg	0.50	107	80	120	0.0	20	Run: HGCV201-H_151119A	
Lab ID: H15110256-001ADIL		Serial Dilution									11/19/15 10:14
Mercury		ND	mg/kg	0.50		0	0		10	Run: HGCV201-H_151119A	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Montana Environmental Custodial Trust

H15110258

Login completed by: Tracy L. Lorash

Date Received: 11/13/2015

Reviewed by: BL2000\rwilliams

Received by: jdh

Reviewed Date: 11/20/2015

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

No collection time on COC or jars for 2a-FD1-SD and 23-FD1-SD. Collection time estimated in laboratory. Cooler 1 was received at 3.6°C, Cooler 2 at 0.4°C, Cooler 3 at 0.7°C. Samples were received on wet ice. tl 11/19/15

CHAIN OF CUSTODY RECORD



Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO. 10022		PROJECT NAME Supplemental RFI Soil Sampling		NO. OF CONTAINERS	REMARKS
SAMPLERS: (Signature) <i>Joell</i>					
DATE	TIME	COMP	GRAB	SAMPLE NUMBER	
11/11/15	0810	✓		Za-1-SD	Total Metals UF / HNO ₃ Total Recoverable Metals UF / HNO ₃ TPH BTEX Total As, Pb
11/11/15	0845	✓		Za-2-SD	
11/11/15	0830	✓		Za-3-SD	
11/11/15	0900	✓		Za-4-SD	
11/11/15	0900	✓		Za-4-M5/MSD	
11/11/15	—	✓		Za-FBI-SD	
11/11/15	0920	✓		Za-5-SD	
11/11/15	0935	✓		Za-6-SD	
11/11/15	0945	✓		Za-7-SD	
11/11/15	1000	✓		Za-8-SD	
11/11/15	1010	✓		Za-9-SD	
11/11/15	1020	✓		Za-10-SD	
11/11/15	1035	✓		Za-11-SD	
11/11/15	1055	✓		Z3-1-SD	
Relinquished (Signature) <i>Joell</i>		Received by (Signature)		Date / Time 11/12/15 1600	Lab
Relinquished (Signature)		Received by (Signature)		Date / Time	P.O. # <i>See Remarks</i>
Relinquished (Signature)		Received for Laboratory by (Signature) <i>Joell</i>		Date / Time 11/12/15 1600	Remarks Send invoice to Jen Roberts, METG C1 3.4% C2 0.14% C3 0.71%
Enclosed: <input checked="" type="checkbox"/> Parameter sheet w/detection limits <input type="checkbox"/> QA / AC standard mixing instructions <input checked="" type="checkbox"/> Cover letter <input type="checkbox"/> Other					
Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined					



Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

CHAIN OF CUSTODY RECORD

PROJ. NO. 10022	PROJECT NAME Supplemental RFI Soil Sampling		DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF / RAW	Nutrients UF / H ₂ SO ₄	Diss. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	Total Recoverable Metals UF / HNO ₃	BTEX	TPH	P.O. #	Shipped via: Bus FedEx UPS <input checked="" type="checkbox"/> Other <u>hand-deliver</u>	Air Bill #	REMARKS
			11/11/15	1115	✓		23-2-SD	02												#15110258
			11/11/15	1135	✓		23-3-SD	01												
			11/11/15	1135	✓		23-3-MS/MSD	02												
			11/11/15	-	✓		23-FD1-SD	01												
			11/11/15	1155	✓		23-4-SD	01												
			11/11/15	1215	✓		23-5-SD	01												
			11/12/15	0945	✓		P8E-AFB	01												
			11/12/15	1045	✓		P8E-DU1-SS	01												
			11/12/15	1200	✓		P8E-DU2-SS	01												
			11/12/15	1230	✓		P8E-RB	01												
			11/13/15	0650	✓		P2a-AFB	01												
			11/13/15	1345	✓		P2a-RB	01												

Relinquished (Signature) *JRM*

Date / Time 11/13/15 1600

Received by (Signature) *Scott Hays*

Date / Time 11/13/15 1600

Remarks Send invoice to Jen Roberts, METGL 3.6°C
L2 0.4
L3 0.7

Enclosed: Parameter sheet w/detection limits
 QA / AC standard mixing instructions Cover letter
 Other

Split Samples: Accepted Declined



November 13, 2015

Energy Laboratories, Inc.
3161 E Lyndale Avenue
Helena, Montana 59601

RE: November 11-13, 2015 East Helena Supplemental RFI Soil Sampling Samples

Jon,

This letter accompanies twenty (20) Prickly Pear Creek sediment samples, two associated sediment sampling rinsate blank and ambient field blank samples, two (2) Parcel 8E soil samples, and two associated soil sampling rinsate blank and ambient field blank samples collected November 11-13, 2015 for the 2015 East Helena Supplemental RFI Soil Sampling program. The samples should be analyzed per the accompanying Chain of Custody forms and parameters list. Analytical reports should be sent to Linda Tangen and to Hydrometrics. The invoice for these analyses should be forwarded to Jen Roberts at METG. Please feel free to call if you have any questions.

Sincerely,



Jamie Poell
Environmental Scientist

Enclosures

Table 3-1

Regional Screening Levels - Soil and Sediment

East Helena Facility supplemental RFI Sampling and Analysis Plan, East Helena, Montana

Constituent	Resident Soil RSL (mg/kg)		Industrial Soil RSL (mg/kg)		Background (mg/kg)		Laboratory Reporting Limits*
	P2RFI		P2RFI		P2RFI		
Antimony	31	31	410	470	0.66	0.4	0.1
Arsenic	0.39	0.68	1.6	3	17	22.5	0.2
Barium	15000	15000	190000	220000	NA	429	5
Cadmium	70	71	800	980	0.24	0.7	0.1
Chromium ^b	0.29	0.3	5.6	6.3	NA	41.7	0.3
Hex Chromium							0.3
Cobalt	23	23	300	350	NA	10	1
Copper	3100	3100	41000	47000	16	165	5
Iron	55000	55000	720000	820000	15000	24400	5
Lead	400	400	800	800	12	29.8	1
Manganese	1800	1800	23000	26000	340	880	5
Mercury	5.6	7.8	34	40	0.08	NC	0.05
Selenium	390	390	5100	5800	0.07	0.7	0.5
Silver	390	390	5100	5800	NA	0.3	0.3
Thallium ^c	NA	0.78	NA	120	NA	0.41	0.1
Vanadium ^d	5.5	390	72	5800	NA	52.6	1
Zinc	23000	23000	310000	350000	47	118	5

Notes:

NC - not calculated

RSL = U.S. Environmental Protection Agency Regional Screening Level

RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for residential exposure scenario.

RSL Summary Table - June 2015 for 10⁻⁶ excess cancer risk for industrial exposure scenario.

mg/kg = milligrams per kilogram

NA = not applicable

P2RFI = Phase II RFI; Values were presented in Table 4-2 and summarized as follows:

RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for residential exposure scenario.

RSL Summary Table - November 2010 for 10⁻⁶ excess cancer risk for industrial exposure scenario.

Background Concentrations for Inorganics in Soil, December 2007, MDEQ.

RFI = RCRA Facility Investigation

RCRA = Resource Conservation and Recovery Act

^a Project Report Background Concentrations of Inorganic Constituents in Montana Surface Soils Prepared for Montana Department of Environmental Quality (MDEQ), Prepared by Hydrometrics, Inc.

^b Chromium RSLs are based on the lower of the chromium III or chromium VI values.

^c Thallium RSLs are based on the values for thallium (soluble salts).

^d 2010 vanadium values were based on the lowest (metallic vanadium) value that is not in the June 2015 RSL table; the lowest 2015 resident vanadium RSL (vanadium and compounds) was used.

Project screening levels by media

* All limits are based off no matrix interference. RL could be raised due to matrix interference.

Attachment 3
Validation Report

VALIDATION SUMMARY
MONTANA ENVIRONMENTAL TRUST GROUP, LLC
FORMER ASARCO EAST HELENA FACILITY
SUPPLEMENTAL RFI SOILS
2015-2016 SAMPLING EVENT

ENERGY LABORATORY WORK ORDERS:
H15110258, H15120100, H15120169, H15120210, H16040137, H16040143,
H16040267, H16040283, H16040309, H16040334, H16040357, H16040382,
H16050109 AND H16050120

Prepared for:
Montana Environmental Trust Group
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
131 Hanson Ln
Fairfield Bay, AR 72088

July 2016

TABLE OF CONTENTS

LIST OF APPENDICES	ii
GLOSSARY OF TERMS.....	iii
(SUMMARY	1
1. INTRODUCTION.....	3
2. DELIVERABLES.....	3
3. FIELD PROCEDURES.....	4
4. FIELD BLANKS.....	5
5. FIELD DUPLICATES	7
6. LABORATORY PROCEDURES.....	7
7. DETECTION LIMITS.....	8
8. LABORATORY BLANKS.....	8
9. LABORATORY MATRIX SPIKES.....	9
10. LABORATORY DUPLICATES.....	9
11. LABORATORY CONTROL STANDARDS (LCS).....	10
12. DATA QUALITY OBJECTIVES (DQOS).....	10
13. CONCLUSION.....	11
REFERENCES	12

LIST OF APPENDICES

APPENDIX A: TABLES

APPENDIX B: DATABASE

APPENDIX C: FIELD NOTES

APPENDIX D: LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS

GLOSSARY OF TERMS

(Not all of these terms may be used in this document)

CAMP	Corrective Action Monitoring Plan
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification Standard
CLP	Contract Laboratory Program
COC	Chain of Custody
DI	Deionized Water
DIS	Dissolved
DQO	Data Quality Objective
ELI	Energy Laboratories, Inc., Helena, Montana
EPA	U.S. Environmental Protection Agency
LCS	Laboratory Control Sample
LFB	Laboratory Fortified Blank
MB	Method Blank
MS	Matrix Spike
METG	Montana Environmental Trust Group, LLC
NA	Not Applicable
ORP	Oxidation Reduction Potential
PRDL	Project Required Detection Limit
QC	Quality Control
RPD	Relative Percent Difference
SC	Specific Conductivity
SWL	Static Water Level
TDS	Total Dissolved Solids
TOT	Total
TR	Total Recoverable
TSS	Total Suspended Solids

SUMMARY

This data validation report pertains soil, sediment and field blank samples that were collected from areas at and surrounding the Former ASARCO East Helena Facility from November 12, 2015 through May 8, 2016. These samples were collected according to the East Helena Facility Supplemental RFI Sampling and Analysis Plan (CH2M•, 2015) and the Addendum to East Helena Facility Supplemental RFI Sampling and Analysis Plan (CH2M•, 2016). Inorganic constituents for these samples were validated using EPA guidelines for data validation (EPA, 2010) and the quality assurance project plan (Hydrometrics, 2011). Samples were analyzed for inorganic constituents by Energy Laboratories, Inc. (ELI) in Helena, Montana, using work orders: H15110258, H15120100, H15120169, H15120210, H16040137, H16040143, H16040267, H16040283, H16040309, H16040334, H16040357, H16040382, H16050109, and H16050120.

Tables containing the qualifier definitions and a list of qualified data are located in Appendix A. The validated database is in Appendix B. Field notes, laboratory reports and chain of custody forms are located in Appendices C, and D.

Data quality objectives for this project are as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within quality control (QC) limits. **One field duplicate pair result and two laboratory duplicate pair results were out of QC limits, which resulted in the qualification of 27 data.**
- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within QC limits. **All LCS results were within QC limits however, 40 MS pair results were outside of the limits, which resulted in the qualification of 32 data.**
- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. **This goal was met as 100% of the planned data (1178 out of 1178 planned results) were analyzed and deemed valid.**

Following is a list of QC violations which resulted in the qualification of data:

- One field duplicate pair result was out of control limits for lead. As a result, **20 values** were qualified “**J**” to indicate they were estimated.
- The recovery for antimony was out of control limits for nine MS/MS duplicate pairs. As a result, **24 values** were qualified “**J**” or “**UJ**” (not detected at reporting limit) to indicate they were estimated.
- The recovery for copper was out of control limits for one MS/MS duplicate pair. As a result, **six values** were qualified “**J**” to indicate they were estimated.
- The recovery for mercury was out of control limits for one MS/MS duplicate pair. As a result, **two values** were qualified “**J**” to indicate they were estimated.
- Arsenic was out of control limits for one laboratory duplicate pair (MS duplicate). As a result, **five values** were qualified “**J**” to indicate they were estimated.
- Silver was out of control limits for one laboratory duplicate pair (MS duplicate). As a result, **two values** were qualified “**UJ**” (not detected at reporting limit) to indicate they were estimated.

Conclusion

The soil, sediment, and field blank data collected for the 2015-2016 Supplemental RFI Soils Project are acceptable and can be used for the purposes of this project as long as the qualified data are used with caution. **Of the total measured results, 95.0% (1119 out of 1178 results) can be used without qualification.**

Data Validation Report by: Linda L. Tangen

Contractor Review: Mark Walker
Hydrometrics

DATA VALIDATION REPORT

1. INTRODUCTION

This validation applies to the analyses of 136 soil and sediment, 16 field duplicate, 10 ambient field blank and 18 rinsate blank samples. Inorganic constituents were analyzed by Energy Laboratories, Inc. (ELI) in Helena, Montana, using work orders: H15110258, H15120100, H15120169, H15120210, H16040137, H16040143, H16040267, H16040283, H16040309, H16040334, H16040357, H16040382, H16050109, and H16050120.

- The following project plans were used as guidelines for this data review:
 - Quality Assurance Project Plan for Environmental Data Collection Activities, East Helena Facility (Hydrometrics, 2011)
 - East Helena Facility Supplemental RFI Sampling and Analysis Plan (CH2M•, 2015)
 - Addendum to East Helena Facility Supplemental RFI Sampling and Analysis Plan (CH2M•, 2016)

- Validation procedures used are generally consistent with:
 - EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA, 2010)
 - EPA CLP National Functional Guidelines for Superfund Organic Methods Data Review (EPA, 2008)
 - Quality Assurance Project Plan (Hydrometrics, 2011)
 - Other

- Level of validation used for this sampling event.
 - Level I – Verification of results
 - Level II – Results are verified, field and rudimentary laboratory quality control (QC) samples are reviewed; however, results are not qualified due to QC violations.
 - Level III – Results are verified, field and laboratory QC samples are reviewed; and sample results associated with QC violations are qualified.
 - Level IV (CLP) – Results are verified, in-depth field and laboratory QC sample results (including raw instrument data) are reviewed; and samples associated with QC violations are qualified.

2. DELIVERABLES

- Laboratory document deliverable level used for this sampling event.
 - Level I – Sample results only. No QC.
 - Level II – Sample results and rudimentary laboratory QC results.
 - Level III – Sample results and most laboratory QC results (as requested by the client).

- All laboratory document deliverables were present and accurate as specified in the project's work plan.
 Yes
 No
- All documentation of field procedures was provided as specified in the project's work plan.
 Yes
 No

3. FIELD PROCEDURES

- Samples were collected from all project-required stations.
 Yes
 No
- Field parameters were measured in accordance with the project work plan.
 Yes
 No
 NA – Not Applicable
- Field instruments were calibrated daily and before measurements were collected.
 Yes
 No
 NA – Not Applicable
- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
 Yes
 No – see notes

Notes: Although the COC were signed correctly, several data entry errors were noted. Refer to the following section for further details.
- Data entry into field books, on COCs, and on sample labels was accurate and complete.
 Yes
 No – see notes on the following page

Data Entry Notes: The following data entry errors were noted:

- Work orders: H15110258, H15120100 – The collection time for field duplicate samples: 2a-FD1-SD, 23-FD1-SD, P14-FD1-SS and P14-FD2-SS was not entered on the COC. The laboratory estimated the collection time for these samples. It is assumed that the times were probably left off the COC so the samples could enter the laboratory as blind field duplicates.
 - Work order H15120169 – The sampler put a relinquished (to the laboratory) date of November on the COC instead of December.
 - Work order H16040283 – The sampler put a relinquished (to the laboratory) date of 4/19/16 on the COC instead of 4/18/16.
 - Work order H16040309 – Sample P2a-RB2-SS was recorded on the sample bottle as P2a-RB2. The laboratory used the sample ID from the COC.
 - Work Order 16040137 – The sample date recorded on P23-RB1 was 4/6/16 instead of the correct date of 4/7/16.
- Samples were properly preserved in the field.
 Yes – see notes
 No

Notes: Although the samples were correctly collected and stored according to the project's work plan (Hydrometrics, 2015), required sample cooler temperatures were not always met. Following is a list of these:

- Work orders: H15110258, H15120100, H15120169, H15120210, and H16040143 arrived at the laboratory with temperatures less than the recommended range of 2-4°C (sample cooler temperatures ranged from -1.2°C to 1.9 °C). However, the laboratory did not state that the samples were frozen and therefore, it was determined that the sample results were not affected.
- Work orders H16040137 and H16040267 arrived at the laboratory with temperatures greater than the recommended range of 2-4°C (sample cooler temperatures ranged from 10.8°C to 17.5 °C). However, the target analytes are not volatile at these temperatures and therefore, it was determined that the sample results were not affected. It was also determined that the samples probably did not have time to cool down from the field.

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one DI and one rinsate blank per 20 samples or per day, *whichever is greater*).

Yes
 No

Reported results on the field blanks were less than the Project Required Detection Limit (PRDL) or reporting limit.

Yes
 No – see notes

Notes: Four field blanks had results greater than the PRDL. However, the associated sample results were much greater than the field blank (>> 5 X the blank value). Following is a summary of the blank detections.

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
Ambient	P2a-AFB	4/18/16	Antimony (Sb) TOT	0.0005	0.0006	0.003	0*
			Arsenic (As) TOT	0.001	0.002	0.010	0*
			Barium (Ba) TOT	0.003	0.03	0.150	0*
			Cadmium (Cd) TOT	3E-05	0.00008	0.000	0*
			Copper (Cu) TOT	0.002	0.046	0.230	0*
			Lead (Pb) TOT	0.0003	0.0021	0.011	0*
			Manganese (Mn) TOT	0.001	0.004	0.020	0*
			Zinc (Zn) TOT	0.008	0.022	0.110	0*
Rinsate	P2a-RB1	4/18/16	Antimony (Sb) TOT	0.0005	0.0006	0.003	0*
			Arsenic (As) TOT	0.001	0.002	0.010	0*
			Barium (Ba) TOT	0.003	0.03	0.150	0*
			Cadmium (Cd) TOT	3E-05	0.0001	0.001	0*
			Copper (Cu) TOT	0.002	0.05	0.250	0*
			Lead (Pb) TOT	0.0003	0.0021	0.011	0*
			Manganese (Mn) TOT	0.001	0.005	0.025	0*
			Zinc (Zn) TOT	0.008	0.023	0.115	0*
Rinsate	P2a-RB2-SS	4/19/16	Antimony (Sb) TOT	0.0005	0.0007	0.004	0*
			Arsenic (As) TOT	0.001	0.002	0.010	0*
			Barium (Ba) TOT	0.003	0.031	0.155	0*
			Cadmium (Cd) TOT	3E-05	0.00009	0.000	0*
			Copper (Cu) TOT	0.002	0.048	0.240	0*
			Lead (Pb) TOT	0.0003	0.002	0.010	0*
			Manganese (Mn) TOT	0.001	0.005	0.025	0*
			Zinc (Zn) TOT	0.008	0.023	0.115	0*
Rinsate	P2a-RB3	4/20/16	Barium (Ba) TOT	0.003	0.007	0.035	0*
			Cadmium (Cd) TOT	3E-05	0.00004	0.000	0*
			Copper (Cu) TOT	0.002	0.012	0.060	0*
			Lead (Pb) TOT	0.0003	0.0005	0.003	0*
			Manganese (Mn) TOT	0.001	0.002	0.010	0*
			Zinc (Zn) TOT	0.008	0.009	0.045	0*

*Notes: Associated sample results were more than five times the blank value.

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per 20 samples or per day, *whichever is greater*).

Yes
 No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 35% or less for soils and 20% for water). If the sample or duplicate result is less or equal to five times the PRDL, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm two times the PRDL.

Yes
 No – see notes

Notes: One field duplicate pair was out of control limits. Several samples were qualified “J” to indicate the results were estimated and may be variable. Following is a summary of the field duplicate exceedances.

Site	Sample/Dup Code	Sample Date	Parameter	Orig Result (mg/kg)	Dup Result (mg/kg)	RPD	QC Limit (RPD)	Flags
2s-4	2a-4-SD and 2s-FD1-SD	11/11/2015	Lead	177	284	46.4	35	20

6. LABORATORY PROCEDURES

- **Laboratory procedures followed**

CLP-Statement of Work (EPA, 2001)
 SW-846 (EPA, 1986)
 Methods for Chemical Analysis of Water and Wastes (EPA, 1983)

- **Holding times met**

Yes
 No

- **Consistency with project requirements**

Analyses were carried out as required by the project’s work plan (Hydrometrics, 2014).

Yes
 No

Project specified methods were used.

Yes
 No

- **Corrective action**

No corrective actions were taken for this sampling event.

Yes

No – see notes

Notes: The laboratory used the wrong reporting limits for several work orders. Corrective action was taken and they revised the reports. Refer to Section 7 for more details.

7. DETECTION LIMITS

- Reporting detection limits met PRDLs.

Yes

No – see notes

Notes: The laboratory did not use the correct reporting limits for work orders: H15120100, H15120210, H16040137, H16040143, H16040267, H16040283, H16040382, H16050109, and H16050120. Corrective action was taken and the laboratory revised the reports. However, some of the samples had to be diluted for Chromium VI (soluble) analyses. Due to the dilution, the reporting limit was raised over the PRDL. Table 3 in Appendix A lists these samples.

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks (MB) were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater).

Yes

No

- All the analytes in the blank were less than the PRDL.

Yes

No – see notes

Notes: A number of target analytes were detected in the method blanks. However, all of the sample results were greater than five times the blank value and therefore the data were not qualified for the detections. On the following page is a summary of method blank detections.

Method Blank Detections

Blank Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	# of Flags
MB-31402	H15110258	31402	12/8/15	Arsenic	0.2	0.6	3	0*
MB-31362	H15110258	31362	12/3/15	Arsenic	0.2	0.6	3	0*
MB-32611	H16040137	32611	4/14/16	Chromium	0.3	0.5	2.5	0*
MB-32612	H16040143	32612	4/15/16	Iron	5	5	25	0*
MB-32612 (2)	H16040143	32612	4/15/16	Iron	5	5	25	0*
MB-32612 (3)	H16040143	32612	4/15/16	Antimony	0.1	0.2	1	0*
MB-32699	H16040143	32699	4/25/19	Arsenic	0.2	0.3	1.5	0*
				Iron	5	60	300	0*
				Manganese	5	5	25	0*
MB-32754	H16040267	32754	4/29/16	Arsenic	0.2	0.2	1	0*
MB-32935	H16050109	32935	5/16/16	Iron	5	8	40	0*
MB-32936	H16050120	32936	5/16/16	Iron	5	6	30	0*

*Notes: Associated results were less than detection limit or greater than five times the blank value.

9. LABORATORY MATRIX SPIKES

- A Matrix Spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

Yes
 No

- MS recoveries were within the required control limits (75-125%).

Yes
 No – see notes

Notes: Samples are not normally qualified due to matrix spike results alone. Professional judgment is used to determine whether the MS recovery exceedance is associated with the MS sample, the sample used for the matrix spike, or with the entire analytical batch. For this sampling event, several MS recoveries were out of control limits. The associated results for *some* of these exceedances were qualified “J” to indicate the value was estimated and may be variable. The matrix spike exceedances are located in Table 4, Appendix A.

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes
 No

- RPDs were within the required control limits (RPD of 35% or less). If the sample or duplicate result is less or equal to five times the PRDL, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm two times the PRDL.

Yes

No – see notes on the following page

Notes: Two laboratory duplicate RPDs exceeded the QC limits. The associated results were qualified with “J” to indicate the values were estimated and may be variable. Following is a summary of the laboratory duplicate exceedances.

Laboratory Dup Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	RPD	QC Limit*	# of Flags
H16040224-001AMSD	H16040309 & H16040334	32689	4/26/16	Silver	25	20	2
H16040309-005AMSD	H16040309	32774	4/29/16	Arsenic	52	35	5

*Note: 20 RPD was used as the limit for water samples and 35 RPD was used as a limit for soil samples.

11. LABORATORY CONTROL STANDARDS (LCS)

- LCS' (laboratory fortified blanks (LFBs) can be used in lieu of LCS') were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes

No

- LCS recoveries were within the required control limits (80-120% or certified range).

Yes

No

12. DATA QUALITY OBJECTIVES (DQOs)

- **Precision** for this project is determined by field and laboratory duplicate sample results that are within control limits.

For this sampling event, *all* field and laboratory duplicate pair results were within control limits.

Yes

No – see the following table

Precision

QC Type	Results Out of Control	# of Associated Flags
Field Duplicates	1	20
Lab Duplicates	2	7
Overall	3	27

- **Accuracy** for this project is determined by laboratory control sample (LCS), matrix spike (MS) sample results that are within control limits.

For this sampling event, *all* LCS and MS recoveries were within control limits.

Yes

No – see the table on the following page

Accuracy

QC Type	Results Out of Control	# of Associated Flags
LCS/BSS	0	0
Matrix Spikes	46	32
Overall	46	32

- DQO target for **completeness** was met (the number of valid results divided by the number of possible results is 90% or above).

Yes – see the following table

No

Completeness

# of Planned Measurements	Actual # of Measurements*	# of Rejected Measurements	# of Valid Measurements	Completeness
1178	1178	0	1178	100.0%

- All samples were accepted without qualifiers for QC exceedances and deficiencies.

Yes

No - see the following table

Qualified Data

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
1178	59	1119	95.0%

13. CONCLUSION

The soil, sediment, and field blank data collected for the 2015-2016 Supplemental RFI Soils Project are acceptable and can be used for the purposes of this project as long as the qualified data are used with caution.

REFERENCES

- CH2M•, 2015. *East Helena Facility Supplemental RFI Sampling and Analysis Plan*. CH2M•. October 2015.
- CH2M•, 2015. *Addendum to East Helena Facility Supplemental RFI Sampling and Analysis Plan*. CH2M•. May 2016.
- EPA, 1983. *Methods for Chemical Analysis of Water and Wastes*. United States Environmental Protection Agency. March 1983.
- EPA, 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. December 1986.
- EPA, 1999. *USEPA Contract Laboratory Program Statement of Work for Organic Analysis, Multi-Media, Multi Concentration*. United States Environmental Protection Agency. Document Number OLM04.2. May 1999.
- EPA, 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media, Multi Concentration*. United States Environmental Protection Agency. Document Number ILM05.2. December 2001.
- EPA, 2010. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*. United States Environmental Protection Agency. Document Number OSWER 9240.1-51. EPA 540-R-10-011. January 2010.
- EPA, 2008. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. United States Environmental Protection Agency. EPA-540-R-08-01. June 2008.
- Hydrometrics, 2011. *Quality Assurance Project Plan for Environmental Data Collection Activities, East Helena Facility (Revised Draft)*. Prepared for the Montana Environmental Trust Group. Revised August 2011.

APPENDIX A
TABLES

Table 1. Data Validation Codes and Definitions
Former ASARCO East Helena Plant
2015-2016 Supplemental Soil Data

Qualifier	Description
J	Estimated and may be variable.
UJ	Estimated as less than the value.

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>			<i>Sample Date</i>		
<i>Field Sample ID</i>			<i>Parameter</i>		
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
23-1-SD					
23-1-SD	11/11/2015				
Lead (Pb)	150	mg/kg	J	Field Duplicate - 46.4 RPD	
23-2-SD					
23-2-SD	11/11/2015				
Lead (Pb)	83	mg/kg	J	Field Duplicate - 46.4 RPD	
23-3-SD					
23-3-MS/MSD	11/11/2015				
Lead (Pb)	110	mg/kg	J	Field Duplicate - 46.4 RPD	
23-3-SD	11/11/2015				
Lead (Pb)	91	mg/kg	J	Field Duplicate - 46.4 RPD	
23-FD1-SD	11/11/2015				
Lead (Pb)	95	mg/kg	J	Field Duplicate - 46.4 RPD	
23-4-SD					
23-4-SD	11/11/2015				
Lead (Pb)	152	mg/kg	J	Field Duplicate - 46.4 RPD	
23-5-SD					
23-5-SD	11/11/2015				
Lead (Pb)	47	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-10-SD					
2a-10-SD	11/11/2015				
Lead (Pb)	138	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-11-SD					
2a-11-SD	11/11/2015				
Lead (Pb)	201	mg/kg	J	Field Duplicate - 46.4 RPD	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>			<i>Sample Date</i>		
<i>Field Sample ID</i>			<i>Parameter</i>		
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
2a-1-SD					
2a-1-SD	11/11/2015				
Lead (Pb)	83	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-2-SD					
2a-2-SD	11/11/2015				
Lead (Pb)	402	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-3-SD					
2a-3-SD	11/11/2015				
Lead (Pb)	132	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-4-SD					
2a-4-MS/MSD	11/11/2015				
Lead (Pb)	237	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-4-SD	11/11/2015				
Lead (Pb)	177	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-FD1-SD	11/11/2015				
Lead (Pb)	284	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-5-SD					
2a-5-SD	11/11/2015				
Lead (Pb)	85	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-6-SD					
2a-6-SD	11/11/2015				
Lead (Pb)	139	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-7-SD					
2a-7-SD	11/11/2015				
Lead (Pb)	306	mg/kg	J	Field Duplicate - 46.4 RPD	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>					
	<i>Sample Date</i>				
<i>Field Sample ID</i>					
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
2a-8-SD					
2a-8-SD	11/11/2015				
Lead (Pb)	106	mg/kg	J	Field Duplicate - 46.4 RPD	
2a-9-SD					
2a-9-SD	11/11/2015				
Lead (Pb)	188	mg/kg	J	Field Duplicate - 46.4 RPD	
P15-DU12-SS					
P15-DU12-MSMSD-SS	5/8/2016				
Antimony (Sb)	1	mg/kg	UJ	Matrix Spike - 21% Recovery	
Copper (Cu)	46	mg/kg	J	Matrix Spike - 48% Recovery	
P15-DU12-SS	5/8/2016				
Antimony (Sb)	1.2	mg/kg	J	Matrix Spike - 21% Recovery	
Copper (Cu)	45	mg/kg	J	Matrix Spike - 48% Recovery	
P15-FD2-SS	5/8/2016				
Antimony (Sb)	1.1	mg/kg	J	Matrix Spike - 21% Recovery	
Copper (Cu)	46	mg/kg	J	Matrix Spike - 48% Recovery	
P15-DU2-SS					
P15-DU2-SS	5/5/2016				
Antimony (Sb)	1.8	mg/kg	J	Matrix Spike - 23% Recovery	
P15-DU7-SS					
P15-DU7-SS	5/5/2016				
Antimony (Sb)	1.5	mg/kg	J	Matrix Spike - 23% Recovery	
P15-DUA5-SS					
P15-DUA5-MSMSD-SS	5/8/2016				
Antimony (Sb)	1.6	mg/kg	J	Matrix Spike - 21% Recovery	
Copper (Cu)	103	mg/kg	J	Matrix Spike - 48% Recovery	
P15-DUA5-SS	5/8/2016				
Antimony (Sb)	1.4	mg/kg	J	Matrix Spike - 21% Recovery	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>					
	<i>Sample Date</i>				
<i>Field Sample ID</i>					
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
P15-DUA5-SS					
P15-DUA5-SS	5/8/2016				
Copper (Cu)	87	mg/kg	J	Matrix Spike - 48% Recovery	
P15-FD3-SS					
	5/8/2016				
Antimony (Sb)	1.6	mg/kg	J	Matrix Spike - 21% Recovery	
Copper (Cu)	92	mg/kg	J	Matrix Spike - 48% Recovery	
P23-DU14-SS					
P23-DU14-SS	4/10/2016				
Antimony (Sb)	0.9	mg/kg	UJ	Matrix Spike - 26% Recovery	
P23-DU20-SS					
P23-DU20-MSMSD-SS	4/10/2016				
Antimony (Sb)	1.6	mg/kg	J	Matrix Spike - 25% Recovery	
Mercury (Hg)	1.6	mg/kg	J	Matrix Spike - 148% Recovery	
P23-DU20-SS	4/10/2016				
Antimony (Sb)	1.4	mg/kg	J	Matrix Spike - 26% Recovery	
P23-FD3-SS	4/10/2016				
Antimony (Sb)	1.6	mg/kg	J	Matrix Spike - 26% Recovery	
P23-DU26-SS					
P23-DU26-SS	4/17/2016				
Antimony (Sb)	1	mg/kg	UJ	Matrix Spike - 45% Recovery	
Mercury (Hg)	1.6	mg/kg	J	Matrix Spike - 148% Recovery	
P23-DU28-SS					
P23-DU28-MSMSD-SS	4/17/2016				
Antimony (Sb)	0.8	mg/kg	UJ	Matrix Spike - 45% Recovery	
P23-DU2-SS					
P23-DU2-SS	4/6/2016				
Antimony (Sb)	1.9	mg/kg	J	Matrix Spike - 24% Recovery	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>					
<i>Field Sample ID</i>	<i>Sample Date</i>				
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
P23-DU8-SS					
P23-DU8-SS	4/6/2016				
Antimony (Sb)	1.5	mg/kg	J	Matrix Spike - 24% Recovery	
P2a-DU10-SS					
P2a-DU10-MSMSD-SS	4/24/2016				
Antimony (Sb)	2.7	mg/kg	J	Matrix Spike - 27% Recovery	
P2a-DU10-SS	4/24/2016				
Antimony (Sb)	2.6	mg/kg	J	Matrix Spike - 27% Recovery	
P2a-FD4-SS	4/24/2016				
Antimony (Sb)	2.4	mg/kg	J	Matrix Spike - 27% Recovery	
P2a-DU11-SS					
P2a-DU11-SS	4/19/2016				
Arsenic (As)	67	mg/kg	J	Lab Duplicate - 52 RPD	
P2a-DU12-SS					
P2a-DU12-SS	4/19/2016				
Arsenic (As)	103	mg/kg	J	Lab Duplicate - 52 RPD	
P2a-DU13-SS					
P2a-DU13-SS	4/19/2016				
Arsenic (As)	111	mg/kg	J	Lab Duplicate - 52 RPD	
P2a-DU16-SS					
P2a-DU16-SS	4/19/2016				
Arsenic (As)	99	mg/kg	J	Lab Duplicate - 52 RPD	
P2a-DU19-SS					
P2a-DU19-SS	4/24/2016				
Antimony (Sb)	1.5	mg/kg	J	Matrix Spike - 27% Recovery	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Summary of Qualified Data
Former ASARCO East Helena Plant
2015 - 2016 Supplemental Soil Data**

<i>Station Name</i>					
<i>Field Sample ID</i>	<i>Sample Date</i>				
<i>Parameter</i>	<i>Value</i>	<i>Unit</i>	<i>Flag</i>	<i>*QC Type-Exceedance</i>	
P2a-DU27-SS					
P2a-DU27-SS	4/24/2016				
Antimony (Sb)	3.1	mg/kg	J	Matrix Spike - 27% Recovery	
P2a-DU2-SS					
P2a-DU2-SS	4/18/2016				
Antimony (Sb)	6	mg/kg	J	Matrix Spike - 45% Recovery	
P2a-DU7-SS					
P2a-DU7-SS	4/19/2016				
Arsenic (As)	108	mg/kg	J	Lab Duplicate - 52 RPD	
P2a-RB2-SS					
P2a-RB2-SS	4/19/2016				
Silver (Ag) TOT	< 0.0002	mg/L	UJ	Lab Duplicate - 25 RPD	
P2a-RB3					
P2a-RB3	4/20/2016				
Silver (Ag) TOT	< 0.0002	mg/L	UJ	Lab Duplicate - 25 RPD	
P7-DU22-SS					
P7-DU22-SS	12/11/2015				
Antimony (Sb)	3.5	mg/kg	J	Matrix Spike - 26% Recovery	
P8E-DU2-SS					
P8E-DU2-SS	11/12/2015				
Antimony (Sb)	5.5	mg/kg	J	Matrix Spike - 57% Recovery	

***Notes: Diff = Difference between original and duplicate concentrations. RPD = Relative Percent Difference. RL = Reporting Limit. PRDL = Project Required Detection Level.**

**Table 3. Non-Detected Results Where Reporting Levels Were Greater Than
the Project Required Detection Limits
Former ASARCO East Helena Facility
2015-2016 Supplemental Soil Data**

Station Name	Sample ID	Lab ID	Reporting Level (Non-Detect Result*)	Project Detection Limit	Dilution Factor
	Sample Date	Parameter	Units		
P15-DU12-SS	P15-DU12-MSMSD-SS	<i>H16050120-003</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DU12-SS	P15-DU12-SS	<i>H16050120-002</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DU12-SS	P15-FD2-SS	<i>H16050120-004</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DU2-SS	P15-DU2-SS	<i>H16050109-002</i>			
	5/5/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DU7-SS	P15-DU7-SS	<i>H16050109-007</i>			
	5/5/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DUA5-SS	P15-DUA5-MSMSD-SS	<i>H16050120-016</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P15-DUA5-SS	P15-DUA5-SS	<i>H16050120-015</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 0.5	0.3 5
P15-DUA5-SS	P15-FD3-SS	<i>H16050120-017</i>			
	5/8/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P23-DU14-SS	P23-DU14-SS	<i>H16040143-004</i>			
	4/10/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P23-DU20-SS	P23-DU20-MSMSD-SS	<i>H16040143-012</i>			
	4/10/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P23-DU20-SS	P23-DU20-SS	<i>H16040143-011</i>			
	4/10/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P23-DU20-SS	P23-FD3-SS	<i>H16040143-013</i>			
	4/10/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P23-DU8-SS	P23-DU8-SS	<i>H16040137-009</i>			
	4/6/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P2a-DU10-SS	P2a-DU10-MSMSD-SS	<i>H16040382-002</i>			
	4/24/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P2a-DU10-SS	P2a-FD4-SS	<i>H16040382-003</i>			
	4/24/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10
P2a-DU19-SS	P2a-DU19-SS	<i>H16040382-004</i>			
	4/24/2016	Chromium VI (Soluble)	mg/kg	U 1	0.3 10

*Note: U = Analyte not detected above the numerical value.

Sunday, July 10, 2016

Page 1 of 2

**Table 3. Non-Detected Results Where Reporting Levels Were Greater Than
the Project Required Detection Limits
Former ASARCO East Helena Facility
2015-2016 Supplemental Soil Data**

Station Name	Sample ID	Lab ID	Reporting Level (Non-Detect Result*)	Project Detection Limit	Dilution Factor
	Sample Date	Parameter	Units		
P2a-DU27-SS	P2a-DU27-SS	<i>H16040382-010</i>			
	4/24/2016	Chromium VI (Soluble)	mg/kg U	1	0.3 10
P8E-DU2-SS	P8E-DU2-SS	<i>H15110258-023</i>			
	11/12/2015	Chromium VI (Soluble)	mg/kg U	1	0.3 10

*Note: U = Analyte not detected above the numerical value.
Sunday, July 10, 2016

**Table 4. Summary of Matrix Spike Exceedances
Former ASARCO East Helena Facility
2015-2016 Supplemental Soil Data**

MS Sample Code	Sample Batch	Analytical Batch	Analysis Date	Parameter	% Recovery	# of Flags	Bias
H15110258-017AMS	H15110258	31362	12/3/15	Antimony	57%	1	None
H15110258-017AMSD	H15110258	31362	12/3/15	Antimony	62%	0 ⁽¹⁾	
H15120100-014AMS	H15120100	31459	12/15/15	Barium	134%	0 ⁽²⁾	
H15120100-014AMS	H15120100	31459	12/15/15	Barium	136%	0 ⁽²⁾	
H15120100-014AMS	H15120100	31459	12/15/15	Antimony	48%	0 ⁽²⁾	
H15120100-014AMSD	H15120100	31459	12/15/15	Antimony	35%	0 ⁽²⁾	
H15120100-014AMS	H15120100	31460	12/15/15	Mercury	73%	0 ⁽³⁾	
H15120210-003AMS	H15120210	31510	12/21/15	Barium	130%	0 ⁽³⁾	
H15120210-003AMS	H15120210	31510	12/18/15	Antimony	29%	1	None
H15120210-003AMSD	H15120210	31510	12/18/15	Antimony	26%	0 ⁽²⁾	
H16040137-013MS	H16040137	32611	4/15/16	Antimony	26%	0 ⁽¹⁾	
H16040137-013MSD	H16040137	32611	4/15/16	Antimony	24%	2	None
H16040143-013AMS	H16040143	32612	4/15/16	Barium	130%	0 ⁽³⁾	
H16040143-013AMSD	H16040143	32612	4/15/16	Copper	136%	0 ⁽³⁾	
H16040143-013AMSD (2)	H16040143	32612	4/15/16	Copper	127%	0 ⁽³⁾	
H16040143-013AMS	H16040143	32612	4/18/16	Antimony	30%	0 ⁽¹⁾	
H16040143-013AMS	H16040143	32612	4/18/16	Antimony	26%	3	None
H16040143-012AMS	H16040143	32699	4/25/16	Antimony	27%	0 ⁽²⁾	
				Barium	129%	0 ⁽³⁾	
H16040143-012AMSD	H16040143	32699	4/25/16	Antimony	25%	1	None
H16040143-012AMS	H16040143 & H16040267	32735	4/26/16	Mercury	148%	2	None
H16040143-012AMSD	H16040143 & H16040267	32735	4/26/16	Mercury	131%	0 ⁽²⁾	
H16040267-009AMS	H16040267	32754	4/28/16	Antimony	57%	0 ⁽¹⁾	
				Silver	147%	0 ⁽³⁾	
H16040267-009AMSD	H16040267 & H16040283	32754	4/28/16	Antimony	45%	3	None
				Manganese	189%	0 ⁽³⁾	
H16040267-009AMSD	H16040283	32754	4/30/16	Manganese	177%	0 ⁽³⁾	
H16040309-005APDS	H16040309	32849	5/5/16	Lead	69%	0 ⁽³⁾	
H16040382-011BMS	H16040382	1600425A-CR HEX-W	4/25/16	Chromium VI	8%	0 ⁽³⁾	
H16040382-002AMS	H16040382	32823	5/4/16	Copper	131%	0 ⁽³⁾	
H16040382-002AMS	H16040382	32823	5/5/16	Antimony	28%	0 ⁽¹⁾	
H16040382-002AMSD	H16040382	32823	5/5/16	Antimony	27%	5	None
H16050109-011AMSD	H16050109	32935	5/16/16	Zinc	69%	0 ⁽³⁾	
H16050109-011APDS	H16050109	32935	5/17/16	Silver	66%	0 ⁽³⁾	
H16050109-011AMS	H16050109	32935	5/17/16	Antimony	21%	2	None
H16050109-011AMSD	H16050109	32935	5/17/16	Antimony	23%	0 ⁽¹⁾	
H16050120-016AMS	H16050120	32936	5/16/16	Barium	69%	0 ⁽³⁾	
				Copper	48%	6	None
H16050120-016AMSD	H16050120	32936	5/16/16	Copper	65%	0 ⁽¹⁾	
H16050120-003APDS	H16050120	32936	5/17/16	Silver	64%	0 ⁽³⁾	
H16050120-003AMS	H16050120	32936	5/17/16	Antimony	21%	6	None
H16050120-003AMSD	H16050120	32936	5/17/16	Antimony	21%	0 ⁽¹⁾	
H16050120-016APDS	H16050120	32936	5/17/16	Silver	69%	0 ⁽³⁾	
H16050120-016AMS	H16050120	32936	5/17/16	Antimony	35%	0 ⁽¹⁾	
				Vanadium	71%	0 ⁽³⁾	
H16050120-016AMSD	H16050120	32936	5/17/16	Antimony	34%	0 ⁽¹⁾	

***Notes:**

- 1) Associated results were already flagged for the paired MS or MSD recovery exceedance.
- 2) Reported sample results were not run with this MS/MSD pair.
- 3) The recovery for the paired Matrix Spike (MS) or MS Duplicate (MSD) was within control limits and therefore it was determined that the associated results were not affected.

APPENDIX B
VALIDATED DATABASE

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	23-1-SD	23-2-SD	23-3-SD	23-3-SD	23-3-SD	23-4-SD	23-5-SD	2a-10-SD
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015
Field ID	23-1-SD	23-2-SD	23-3-MS/MSD	23-3-SD	23-FD1-SD	23-4-SD	23-5-SD	2a-10-SD
Lab ID	H15110258-014	H15110258-015	H15110258-017	H15110258-016	H15110258-018	H15110258-019	H15110258-020	H15110258-012
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals										
Antimony (Sb)	mg/kg									
Antimony (Sb) TOT	mg/L									
Arsenic (As)	mg/kg	2	25	15	19	20	20	19	10	26
Arsenic (As) TOT	mg/L									
Barium (Ba)	mg/kg									
Barium (Ba) TOT	mg/L									
Cadmium (Cd)	mg/kg									
Cadmium (Cd) TOT	mg/L									
Chromium (Cr)	mg/kg									
Chromium (Cr) TOT	mg/L									
Chromium VI	mg/L									
Chromium VI (Soluble)	mg/kg									
Cobalt (Co)	mg/kg									
Cobalt (Co) TOT	mg/L									
Copper (Cu)	mg/kg									
Copper (Cu) TOT	mg/L									
Iron (Fe)	mg/kg									
Iron (Fe) TOT	mg/L									
Lead (Pb)	mg/kg	3	150 J	83 J	110 J	91 J	95 J	152 J	47 J	138 J
Lead (Pb) TOT	mg/L									
Manganese (Mn)	mg/kg									
Manganese (Mn) TOT	mg/L									
Mercury (Hg)	mg/kg									
Mercury (Hg)	mg/L									
Mercury (Hg) TOT	mg/L									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	23-1-SD	23-2-SD	23-3-SD	23-3-SD	23-3-SD	23-4-SD	23-5-SD	2a-10-SD
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015
Field ID	23-1-SD	23-2-SD	23-3-MS/MSD	23-3-SD	23-FD1-SD	23-4-SD	23-5-SD	2a-10-SD
Lab ID	H15110258-014	H15110258-015	H15110258-017	H15110258-016	H15110258-018	H15110258-019	H15110258-020	H15110258-012
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg	
Selenium (Se) TOT	mg/L	
Silver (Ag)	mg/kg	
Silver (Ag) TOT	mg/L	
Thallium (Tl)	mg/kg	
Thallium (Tl) TOT	mg/L	
Vanadium (V)	mg/kg	
Vanadium (V) TOT	mg/L	
Zinc (Zn)	mg/kg	
Zinc (Zn) TOT	mg/L	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	2a-11-SD	2a-1-SD	2a-2-SD	2a-3-SD	2a-4-SD	2a-4-SD	2a-4-SD	2a-5-SD
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015
Field ID	2a-11-SD	2a-1-SD	2a-2-SD	2a-3-SD	2a-4-MS/MSD	2a-4-SD	2a-FD1-SD	2a-5-SD
Lab ID	H15110258-013	H15110258-001	H15110258-002	H15110258-003	H15110258-005	H15110258-004	H15110258-006	H15110258-007
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample

Analyte Units RL

Metals										
Antimony (Sb)	mg/kg									
Antimony (Sb) TOT	mg/L									
Arsenic (As)	mg/kg	2	32	12	54	21	29	33	27	18
Arsenic (As) TOT	mg/L									
Barium (Ba)	mg/kg									
Barium (Ba) TOT	mg/L									
Cadmium (Cd)	mg/kg									
Cadmium (Cd) TOT	mg/L									
Chromium (Cr)	mg/kg									
Chromium (Cr) TOT	mg/L									
Chromium VI	mg/L									
Chromium VI (Soluble)	mg/kg									
Cobalt (Co)	mg/kg									
Cobalt (Co) TOT	mg/L									
Copper (Cu)	mg/kg									
Copper (Cu) TOT	mg/L									
Iron (Fe)	mg/kg									
Iron (Fe) TOT	mg/L									
Lead (Pb)	mg/kg	3	201 J	83 J	402 J	132 J	237 J	177 J	284 J	85 J
Lead (Pb) TOT	mg/L									
Manganese (Mn)	mg/kg									
Manganese (Mn) TOT	mg/L									
Mercury (Hg)	mg/kg									
Mercury (Hg)	mg/L									
Mercury (Hg) TOT	mg/L									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	2a-11-SD	2a-1-SD	2a-2-SD	2a-3-SD	2a-4-SD	2a-4-SD	2a-4-SD	2a-5-SD
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015
Field ID	2a-11-SD	2a-1-SD	2a-2-SD	2a-3-SD	2a-4-MS/MSD	2a-4-SD	2a-FD1-SD	2a-5-SD
Lab ID	H15110258-013	H15110258-001	H15110258-002	H15110258-003	H15110258-005	H15110258-004	H15110258-006	H15110258-007
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg	
Selenium (Se) TOT	mg/L	
Silver (Ag)	mg/kg	
Silver (Ag) TOT	mg/L	
Thallium (Tl)	mg/kg	
Thallium (Tl) TOT	mg/L	
Vanadium (V)	mg/kg	
Vanadium (V) TOT	mg/L	
Zinc (Zn)	mg/kg	
Zinc (Zn) TOT	mg/L	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	2a-6-SD	2a-7-SD	2a-8-SD	2a-9-SD	P13-AFB	P13-DU13-SS	P13-DU14-SS	P13-DU15-SS
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	12/4/2015	12/4/2015	12/4/2015	12/4/2015
Field ID	2a-6-SD	2a-7-SD	2a-8-SD	2a-9-SD	P13-AFB	P13-DU13-SS	P13-DU14-SS	P13-DU15-SS
Lab ID	H15110258-008	H15110258-009	H15110258-010	H15110258-011	H15120100-017	H15120100-018	H15120100-019	H15120100-020
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)									
Antimony (Sb) TOT						<0.0005			
Arsenic (As)	2	20	46	20	33		58	40	42
Arsenic (As) TOT						<0.001			
Barium (Ba)									
Barium (Ba) TOT						<0.003			
Cadmium (Cd)									
Cadmium (Cd) TOT						<0.00003			
Chromium (Cr)									
Chromium (Cr) TOT						<0.005			
Chromium VI									
Chromium VI (Soluble)									
Cobalt (Co)									
Cobalt (Co) TOT						<0.005			
Copper (Cu)									
Copper (Cu) TOT						<0.002			
Iron (Fe)									
Iron (Fe) TOT						<0.02			
Lead (Pb)	3	139 J	306 J	106 J	188 J		668	538	469
Lead (Pb) TOT						<0.0003			
Manganese (Mn)									
Manganese (Mn) TOT						<0.001			
Mercury (Hg)									
Mercury (Hg) TOT						<0.00001			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	2a-6-SD	2a-7-SD	2a-8-SD	2a-9-SD	P13-AFB	P13-DU13-SS	P13-DU14-SS	P13-DU15-SS
Sample Date	11/11/2015	11/11/2015	11/11/2015	11/11/2015	12/4/2015	12/4/2015	12/4/2015	12/4/2015
Field ID	2a-6-SD	2a-7-SD	2a-8-SD	2a-9-SD	P13-AFB	P13-DU13-SS	P13-DU14-SS	P13-DU15-SS
Lab ID	H15110258-008	H15110258-009	H15110258-010	H15110258-011	H15120100-017	H15120100-018	H15120100-019	H15120100-020
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals		
Selenium (Se)	mg/kg	
Selenium (Se) TOT	mg/L	<0.001
Silver (Ag)	mg/kg	
Silver (Ag) TOT	mg/L	<0.0002
Thallium (Tl)	mg/kg	
Thallium (Tl) TOT	mg/L	<0.0002
Vanadium (V)	mg/kg	
Vanadium (V) TOT	mg/L	<0.01
Zinc (Zn)	mg/kg	
Zinc (Zn) TOT	mg/L	<0.008

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P13-DU16-SS	P13-DU17-SS	P13-DU18-SS	P13-RB	P14-AFB	P14-DU10-SS	P14-DU11-SS	P14-DU12-SS
Sample Date	12/4/2015	12/4/2015	12/4/2015	12/4/2015	11/22/2015	11/22/2015	11/22/2015	11/22/2015
Field ID	P13-DU16-SS	P13-DU17-SS	P13-DU18-SS	P13-RB	P14-AFB	P14-DU10-SS	P14-DU11-SS	P14-DU12-MSMSD-SS
Lab ID	H15120100-021	H15120100-022	H15120100-023	H15120100-024	H15120100-007	H15120100-011	H15120100-012	H15120100-014
Sample Type	Original Sample	Original Sample	Original Sample	Blank	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg			2					1.9
Antimony (Sb) TOT	mg/L				<0.0005	<0.0005			
Arsenic (As)	mg/kg	2	44	47	49		50	48	51
Arsenic (As) TOT	mg/L				<0.001	<0.001			
Barium (Ba)	mg/kg			168					161
Barium (Ba) TOT	mg/L				<0.003	<0.003			
Cadmium (Cd)	mg/kg			16.9					12.3
Cadmium (Cd) TOT	mg/L				<0.00003	<0.00003			
Chromium (Cr)	mg/kg			24.7					24.4
Chromium (Cr) TOT	mg/L				<0.005	<0.005			
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg			<0.3					<0.3
Cobalt (Co)	mg/kg			8					7
Cobalt (Co) TOT	mg/L				<0.005	<0.005			
Copper (Cu)	mg/kg			68					64
Copper (Cu) TOT	mg/L				<0.002	<0.002			
Iron (Fe)	mg/kg			22400					21600
Iron (Fe) TOT	mg/L				<0.02	<0.02			
Lead (Pb)	mg/kg	3	464	559	547		577	457	425
Lead (Pb) TOT	mg/L				<0.0003	<0.0003			
Manganese (Mn)	mg/kg			423					374
Manganese (Mn) TOT	mg/L				<0.001	<0.001			
Mercury (Hg)	mg/kg			1.9					1.2
Mercury (Hg)	mg/L				<0.00001	<0.00001			
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P13-DU16-SS	P13-DU17-SS	P13-DU18-SS	P13-RB	P14-AFB	P14-DU10-SS	P14-DU11-SS	P14-DU12-SS
Sample Date	12/4/2015	12/4/2015	12/4/2015	12/4/2015	11/22/2015	11/22/2015	11/22/2015	11/22/2015
Field ID	P13-DU16-SS	P13-DU17-SS	P13-DU18-SS	P13-RB	P14-AFB	P14-DU10-SS	P14-DU11-SS	P14-DU12-MSMSD-SS
Lab ID	H15120100-021	H15120100-022	H15120100-023	H15120100-024	H15120100-007	H15120100-011	H15120100-012	H15120100-014
Sample Type	Original Sample	Original Sample	Original Sample	Blank	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals								
Selenium (Se)	mg/kg	0.8						0.7
Selenium (Se) TOT	mg/L			<0.001	<0.001			
Silver (Ag)	mg/kg	2.3						1.9
Silver (Ag) TOT	mg/L			<0.0002	<0.0002			
Thallium (Tl)	mg/kg	1.1						0.8
Thallium (Tl) TOT	mg/L			<0.0002	<0.0002			
Vanadium (V)	mg/kg	59						63
Vanadium (V) TOT	mg/L			<0.01	<0.01			
Zinc (Zn)	mg/kg	180						150
Zinc (Zn) TOT	mg/L			<0.008	<0.008			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P14-DU12-SS	P14-DU12-SS	P14-DU3-SS	P14-DU3-SS	P14-DU4-SS	P14-DU5-SS	P14-DU6-SS	P14-DU7-SS
Sample Date	11/22/2015	11/22/2015	11/21/2015	11/21/2015	11/21/2015	11/21/2015	11/21/2015	11/22/2015
Field ID	P14-DU12-SS	P14-FD2-SS	P14-DU3-SS	P14-FD1-SS	P14-DU4-SS	P14-DU5-SS	P14-DU6-SS	P14-DU7-SS
Lab ID	H15120100-013	H15120100-015	H15120100-001	H15120100-002	H15120100-003	H15120100-004	H15120100-005	H15120100-008
Sample Type	Original Sample	Field Duplicate	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals										
Antimony (Sb)	mg/kg	0.1	2	2					3.5	
Antimony (Sb) TOT	mg/L									
Arsenic (As)	mg/kg	2	52	51	81	78	65	60	54	83
Arsenic (As) TOT	mg/L									
Barium (Ba)	mg/kg	5	161	163						262
Barium (Ba) TOT	mg/L									
Cadmium (Cd)	mg/kg	0.1	14	14.6						28.5
Cadmium (Cd) TOT	mg/L									
Chromium (Cr)	mg/kg	0.3	25.9	25.3						22.1
Chromium (Cr) TOT	mg/L									
Chromium VI	mg/L									
Chromium VI (Soluble)	mg/kg	0.3	<0.3	<0.3						10
Cobalt (Co)	mg/kg	1	7	7						9
Cobalt (Co) TOT	mg/L									
Copper (Cu)	mg/kg	5	67	74						114
Copper (Cu) TOT	mg/L									
Iron (Fe)	mg/kg	5	22100	22200						22200
Iron (Fe) TOT	mg/L									
Lead (Pb)	mg/kg	3	481	500	918	876	818	662	582	931
Lead (Pb) TOT	mg/L									
Manganese (Mn)	mg/kg	5	395	386						604
Manganese (Mn) TOT	mg/L									
Mercury (Hg)	mg/kg	0.099	1.5	1.4						4.9
Mercury (Hg)	mg/L									
Mercury (Hg) TOT	mg/L									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P14-DU12-SS	P14-DU12-SS	P14-DU3-SS	P14-DU3-SS	P14-DU4-SS	P14-DU5-SS	P14-DU6-SS	P14-DU7-SS
Sample Date	11/22/2015	11/22/2015	11/21/2015	11/21/2015	11/21/2015	11/21/2015	11/21/2015	11/22/2015
Field ID	P14-DU12-SS	P14-FD2-SS	P14-DU3-SS	P14-FD1-SS	P14-DU4-SS	P14-DU5-SS	P14-DU6-SS	P14-DU7-SS
Lab ID	H15120100-013	H15120100-015	H15120100-001	H15120100-002	H15120100-003	H15120100-004	H15120100-005	H15120100-008
Sample Type	Original Sample	Field Duplicate	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals					
Selenium (Se)	mg/kg	0.5	0.7	0.9	1.3
Selenium (Se) TOT	mg/L				
Silver (Ag)	mg/kg	0.3	2.1	2.5	4.3
Silver (Ag) TOT	mg/L				
Thallium (Tl)	mg/kg	0.1	0.8	0.9	1.5
Thallium (Tl) TOT	mg/L				
Vanadium (V)	mg/kg	1	63	63	45
Vanadium (V) TOT	mg/L				
Zinc (Zn)	mg/kg	5	164	172	313
Zinc (Zn) TOT	mg/L				

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P14-DU8-SS	P14-DU9-SS	P14-RB1	P14-RB2	P15-AFB1	P15-DU10-SS	P15-DU10-SS	P15-DU10-SS
Sample Date	11/22/2015	11/22/2015	11/21/2015	11/22/2015	5/5/2016	5/5/2016	5/5/2016	5/5/2016
Field ID	P14-DU8-SS	P14-DU9-SS	P14-RB1	P14-RB2	P15-AFB1	P15-DU10-SS	P15-DU10-MSMSD SS	P15-FD1-SS
Lab ID	H15120100-009	H15120100-010	H15120100-006	H15120100-016	H16050109-013	H16050109-010	H16050109-011	H16050109-012
Sample Type	Original Sample	Original Sample	Blank	Blank	Blank	Original Sample	Original Sample	Field Duplicate

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg								
Antimony (Sb) TOT	mg/L				<0.0005	<0.0005	<0.0005		
Arsenic (As)	mg/kg	2	65	56				35	35
Arsenic (As) TOT	mg/L				<0.001	<0.001	<0.001		
Barium (Ba)	mg/kg								
Barium (Ba) TOT	mg/L				<0.003	<0.003	<0.003		
Cadmium (Cd)	mg/kg								
Cadmium (Cd) TOT	mg/L				<0.00003	<0.00003	<0.00003		
Chromium (Cr)	mg/kg								
Chromium (Cr) TOT	mg/L				<0.005	<0.005	<0.005		
Chromium VI	mg/L								<0.01
Chromium VI (Soluble)	mg/kg								
Cobalt (Co)	mg/kg								
Cobalt (Co) TOT	mg/L				<0.005	<0.005	<0.005		
Copper (Cu)	mg/kg								
Copper (Cu) TOT	mg/L				<0.002	<0.002	<0.002		
Iron (Fe)	mg/kg								
Iron (Fe) TOT	mg/L				<0.02	<0.02	<0.02		
Lead (Pb)	mg/kg	3	699	600				378	322
Lead (Pb) TOT	mg/L				<0.0003	<0.0003	<0.0003		
Manganese (Mn)	mg/kg								
Manganese (Mn) TOT	mg/L				<0.001	<0.001	<0.001		
Mercury (Hg)	mg/kg								
Mercury (Hg)	mg/L				<0.00001	<0.00001			
Mercury (Hg) TOT	mg/L						<0.000005		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P14-DU8-SS	P14-DU9-SS	P14-RB1	P14-RB2	P15-AFB1	P15-DU10-SS	P15-DU10-SS	P15-DU10-SS
Sample Date	11/22/2015	11/22/2015	11/21/2015	11/22/2015	5/5/2016	5/5/2016	5/5/2016	5/5/2016
Field ID	P14-DU8-SS	P14-DU9-SS	P14-RB1	P14-RB2	P15-AFB1	P15-DU10-SS	P15-DU10-MSMSD SS	P15-FD1-SS
Lab ID	H15120100-009	H15120100-010	H15120100-006	H15120100-016	H16050109-013	H16050109-010	H16050109-011	H16050109-012
Sample Type	Original Sample	Original Sample	Blank	Blank	Blank	Original Sample	Original Sample	Field Duplicate

Analyte **Units** **RL**

Metals

Selenium (Se)	mg/kg							
Selenium (Se) TOT	mg/L		<0.001	<0.001	<0.001			
Silver (Ag)	mg/kg							
Silver (Ag) TOT	mg/L		<0.0002	<0.0002	<0.0002			
Thallium (Tl)	mg/kg							
Thallium (Tl) TOT	mg/L		<0.0002	<0.0002	<0.0002			
Vanadium (V)	mg/kg							
Vanadium (V) TOT	mg/L		<0.01	<0.01	<0.01			
Zinc (Zn)	mg/kg							
Zinc (Zn) TOT	mg/L		<0.008	<0.008	<0.008			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DU11-SS	P15-DU12-SS	P15-DU12-SS	P15-DU12-SS	P15-DU13-SS	P15-DU14-SS	P15-DU15-SS	P15-DU1-SS
Sample Date	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/5/2016
Field ID	P15-DU11-SS	P15-DU12-SS	P15-DU12-MSMSD SS	P15-FD2-SS	P15-DU13-SS	P15-DU14-SS	P15-DU15-SS	P15-DU1-SS
Lab ID	H16050120-001	H16050120-002	H16050120-003	H16050120-004	H16050120-005	H16050120-006	H16050120-007	H16050109-001
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg			1.2 J	1 UJ	1.1 J			
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	3	34	31	35	35	34	34	29
Arsenic (As) TOT	mg/L								
Barium (Ba)	mg/kg			173	175	174			
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg			9.7	9.6	9.7			
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg			26.8	24.4	25.9			
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg			<1	<1	<1			
Cobalt (Co)	mg/kg			9	8	8			
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg			45 J	46 J	46 J			
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg			21000	20800	21800			
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	284	303	313	314	237	238	275
Lead (Pb) TOT	mg/L								
Manganese (Mn)	mg/kg			467	458	464			
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg			1.1	1.1	1.1			
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DU11-SS	P15-DU12-SS	P15-DU12-SS	P15-DU12-SS	P15-DU13-SS	P15-DU14-SS	P15-DU15-SS	P15-DU1-SS
Sample Date	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/5/2016
Field ID	P15-DU11-SS	P15-DU12-SS	P15-DU12-MSMSD SS	P15-FD2-SS	P15-DU13-SS	P15-DU14-SS	P15-DU15-SS	P15-DU1-SS
Lab ID	H16050120-001	H16050120-002	H16050120-003	H16050120-004	H16050120-005	H16050120-006	H16050120-007	H16050109-001
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals				
Selenium (Se)	mg/kg	0.9	0.7	0.8
Selenium (Se) TOT	mg/L			
Silver (Ag)	mg/kg	1.5	1.3	1.3
Silver (Ag) TOT	mg/L			
Thallium (Tl)	mg/kg	0.9	0.8	0.8
Thallium (Tl) TOT	mg/L			
Vanadium (V)	mg/kg	57	53	58
Vanadium (V) TOT	mg/L			
Zinc (Zn)	mg/kg	125	126	128
Zinc (Zn) TOT	mg/L			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DU2-SS	P15-DU3-SS	P15-DU4-SS	P15-DU5-SS	P15-DU6-SS	P15-DU7-SS	P15-DU8-SS	P15-DU9-SS
Sample Date	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016
Field ID	P15-DU2-SS	P15-DU3-SS	P15-DU4-SS	P15-DU5-SS	P15-DU6-SS	P15-DU7-SS	P15-DU8-SS	P15-DU9-SS
Lab ID	H16050109-002	H16050109-003	H16050109-004	H16050109-005	H16050109-006	H16050109-007	H16050109-008	H16050109-009
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals										
Antimony (Sb)	mg/kg	0.1	1.8 J					1.5 J		
Antimony (Sb) TOT	mg/L									
Arsenic (As)	mg/kg	3	35	54	49	55	61	44	50	37
Arsenic (As) TOT	mg/L									
Barium (Ba)	mg/kg	1	174					198		
Barium (Ba) TOT	mg/L									
Cadmium (Cd)	mg/kg	0.1	10.7					13		
Cadmium (Cd) TOT	mg/L									
Chromium (Cr)	mg/kg	0.8	22.7					25.2		
Chromium (Cr) TOT	mg/L									
Chromium VI	mg/L									
Chromium VI (Soluble)	mg/kg	1	<1					<1		
Cobalt (Co)	mg/kg	1	7					8		
Cobalt (Co) TOT	mg/L									
Copper (Cu)	mg/kg	1	76					58		
Copper (Cu) TOT	mg/L									
Iron (Fe)	mg/kg	7	18900					19700		
Iron (Fe) TOT	mg/L									
Lead (Pb)	mg/kg	6	367	2020	369	453	865	410	746	402
Lead (Pb) TOT	mg/L									
Manganese (Mn)	mg/kg	1	526					437		
Manganese (Mn) TOT	mg/L									
Mercury (Hg)	mg/kg	0.05	0.82					1.6		
Mercury (Hg)	mg/L									
Mercury (Hg) TOT	mg/L									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DU2-SS	P15-DU3-SS	P15-DU4-SS	P15-DU5-SS	P15-DU6-SS	P15-DU7-SS	P15-DU8-SS	P15-DU9-SS
Sample Date	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016	5/5/2016
Field ID	P15-DU2-SS	P15-DU3-SS	P15-DU4-SS	P15-DU5-SS	P15-DU6-SS	P15-DU7-SS	P15-DU8-SS	P15-DU9-SS
Lab ID	H16050109-002	H16050109-003	H16050109-004	H16050109-005	H16050109-006	H16050109-007	H16050109-008	H16050109-009
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals			
Selenium (Se)	mg/kg	0.5	0.9
Selenium (Se) TOT	mg/L		
Silver (Ag)	mg/kg	0.3	1.9
Silver (Ag) TOT	mg/L		
Thallium (Tl)	mg/kg	0.1	0.9
Thallium (Tl) TOT	mg/L		
Vanadium (V)	mg/kg	1	46
Vanadium (V) TOT	mg/L		
Zinc (Zn)	mg/kg	2	315
Zinc (Zn) TOT	mg/L		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DUA1-SS	P15-DUA2-SS	P15-DUA3-SS	P15-DUA4-SS	P15-DUA5-SS	P15-DUA5-SS	P15-DUA5-SS	P15-RB1
Sample Date	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/5/2016
Field ID	P15-DUA1-SS	P15-DUA2-SS	P15-DUA3-SS	P15-DUA4-SS	P15-DUA5-SS	P15-DUA5-MSMSD-SS	P15-FD3-SS	P15-RB1
Lab ID	H16050120-011	H16050120-012	H16050120-013	H16050120-014	H16050120-015	H16050120-016	H16050120-017	H16050109-014
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Blank

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg					1.4 J	1.6 J	1.6 J	
Antimony (Sb) TOT	mg/L								<0.0005
Arsenic (As)	mg/kg	3	65	49	109	66	25	26	23
Arsenic (As) TOT	mg/L								<0.001
Barium (Ba)	mg/kg						111	116	116
Barium (Ba) TOT	mg/L								<0.003
Cadmium (Cd)	mg/kg						11.2	11.5	11
Cadmium (Cd) TOT	mg/L								<0.00003
Chromium (Cr)	mg/kg						13.8	15.2	15.9
Chromium (Cr) TOT	mg/L								<0.005
Chromium VI	mg/L								<0.01
Chromium VI (Soluble)	mg/kg						<0.5	<1	<1
Cobalt (Co)	mg/kg						8	8	8
Cobalt (Co) TOT	mg/L								<0.005
Copper (Cu)	mg/kg						87 J	103 J	92 J
Copper (Cu) TOT	mg/L								<0.002
Iron (Fe)	mg/kg						17700	19700	19500
Iron (Fe) TOT	mg/L								<0.02
Lead (Pb)	mg/kg	6	971	706	1890	741	450	489	440
Lead (Pb) TOT	mg/L								<0.0003
Manganese (Mn)	mg/kg						327	354	356
Manganese (Mn) TOT	mg/L								<0.001
Mercury (Hg)	mg/kg						1.2	1.2	1.2
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								<0.000005

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P15-DUA1-SS	P15-DUA2-SS	P15-DUA3-SS	P15-DUA4-SS	P15-DUA5-SS	P15-DUA5-SS	P15-DUA5-SS	P15-RB1
Sample Date	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/8/2016	5/5/2016
Field ID	P15-DUA1-SS	P15-DUA2-SS	P15-DUA3-SS	P15-DUA4-SS	P15-DUA5-SS	P15-DUA5-MSMSD-SS	P15-FD3-SS	P15-RB1
Lab ID	H16050120-011	H16050120-012	H16050120-013	H16050120-014	H16050120-015	H16050120-016	H16050120-017	H16050109-014
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Blank

Analyte Units RL

Metals								
Selenium (Se)	mg/kg				0.6	0.7	0.8	
Selenium (Se) TOT	mg/L							<0.001
Silver (Ag)	mg/kg				2.5	3	2.8	
Silver (Ag) TOT	mg/L							<0.0002
Thallium (Tl)	mg/kg				0.7	0.8	0.8	
Thallium (Tl) TOT	mg/L							<0.0002
Vanadium (V)	mg/kg				51	58	58	
Vanadium (V) TOT	mg/L							<0.01
Zinc (Zn)	mg/kg				222	236	207	
Zinc (Zn) TOT	mg/L							<0.008

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P21-AFB1	P21-DU16-SS	P21-RB1	P23-AFB	P23-AFB2	P23-DU10-SS	P23-DU11-SS	P23-DU12-SS
Sample Date	5/8/2016	5/8/2016	5/8/2016	4/7/2016	4/17/2016	4/7/2016	4/10/2016	4/10/2016
Field ID	P21-AFB1	P21-DU16-SS	P21-RB1	P23-AFB	P23-AFB2	P23-DU10-SS	P23-DU11-SS	P23-DU12-SS
Lab ID	H16050120-009	H16050120-008	H16050120-010	H16040137-011	H16040267-014	H16040137-013	H16040143-001	H16040143-002
Sample Type	Blank	Original Sample	Blank	Blank	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals								
Antimony (Sb)	mg/kg							
Antimony (Sb) TOT	mg/L	0.0005	<0.0005		<0.0005	<0.0005	<0.0005	
Arsenic (As)	mg/kg		44			64	62	49
Arsenic (As) TOT	mg/L	0.001	<0.001		<0.001	<0.001	<0.001	
Barium (Ba)	mg/kg							
Barium (Ba) TOT	mg/L	0.003	<0.003		<0.003	<0.003	<0.003	
Cadmium (Cd)	mg/kg							
Cadmium (Cd) TOT	mg/L	0.00003	<0.00003		<0.00003	<0.00003	<0.00003	
Chromium (Cr)	mg/kg							
Chromium (Cr) TOT	mg/L	0.005	<0.005		<0.005	<0.005	<0.005	
Chromium VI	mg/L	0.01	<0.01		<0.01	<0.01	<0.01	
Chromium VI (Soluble)	mg/kg							
Cobalt (Co)	mg/kg							
Cobalt (Co) TOT	mg/L	0.005	<0.005		<0.005	<0.005	<0.005	
Copper (Cu)	mg/kg							
Copper (Cu) TOT	mg/L	0.002	<0.002		<0.002	<0.002	<0.002	
Iron (Fe)	mg/kg							
Iron (Fe) TOT	mg/L	0.02	<0.02		<0.02	<0.02	<0.02	
Lead (Pb)	mg/kg		899			420	363	266
Lead (Pb) TOT	mg/L	0.0003	<0.0003		<0.0003	<0.0003	<0.0003	
Manganese (Mn)	mg/kg							
Manganese (Mn) TOT	mg/L	0.001	<0.001		<0.001	<0.001	<0.001	
Mercury (Hg)	mg/kg							
Mercury (Hg)	mg/L							
Mercury (Hg) TOT	mg/L	0.000005	<0.000005		<0.000005	<0.000005	<0.000005	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P21-AFB1	P21-DU16-SS	P21-RB1	P23-AFB	P23-AFB2	P23-DU10-SS	P23-DU11-SS	P23-DU12-SS
Sample Date	5/8/2016	5/8/2016	5/8/2016	4/7/2016	4/17/2016	4/7/2016	4/10/2016	4/10/2016
Field ID	P21-AFB1	P21-DU16-SS	P21-RB1	P23-AFB	P23-AFB2	P23-DU10-SS	P23-DU11-SS	P23-DU12-SS
Lab ID	H16050120-009	H16050120-008	H16050120-010	H16040137-011	H16040267-014	H16040137-013	H16040143-001	H16040143-002
Sample Type	Blank	Original Sample	Blank	Blank	Blank	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg							
Selenium (Se) TOT	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver (Ag)	mg/kg							
Silver (Ag) TOT	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium (Tl)	mg/kg							
Thallium (Tl) TOT	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium (V)	mg/kg							
Vanadium (V) TOT	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (Zn)	mg/kg							
Zinc (Zn) TOT	mg/L	0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU13-SS	P23-DU14-SS	P23-DU15-SS	P23-DU16-SS	P23-DU17-SS	P23-DU17-SS	P23-DU18-SS	P23-DU19-SS
Sample Date	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016
Field ID	P23-DU13-SS	P23-DU14-SS	P23-DU15-SS	P23-DU16-SS	P23-DU17-SS	P23-FD2-SS	P23-DU18-SS	P23-DU19-SS
Lab ID	H16040143-003	H16040143-004	H16040143-005	H16040143-006	H16040143-007	H16040143-008	H16040143-009	H16040143-010
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg			0.9 UJ					
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	4	52	39	53	53	52	52	66
Arsenic (As) TOT	mg/L								64
Barium (Ba)	mg/kg			117					
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg			4.5					
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg			20.4					
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg			<1					
Cobalt (Co)	mg/kg			9					
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg			58					
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg			20800					
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	7	403	221	438	297	376	368	399
Lead (Pb) TOT	mg/L								429
Manganese (Mn)	mg/kg			1120					
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg			0.6					
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU13-SS	P23-DU14-SS	P23-DU15-SS	P23-DU16-SS	P23-DU17-SS	P23-DU17-SS	P23-DU18-SS	P23-DU19-SS
Sample Date	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016	4/10/2016
Field ID	P23-DU13-SS	P23-DU14-SS	P23-DU15-SS	P23-DU16-SS	P23-DU17-SS	P23-FD2-SS	P23-DU18-SS	P23-DU19-SS
Lab ID	H16040143-003	H16040143-004	H16040143-005	H16040143-006	H16040143-007	H16040143-008	H16040143-009	H16040143-010
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg	<0.5
Selenium (Se) TOT	mg/L	
Silver (Ag)	mg/kg	1.6
Silver (Ag) TOT	mg/L	
Thallium (Tl)	mg/kg	0.4
Thallium (Tl) TOT	mg/L	
Vanadium (V)	mg/kg	58
Vanadium (V) TOT	mg/L	
Zinc (Zn)	mg/kg	400
Zinc (Zn) TOT	mg/L	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU1-SS	P23-DU20-SS	P23-DU20-SS	P23-DU20-SS	P23-DU21-SS	P23-DU22-SS	P23-DU23-SS	P23-DU24-SS
Sample Date	4/6/2016	4/10/2016	4/10/2016	4/10/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016
Field ID	P23-DU1-SS	P23-DU20-SS	P23-DU20-MSMSD SS	P23-FD3-SS	P23-DU21-SS	P23-DU22-SS	P23-DU23-SS	P23-DU24-SS
Lab ID	H16040137-001	H16040143-011	H16040143-012	H16040143-013	H16040267-001	H16040267-002	H16040267-003	H16040267-004
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg			1.4 J	1.6 J	1.6 J			
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	3	68	55	57.3	55	79	72	36
Arsenic (As) TOT	mg/L								60
Barium (Ba)	mg/kg			144	155	139			
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg			8.5	10.4	9			
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg			22.9	23.1	24.5			
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg			<1	<1	<1			
Cobalt (Co)	mg/kg			10	10	11			
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg			87	90	84			
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg			23500	24500	23000			
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	510	321	357	324	476	400	214
Lead (Pb) TOT	mg/L								336
Manganese (Mn)	mg/kg			782	825	765			
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg			1	1.6 J	1.2			
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU1-SS	P23-DU20-SS	P23-DU20-SS	P23-DU20-SS	P23-DU21-SS	P23-DU22-SS	P23-DU23-SS	P23-DU24-SS
Sample Date	4/6/2016	4/10/2016	4/10/2016	4/10/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016
Field ID	P23-DU1-SS	P23-DU20-SS	P23-DU20-MSMSD SS	P23-FD3-SS	P23-DU21-SS	P23-DU22-SS	P23-DU23-SS	P23-DU24-SS
Lab ID	H16040137-001	H16040143-011	H16040143-012	H16040143-013	H16040267-001	H16040267-002	H16040267-003	H16040267-004
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals				
Selenium (Se)	mg/kg	0.6	0.8	0.9
Selenium (Se) TOT	mg/L			
Silver (Ag)	mg/kg	2.6	2.6	2.6
Silver (Ag) TOT	mg/L			
Thallium (Tl)	mg/kg	0.7	0.9	0.8
Thallium (Tl) TOT	mg/L			
Vanadium (V)	mg/kg	58	58	56
Vanadium (V) TOT	mg/L			
Zinc (Zn)	mg/kg	466	497	448
Zinc (Zn) TOT	mg/L			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU25-SS	P23-DU26-SS	P23-DU27-SS	P23-DU28-SS	P23-DU28-SS	P23-DU28-SS	P23-DU29-SS	P23-DU2-SS
Sample Date	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/6/2016
Field ID	P23-DU25-SS	P23-DU26-SS	P23-DU27-SS	P23-DU28-SS	P23-DU28-MSMSD SS	P23-FD4-SS	P23-DU29-SS	P23-DU2-SS
Lab ID	H16040267-005	H16040267-006	H16040267-007	H16040267-008	H16040267-009	H16040267-010	H16040267-011	H16040137-002
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample

Analyte Units RL

Metals										
Antimony (Sb)	mg/kg			1 UJ			0.8 UJ		1.9 J	
Antimony (Sb) TOT	mg/L									
Arsenic (As)	mg/kg	1	55	44.6	39	29	29.2	28	40	63.7
Arsenic (As) TOT	mg/L									
Barium (Ba)	mg/kg			115			76		131	
Barium (Ba) TOT	mg/L									
Cadmium (Cd)	mg/kg			10.8			3.8		12.4	
Cadmium (Cd) TOT	mg/L									
Chromium (Cr)	mg/kg			22			23		23.6	
Chromium (Cr) TOT	mg/L									
Chromium VI	mg/L									
Chromium VI (Soluble)	mg/kg			<0.3			0.98		<0.3	
Cobalt (Co)	mg/kg			9			6		9	
Cobalt (Co) TOT	mg/L									
Copper (Cu)	mg/kg			90			52		100	
Copper (Cu) TOT	mg/L									
Iron (Fe)	mg/kg			23600			20000		22800	
Iron (Fe) TOT	mg/L									
Lead (Pb)	mg/kg	1	297	331	262	185	198	197	260	456
Lead (Pb) TOT	mg/L									
Manganese (Mn)	mg/kg			500			673		749	
Manganese (Mn) TOT	mg/L									
Mercury (Hg)	mg/kg			1.6 J			0.19		1.4	
Mercury (Hg)	mg/L									
Mercury (Hg) TOT	mg/L									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU25-SS	P23-DU26-SS	P23-DU27-SS	P23-DU28-SS	P23-DU28-SS	P23-DU28-SS	P23-DU29-SS	P23-DU2-SS
Sample Date	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/17/2016	4/6/2016
Field ID	P23-DU25-SS	P23-DU26-SS	P23-DU27-SS	P23-DU28-SS	P23-DU28-MSMSD SS	P23-FD4-SS	P23-DU29-SS	P23-DU2-SS
Lab ID	H16040267-005	H16040267-006	H16040267-007	H16040267-008	H16040267-009	H16040267-010	H16040267-011	H16040137-002
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample

Analyte Units RL

Metals								
Selenium (Se)	mg/kg		0.9			<0.5		1.6
Selenium (Se) TOT	mg/L							
Silver (Ag)	mg/kg		1.8			1.4		3.4
Silver (Ag) TOT	mg/L							
Thallium (Tl)	mg/kg		0.8			0.3		0.9
Thallium (Tl) TOT	mg/L							
Vanadium (V)	mg/kg		68			56		57
Vanadium (V) TOT	mg/L							
Zinc (Zn)	mg/kg		510			427		448
Zinc (Zn) TOT	mg/L							

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU30-SS	P23-DU3-SS	P23-DU3-SS	P23-DU4-SS	P23-DU5-SS	P23-DU6-SS	P23-DU7-SS	P23-DU8-SS
Sample Date	4/17/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016
Field ID	P23-DU30-SS	P23-DU3-SS	P23-FD1-SS	P23-DU4-SS	P23-DU5-SS	P23-DU6-SS	P23-DU7-SS	P23-DU8-SS
Lab ID	H16040267-012	H16040137-003	H16040137-004	H16040137-005	H16040137-006	H16040137-007	H16040137-008	H16040137-009
Sample Type	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)									1.5 J
Antimony (Sb) TOT									
Arsenic (As)	1	59	63	78	87	78	42	70	65
Arsenic (As) TOT									
Barium (Ba)									138
Barium (Ba) TOT									
Cadmium (Cd)									10.1
Cadmium (Cd) TOT									
Chromium (Cr)									25.6
Chromium (Cr) TOT									
Chromium VI									
Chromium VI (Soluble)									<1
Cobalt (Co)									10
Cobalt (Co) TOT									
Copper (Cu)									91
Copper (Cu) TOT									
Iron (Fe)									23400
Iron (Fe) TOT									
Lead (Pb)	6	377	440	524	621	505	479	519	409
Lead (Pb) TOT									
Manganese (Mn)									790
Manganese (Mn) TOT									
Mercury (Hg)									1.4
Mercury (Hg) TOT									

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU30-SS	P23-DU3-SS	P23-DU3-SS	P23-DU4-SS	P23-DU5-SS	P23-DU6-SS	P23-DU7-SS	P23-DU8-SS
Sample Date	4/17/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016	4/6/2016
Field ID	P23-DU30-SS	P23-DU3-SS	P23-FD1-SS	P23-DU4-SS	P23-DU5-SS	P23-DU6-SS	P23-DU7-SS	P23-DU8-SS
Lab ID	H16040267-012	H16040137-003	H16040137-004	H16040137-005	H16040137-006	H16040137-007	H16040137-008	H16040137-009
Sample Type	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg		1.3
Selenium (Se) TOT	mg/L		
Silver (Ag)	mg/kg		3.3
Silver (Ag) TOT	mg/L		
Thallium (Tl)	mg/kg		0.8
Thallium (Tl) TOT	mg/L		
Vanadium (V)	mg/kg		62
Vanadium (V) TOT	mg/L		
Zinc (Zn)	mg/kg		434
Zinc (Zn) TOT	mg/L		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU9-SS	P23-RB1	P23-RB2	P23-RB3	P23-RB3	P2a-AFB	P2a-AFB	P2a-DU10-SS
Sample Date	4/7/2016	4/6/2016	4/7/2016	4/10/2016	4/17/2016	11/13/2015	4/18/2016	4/24/2016
Field ID	P23-DU9-SS	P23-RB1	P23-RB2	P23-RB3	P23-RB3	P2a-AFB	P2a-AFB	P2a-DU10-SS
Lab ID	H16040137-012	H16040137-010	H16040137-014	H16040143-014	H16040267-013	H15110258-025	H16040283-008	H16040382-001
Sample Type	Original Sample	Blank	Blank	Blank	Blank	Blank	Blank	Original Sample

Analyte Units RL

Metals								
Antimony (Sb)	mg/kg							2.6 J
Antimony (Sb) TOT	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	0.0006	
Arsenic (As)	mg/kg	3	58					92
Arsenic (As) TOT	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Barium (Ba)	mg/kg							146
Barium (Ba) TOT	mg/L		<0.003	<0.003	<0.003	<0.003	0.03	
Cadmium (Cd)	mg/kg							13.7
Cadmium (Cd) TOT	mg/L		<0.00003	<0.00003	<0.00003	<0.00003	0.00008	
Chromium (Cr)	mg/kg							21.9
Chromium (Cr) TOT	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005	
Chromium VI	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	
Chromium VI (Soluble)	mg/kg							<0.3
Cobalt (Co)	mg/kg							10
Cobalt (Co) TOT	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005	
Copper (Cu)	mg/kg							192
Copper (Cu) TOT	mg/L		<0.002	<0.002	<0.002	<0.002	0.046	
Iron (Fe)	mg/kg							23200
Iron (Fe) TOT	mg/L		<0.02	<0.02	<0.02	<0.02	<0.02	
Lead (Pb)	mg/kg	6	340					794
Lead (Pb) TOT	mg/L		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0021
Manganese (Mn)	mg/kg							1290
Manganese (Mn) TOT	mg/L		<0.001	<0.001	<0.001	<0.001	0.004	
Mercury (Hg)	mg/kg							1.3
Mercury (Hg) TOT	mg/L		<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	



**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P23-DU9-SS	P23-RB1	P23-RB2	P23-RB3	P23-RB3	P2a-AFB	P2a-AFB	P2a-DU10-SS
Sample Date	4/7/2016	4/6/2016	4/7/2016	4/10/2016	4/17/2016	11/13/2015	4/18/2016	4/24/2016
Field ID	P23-DU9-SS	P23-RB1	P23-RB2	P23-RB3	P23-RB3	P2a-AFB	P2a-AFB	P2a-DU10-SS
Lab ID	H16040137-012	H16040137-010	H16040137-014	H16040143-014	H16040267-013	H15110258-025	H16040283-008	H16040382-001
Sample Type	Original Sample	Blank	Blank	Blank	Blank	Blank	Blank	Original Sample

Analyte Units RL

Metals								
Selenium (Se)	mg/kg							0.9
Selenium (Se) TOT	mg/L	<0.001	<0.001	<0.001	<0.001		<0.001	
Silver (Ag)	mg/kg							6
Silver (Ag) TOT	mg/L	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	
Thallium (Tl)	mg/kg							0.8
Thallium (Tl) TOT	mg/L	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	
Vanadium (V)	mg/kg							54
Vanadium (V) TOT	mg/L	<0.01	<0.01	<0.01	<0.01		<0.01	
Zinc (Zn)	mg/kg							1080
Zinc (Zn) TOT	mg/L	<0.008	<0.008	<0.008	<0.008		0.022	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU10-SS	P2a-DU10-SS	P2a-DU11-SS	P2a-DU12-SS	P2a-DU13-SS	P2a-DU14-SS	P2a-DU15-SS	P2a-DU16-SS
Sample Date	4/24/2016	4/24/2016	4/19/2016	4/19/2016	4/19/2016	4/21/2016	4/21/2016	4/19/2016
Field ID	P2a-DU10-MSMSD-SS	P2a-FD4-SS	P2a-DU11-SS	P2a-DU12-SS	P2a-DU13-SS	P2a-DU14-SS	P2a-DU15-SS	P2a-DU16-SS
Lab ID	H16040382-002	H16040382-003	H16040309-002	H16040309-003	H16040309-004	H16040357-004	H16040357-005	H16040309-005
Sample Type	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg	0.1	2.7 J	2.4 J					
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	3	84	87	67 J	103 J	111 J	34	27
Arsenic (As) TOT	mg/L								
Barium (Ba)	mg/kg	1	136	147					
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg	0.1	11.7	13.8					
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg	0.8	22.2	22.4					
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg	1	<1	<1					
Cobalt (Co)	mg/kg	1	10	10					
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg	1	170	191					
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg	7	23700	23400					
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	647	746	566	1110	1120	543	350
Lead (Pb) TOT	mg/L								
Manganese (Mn)	mg/kg	1	1280	1460					
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg	0.05	1.1	1.4					
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU10-SS	P2a-DU10-SS	P2a-DU11-SS	P2a-DU12-SS	P2a-DU13-SS	P2a-DU14-SS	P2a-DU15-SS	P2a-DU16-SS
Sample Date	4/24/2016	4/24/2016	4/19/2016	4/19/2016	4/19/2016	4/21/2016	4/21/2016	4/19/2016
Field ID	P2a-DU10-MSMSD-SS	P2a-FD4-SS	P2a-DU11-SS	P2a-DU12-SS	P2a-DU13-SS	P2a-DU14-SS	P2a-DU15-SS	P2a-DU16-SS
Lab ID	H16040382-002	H16040382-003	H16040309-002	H16040309-003	H16040309-004	H16040357-004	H16040357-005	H16040309-005
Sample Type	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals				
Selenium (Se)	mg/kg	0.5	0.7	0.8
Selenium (Se) TOT	mg/L			
Silver (Ag)	mg/kg	0.3	6	6.1
Silver (Ag) TOT	mg/L			
Thallium (Tl)	mg/kg	0.1	0.7	0.8
Thallium (Tl) TOT	mg/L			
Vanadium (V)	mg/kg	1	52	54
Vanadium (V) TOT	mg/L			
Zinc (Zn)	mg/kg	2	926	1030
Zinc (Zn) TOT	mg/L			

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU17-SS	P2a-DU17-SS	P2a-DU18-SS	P2a-DU19-SS	P2a-DU1-SS	P2a-DU20-SS	P2a-DU21-SS	P2a-DU22-SS
Sample Date	4/20/2016	4/20/2016	4/20/2016	4/24/2016	4/18/2016	4/24/2016	4/24/2016	4/20/2016
Field ID	P2a-DU17-SS	P2a-FD2-SS	P2a-DU18-SS	P2a-DU19-SS	P2a-DU1-SS	P2a-DU20-SS	P2a-DU21-SS	P2a-DU22-SS
Lab ID	H16040334-001	H16040334-002	H16040334-003	H16040382-004	H16040283-001	H16040382-005	H16040382-006	H16040334-004
Sample Type	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg					1.5 J			
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	3	68	69	114	28	246	27	39
Arsenic (As) TOT	mg/L								
Barium (Ba)	mg/kg					137			
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg					7.3			
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg					21.1			
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg					<1			
Cobalt (Co)	mg/kg					7			
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg					64			
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg					21300			
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	541	463	1030	259	2390	388	423
Lead (Pb) TOT	mg/L								
Manganese (Mn)	mg/kg					469			
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg					0.64			
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU17-SS	P2a-DU17-SS	P2a-DU18-SS	P2a-DU19-SS	P2a-DU1-SS	P2a-DU20-SS	P2a-DU21-SS	P2a-DU22-SS
Sample Date	4/20/2016	4/20/2016	4/20/2016	4/24/2016	4/18/2016	4/24/2016	4/24/2016	4/20/2016
Field ID	P2a-DU17-SS	P2a-FD2-SS	P2a-DU18-SS	P2a-DU19-SS	P2a-DU1-SS	P2a-DU20-SS	P2a-DU21-SS	P2a-DU22-SS
Lab ID	H16040334-001	H16040334-002	H16040334-003	H16040382-004	H16040283-001	H16040382-005	H16040382-006	H16040334-004
Sample Type	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg		<0.5
Selenium (Se) TOT	mg/L		
Silver (Ag)	mg/kg		1.4
Silver (Ag) TOT	mg/L		
Thallium (Tl)	mg/kg		0.6
Thallium (Tl) TOT	mg/L		
Vanadium (V)	mg/kg		51
Vanadium (V) TOT	mg/L		
Zinc (Zn)	mg/kg		153
Zinc (Zn) TOT	mg/L		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU23-SS	P2a-DU24-SS	P2a-DU25-SS	P2a-DU26-SS	P2a-DU27-SS	P2a-DU28-SS	P2a-DU28-SS	P2a-DU28-SS
Sample Date	4/20/2016	4/24/2016	4/24/2016	4/24/2016	4/24/2016	4/20/2016	4/20/2016	4/20/2016
Field ID	P2a-DU23-SS	P2a-DU24-SS	P2a-DU25-SS	P2a-DU26-SS	P2a-DU27-SS	P2a-DU28-SS	P2a-DU28-MSMSD SS	P2a-FD3-SS
Lab ID	H16040334-005	H16040382-007	H16040382-008	H16040382-009	H16040382-010	H16040334-006	H16040334-007	H16040334-008
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg						3.1 J		
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	3	130	21	27	36	106	99	94
Arsenic (As) TOT	mg/L								
Barium (Ba)	mg/kg						126		
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg						17.3		
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg						18.3		
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg						<1		
Cobalt (Co)	mg/kg						9		
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg						179		
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg						19700		
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	1060	142	316	534	902	729	712
Lead (Pb) TOT	mg/L								
Manganese (Mn)	mg/kg						1690		
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg						1.3		
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU23-SS	P2a-DU24-SS	P2a-DU25-SS	P2a-DU26-SS	P2a-DU27-SS	P2a-DU28-SS	P2a-DU28-SS	P2a-DU28-SS
Sample Date	4/20/2016	4/24/2016	4/24/2016	4/24/2016	4/24/2016	4/20/2016	4/20/2016	4/20/2016
Field ID	P2a-DU23-SS	P2a-DU24-SS	P2a-DU25-SS	P2a-DU26-SS	P2a-DU27-SS	P2a-DU28-SS	P2a-DU28-MSMSD SS	P2a-FD3-SS
Lab ID	H16040334-005	H16040382-007	H16040382-008	H16040382-009	H16040382-010	H16040334-006	H16040334-007	H16040334-008
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Field Duplicate

Analyte Units RL

Metals		
Selenium (Se)	mg/kg	0.6
Selenium (Se) TOT	mg/L	
Silver (Ag)	mg/kg	7.1
Silver (Ag) TOT	mg/L	
Thallium (Tl)	mg/kg	0.9
Thallium (Tl) TOT	mg/L	
Vanadium (V)	mg/kg	45
Vanadium (V) TOT	mg/L	
Zinc (Zn)	mg/kg	1050
Zinc (Zn) TOT	mg/L	

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU2-SS	P2a-DU3-SS	P2a-DU3-SS	P2a-DU4-SS	P2a-DU5-SS	P2a-DU6-SS	P2a-DU7-SS	P2a-DU8-SS
Sample Date	4/18/2016	4/18/2016	4/18/2016	4/21/2016	4/18/2016	4/18/2016	4/19/2016	4/21/2016
Field ID	P2a-DU2-SS	P2a-DU3-SS	P2a-FD1-SS	P2a-DU4-SS	P2a-DU5-SS	P2a-DU6-SS	P2a-DU7-SS	P2a-DU8-SS
Lab ID	H16040283-002	H16040283-003	H16040283-004	H16040357-001	H16040283-005	H16040283-006	H16040309-001	H16040357-002
Sample Type	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg	0.4	6 J						
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	0.3	223	92	92	69	86	136	108 J
Arsenic (As) TOT	mg/L								40
Barium (Ba)	mg/kg	2	152						
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg	0.9	28.9						
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg	4	21						
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg	0.3	<0.3						
Cobalt (Co)	mg/kg	1	10						
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg	3	318						
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg	7	24600						
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	6	2110	637	633	631	635	1480	884
Lead (Pb) TOT	mg/L								420
Manganese (Mn)	mg/kg	1	3080						
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg	0.05	1.8						
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU2-SS	P2a-DU3-SS	P2a-DU3-SS	P2a-DU4-SS	P2a-DU5-SS	P2a-DU6-SS	P2a-DU7-SS	P2a-DU8-SS
Sample Date	4/18/2016	4/18/2016	4/18/2016	4/21/2016	4/18/2016	4/18/2016	4/19/2016	4/21/2016
Field ID	P2a-DU2-SS	P2a-DU3-SS	P2a-FD1-SS	P2a-DU4-SS	P2a-DU5-SS	P2a-DU6-SS	P2a-DU7-SS	P2a-DU8-SS
Lab ID	H16040283-002	H16040283-003	H16040283-004	H16040357-001	H16040283-005	H16040283-006	H16040309-001	H16040357-002
Sample Type	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals			
Selenium (Se)	mg/kg	0.5	0.6
Selenium (Se) TOT	mg/L		
Silver (Ag)	mg/kg	0.3	19.4
Silver (Ag) TOT	mg/L		
Thallium (Tl)	mg/kg	0.1	0.8
Thallium (Tl) TOT	mg/L		
Vanadium (V)	mg/kg	2	54
Vanadium (V) TOT	mg/L		
Zinc (Zn)	mg/kg	2	2280
Zinc (Zn) TOT	mg/L		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU9-SS	P2a-RB	P2a-RB1	P2a-RB2-SS	P2a-RB3	P2a-RB4	P2a-RB5	P7-AFB
Sample Date	4/21/2016	11/13/2015	4/18/2016	4/19/2016	4/20/2016	4/21/2016	4/24/2016	12/9/2015
Field ID	P2a-DU9-SS	P2a-RB	P2a-RB1	P2a-RB2-SS	P2a-RB3	P2a-RB4	P2a-RB5	P7-AFB
Lab ID	H16040357-003	H15110258-026	H16040283-007	H16040309-006	H16040334-009	H16040357-006	H16040382-011	H15120169-001
Sample Type	Original Sample	Blank	Blank	Blank	Blank	Blank	Blank	Blank

Analyte Units RL

Metals								
Antimony (Sb)	mg/kg							
Antimony (Sb) TOT	mg/L			0.0006	0.0007	<0.0005	<0.0005	<0.0005
Arsenic (As)	mg/kg	3	69					
Arsenic (As) TOT	mg/L			<0.001	0.002	0.002	<0.001	<0.001
Barium (Ba)	mg/kg							
Barium (Ba) TOT	mg/L			0.03	0.031	0.007	<0.003	<0.003
Cadmium (Cd)	mg/kg							
Cadmium (Cd) TOT	mg/L			0.0001	0.00009	0.00004	<0.00003	<0.00003
Chromium (Cr)	mg/kg							
Chromium (Cr) TOT	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Chromium VI	mg/L			<0.01	<0.01	<0.01	<0.01	<0.01
Chromium VI (Soluble)	mg/kg							
Cobalt (Co)	mg/kg							
Cobalt (Co) TOT	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005
Copper (Cu)	mg/kg							
Copper (Cu) TOT	mg/L			0.05	0.048	0.012	<0.002	<0.002
Iron (Fe)	mg/kg							
Iron (Fe) TOT	mg/L			<0.02	<0.02	<0.02	<0.02	<0.02
Lead (Pb)	mg/kg	6	666					
Lead (Pb) TOT	mg/L			<0.0003	0.0021	0.002	0.0005	<0.0003
Manganese (Mn)	mg/kg							
Manganese (Mn) TOT	mg/L			0.005	0.005	0.002	<0.001	<0.001
Mercury (Hg)	mg/kg							
Mercury (Hg)	mg/L							<0.00001
Mercury (Hg) TOT	mg/L			<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P2a-DU9-SS	P2a-RB	P2a-RB1	P2a-RB2-SS	P2a-RB3	P2a-RB4	P2a-RB5	P7-AFB
Sample Date	4/21/2016	11/13/2015	4/18/2016	4/19/2016	4/20/2016	4/21/2016	4/24/2016	12/9/2015
Field ID	P2a-DU9-SS	P2a-RB	P2a-RB1	P2a-RB2-SS	P2a-RB3	P2a-RB4	P2a-RB5	P7-AFB
Lab ID	H16040357-003	H15110258-026	H16040283-007	H16040309-006	H16040334-009	H16040357-006	H16040382-011	H15120169-001
Sample Type	Original Sample	Blank	Blank	Blank	Blank	Blank	Blank	Blank

Analyte Units RL

Metals								
Selenium (Se)	mg/kg							
Selenium (Se) TOT	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver (Ag)	mg/kg							
Silver (Ag) TOT	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium (Tl)	mg/kg							
Thallium (Tl) TOT	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Vanadium (V)	mg/kg							
Vanadium (V) TOT	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (Zn)	mg/kg							
Zinc (Zn) TOT	mg/L		0.023	0.023	0.009	<0.008	<0.008	<0.008

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P7-DU19-SS	P7-DU20-SS	P7-DU20-SS	P7-DU20-SS	P7-DU21-SS	P7-DU22-SS	P7-DU23-SS	P7-DU24-SS
Sample Date	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015
Field ID	P7-DU19-SS	P7-DU20-SS	P7-DU20-MSMSD-SS	P7-FD1-SS	P7-DU21-SS	P7-DU22-SS	P7-DU23-SS	P7-DU24-SS
Lab ID	H15120210-001	H15120210-002	H15120210-003	H15120210-004	H15120210-005	H15120210-006	H15120210-008	H15120210-009
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg								3.5 J
Antimony (Sb) TOT	mg/L								
Arsenic (As)	mg/kg	2	63	70	73	75	49	70	62 81
Arsenic (As) TOT	mg/L								
Barium (Ba)	mg/kg							139	
Barium (Ba) TOT	mg/L								
Cadmium (Cd)	mg/kg							19	
Cadmium (Cd) TOT	mg/L								
Chromium (Cr)	mg/kg							26.7	
Chromium (Cr) TOT	mg/L								
Chromium VI	mg/L								
Chromium VI (Soluble)	mg/kg							<0.3	
Cobalt (Co)	mg/kg							8	
Cobalt (Co) TOT	mg/L								
Copper (Cu)	mg/kg							100	
Copper (Cu) TOT	mg/L								
Iron (Fe)	mg/kg							21900	
Iron (Fe) TOT	mg/L								
Lead (Pb)	mg/kg	3	568	747	772	737	604	691	664 805
Lead (Pb) TOT	mg/L								
Manganese (Mn)	mg/kg							486	
Manganese (Mn) TOT	mg/L								
Mercury (Hg)	mg/kg							1.6	
Mercury (Hg)	mg/L								
Mercury (Hg) TOT	mg/L								

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P7-DU19-SS	P7-DU20-SS	P7-DU20-SS	P7-DU20-SS	P7-DU21-SS	P7-DU22-SS	P7-DU23-SS	P7-DU24-SS
Sample Date	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015
Field ID	P7-DU19-SS	P7-DU20-SS	P7-DU20-MSMSD-SS	P7-FD1-SS	P7-DU21-SS	P7-DU22-SS	P7-DU23-SS	P7-DU24-SS
Lab ID	H15120210-001	H15120210-002	H15120210-003	H15120210-004	H15120210-005	H15120210-006	H15120210-008	H15120210-009
Sample Type	Original Sample	Original Sample	Original Sample	Field Duplicate	Original Sample	Original Sample	Original Sample	Original Sample

Analyte Units RL

Metals

Selenium (Se)	mg/kg		0.8
Selenium (Se) TOT	mg/L		
Silver (Ag)	mg/kg		3.4
Silver (Ag) TOT	mg/L		
Thallium (Tl)	mg/kg		1
Thallium (Tl) TOT	mg/L		
Vanadium (V)	mg/kg		55
Vanadium (V) TOT	mg/L		
Zinc (Zn)	mg/kg		246
Zinc (Zn) TOT	mg/L		

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P7-DU25-SS	P7-DU26-SS	P7-DU27-SS	P7-DU28-SS	P7-DU29-SS	P7-DU30-SS	P7-RB1	P7-RB2
Sample Date	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/11/2015
Field ID	P7-DU25-SS	P7-DU26-SS	P7-DU27-SS	P7-DU28-SS	P7-DU29-SS	P7-DU30-SS	P7-RB1	P7-RB2
Lab ID	H15120169-002	H15120169-003	H15120169-004	H15120169-006	H15120169-007	H15120169-008	H15120169-005	H15120210-007
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Blank	Blank

Analyte Units RL

Metals									
Antimony (Sb)	mg/kg								
Antimony (Sb) TOT	mg/L							<0.0005	<0.0005
Arsenic (As)	mg/kg	1	50	52	50	43	51	58	
Arsenic (As) TOT	mg/L								<0.001
Barium (Ba)	mg/kg								
Barium (Ba) TOT	mg/L								<0.003
Cadmium (Cd)	mg/kg								
Cadmium (Cd) TOT	mg/L								<0.00003
Chromium (Cr)	mg/kg								
Chromium (Cr) TOT	mg/L								<0.005
Chromium VI	mg/L								<0.01
Chromium VI (Soluble)	mg/kg								
Cobalt (Co)	mg/kg								
Cobalt (Co) TOT	mg/L								<0.005
Copper (Cu)	mg/kg								
Copper (Cu) TOT	mg/L								<0.002
Iron (Fe)	mg/kg								
Iron (Fe) TOT	mg/L								<0.02
Lead (Pb)	mg/kg	1	352	348	343	305	384	473	
Lead (Pb) TOT	mg/L								<0.0003
Manganese (Mn)	mg/kg								
Manganese (Mn) TOT	mg/L								<0.001
Mercury (Hg)	mg/kg								
Mercury (Hg)	mg/L								<0.00001
Mercury (Hg) TOT	mg/L								<0.00001

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P7-DU25-SS	P7-DU26-SS	P7-DU27-SS	P7-DU28-SS	P7-DU29-SS	P7-DU30-SS	P7-RB1	P7-RB2
Sample Date	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/9/2015	12/11/2015
Field ID	P7-DU25-SS	P7-DU26-SS	P7-DU27-SS	P7-DU28-SS	P7-DU29-SS	P7-DU30-SS	P7-RB1	P7-RB2
Lab ID	H15120169-002	H15120169-003	H15120169-004	H15120169-006	H15120169-007	H15120169-008	H15120169-005	H15120210-007
Sample Type	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Original Sample	Blank	Blank

Analyte **Units** **RL**

Metals			
Selenium (Se)	mg/kg		
Selenium (Se) TOT	mg/L	<0.001	<0.001
Silver (Ag)	mg/kg		
Silver (Ag) TOT	mg/L	<0.0002	<0.0002
Thallium (Tl)	mg/kg		
Thallium (Tl) TOT	mg/L	<0.0002	<0.0002
Vanadium (V)	mg/kg		
Vanadium (V) TOT	mg/L	<0.01	<0.01
Zinc (Zn)	mg/kg		
Zinc (Zn) TOT	mg/L	<0.008	<0.008

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P8E-AFB	P8E-DU1-SS	P8E-DU2-SS	P8E-RB
Sample Date	11/12/2015	11/12/2015	11/12/2015	11/12/2015
Field ID	P8E-AFB	P8E-DU1-SS	P8E-DU2-SS	P8E-RB
Lab ID	H15110258-021	H15110258-022	H15110258-023	H15110258-024
Sample Type	Blank	Original Sample	Original Sample	Blank

Analyte Units RL

Metals				
Antimony (Sb)	mg/kg			5.5 J
Antimony (Sb) TOT	mg/L	0.0005	<0.0005	<0.0005
Arsenic (As)	mg/kg		186	118
Arsenic (As) TOT	mg/L	0.001	<0.001	<0.001
Barium (Ba)	mg/kg			175
Barium (Ba) TOT	mg/L	0.003	<0.003	<0.003
Cadmium (Cd)	mg/kg			35.5
Cadmium (Cd) TOT	mg/L	0.00003	<0.00003	<0.00003
Chromium (Cr)	mg/kg			23.4
Chromium (Cr) TOT	mg/L	0.005	<0.005	<0.005
Chromium VI	mg/L			
Chromium VI (Soluble)	mg/kg			<1
Cobalt (Co)	mg/kg			8
Cobalt (Co) TOT	mg/L	0.005	<0.005	<0.005
Copper (Cu)	mg/kg			136
Copper (Cu) TOT	mg/L	0.002	<0.002	<0.002
Iron (Fe)	mg/kg			22500
Iron (Fe) TOT	mg/L	0.02	<0.02	<0.02
Lead (Pb)	mg/kg		2010	1290
Lead (Pb) TOT	mg/L	0.0003	<0.0003	<0.0003
Manganese (Mn)	mg/kg			603
Manganese (Mn) TOT	mg/L	0.001	<0.001	<0.001
Mercury (Hg)	mg/kg			5
Mercury (Hg) TOT	mg/L	0.00001	<0.00001	<0.00001

**Former ASARCO East Helena Facility
2015-2016 Supplemental Soils**

Station	P8E-AFB	P8E-DU1-SS	P8E-DU2-SS	P8E-RB
Sample Date	11/12/2015	11/12/2015	11/12/2015	11/12/2015
Field ID	P8E-AFB	P8E-DU1-SS	P8E-DU2-SS	P8E-RB
Lab ID	H15110258-021	H15110258-022	H15110258-023	H15110258-024
Sample Type	Blank	Original Sample	Original Sample	Blank

Analyte Units RL

Metals

Selenium (Se)	mg/kg			1.4	
Selenium (Se) TOT	mg/L	0.001	<0.001		<0.001
Silver (Ag)	mg/kg			5.9	
Silver (Ag) TOT	mg/L	0.0002	<0.0002		<0.0002
Thallium (Tl)	mg/kg			1.6	
Thallium (Tl) TOT	mg/L	0.0002	<0.0002		<0.0002
Vanadium (V)	mg/kg			46	
Vanadium (V) TOT	mg/L	0.01	<0.01		<0.01
Zinc (Zn)	mg/kg			407	
Zinc (Zn) TOT	mg/L	0.008	<0.008		<0.008

APPENDIX C
FIELD NOTES

SOKKIA

MADE IN CHINA

METG Supplemental RFI Soil Sampling

SOKKIA

ENGINEER'S
FIELD BOOK

METG

Supplemental RFI
Soil Sampling
Sediment Sampling

November 2015 - May 2016

10022

Phase 006

Task 720 (2015)
724 (2016)

No. 8152-30

I N D E X

Property of Hydrometrics

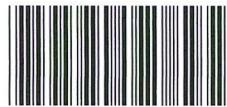
Address 3020 Bozeman Avenue
Helena, Montana 59601

Telephone 406-459-2873
406-443-4150

Jamie Poell, Hydrometrics 459-2873
Mark Walker, Hydrometrics 459-7229
Bob Anderson, Hydrometrics 431-0236
Blaine Cox, METG 461-5585

This Book is manufactured using a paper made from wood-free materials and is acid-free and archive safe.

815230



Gary Dabler (wheat lessee) 227-5409

A series of horizontal lines on the right page of the notebook, intended for an index.

J
N
B
B

November 11, 2015, PPC Sediment Sampling

Personnel: J Paell, A Montrone

Weather: 27°F, calm, overcast

Parcel 2a and Parcel 23

PPC Sediment Sampling

Due to cold + synoptic timing, samples will be held raw for sieving. Holding in fridge. Sieve to -2mm per FSP.

Safety: Ashton will sample in PPC - be careful w/ footing and use long waders/gloves to collect sample. Vehicle running to keep warm for breaks as needed.

Sites flagged & photographed. GPS points taken at center in PPC at each sampling site.

Done ①

Parcel 2a Sampling / 5-point Composite 11/11/15

Sample	Time	Description
2a-1-SD	0810	PPC ~ 20' wide, 12" depth, cobbles to sand,
2a-2-SD	0845	PPC ~ 7' wide, middle PPC braided 6" depth water, sample
2a-3-SD	0830	PPC ~ 18' wide, cobbles to clay, PPC ~ 12" deep, sampler
2a-4-SD	0900	PPC ~ 12' wide, 10" depth, cobbles Feet laterally from center
2a-4-MSMSD	0900	
2a-1-FDI-SD	0900	
2a-5-SD	0920	PPC ~ 9' wide, 10" depth, cobbles laterally from center
2a-6-SD	0935	PPC ~ 10' wide, North braid, 6" deep, 6" deep, sample = 10' up & down, several
2a-7-SD	0945	PPC ~ 35' wide above confluence Sample 10-15' from center,
2a-8-SD	1000	PPC ~ 28' wide, at staff gage, deeper water/edges, Sample 10'
2a-9-SD	1010	PPC ~ 30' wide, 6-20" deep, cobbles edges. Sample 10' from center
2a-10-SD	1020	PPC ~ 29' wide, 6-18" deep, cobbles and edges. Sample 10' from
2a-11-SD	1035	PPC ~ 30' wide, 6-24" deep, cobbles and edges. Sample 10' from
P2a-AFB	0650	Ambient field blank after sieving on
P2a-RB	1345	Rinate blank after sieving on

② GPM

11/11/15

Description (continued)

samples in eddies ~ 10' from center, ~ 0-4" depth
 (N of Main PPC) flow ~ 30 gpm, silt/clay,
 ~ 0-4" sediment depth.

sand; sample from sediment, within ~ 10' of center,
 4" depth

to sand & clay/silt, sample 10' up & down, several
 ~ 0-4" depth

to sand & clay, sample 10' up & down, several feet
 0-4" sampling depth

gravels & sand, silt, clay below beaver dam,
 feet laterally from center, 0-4" depth

with braids, 6-18" deep, cobbles & gravels
 0-4" depth

6-24" deep, cobbles & gravels, sand/silt/clay in
 from center, 0-4" depth. Strong current.

and gravels center, sand/silt/clay in deeper water &
 0-4" depth. Strong current.

and gravels in center, sand/silt/clay in deep water
 center, 0-4". Strong current.

and gravel across, sand/silt/clay in deep water
 center, 0-4" depth, strong current.

11/13/15 *

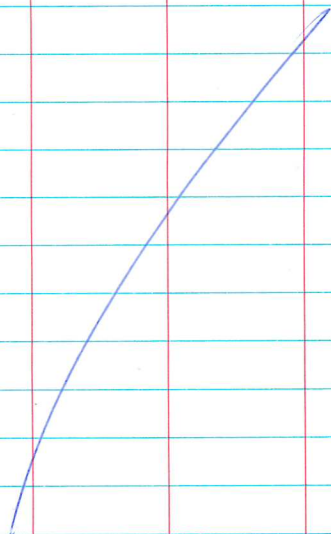
11/13/15 *

John

③

Parcel 23 Sediment Sampling, PPC 11/11/15
Sprint composites

Sample	Time	Description
23-1-SD	1055	PPC ~ 42' wide, 6-12" deep, cobble sample 10' from center, 0-4"
23-2-SD	1115	PPC ~ 34' wide, 6-12" deep, cobble sample 10' from center
23-3-SD 23-3-MSMSD 23-FDI-SD	1135	PPC ~ 25' wide, 6-24" deep, in fast water, sand/silt/clay in
23-4-SD	1155	PPC ~ 30' wide, 12-24" deep, shallow water, sample 10' from
23-5-SD	1215	PPC ~ 38' wide, 10-30" deep, water + between large rocks,



J.P. ④

11/11/15

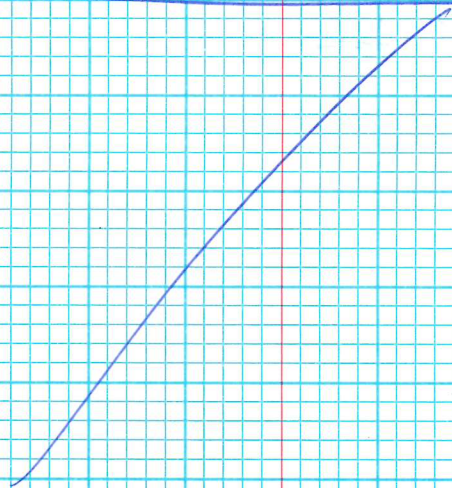
Description (continued)

and gravel / sediments deeper + edges,
depth. Strong current.

and gravel across, sediments deep + edges,
- 0-4' depth

just above confluence / log run. Cobbles
shallower water, sample 10' from center, 0-4' depth
cobble + gravels with sand/silt/clay in slower
center, 0-4' depth

cobble + gravels with sand, silt in slower
sample 10' from center, 0-4' depth



J.P. ⑤

November 12, 2015

Parcel 8E Soil Sampling

Personnel: J Paell

Weather: 30°F, calm, cloudy

Safety: Go slow with ATV / new
sampling gear

Parcel 8E Soil Sampling

DU	Sample	Time	composite texture	photo	site cover
8-	P8E-AFB	0845	—	—	—
1	P8E-DU1-SS	1045	S: C	✓	grass
2	P8E-DU2-SS	1200	S: C	✓	grass
—	P8E-RB	1230	—	—	—

Ⓒ Paell

11/12/15

Notes

Ambient field blank

Pastureland

Pastureland

Rinse blank

Paell Ⓣ

November 21, 2015

Parcel 14 Soil Sampling

Personnel: JPaell

Weather: 34°F, calm, cloudy

Safety: Be ~~care~~ careful with gates

Parcel ~~13~~ 14 Soil Sampling

DU	Sample	Time	Composite Texture	photo	site Cover
3	P14-DU3-SS	1215	S; C	✓	some grass
3	P14-FD1-SS	1215	S; L	—	—
4	P14-DU4-SS	1315	S; L	✓	stubble
5	P14-DU5-SS	1355	S; C	✓	stubble
6	P14-DU6-SS	1435	S; L	✓	stubble
—	P14-RB1	1615	S; L	—	—

⑧ JPaell

11/21/15

Notes

Grassland and cropland
— (field dup DU3)
cropland
cropland
cropland
— Rinsate Blank

JPaell

⑨

November 22, 2015

Parcel 14 Soil Sampling

Personnel: Paell

Weather: 30°, W wind, pthly cloudy

Safety: Watch for corners and ditches on ATV

Parcel 14 Soil Sampling

DV	Sample	Time	Composite Texture	Photo
7	P14-DV7-SS	1025	SIC	✓
8	P14-DV8-SS	1105	SIL	✓
9	P14-DV9-SS	1140	SIC	✓
10	P14-DV10-SS	1225	SIC	✓
11	P14-DV11-SS	1250	SIL	✓
12	P14-DV12-SS	1345	SIC	✓
12	P14-DV12-MSMSD-SS	1345	SIC	—
12	P14-FD2-SS	1345	SIC	—
—	P14-AFB	0955	—	—
—	P14-RBZ	1550	—	—

(10)

Paell

11/22/15

Site Cover	Notes
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland (MSMSD DV12)
stubble	cropland (DV12 field dup)
—	Ambient field blank
—	Rimote blank

Paell

(11)

December 4, 2015

Parcel 13 Soil Sampling

Personnel: J Paell

Weather: 30°F, ~1" snow, calm, clear

Safety: Work slow / use proper footings

in snow and ice / stay warm

Parcel 13 Soil Sampling

DU	Sample	Time	Composite Texture	photo
-	P13-AFB	1045	-	-
13	P13-DU13-SS	1110	SIC	✓
14	P13-DU14-SS	1155	SIC	✓
15	P13-DU15-SS	1240	SIC	✓
16	P13-DU16-SS	1310	SIL	✓
17	P13-DU17-SS	1345	SIC	✓
18	P13-DU18-SS	1425	SIC	✓
-	P13-RB	1500	-	-

(12)

JPaell

12/4/15

site cover	Notes
-	Ambient field blank
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	cropland
stubble	very cobby / cropland
-	Rinsate blank

JPaell

(13)

December 9, 2015

Parcel 7 Soil Sampling

Personnel: Paell

Weather: 38°F, calm, cloudy

Safety: Use caution w/ ATV dismount and mounting

Parcel 7 Soil Sampling

<u>DV</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>Photo</u>
—	P7-AFB	1330	—	—
25	P7-DU25-SS	1400	sic	✓
26	P7-DU26-SS	1445	sic	✓
27	P7-DU27-SS	1510	sic	✓
—	P7-RBI	1515	—	—
28	P7-DU28-SS	1550	sic	✓
29	P7-DU29-SS	1625	sic	✓
30	P7-DU30-SS	1700	sic	✓

(14) JPM

12/9/15

Site
Cover

Notes

—	Ambient field blank
grass	pastureland
grass	pastureland
stubble	cropland
—	Rinsate blank
grass	pastureland
stubble	cropland
stubble/grass	cropland + pastureland

JPM (15)

December 11, 2015

Parcel 7 Soil Sampling

Personnel: JPaell

Weather: 30°F, 1" snow, calm, clear

Safety: Be careful on snow and ice

Parcel 7 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
19	P7-DU19-SS	0850	SIC	✓
20	P7-DU20-SS	0940	SIC	✓
20	P7-DU20-MSMSD-SS	0945	SIL	✓
20	P7-FDI-SS	1010	SIL	✓
21	P7-DU21-SS	1030	SIC	✓
22	P7-DU22-SS	1105	SIC	✓
—	P7-RB2	1115	SIC	—
23	P7-DU23-SS	1150	SIC	✓
24	P7-DU24-SS	1225	SIC	✓

(16)

JPaell

12/11/15

Site Cover	Notes
grass	Pastureland
grass	Pastureland
grass	Pastureland - MSMSD DU20
grass	Pastureland - field dup DU20
grass	Pastureland
grass	Pastureland
—	Rinsate Blank
grass	Pastureland
grass	Pastureland

JPaell

(17)

April 6, 2016

Parcel 23 Soil Sampling

Personnel: Poell

Weather: 45°F, W wind, cloudy

Safety: Watch for ditches on ATV

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
1	P23-DU1-SS	0945	SIL	✓
2	P23-DU2-SS	1015	SIC	✓
3	P23-DU3-SS	1040	SIC	✓
3	P23-FD1-SS	1110	SIC	✓
4	P23-DU4-SS	1140	SIL	✓
5	P23-DU5-SS	1215	SIL	✓
6	P23-DU6-SS	1300	SIC	✓
7	P23-DU7-SS	1435	SIL	✓
8	P23-DU8-SS	1505	SIC	✓
—	P23-RB1	1515	—	—

(15) Poell

4/6/16

Site Cover

grass

grass

grass

grass - DU3 field dips

grass

grass

grass

grass

grass

—

Notes

Pastureland

Poell

(15)

April 7, 2016

Parcel 23 Soil Sampling

Personnel: JPell

Weather: 40°F, calm, cloudy

Safety: Watch for traffic on site

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
—	P23-AFB	0745	—	—
9	P23-DU9-SS	0800	SiL	✓
10	P23-DU10-SS	0835	SiC	✓
—	P23-RB2	0855	—	—

(20) JPell

4/7/16

Site Cover	Notes
—	Ambient field blank
grass	Pastureland
grass	Pastureland
—	Rinsete blank

JPell

(21)

April 10, 2016

Parcel 23 Soil Sampling

Personnel: OPall

Weather: 48°F, W wind, cloudy

Safety: Be careful in dense brush & PPC shore

Parcel 23 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
11	P23-DU11-SS	0700	S:L	✓
12	P23-DU12-SS	0735	SL	✓
13	P23-DU13-SS	0810	S:L	✓
14	P23-DU14-SS	0850	SL	✓
15	P23-DU15-SS	0920	S:L	✓
16	P23-DU16-SS	1000	SL	✓
17	P23-DU17-SS	1030	S:L	✓
17	P23-FD2-SS	1040	S:L	—
18	P23-DU18-SS	1120	SL	✓
19	P23-DU19-SS	1155	S:L	✓
20	P23-DU20-SS	1230	S:L	✓
20	P23-DU20-MSMSD-SS	1240	—	—
20	P23-FD3-SS	1250	S:L	—
—	P23-RB3	1305	—	—

(22) J. P. All

4/10/16

Site Cover	Notes
grass and shrubs	same riparian on PPC
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass	(pastureland) field dup DU17
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	pastureland and PPC riparian
—	DU20 MSMSD
—	DU20 field dup
—	Rincke Blank

J. P. All (23)

April 17, 2016

Parcel 23 Soil Sampling

Personnel: J Poell

Weather: 50°F, calm, clear

Safety: Be careful in dense brush

Parcel 23 Soil Sampling

<u>DU</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>Photo</u>
21	P23-DU21-SS	0750	SIC	✓
22	P23-DU22-SS	0840	SIC	✓
23	P23-DU23-SS	0935	SL	✓
24	P23-DU24-SS	1015	SIL	✓
25	P23-DU25-SS	1120	SL	✓
26	P23-DU26-SS	1210	SL	✓
27	P23-DU27-SS	1330	SL	✓
28	P23-DU28-SS	1450	SL	✓
28	P23-DU28-MSMSD-SS	1500	—	—
28	P23-FD4-SS	1510	—	—
29	P23-DU29-SS	1615	SL	✓
30	P23- DU 30-SS	1730	SL	✓
—	P23-RB3	1740	—	—
—	P23-AFB2	1750	—	—

(24) J Poell

4/17/16

<u>Site Cover</u>	<u>Notes</u>
grass	pastureland
grass	pastureland
grass and shrubs	PPC riparian area
grass	pastureland
grass and shrubs	pasture and PPC riparian area
grass and trees	pastureland and PPC riparian area
grass and shrubs	pastureland and PPC riparian area
grass and shrubs, trees	pastureland and PPC riparian area
—	DU28 MSMSD
—	DU28 field dup
shrubs, trees	PPC riparian area
shrubs, trees	PPC riparian area
—	Rinsate blank
—	Ambient field blank

J Poell

(25)

April 18, 2016

Parcel 2a Soil Sampling

Personnel: JPell

Weather: 60°F, W wind, pty cloudy

Safety: Many ditches on site / Careful with OTV use

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	Photo
1	P2a-DU1-SS	1430	SiC	✓
2	P2a-DU2-SS	1515	SiC	✓
3	P2a-DU3-SS	1600	SiC	✓
3	P2a-FD1-SS	1610	—	—
5	P2a-DU5-SS	1645	SiL	✓
6	P2a-DU6-SS	1730	SiC	✓
—	P2a-RBI	1740	—	—
—	P2a-AFB	1750	—	—

(26) JPell

4/18/16

Side Cover	Notes
grass	pasture & PPC riparian area
grass	pasture
grass	pasture
—	DU3 field dup
grass	pasture and PPC riparian area
grass	pasture
—	Rinsoate blank
—	Ambient field blank

JPell (27)

April 19, 2016

Parcel 2a Soil Sampling

Personnel: O'Neil

Weather: 55°F, w wind, pthly cloudy

Safety: walk carefully - terrain hazards

Parcel 2a Soil Sampling

<u>DU</u>	<u>Sample</u>	<u>Time</u>	<u>Composite Texture</u>	<u>photo</u>
7	P2a-DU7-SS	1440	SIC	✓
11	P2a-DU11-SS	1520	SIC	✓
12	P2a-DU12-SS	1555	SIC	✓
13	P2a-DU13-SS	1640	SIC	✓
16	P2a-DU16-SS	1720	SIL	✓
—	P2a-RB2-SS	1730	—	—

(28) O'Neil

4/19/16

Site Cover

grass

grass

grass

grass

grass

Notes

pasture

pasture and PPC riparian area

pasture

pasture

pasture and PPC riparian area

Rinsate blank

O'Neil

(29)

April 20, 2016

Parcel 2a Soil Sampling

Personnel: Paell

Weather: 60°F, calm, pthly cloudy

Safety: Be careful with UTV on terrain, rocks

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	photo
17	P2a-DU17-SS	1330	S: C	✓
17	P2a-FD2-SS	1340	←	—
18	P2a-DU18-SS	1425	S: C	✓
22	P2a-DU22-SS	1505	S: L	✓
23	P2a-DU23-SS	1545	S: C	✓
28	P2a-DU28-SS	1630	S: L	✓
28	P2a-DU28-MSMSD-SS	1640	—	—
28	P2a-FD3-SS	1650	—	—
—	P2a-RB3	1700	—	—

(30) Paell

4/20/16

Site/cover	Notes
grass	pasture
—	DU17 field dup
grass	pasture
grass	pasture and PPC riparian area
grass	pasture
grass	pasture and PPC riparian area
—	DU28 MSMSD
—	DU28 field dup
—	Rinse blank

Paell (31)

April 21, 2016

Parcel 2a Soil Sampling

Personnel: JPall

Weather: 55°F, w wind, ptly cloudy

Safety: Be careful of Wylie Drive traffic

Parcel 2a Soil Sampling

DV	Sample	Time	Composite Texture	photo
4	P2a-DV4-SS	1300	SIC	✓
8	P2a-DV8-SS	1400	SIC	✓
9	P2a-DV9-SS	1450	SIC	✓
14	P2a-DV14-SS	1535	SIC	✓
15	P2a-DV15-SS	1625	SIC	✓
—	P2a-RB4	1710	—	—

(32) JPall

4/21/16

Site Cover	Notes
grass	pasture and PPC riparian area
grass	pasture
grass	pasture and PPC riparian area
grass	pasture
grass	pasture
—	Rinseate blank

JPall (33)

April 24, 2016

Parcel 2a Soil Sampling

Personnel: O'Neil

Weather: 45°F, W wind, pty cloudy

Safety: Terrain hazards/slope, rocks, trash

Parcel 2a Soil Sampling

DU	Sample	Time	Composite Texture	photo
10	P2a-DU10-SS	0815	S:L	✓
10	P2a-DU10-MSMSD-SS	0825	S:L	—
10	P2a-FD4-SS	0835	—	—
19	P2a-DU19-SS	0920	S:L	✓
20	P2a-DU20-SS	1005	S:C	✓
21	P2a-DU21-SS	1055	S:C	✓
24	P2a-DU24-SS	1140	S:C	✓
25	P2a-DU25-SS	1225	S:C	✓
26	P2a-DU26-SS	1310	S:C	✓
27	P2a-DU27-SS	1400	S:L	✓
—	P2a-RB5	1415	—	—

(34) O'Neil

4/24/16

Site Cover	Notes
grass	pasture and PPC riparian area
—	DU10 MSMSD
—	DU10 field dup
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
grass	pasture
—	Rinsatch blank

O'Neil (35)

May 5, 2016

Parcel 15 Soil Sampling

Personnel: DPall

Weather: 50°F, W wind, pty cloudy

Safety: Be careful of traffic

Parcel 15 Soil Sampling

DU	Sample	Time	Composite Texture	Photo
1	P15-DU1-SS	0700	S: C	✓
2	P15-DU2-SS	0815	S: C	✓
3	P15-DU3-SS	0915	S: C	✓
4	P15-DU4-SS	1010	S: C	✓
5	P15-DU5-SS	1115	S: C	✓
6	P15-DU6-SS	1210	S: C	✓
7	P15-DU7-SS	1630	S: C	✓
8	P15-DU8-SS	1730	S: C	✓
9	P15-DU9-SS	1825	S: C	✓
10	P15-DU10-SS	1930	S: C	✓
10	P15-DU10-MSMSD-SS	1940	—	—
10	P15-FD1-SS	1950	—	—
—	P15-AFBI	2000	—	—
—	P15-RBI	2010	—	—

(36) JHw

5/5/16

Site Cover	Notes
grass	grassland
grass	grassland
grass & stubble	grassland/cropland
grass/stubble	grassland/cropland
stubble	cropland
grass & stubble	grassland/cropland
grass & stubble	grassland/cropland
stubble	cropland
stubble	cropland
—	DU10 MSMSD
—	DU10 field dup
—	Ambient field blank
—	Rinsate blank

DPM (37)

May 8, 2016

Parcel 15, 21 Soil Sampling

Personnel: JPull

Weather: 55°F, w wind, pthly cloudy

Safety: Be careful RR and highway crossings

Parcel 15, 21 Soil Sampling

DU	Sample	Time	Composite Texture	photo
11	P15-DU11-SS	0750	SIC	✓
12	P15-DU12-SS	0850	SIC	✓
12	P15-DU12-MSMSD-SS	0855	—	—
12	P15-FD2-SS	0900	—	—
13	P15-DU13-SS	1010	SIC	✓
14	P15-DU14-SS	1115	SIC	✓
15	P15-DU15-SS	1210	SIC	✓
16 (Parcel 21)	P21-DU16-SS	1320	SIL	✓
—	P21-AFBI	1330	—	—
—	P21-RBI	1340	—	—
A1	P15-DUA1-SS	1445	SIC	✓
A2	P15-DUA2-SS	1550	SIC	✓
A3	P15-DUA3-SS	1645	SIC	✓
A4	P15-DUA4-SS	1740	SIC	✓
A5	P15-DUA5-SS	1855	SC	✓
A5	P15-DUA5-MSMSD-SS	1900	—	—
A5	P15-FD3-SS	1905	—	—

(38)

JPull

5/8/16

Site Layer	Notes
grass/weeds	cropland/weed cover
weeds	cropland/weeds
—	DU12 MSMSD
—	DU12 field dup
stubble	cropland, rocky soil
stubble/weeds	cropland/weeds
stubble/weeds	cropland/weeds
grass and trees	rangeland
—	Ambient field blank
—	Rinsate blank
grass	grassland
grass	grassland
grass	grassland
grass	METG facilities area
grass/arena	Rodeo grounds/gravels and arena sand
—	DUA5 MSMSD
—	DUA5 field dup

JPull (39)

APPENDIX D
LABORATORY REPORTS
WITH CHAIN OF CUSTODY FORMS

